COST AND MANAGEMENT ACCOUNTING – REVISION BOOK

How to effectively use this book:

- Revision book covers past 11 RTP and exams
- Past experience indicates that minimum 70 percent of marks are asked from the past RTP and exam questions
- Please refer to this video to get a better perspective on how to use this revision material - https://youtu.be/eHgxVUCI5QI
- **Stage One:** Please read the theory for every chapter. Theory coverage would be sufficient to cover all practical theory questions and the same can help in answering problems
- **Stage two:** Start solving problems from individual chapters after completing theory. Try solving the question and in case you are stuck then please refer the summary of adjustments section. Summary of adjustments section has the guidance to solve a question
- **Stage three:** In case you are still not able to solve the question then please refer institute RTP and suggested answer to understand the question
- **Revision day before exam:** Please revise theory and summary of adjustments day before exam as the same can help in answering wide variety of questions. Also you can effectively work on various adjustments by quickly revising summary of adjustments section.

Solutions to questions:

- Below link has the compilation of past 11 RTP and exams. You can search for the question in the attachment and then look at the detailed solution for the same
- The link for the answer book is given below
  https://drive.google.com/open?id=1G9zg2p7UEDnb3098xv0JPxrNHYPNUqVd

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❖ Unit and batch costing (Chapter 8) ❖ Job and contract costing (Chapter 9) ❖ Service costing (Chapter 12) ❖ Process and Operation costing (Chapter 10) ❖ Joint and By-product costing (Chapter 11)	25 to 30%
❖ Standard costing (Chapter 13) ❖ Marginal costing (Chapter 14) ❖ Budgets and Budgetary Control (Chapter 15)	20 to 25%

KEY FORMULAE

Chapter 1: Introduction to cost and Management Accounting

Cost units:

Industry	Cost unit
Transport	Passenger KM or Tonne KM
Brewing	Barrel
Coal mining	Tonne/ton
Engineering	Contract, job
Brick-making	1,000 bricks
Gas	Cubic feet
Power	Kilo-watt hour
Hotel	Room days or meal
Hospital	Patient days
Steel	Tonne
Oil	Barrel, tonne, litre
Automobile	Numbers
Cement	Tonne/bag
Chemicals	Litre, gallon, Kilogram, tonne etc
Credit control	Accounts maintained
Selling	Customer call, value of sales, orders taken
Materials storage/handling	Requisition unit received/issued
Personnel administration	Personnel record

Method of costing:

Industry	Method of costing	Suggestive cost unit
Transport	Operating Costing	Passenger KM or Tonne KM
Power	Operating costing	Kilowatt hours
Hotel	Operating costing	Room days
Hospital	Operating costing	Patient days
Steel	Process costing /Single costing	Tonne
Coal	Single costing	Tonne
Bicycles	Multiple costing	Number
Bridge construction	Contract costing	Project/unit
Interior decoration	Job costing	Assignment
Advertising	Job costing	Assignment
Furniture	Job costing	Number
Brick works	Single costing	Per unit
Oil refining mill	Process costing	Barrel/tonne/litre
Sugar company	Process costing	Tonne
Toy making	Batch costing	Units
Cement	Single costing	Tonne
Radio assembling	Multiple costing	Units
Ship Building	Contract costing	Project/unit

Chapter 2 – Material Cost

Economic Order Quantity

It is the quantity to be ordered at which the total cost will be minimum. In other

words EOQ is the ordering quantity at which Carrying cost will be equal to ordering cost.

EOQ can be calculated by using the formula:

$$\textbf{EOQ} = \sqrt{(2AB) \div CS}$$

Where **A** = Annual consumption; **B** = Ordering cost per order
CS = Cost of carrying and storage per unit per annum

Number of orders to be placed = **A ÷ EOQ**

Level	Formula
1. Minimum level	ROL – (Normal consumption * Normal lead time)
2. Maximum level	ROL + ROQ – (Minimum consumption * minimum lead time)
3. ROL	Maximum lead time * maximum usage **(or)** Minimum level + (Normal consumption * Normal lead time)
4. Average level	(Maximum level + Minimum level) / 2 (or) Minimum level + (ROQ/2)
5. Danger level	Normal consumption * Lead time for emergency purchases

Inventory Turnover Ratio = RM consumed / Average stock
Number of days inventory is maintained = 365 / Inventory Turnover Ratio

Chapter 3: Employee Cost and Direct Expenses

Formulae for various labour plans:

1. **Time rate plan:** Amount of wages = Time taken * rate/hour
2. **Piece rate plan:** Amount of wages = Production * rate/unit
3. **Halsey premium plan-** this system is also known as Split Bonus Plan or 50-50 plan.
   Earnings = (Time Taken X Hourly Rate) + 50% of Time Saved X Hourly Rate.

4. **Halsey-weir premium plan**.
   Earnings = (Time Taken X Hourly Rate) + 30% of Time Saved X Hourly Rate.

5. **Rowan Premium plan**

   Earnings = (Time Taken X Hourly Rate) + (Time Taken/Standard Time X Time Saved X Hourly Rate)

6. **Taylor differential piece rate system** - According to this system wages will be calculated as follows.
   a. It the output is below standard 83% of piece rate
   b. If the output is at or above standard 125% of piece rate

7. **Merrick Multiple Piece Rate System**.

Efficiency	*Piece rate applicable*
1. Up to 83%	Basic normal piece rate.
2. From 83% to 100%	110% of basic piece rate.
3. Above 100%	120% or 130% of basic piece rate.

8. Gantt Task and Bonus Scheme

Output	*Remuneration*
1. Output below standard	Time rate (guaranteed)
2. Output at standard level	Bonus of 20% of the time rate
3. Output above standard	High piece rate

9. Emerson Efficiency Plan – Under this plan hourly rate is guaranteed.

- Bonus payment starts at the rate of 01% of basic wages at 66.67% efficiency and gradually increases as the performance increases.
- At 90 % efficiency level the bonus is 9.91% and at 100% bonus is 20%.
- The appropriate bonus percentage is read off from specially compiled tables.
- Above100% efficiency a worker in addition to his wages will get a bonus of 20% plus for every one percent increase in efficiency one percent increase in bonus.

10. Bedaux points system

Earnings = Hours worked * Rate per hour + $3/4^{th}$ of time saved * Rate per hour

11. Barth plan - Under this system the workers are paid as follows.

Earnings = Hourly rate X $\sqrt{\text{Standard hours}}$ X Hours worked

Labour Turnover:

Formulae when new recruitment is not considered:

1. Separation method = No. of employees separated * 100 / Average labour force
2. Replacement method = No. of replacements * 100 / Average labour force

Formulate when new recruitment is considered:

1. New recruitment method = New recruitments (excluding replacements) * 100 / Average labour force
2. Accession method = New recruitments (including replacements) * 100 / average labour force
3. Flux Method = (Separations + New recruitments) * 100 / average labour force

Treatment of overtime premium in cost accounting:

- If overtime is worked as a policy = Calculate average inflated wage rate including overtime premium and consider the same on number of hours
- If overtime is irregular to meet the production requirement = Consider overtime as a factory overhead and charge the same to the job
- If overtime is to meet the request of the customer = Charge the actual amount paid as wages to the customer

Chapter 4: Overheads – Absorption Costing Method:

Primary and Secondary distribution-Direct redistribution

	Overhead	Basis of distribution
1.	Indirect material	Direct material
2.	Indirect wages	Direct wages
3.	Electric power	Horse power of machines – KWH
4.	Electric light	Light points, floor space, direct (if metered)
5.	Plant depreciation, repairs	Value of plant, HP of Machines
6.	Delivery expenses	Weight, volume, value etc.
7.	Audit fee	Sales or total cost

8.	Supervision	Number of employees
9.	PF & ESI	Direct wages
10	Rent, rates, depreciation, repairs-building	Floor space
11.	Storekeeping, internal transport	Value of materials handled
12	Advertising, sales expenses	Actual or percentage of sales
13.	Personnel, time keeping and wages office, canteen, staff welfare, safety	Number of employees or total wages
14.	Miscellaneous, General Expenses, Sundries.	Direct wages

Methods for distribution of overheads:

1. Direct re-distribution method
2. Step method or non-reciprocal method
3. Reciprocal services method
    a. Simultaneous equations method
    b. Repeated distribution method
    c. Trial and error method

Computation of cost of job:

- **Step 1:** Prepare primary overhead distribution statement
- **Step 2:** Prepare secondary overhead distribution statement
- **Step 3:** Compute overhead absorption rate using the formula
    - OAR = Budgeted overheads/Budgeted suitable base
- **Step 4:** Compute cost of the job using the following format:

Particulars	Amount
Direct Material	XXX
Direct Labour	XXX
Overheads (OAR * Actual suitable base)	XXX
Total cost	**XXX**
Profit	XXX
Selling Price	**XXX**

Commonly used methods for absorbing overheads:

- Following are the commonly used method for absorbing overheads:
    - ✓ Percentage of direct materials
    - ✓ Percentage of prime cost
    - ✓ Percentage of direct labour cost
    - ✓ Labour hour rate
    - ✓ Machine hour rate and
    - ✓ Rate per unit of output

Treatment of under/over absorption:

When under/over absorption is very small	Transfer the entire amount to costing profit & loss account
Large under/over absorption due to abnormal reasons	Transfer the entire amount to costing profit & loss account
Large under/over absorption due to normal reasons	Calculate supplementary recovery rate (SRR) and charge the amount to units sold, units unsold and units in process

	SRR = **Amount of normal under-absorption** / **Units produced (including WIP)**

Note: Under/over absorption overheads can also be carried forward to the next year and recovered in the next year

Chapter 5: Activity Based Costing

Cost Object: It is an item for which cost measurement is required e.g. a product, a job or a customer.

Cost Driver: It is the factor that causes a change in the cost of an activity. Instead of using the term 'allocation bases' or 'overhead allocation rates' the term cost driver is used in ABC system. They are classified into:

- **Resource Cost Driver**: It is a measure of the quantity of resource consumed by activity. It is used to assign the cost of a resource to an activity or cost pool. An example of a resource cost driver is the percentage of total square feet occupied by an activity. This factor is used to allocate a portion of the cost of operating the facilities to the activity.

- **Activity Cost Driver**: It is a measure of the frequency and intensity of demand, placed on activities by cost objects. It is used to assign activity costs to cost objects. Activity cost drivers can be transaction drivers (e.g. No. of purchase orders processed, no. of customer orders processed, etc.) as well as duration drivers (it represent amount of time required to perform an activity e.g. Setup hours, inspection hours, etc.).

Activities: Activities comprise of units of work or tasks. For example, purchase of materials is an activity consisting a series of tasks like purchase requisition, advertisement inviting quotations, identification of suppliers, placement of purchase order, follow-up etc.

Application Theory - Types of Activities: Activities basically fall into four different categories, known as the manufacturing cost hierarchy. These categories were first identified by *Cooper* in 1990 and help to determine the type of activity cost driver required. The categories are:

(i) Unit level activities: These are activities for which the consumption of resources can be identified with the number of units produced. E.g. Use of indirect materials, Inspection or testing of every item produced or say every 100th item produced, Indirect consumables, etc.

(ii) Batch level activities: The costs of some activities (mainly manufacturing support activities) are driven by the number of batches of units produced. These are activities related to setting up of a batch or a production run. The costs of such activities vary with the number of batches made, but is fixed for all units within that batch. E.g. Production scheduling, Material movement, Machine set up costs, Inspection of products – like first item of every batch, etc.

(iii) Product level activities: The costs of some activities (often once only activities) are driven by the creation of a new product line and its maintenance. These are activities performed to support different products in the product line. E.g. Designing the product, Producing parts to a certain specification, Advertising costs, if advertisement is for individual products, etc.

(iv) Facility level activities: These are activities necessary for sustaining the manufacturing process and cannot be directly attributed to individual products. E.g. Maintenance of buildings, Plant security, Production manager's salaries, Advertising campaigns promoting the co., etc.

Basic understanding of ABC System:

In an ABC system the costs are initially allocated to the various activities and thereafter based on activity cost drivers the same are allocated to the cost objects.

For example: Rent of the factory would be allocated to the various activities such as stores department, purchasing department etc. Thereafter the stores department costs would get allocated to the various products (Cost objects) based on the number of stores requisition of each of the materials handled.

ABC System vs Traditional system:

Example: A company incurs total overheads of Rs.2,00,000 and manufacture two products A and B. The total machine hours used by A are 5000 and by B is 15000 hours.

Traditional system:

In the traditional system the costs are allocated based on machine hours and a total of Rs.50000 and Rs.150000 is allocated for product A and B respectively.

ABC System:

In the ABC system the total overheads are subdivided into various major activities and based on the cost driver the costs are allocated to the products.

The amount of Rs.2,00,000 can be divided into the following in an ABC System:

- Machine running activity : Rs.1,20,000 ~ Allocated based on machine hours
- Machine set up costs : Rs.40,000 ~ Allocated based on setup hours ; Machine setup hours for A was 4000 and for B was 1000
- Inspection costs of Rs.40,000 ~ Allocated based on inspection time ; Inspection time for A was 2000 hours and for B was 3000 hours.

Step 1: Calculation of cost driver rate:

Activity	Total cost	Cost driver name	Cost driver quantity	Cost driver rate
Machine Running	1,20,000	Machine hours	20000 hours	Rs.6
Machine setup	40000	Setup time	5000 hours	Rs.8
Inspection costs	40000	Inspection time	5000 hours	Rs.8

Step 2: Apportionment of OH

Activity	Product A		Product B	
	CDQ	Amount	CDQ	Amount
Machine Running	5000	30000	15000	90000
Set-up	4000	32000	1000	8000
Inspection time	2000	16000	3000	24000
Total OH allocated		78000		120000

Chapter 6 – Cost Sheet

Format of Cost-Sheet:

Particulars	Amount	Amount
Direct Material Consumed		
Opening stock of RM	XXX	
Add: Purchases and other incidental expenses	XXX	
Less: Closing stock of RM	(XXX)	XXX
Direct employee (labour) cost		XXX
Direct expenses		XXX
Prime cost		**XXX**
Add: Works/factory overheads		XXX
Gross Works Cost		**XXX**
Add: Opening work-in-progress		XXX
Less: Closing work-in-progress		(XXX)
Works/factory cost		**XXX**
Add: Quality control cost		XXX
Add: Research and development cost		XXX
Add: Administrative overheads relating to production		XXX
Less: Credit for recoveries/scrap		(XXX)
Add: Primary packing cost		XXX
Cost of Production		**XXX**
Add: Opening stock of FG		XXX
Less: Closing stock of FG		(XXX)
Cost of goods sold		**XXX**
Add: General administrative overheads		XXX
Add: Selling and distribution overheads		XXX
Cost of sales		**XXX**
Profit		XXX
Sales		XXX

Chapter 7 – Cost Accounting System:

Ledgers maintained under non-integrated accounting system:

Ledger	Description
Cost Ledger Control Account	✓ This is also known as General Ledger Adjustment Account. This account is used to complete double entry
Stores Ledger Control Account	✓ This account records all inflow (debited) and outflow (credited) of raw material. ✓ Normal loss of raw material is transferred to overhead account whereas abnormal loss of raw material is transferred to costing profit and loss account
Wages Control Account	✓ This account is debited with entire wages paid. ✓ Direct wages is transferred to WIP control account and indirect wages is transferred to factory overhead control account. ✓ Wages for abnormal idle time is transferred to costing profit and loss account ✓ Non-productive of direct workers is to be treated as indirect wages and the same will be transferred to factory overhead control account
Factory Overhead Control Account	✓ This account is debited with overheads incurred ✓ The account is credited with overheads recovered and the same is transferred to WIP control account

Ledger	Description
	✓ The difference between debit and credit side is under/over absorption of overheads. This amount can be either carried forward to next year or be transferred to costing profit & loss account
Work-in-progress control account	✓ This account is debited with cost of production which would include Direct Material, Direct Labour, Direct Expenses and Factory overheads ✓ The production for the current year will be transferred to finished goods control account and the same would be credited in this account
Administration overhead control account	✓ This account is debited with overheads incurred ✓ The account is credited with overheads recovered and the same is transferred to FG Control account ✓ The difference between debit and credit side is under/over absorption of overheads. This amount can be either carried forward to next year or be transferred to costing profit & loss account
Finished Goods Control Account	✓ This account is debited with value of goods transferred from work-in-progress and administration overheads recovered. ✓ This account is credited with cost of units sold during the year and the same is transferred to cost of sales account
Selling and Distribution Account	✓ This account is debited with overheads incurred ✓ The account is credited with overheads recovered and the same is transferred to cost of sales account ✓ The difference between debit and credit side is under/over absorption of overheads. This amount can be either carried forward to next year or be transferred to costing profit & loss account
Cost of sales account	✓ This account is debited with cost of finished goods transferred from FG account as well as selling and distribution overheads account ✓ This account is closed by transferring the balance to costing profit and loss account
Sales account	✓ This account is credited with sales and the same is transferred to costing profit and loss account
Costing Profit and Loss Account	✓ This account records cost of sales, sales and under/over absorbed overheads ✓ Profit/loss for the year is transferred to cost ledger control account

Journal entries under non-integrated system:

Transaction	Journal Entry
Entries relating to raw material:	
Purchase of raw material	Stores Ledger Control A/c Dr To Cost Ledger Control A/c
Purchases for special job	WIP Control A/c Dr To Cost Ledger Control A/c
Return of materials to vendor	Cost Ledger Control A/c Dr To Stores Ledger Control A/c
Materials issued to production	WIP Control A/c Dr

Transaction	Journal Entry
	To Stores Ledger Control A/c
Materials issued for maintenance	FOH/AOH/SOH Control A/c Dr To Stores Ledger Control A/c
Material returned from shop to stores	Stores Ledger Control A/c Dr To WIP Control A/c
Normal loss of raw material	FOH Control A/c Dr To Stores Ledger Control A/c
Abnormal loss of raw material	Costing P& L A/c Dr To Stores Ledger Control A/c
Entries relating to direct wages	
Payment of wages	Wages control A/c Dr To Cost Ledger Control A/c
Analysis of wages into direct and indirect wages	WIP Control A/c Dr (Direct) FOH Control A/c Dr (Indirect) To Wages Control A/c
Abnormal idle time	Costing P& L A/c Dr To Wages Control A/c
Entries relating to direct expenses	
Incurrence of direct expenses	WIP Control A/c Dr To Cost Ledger Control A/c
Entries relating to overheads	
Incurrence of FOH / AOH / SOH	FOH / AOH / SOH Control A/c Dr To Cost Ledger Control A/c
Recovery of Manufacturing overheads	WIP Control A/c Dr To FOH Control A/c
Recovery of Administration overheads	FG Control A/c Dr To AOH Control A/c
Recovery of Selling Overheads	Cost of Sales A/c Dr To SOH Control A/c
Under recovery of overheads	Costing P& L A/c Dr To FOH/AOH/SOH Control A/c
Over recovery of overheads	FOH / AOH / SOH Control A/c Dr To Costing P & L A/c
Other entries	
Completion of production during the year	FG Control A/C Dr To WIP Control A/c
Recording cost of goods sold	Cost of sales A/c Dr To FG Control A/c
Recording sales	Cost Ledger Control A/c Dr To Sales A/c
Transfer of cost of sales	Costing P & L A/c Dr To Cost of sales A/c
Transfer of sales	Sales A/c Dr To Costing P&L A/c
Recording of Profit for the year	Costing P&L A/c Dr To Cost Ledger Control A/c
Recording of loss for the year	Cost Ledger Control A/c Dr To Costing P&L A/c

Format for reconciliation of profits:

S. No	Item	End book	Start book	Difference	Dr/Cr	Action	Difference

Explanation to the table:

Column reference	Explanation
1	Self-explanatory
2	Item causing the difference
3	Figure as per Ending book
4	Figure as per Starting book
5	Column 3 – column 4, only sign to be displayed
6	Debit to be denoted with – and Credit to be denoted with +
7	Column (5) * Column (6)
8	(3) – (4). Only amount to be displayed

Note:

- Reconciliation can be prepared in the statement or account form. In case of Memorandum Reconciliation Account all minus items will be debited and all plus items will be credited

Chapter 8 – Unit and batch costing:

Calculation of EBQ:

$\textbf{EBQ} = \sqrt{(2AB) \div CS}$ Where **A** = Annual Production; **B** = Set-up cost per set-up **CS** = Carrying cost per unit of production
Number of orders to be placed = **A ÷ EBQ**
Time lag between two orders = 365 / No. of orders
Total set-up cost = Number of orders * Set-up cost/order
Total Carrying cost = Average Inventory * Carrying cost/unit/annum
Average inventory = Quantity per order / 2

Chapter 9 – Job and contract costing:

Format of job cost sheet:

Particulars	**Amount**
Direct Materials	XXX
Direct wages	XXX
Production overhead	XXX
Production cost	**XXX**
Administration overhead	XXX
Selling & Distribution overhead	XXX
Total Cost	**XXX**
Profit/Loss	XXX
Selling Price	**XXX**

Format of contract account:

Contract Account for the period ended			
To Opening WIP Work certified	 XXX	By Closing material at site	XXX

Work uncertified	XXX		
To opening material at site	XXX	By closing plant at site	XXX
To Direct Material	XXX	By Cost incurred till date (B/F)	XXX
To Direct Labour	XXX		
To Direct Expenses	XXX		
To Plant and Machinery	XXX		
Total	**XXX**	**Total**	**XXX**
To cost incurred till date	XXX	By Closing WIP Work certified Work uncertified	 XXX XXX
To Costing P& L A/c (Notional Profit (B/f)	XXX		
Total	**XXX**	**Total**	**XXX**

Chapter 10 – Process and operation costing:

1. Input-output statement format:

Details	Units
Opening Stock	XXX
Add: Input/transfer from previous process	XXX
Total Input	XXX
Less: Closing stock	(XXX)
Processed Production	XXX
Less: Normal loss	(XXX)
Expected output (A)	XXX
Actual output (B)	XXX
Abnormal (loss) / gain (B-A)	XXX

2. Normal loss is unavoidable loss and it is computed either as a percentage of
    a. Input
    b. Total input
    c. Processed production
3. If the problem is silent then the normal loss is computed as a percentage of input
4. **Process a/c format:**

Particulars	Units	Amount	Particulars	Units	Amount
To opening stock	XXX	XXX	By Normal loss	XXX	XXX
To transfer from previous process	XXX	XXX	By abnormal loss	XXX	XXX
To material	-	XXX	By transfer to next process	XXX	XXX
To Direct labour	-	XXX	By Closing stock	XXX	XXX
To overheads	-	XXX			
To abnormal gain	XXX	XXX			
		XXX			**XXX**

5. Each line in the process account is ascertained independently using the applicable valuation rule:
    a. Normal loss – Realizable value
    b. Abnormal loss – cost price
    c. Closing stock – cost price
    d. Abnormal gain – cost price
    e. Transfer to next process – cost price

f. Cost price = (Debit side of process a/c excluding abnormal gain – sale value of normal loss) / (Total input – normal loss)

6. Equivalent units problem

Scenario 1 – FIFO Method – One Material:

Step 1: Prepare Input-Output Statement:

Particulars	Units
Opening WIP	XXX
Add: Input/transfer from previous process	XXX
Total Input	XXX
Less: Closing WIP	(XXX)
Processed Production	XXX
Less: Normal loss	(XXX)
Expected output (A)	XXX
Actual output (B)	XXX
Abnormal loss/gain (B-A)	XXX

Step 2: Statement of units started and completed:

Particulars	Units
Transfer to next process	XXX
Less: Opening WIP	(XXX)
Units started and completed	XXX

Step 3: Statement of equivalent units:

Particulars	Units	DOC	Equivalent units	Remarks
Further work on opening WIP	Step 1	XXX	XXX	100 – Given %
Units started and completed	Step 2	100%	XXX	100%
Normal loss	Step 1	0%	0	0%
Abnormal loss	Step 1	XXX	XXX	Given %
Abnormal gain	(Step 1)	100%	(XXX)	100% with units written in negative
Closing WIP	Step 1	XXX	XXX	Given %
Total	**XXX**		**XXX**	

Note:

- The total of the units column should be equal to total input of Step 1
- The equivalent units need to be computed for each component of cost namely material, labour and overheads

Step 4: Statement of cost per unit:

Particulars	Material	Labour	Overheads
Cost incurred	XXX	XXX	XXX
Less: Sale value of normal loss	(XXX)		
Net cost incurred	XXX	XXX	XXX
Equivalent units	XXX	XXX	XXX
Cost per equivalent unit	XXX	XXX	XXX

Step 5: Statement of Valuation:

Particulars	Material	Labour	Overheads	Total

Further work on opening WIP				
Units started and completed				
Abnormal loss				
Abnormal gain				
Closing WIP				
Total				

- Each item is valued by taking units from step 3 and cost per unit from step 4
- Transfer to next process = Opening WIP + Further work on Opening WIP + Units started and completed

Step 6: Prepare Process Account in the normal manner

Scenario 2 – Average Cost Method – One Material:

Following are the changes required in average cost method:

- Step 1 – No change
- Step 2 – Not required
- Step 3 – Opening WIP and units started and completed is replaced with transfer to next process. DOC to be taken up is 100%
- Step 4 – Opening WIP is considered for calculating the cost per unit and the format for the same is provided as under:

Particulars	**Material**	**Labour**	**Overheads**
Opening WIP	XXX	XXX	XXX
Cost incurred	XXX	XXX	XXX
Less: Sale value of normal loss	(XXX)		
Net cost incurred	**XXX**	**XXX**	**XXX**
Equivalent units	XXX	XXX	XXX
Cost per equivalent unit	**XXX**	**XXX**	**XXX**

- Step 5 – No change
- Step 6 – No change

Scenario 3 – FIFO Method – Two Materials:

- Two materials refer to a situation where there is a transfer of material from previous process and addition of material in the current process
- Material received from previous process is called as material A and material added in the current process is called as material B

Following changes are required while evaluating two materials problem:

Step 1	No Change
Step 2	No change
Step 3	✓ Material column is split as Material A and Material B ✓ DOC of Material B is taken as per the DOC given in the question ✓ DOC of Material A is taken as per pre-determined rule and the same is summarized below o Opening WIP = 0% o Units started and completed = 100% o Normal loss = 0% o Abnormal loss and gain = 100% o Closing WIP = 100%
Step 4	✓ Material column is split as Material A and Material B ✓ Sale value of normal loss is deducted from Material A

Step 5	No change
Step 6	No change

Scenario 4 – Average Cost Method – Two Materials:

- ❖ Same set of changes as we moved from FIFO one material to FIFO two material

Accounting treatment of normal and abnormal loss:

Particulars	Normal Loss	Abnormal Loss	Abnormal Gain
Recording of item	Normal loss A/c Dr To Process A/c	Abnormal loss A/c Dr To Process A/c	Process A/c Dr To Abnormal gain
Sale entry	Bank A/c Dr To Normal loss A/c	Bank A/c Dr To Abnormal loss A/c	-
Transfer of Abnormal gain to Normal loss	Abnormal Gain A/c To Normal Loss A/c	-	Abnormal Gain A/c To Normal Loss A/c
Transfer to net gain/loss to costing P&L	-	Costing P&L A/c Dr To Abnormal loss	Abnormal Gain Dr To Costing P&L

Chapter 11 – Joint products and by-products:

Various methods for distribution of joint costs:

Method	Basis of distribution
Physical units method or average unit cost method	✓ Joint cost is distributed in the ratio of the number of units
Net realizable value at split off method	✓ Joint cost is distributed on the basis of NRV ✓ NRV is calculated using the below format
Technical estimates	✓ Certain joint products may consume more of the joint cost resources and hence points need to be given to them ✓ Joint cost is distributed on the basis of units * points
Market value at the point of separation	✓ Joint cost is distributed on the basis of market value at split-off point
Market value after further processing	✓ Joint cost is distributed on the basis of the market value after further processing
Contribution margin method	✓ Joint cost is split as variable cost and fixed cost ✓ Variable cost is split on the basis of physical units or average cost ✓ Fixed cost is split on the basis of contribution

Particulars	Amount
Sales value after further processing	XXX
Less: Estimated profit margins	(XXX)
Less: Selling & distribution costs	(XXX)
Less: Further processing costs	(XXX)
NRV	XXX

Methods of apportioning joint costs to by-products:

Net Realizable Value Method	✓ Under this method the NRV of the by-product may be deducted from the total joint cost to arrive at the cost of the main product
Standard cost in	✓ By-products are valued at standard costs which are

technical estimates	determined on the basis of past costs or making some technical estimates
Comparative price	✓ Value of the by-product is ascertained with reference to the price of a similar or an alternative material
Re-use basis	✓ By-products can be reprocessed in the same process as part of the input of the process. Hence in that case the by-product cost should be same as that of the materials introduced in the process

Treatment of by-product cost in cost accounting:

When they are of small value	✓ Sale value of the by-products can be credited to costing profit and loss account and be treated as miscellaneous income or additional revenue ✓ Sale value can also be shown as deduction from the total cost
When the by-products are of considerable total value	✓ In this case the joint products are to be treated as joint products
Where they require further processing	✓ In this case NRV of the by-product at the split off point is determined. If the NRV is small then it is treated as per point (a) and if NRV is considerable then the same is treated as per point (b)

Chapter 12 – Service costing:

Cost units for various service industries:

Service Industry	Unit of cost
Transport services	Passenger Kilometres, Quintal Kilometres, Ton-KM
Electricity supply	Kilowatt hours
Hospital	Patient days, room days, per bed, per operation
Canteen	Per item, per meal
Cinema	Per ticket
Hotels	Guest days or room days
Bank of financial institutions	Per transaction or per service
Educational institutions	Per course, per student, per batch, per lecture
IT & ITES	Cost per project, per module
Insurance	Per policy, per claim, per TPA

Format of operating cost sheet:

Particulars	**Calculation**	**Amount**
Fixed costs or standing charges		
Depreciation		XXX
Tax		XXX
Insurance		XXX
Stationery		XXX
Manager's salary		XXX
Garage Rent		XXX
Driver's salary		XXX
Conductor's salary		XXX
Total fixed costs		**XXX**
Variable costs or running charges		

Diesel and Oil		XXX
Total Variable costs		**XXX**
Semi-variable costs or maintenance charges		
Repairs		
Total semi-variable costs		**XXX**
Total costs		**XXX**

Chapter 13 – Standard costing:

1. Standard costing system reconciles budgeted profit and actual profit
2. The difference between the two profits is called as profit variance and hence this chapter is also called as variance analysis
3. The profit variance is analyzed as:
    a. Sales Variances
    b. Cost variances
        i. Material cost variances
        ii. Labour cost variances
        iii. Overhead cost variances
            1. Variable overhead variances
            2. Fixed Overhead Variances

If a variance increases actual profit it is called "favorable" (F) and if it decreases actual profits it is called "adverse" (A)

Understanding different costs:

1. Budgeted cost refers to the cost to be incurred for the budgeted output
2. Standard cost refers to the allowable cost for the actual output. In short standard cost is nothing but budgeted cost flexed to actual output.
3. Actual cost refers to the cost incurred by the company in producing the output
4. Cost variance is the difference between standard cost and actual cost and not the budgeted and actual cost

Fill the following:

Budgeted output = 20000 units Standard cost p.u = 20 Actual output = 12000 units and Actual cost = 2,88,000

1. Budgeted cost =
2. Actual cost =
3. Standard cost =
4. Cost variance =

Material Variances:

1. In order to compute the material variances we require the following information
    a. Standard Quantity – This is the budgeted quantity flexed for actual output
    b. Revised standard quantity – This is the total of the actual quantity apportioned in the standard mix. This is applicable only when there is more than one material
    c. Actual quantity – Actual quantity used and this is normally directly given in the problem
    d. Standard price – This is the budgeted price to be paid for procuring the material
    e. Actual price – This refers to the actual price paid for procuring the raw materials

2. The objective of variance analysis is to fix responsibility and take corrective action wherever required. They are attention seekers rather than the problem solvers
3. Material variances compute the difference between the standard material cost and the actual material cost and fix the responsibility for the variances. The variance can either occur on account of quantity or price variances

Computation table for Material Variances calculation:

SP * SQ	SP * RSQ	SP * AQ	AP * AQ
Standard material cost			Actual Material cost

Note: In case there is only one material SP* RSQ is not to be computed as there cannot be mix variance and the variance computed are only cost, price and usage variance

Types of problems under material variances:

- Single material
- Multiple material

Labour Variances:

1. In order to compute the labour variances we require the following information
    a. Standard Hours – This is the budgeted hours flexed for actual output
    b. Revised standard hours – This is the total of the actual hours worked **(not actual hours paid)** apportioned in the standard mix. This is applicable only when there is more than one grade of labour
    c. Actual hours worked – This refers to the number of hours actually worked. AHW = Actual hours paid – Idle time
    d. Actual Hours paid – This refers to the number of hours for which the company is paying. Actual hours worked and actual hours paid are different only when there is idle time because idle time refer to hours paid but not worked
    e. Standard rate – This is the budgeted rate to be paid to the labour
    f. Actual rate – This refers to the actual rate paid for using the labour
2. Labour variances compute the difference between the standard labour cost and the actual labour cost and fix the responsibility for the variances. The variance can either occur on account of efficiency or rate variances

Computation table for labour Variances:

SR * SH	SR * RSH	SR * AHW	SR * AHP	AR * AHP
Standard labour cost				Actual labour cost

Types of problems under labour variances:

- Single labour without idle time (Column 2 & Column 4 are not applicable)
- Single labour with idle time (Column 2 is not applicable)
- Multiple labour without idle time (Column 4 is not applicable)
- Multiple labour with idle time (All columns are applicable)

Variable overhead Variances:

1. In order to compute the Variable OH variances we require the following information
    a. Standard Hours – This is the budgeted hours flexed for actual output

b. Actual Hours– This refers to the number of hours actually worked. It does not include idle time as it is assumed that the company does not incur variable overheads during idle time
c. Standard rate per hour – This is the budgeted rate to be incurred every hour and is calculated by dividing the budgeted hours from budgeted variable overheads. {SR. per hour = Budgeted VOH / BH}
d. Actual rate per hour – This refers to the actual rate incurred on variable overheads

2. VOH variances compute the difference between the standard VOH cost and the actual VOH cost and fix the responsibility for the variances. The variance can either occur on account of efficiency or rate variances

Computation table for VOH Variances:

SR * SH	SR * AH	AR * AH
Standard VOH cost		Actual VOH Cost

Conversion factor when information on output is given but hours not directly available:

- SR/per hour * SH = SR/per unit * AO
- SR/per hour * AH = SR/per unit * SO

Note:

- SR/per unit = Budgeted VOH / Budgeted units
- **Logic behind conversion:** The standard hours are always calculated with the help of the actual output and hence they standard hours are equated to actual output.

Fixed Overhead variances:

1. In order to compute the Fixed OH variances we require the following information
   a. Actual output or standard hours
   b. Actual Hours or standard output
   c. Standard rate per hour – This is the budgeted rate to be incurred every hour and is calculated by dividing the budgeted hours from budgeted variable overheads. {SR. per hour = Budgeted FOH / BH}
   d. Actual rate per hour – This refers to the actual rate incurred on fixed overheads
   e. Possible FOH = BFOH * AD/BD

Computation table for VOH Variances:

AO * SR	AFOH	BFOH	AH * SR	PFOH
FOH absorbed	FOH incurred			

FOH ratios:

1. Volume or activity ratio = Standard hours / Budgeted hours * 100
2. Efficiency ratio = Standard hours / actual hours * 100
3. Capacity ratio = Actual hours / Possible hours * 100
4. Calendar ratio = Possible hours / Budgeted hours * 100

Single Plan and partial plan accounting:

- In partial plan accounting the WIP is first debited with actual cost and thereafter the variance are debited or credited. When the variances are adjusted the WIP value is brought to the standard cost.
- In single plan accounting the WIP is debited with the standard cost and the variances are adjusted in the respective ledger accounts.

Journal Entries (all entries are made assuming adverse variances. In case the variance is favorable then it will be the reverse entry)

Transaction	Single	Partial
Purchase of RM	RM Control A/c MPV A/C To GL Adjustment A/c	RM Control A/c To GL Adjustment A/c
Issue of raw material to stores	WIP Control A/c MUV A/c To RM Control A/c	WIP Control A/c To RM Control A/c
Recognition of MPV and MUV	Already recognized	MPV A/c MUV A/c To WIP Control A/c
Disposal of MPV and MUV	Costing P & L A/c To MPV A/c To MUV A/c	Costing P & L A/c To MPV A/c To MUV A/c
Payment of wages	Wages control A/c LRV A/c To GL Adjustment A/c	Wages control A/c To GL Adjustment A/c
Transfer of wages to WIP	WIP Control A/c LEV A/c To Wages Control A/c	WIP Control A/c To Wages Control A/c
Recognition of LRV and LEV	Already recognized	LRV A/c LEV A/c To WIP Control A/c
Disposal of LRV and LEV	Costing P& L A/c To LRV A/c To LEV A/c	Costing P& L A/c To LRV A/c To LEV A/c

Note: Similar entries are to be recorded for overheads

Chapter 14 – Marginal Costing:

Marginal Cost Statement:

Particulars	Per Unit	Total
Sales	XXX	XXX

Less: Variable Costs	(XXX)	(XXX)
Contribution	XXX	XXX
Less: Fixed Costs		(XXX)
Profit		XXX

Note:

1. The profit of the company does not vary with the change in sales on account of fixed costs. Hence therefore change in contribution = change in sales.
2. The cost does not vary according to volume because of existence of fixed costs. Hence change in total cost = change in variable cost

Important formulae:

1. PV Ratio = Contribution / Sales (or) Fixed cost / Breakeven sales (or) Profit / Margin of safety PVR measures the extent of change in contribution/profit on account of change in sales. Net profit ratio keeps on changing for different sale amounts whereas PVR is constant.
2. BEP = Fixed cost / Contribution per unit (or) Fixed cost / Profit Volume Ratio (or) BEP (in units) * SP BEP refers to the sales level at which the company earns no profit and no loss. This can be either expressed in units or rupees. If expressed in units it is called BEP and if expressed in rupees it is called Break even sales. Moreover at BEP, contribution = fixed cost and sales = total cost
3. MOS (units) = Actual units – BEP (or) Profit / Contribution per unit
4. MOS (Rs.) = MOS(units) * SP (or) Actual sales – Breakeven sales (or) Profit / PV Ratio MOS is the sales over and above the breakeven sales. It is the extent of allowable drop in sales before the company starts incurring losses
5. Sales to earn desired profit = Target Profit + Total fixed cost / PVR
6. Profit at sales level = (Sales * PVR) – Total fixed cost

Profitability statement under absorption and marginal costing:

Income statement under absorption costing:

Particulars	Calculation	Amount
Variable manufacturing costs	Units produced * Cost per unit	XXX
Fixed manufacturing costs (absorbed)	Units produced * OAR	XXX
Cost of production		**XXX**
Add: Opening FG	Units * Cost per unit	XXX
Less: Closing FG	Units * Cost per unit	(XXX)
Cost of goods sold		**XXX**
Variable non-manufacturing costs	Units sold * Cost per unit	XXX
Fixed non-manufacturing costs		XXX
Cost of sales		**XXX**
Add/Less: Under/over absorbed overheads		XXX
Revised cost of sales		**XXX**
Profit (Balancing figure)		XXX
Sales		**XXX**

Income statement under marginal costing:

Particulars	Calculation	Amount
Sales	Units sold * Selling Price	XXX
Less: Variable costs	Note 1	(XXX)
Contribution		**XXX**
Less: Fixed costs	Fixed manufacturing + fixed non-manufacturing costs	XXX
Profit		**XXX**

Working Note 1: Calculation of Variable costs:

Particulars	Calculation	Amount
Variable manufacturing costs	Units produced * Cost per unit	XXX
Add: Opening FG	Units * Cost per unit	XXX
Less: Closing FG	Units * Cost per unit	(XXX)
Variable cost of goods sold		**XXX**
Add: Variable non-manufacturing costs	Units sold * Cost per unit	XXX
Total costs		**XXX**

Limiting factor:

- Limiting factor is one which acts as a bottleneck and limits the company's ability to serve the demand of the external market
- Limiting factor is a situation where in the demand for the limiting factor is always greater than the supply for the limiting factor
- **Example:** RM availability, Labour availability, Machine availability

Steps for solving Limiting factor problems:

1. Identify the limiting factor – Limiting factor is one whose demand is more than supply
2. Calculate the contribution per unit of limiting factor and rank the products with maximum contribution being top ranked product

Particulars	Product A	Product B	Product C
Selling Price	XXX	XXX	XXX
Less: Variable cost	(XXX)	(XXX)	(XXX)
Contribution per unit (A)	**XXX**	**XXX**	**XXX**
No. of limiting factors required per unit (B)	XXX	XXX	XXX
Contribution per unit of limiting factor (A/B)	**XXX**	**XXX**	**XXX**
Rank	**XXX**	**XXX**	**XXX**

3. Use the following format for allocation of resources:

Product	No. of units	Units of limiting factor per unit	Limiting factor consumed	Total contribution

Chapter 15 - Budgets and Budgetary Control:

Functional Budgets:

Production Budget:

Particulars	Units
Sales of FG	XXX

Add: Closing Stock of FG	XXX
Less: Opening stock of FG	(XXX)
Production	XXX
Cost per unit	XXX
Total production cost	XXX

RM Consumption budget:

Particulars	Units
Desired production	XXX
Number of RM required per unit	XXX
RM consumed (Production * Input/Output)	XXX

RM Purchase budget:

Particulars	Units
RM Consumed	XXX
Add: Closing Stock of RM	XXX
Less: Opening stock of RM	(XXX)
RM to be purchased	XXX
Purchase price	XXX
Value of purchases	XXX

Manpower budget:

Particulars	Units
Desired production	XXX
Number of hours per unit	XXX
Total hours required	XXX
Normal working hours per employee	XXX
Number of employees	XXX
Total labour cost	XXX

Budget ratios:

- Budget ratio provides information about the performance level. If the ratio is more than 100%, then the performance is considered as favourable. If the ratio is less than 100%, then the performance is considered as adverse
- Following are the various ratios:

Efficiency ratio = Standard Hours / Actual hours
Activity ratio = Standard hours / Budgeted hours
Calendar ratio = Actual working days / Budgeted working days
Standard capacity usage ratio = Budgeted hours / Maximum possible hours
Actual capacity usage ratio = Actual hours / Maximum possible hours
Actual usage of budgeted capacity ratio = Actual hours worked / budgeted hours

SUMMARY OF ADJUSTMENTS

Qn	Summary of adjustment
	Chapter 1: Introduction to cost and management accounting
1	❖ Operating costing (Passenger KM/Tonne KM), Process costing (Tonne), Multiple costing (Number), Contract costing (Project)
2	❖ Operating costing (Room days), Batch costing (batches),Process costing (Tonne), Contract costing (Project)
3	❖ Imputed cost, Opportunity cost, Shut down cost and Product cost
4	❖ Tonne, Numbers, Passenger KM/Tonne KM, Kilo Watt hours
5	❖ Job costing, Batch costing, Multiple costing, Single or output costing
	Chapter 2: Material cost
1	❖ Calculation of inventory levels – No special adjustment ❖ ROQ = EOQ = SQRT (2 * Annual demand * Ordering cost/order/carrying cost per unit per annum) ❖ ROL = Maximum consumption * Maximum lead time ❖ Minimum level = ROL – (Normal consumption * Normal lead time) ❖ Maximum level = ROL + ROQ – (Minimum consumption * Minimum lead time) ❖ Danger level = Normal consumption * Lead time for emergency purchases ❖ **Carrying cost per unit is to be calculated as a percentage of purchase price**
2	❖ EOQ is computed for the raw material and hence the demand for FG is to be converted into demand of RM ❖ **Annual demand of RM = Annual demand of FG * (Input/Output)** ❖ Carrying cost per unit is to be computed as a percentage of purchase price and the same is then applied on average inventory to get total carrying cost ❖ EOQ = SQRT (2 * Annual demand * Ordering cost/order/carrying cost per unit per annum) ❖ **EOQ Versus Discount:** Calculate total inventory cost for both options and select the one which has lower cost. Total inventory cost = Total ordering cost + Total carrying cost + Total material cost ❖ Total ordering cost = No of orders * Ordering cost per order; No of orders = Annual demand of RM / Quantity per order ❖ Total carrying cost = Carrying cost per unit * Average inventory; Average inventory = (Quantity per order/2). **Carrying cost per unit is to be taken as a percentage of purchase price and hence the same will be lower when 2 percent discount is offered** ❖ Material cost = Annual demand of RM * Purchase Price. We need to consider lower purchase price in the quantity discount model
3	❖ **Consumption per day = Annual consumption / 300 working days. This will be considered as maximum, minimum and average consumption per day due to absence of additional information** ❖ **Re-order period = 10 days. This will be taken as maximum, minimum as well as average lead time due to absence of information** ❖ EOQ = SQRT (2 * Annual demand * Ordering cost/order/carrying cost per unit per annum) ❖ ROL = (Maximum consumption + Maximum lead time) + Safety stock ❖ Maximum level = ROL + ROQ – (Minimum consumption * Minimum lead time) ❖ Average level = (Minimum level + maximum level)/2 (or) Minimum level + 50% of EOQ ❖ **Safety stock is buffer stock maintained by the company and the same needs to be added to every inventory level such as maximum level, minimum level, re-order level, average inventory etc. In this question we have added it to ROL and**

Qn	Summary of adjustment
	the same gets automatically considered in the other formulae due to higher ROL
4	❖ Ordering cost per order = Handling cost + Freight cost ❖ Carrying cost per unit = Working capital finance + (Monthly CC * 12) ❖ Annual demand of RM = Annual production * (Input/Output) ❖ EOQ = SQRT (2 * Annual demand * Ordering cost/order/carrying cost per unit per annum) ❖ Time gap between two orders = 360/Number of orders ❖ We need to compute total inventory cost for EOQ option. We will assume purchase price as X under quantity discount model. We need to equate the cost to the one calculated for EOQ option and solve X. Compare X with original purchase price and get the percentage of discount
5	❖ Average lead time is 6 days Hence (Min lead time + max lead time)/2 = 6 days ❖ (Maximum lead time – Minimum lead time) = 4 days ❖ Solving the above two points we will get minimum lead time = 4 days and maximum lead time = 6 days ❖ Use the formula of ROL and we would get maximum consumption per day ❖ Use the formula of maximum level and we would get minimum consumption
6	❖ **Optimum purchase order size - Normal EOQ – we will consider carrying cost as 20 percent of normal purchase price and get the optimum EOQ** ❖ Compute tentative EOQ for each of the price level. Tentative EOQ would vary at every level as the carrying per unit will change with change in purchase price ❖ Final order quantity for each class interval will be the one which is closest to tentative EOQ ❖ Compute total inventory cost for each of the order quantity identified above. Identify the level which has the lowest inventory cost ❖ **The bank can do only five fund transfers and hence the number or orders cannot exceed five orders. Loss due to bank = (Total cost at five orders) – Minimum possible cost as per part (ii) of the question**
7	❖ Similar to question No.2 ❖ **At EOQ total ordering cost is equal to total carrying cost.** Hence total ordering cost as well as total carrying cost will be Rs.2,000 ❖ Carrying cost per unit is Rs.20 per unit and hence average inventory would be 100 units. This would give the EOQ to be 200 units ❖ Total ordering cost is Rs.2,000 and hence number of orders is 20. Annual demand would therefore be equal to 4,000 units (EOQ * Number of orders) ❖ Part two: Similar to question no.2. Only change is that carrying cost per unit will not change with purchase price
8	❖ EOQ = SQRT (2 * Annual demand * Ordering cost/order/carrying cost per unit per annum) ❖ Carrying cost per unit has to be taken as 10 percent of purchase price ❖ EOQ is to be computed with the help of annual demand and hence the monthly demand is to be multiplied with 12 ❖ Number of orders = Annual demand/EOQ ❖ Total ordering cost = No of orders * Ordering cost per order ❖ Total carrying cost = Carrying cost per unit * Average inventory; Average inventory = Quantity per order/2 ❖ **The company currently has 10,033 packs and we need to find how many days will the stock last. Daily consumption = (60,000*12)/360. Number of days stock is held = Current inventory/Daily consumption.** ❖ **Timing of next order = Number of days stock is held – Lead time for purchases**

Qn	Summary of adjustment
9	❖ No special adjustment. Simple problem on inventory levels
10	❖ FIFO assumes that earliest purchase is sold first and hence closing stock would come from the latest purchase. Hence closing stock of 23,000 kgs would comprise of 22,000 kgs purchased on March 25 and 1,000 kgs purchased on March 18 ❖ Cost of goods sold = Opening stock + Purchases – Closing stock ❖ Profit = Sales – COGS – Salary paid to accountant
11	❖ Ordering cost per order = Rs.35,000; Carrying cost per unit = 1.7676% of purchase price; Purchase price = Rs.900 + 10% Import duty ❖ The company normally receives the material in 12 days and the same has 70 percent probability of occurrence. This would indicate that there is 30 percent risk of going out of stock ❖ There is 90 percent cumulative probability of receiving the material in 14 days and hence we need to have ROL as 14 days consumption to have 10 percent risk of going out of stock. Safety stock would be extra 2 days consumption (14 days consumption – normal 12 days consumption) ❖ There is 95 percent cumulative probability of receiving the material in 15 days and hence we need to have ROL as 15 days consumption to have 5 percent risk of going out of stock. **Safety stock would be extra 3 days consumption (15 days consumption – normal 12 days consumption)** ❖ Total ordering cost = No of orders * Ordering cost per order; Total carrying cost = Carrying cost per unit * Average inventory; **Average inventory = (Quantity per order/2) + Safety stock**
12	❖ Calculate annual production of FG: Opening FG + Production – Closing FG = Sales; Closing FG will be taken as zero due to absence of information ❖ **Annual RM consumption = Annual production * (Input/Output)** ❖ Calculate annual RM purchases: Opening RM + Purchases – Closing RM = RM Consumed; Closing RM will be taken as zero due to absence of information ❖ **Compute EOQ with help of annual purchases, ordering cost and carrying cost** ❖ ROQ is 200 kg less than EOQ and hence ROQ = EOQ – 200 units ❖ **Normal consumption per day is to be computed with the help of annual consumption of RM. Maximum consumption = Normal consumption + 20 kgs; Minimum consumption = Normal consumption – 20 Kgs** ❖ Calculate maximum level, minimum level with normal formula ❖ Impact on profitability = Total cost when ROQ is ordered – Total cost when EOQ is ordered. EOQ is the best quantity to order. However here we are ordering 200 units less and hence the total of ordering and carrying cost will be higher and the difference in cost is the impact on profitability
Chapter 3: Employee cost and direct expenses	
1	❖ Average work force is 1,000 employees (average of opening and closing) ❖ Labour turnover under replacement method is 3 percent and hence the number of replacements is 30 employees. (It is assumed that replacement will impact the number of employees) ❖ Closing work force = Opening work force + New recruitment + Replacement – Separations. This would provide us the number of separations ❖ Labour turnover (separation method) = No of separations/Average work force ❖ Labour turnover (flux method) = (Seperations + Replacement + New recruitment)/Average work force
2	❖ Standard time for worker A is equal to 44 hours and worker B is equal to 35 hours ❖ Calculate earnings of two workers using the various formulae – no special adjustment

Qn	Summary of adjustment
3	❖ Effective rate per hour = Total wages under Rowan Plan / No of actual hours ❖ The worker wants to maintain same rate per hour. Let us assume actual time as X and hence his total wages would be 140X as he earned Rs.140 per hour under Rowan Plan. ❖ Use the formula of Halsey and equate the total earnings to 140X to get the desired time to earn same effective rate per hour
4	❖ Labour turnover under separation method is 5% and number of separations is 40. This would give the average work force as 800 employees ❖ Number of replacements = Average work force * 8% ❖ Number of new recruitments can be computed with the help of flux method. Flux method = (No of separations + No of replacements + No of new recruitments) / Average work force ❖ **Total new recruitments = No of new recruitment + No of replacements** ❖ **Assuming opening work force as X. Closing work force = Opening work force + Replacement + New recruitment – Separations. Take average of opening and closing work force and equate the same to 800. We will arrive at the answer of opening work force**
5	❖ Overtime is to be calculated for every day considering the conditions imposed by the company. Diet allowance will be paid in case the worker works beyond 8:30 PM ❖ Worker A and C are involved in specific job – It shall be charged to the specific job and is treated as part of cost of job; Worker B allowance can be either treated as cost of production or as a factory OH or to the costing P&L A/c ❖ Underestimation by sales department should be charged to the sales department ❖ Shortfall in production – Treated as factory OH
6	❖ Hourly rate of wages = No of hours * Rate per hour ❖ Piece work basis = No of units * rate per unit. Product A will be at Rs.15/unit, Product B will be at Rs.20 per unit and Product C will be at Rs.30 per unit. A person will get 75% of basic wages in case the wages as per the piece rate is less than 50% of basic wages ❖ Rowan wages = Basic wages + Bonus; Bonus = (Actual time* Time saved * Rate per hour/Standard time)
7	❖ Cost of labour turnover = Rectification cost+ Potential productive hours lost + Settlement cost + Recruitment cost + Training cost ❖ Contribution on potential productive hours lost = No of hours lost * Contribution per hour. **Hours lost due to training is also to be included in the hours lost.** ❖ Rectification cost = No of defective units * Rectification cost per unit
8	❖ Calculate standard output = No of hours/week * No of weeks * No of workers * No of units per hour ❖ Efficiency = Actual output/Standard output ❖ Find the differential piece rate per unit and calculate wages under differential piece rate system ❖ Time wages = Hours worked * Rate per hour ❖ Halsey scheme = Basic wages + 50%*Time saved * rate per hour
9	❖ Efficiency = Standard time / actual time ❖ Relevant hourly rate = Basic rate + 10% bonus + 2% bonus for every 1% efficiency beyond 100%
10	❖ Calculate standard time with the help of actual output. Calculate efficiency % and then calculate the earnings as per various plan
11	❖ Calculate wages as per correct rate and wages are per wrong rate. Amount of loss

Qn	Summary of adjustment
	= Wages due to wrong rate – Wages as per correct rate ❖ Savings under Rowan plan = Wages as per Rowan plan – wages as per Halsey plan
12	❖ Similar to question no.1
13	❖ Similar to question no.3
Chapter 4 – Overheads – Absorption costing method	
1	❖ **Step 1:** We need to compute the total overheads in relation to machine. Depreciation on basis of SLM [(10,000 – 1,000)/10 years], Electricity is to be computed for running hours (16 * 0.09 * 1,900 hours), Chemical solution (Rs.20 * 50 weeks), maintenance cost, operator wages (120 * 50 weeks / 6 machines) and departmental and general works OH (2,000) ❖ **Step 2:** Effective working hours = Running hours + Set-up time ❖ **Step 3:** MHR = Step 1/Step 2
2	❖ **Step 1:** Compute overheads in relation to machine. Depreciation on basis of SLM [(10,00,000-10,000)/10 years], Repairs and maintenance (5,000), Insurance premium (9,000 * 10 lacs/90 lacs), Electricity (8 units * 3.75/unit * 4,000 hours), Rent (the machine occupies 1/10th of the area and the same is missed out in the question) ❖ **Step 2:** Effective working hours = Total hours – non-productive hours ❖ **Step 3:** MHR = Step 1/ Step 2
3	❖ **Step 1:** Primary overhead distribution – Fuel & heat to be apportioned on the basis of radiator sections, **Power (Kilowatt hours)**, Rent & rates (Area sq.feet), Insurance (Capital value of assets), Meal charges (No. of employees), Depreciation (Capital value of assets) ❖ **Step 2:** Secondary overhead distribution – Form two equations and solve to get the amount to be distributed for both departments ❖ X = OH of department A + Proportionate transfer from B (0.1Y) ❖ Y = OH of department B + Proportionate transfer from A (0.2X) ❖ Solve the equations and then distribute the amount to get the overheads post-secondary overhead distribution
4	❖ **Setting up time can be either assumed as productive or non-productive. We can assume it as productive and hence effective working hours would be 2,600 hours** ❖ **Depreciation [(25,00,000 – 1,25,000)/25,000 hours * 2,600 hours]**, Power (25 units * Rs.5/unit * 2,600 hours), R&M (26,000), Chemical solution (2,600 * 12 months /2,600) overheads (Rs.18,000 * 12), Insurance premium (25,00,000 * 2%), Salaries (18,500 * 12 months * 2 operators / 4 machines) ❖ MHR = Total overheads / effective working hours
5	❖ Set-up time can be assumed as non-productive ❖ **The workers are doing the work jointly and hence there will be total of 3 operators for 3 machines. Hence the labour cost has to be computed for 3 workers and the same should be divided by 3 machines** ❖ Depreciation (SLM), Maintenance cost, Consumables stores, Power cost, Wages and Bonus will be incurred. Apportioned overheads should be divided by 13 to get the cost for 4 weeks and then the same should be divided by 3 to get the cost for a single machine
6	❖ Step 1: Do secondary overhead distribution on the basis of direct distribution method ❖ Step 2: Calculate OAR. Department P1 would be based on machine hours and department P2 would be based on direct labour hours ❖ Performance report – We need to compare the actual performance with standards set by the company. This is similar to variance analysis. Variance computation is to

	be done for material cost, labour cost and overheads ❖ Actual overheads will again be calculated by doing secondary overhead distribution on actual overheads and then calculating OAR
7	❖ We need to form two equations to get the percentage recovery rate for factory OH and administrative OH ❖ Factory OH can be assumed as X% of direct wages and administrative OH can be assumed as Y% of factory cost ❖ Cost of Job 101 = 54,000 + 42,000 + 42,000X + (54,000 + 42,000 + 42,000X)Y ❖ Form two equations and solve the same to get the OAR percentages ❖ We can calculate the cost of Job No.103 using the OAR rates computed above
8	❖ OAR = Budgeted Overheads / Budgeted machine hours ❖ Adjusted OH incurred = Actual OH – abnormal items ❖ OH absorbed = OAR * Actual machine hours ❖ Amount of under-absorption = OH absorbed – OH incurred ❖ Abnormal under-absorption will be entirely charged to costing P&L whereas normal under-absorption will be recovered through supplementary recovery rate ❖ Supplementary recovery rate = Amount of normal under-absorption / Units produced (including equivalent WIP)
9	❖ Absorption basis for various items: Rent (Area square feet), **Power (Machine hours * HP of machines), Depreciation (Capital value * machine hours), Other OH (Direct wages)** ❖ We should consider the direct cost of service department for the purpose of primary and secondary overhead distribution ❖ Form two equations and get the amount to be distributed (similar to question no.3)
10	❖ Absorption basis for various items: Rent and rates (Floor space), General lighting (Number of light points), **Indirect wages (Direct wages), Power (Horse power of machines),** Depreciation on machinery (cost of machinery), Insurance of machinery (Cost of machinery) ❖ Form two equations and get the amount to be distributed (similar to question no.3)
11	❖ Absorption basis for various items: Lease rental (Floor space), **Power and fuel (HP of machines * Working hours), wages to factory supervisor (working hours only to production departments)**, electricity (light points), Depreciation on machinery (Cost of machines), Depreciation on building (floor space), payroll expenses (no of employees), canteen expenses (no of employees), ESI and PF contribution (Direct wages) ❖ Form two equations and get the amount to be distributed (similar to question no.3)
12	❖ Absorption basis for various items: Factory rent (Floor space), Factory building insurance (Floor area), Plant & machinery insurance (Value of plant & machinery), Plant & machinery depreciation (value of plant & machinery), subsidy for staff canteen (no of employees) ❖ **Order of distribution for step method – we need to start with maintenance department and then proceed with distribution of stores. Maintenance department is providing service to stores but stores is not providing service to maintenance** ❖ **Fabrication is machine related activity and hence OH to be driven by machine hours whereas assembly is related to labour and hence OH to be driven by labour hours** ❖ Calculate the cost of the job using rates calculated above
13	❖ Absorption basis for various items: Power (HP hours), Rent (Floor space), Fuel and heat (radiator sections), **Insurance (Investment), Taxes (Investment)** and Depreciation (Investment)

	❖ Form two equations and get the amount to be distributed (similar to question no.3)
14	❖ Similar to question no.8
Chapter 5 – Activity Based Costing	
1	❖ Fixed costs under ABC remains same for situation one as there is no reduction in cost ❖ Fixed cost would reduce for part II due to lower set up cost and engineering cost and hence the same would reduce BEP
2	❖ Calculate cost driver rate for production line cost (no. of machine hours), transportation cost (60% based on number of deliveries and 40% based on distance travelled) ❖ Total cost of manufacture = DM + DL + ABC related OH ❖ Target cost = Target selling price – 25% margin ❖ Compare actual cost with target cost to get the cost gap
3	❖ Manufacturing cost = No of machine hours, no of labour hours ❖ HR = No of employees, No of training hours ❖ Marketing = No. of customer orders, No of sales contract ❖ Accounting cost = No. of billings, no of cash receipts
4	❖ Compute Cost driver rate, apportion OH and then calculate the cost per unit ❖ Machine dept expense (machine hours), assembly department (assembly hours), stores receiving (number of requisitions), order processing (customer orders) and Inspection and quality (number of production runs), set-up (number of runs)
5	❖ Calculate the cost of various activities ❖ Receiving materials (no of consignments received), set-up of machines (no of set-ups) and quality inspection (no of inspections) ❖ Design cost should be apportioned for every quarter for calculation of cost
6	❖ No special adjustment – problem on ABC
7	❖ No special adjustment – problem on ABC
8	❖ No special adjustment – problem on ABC
9	❖ Customer wise profitability statement has to be calculated based on the principles of ABC
10	❖ No special adjustment – simple problem on ABC
Chapter 6 – Cost Sheet	
1	❖ No special adjustment – follow the format of cost sheet
Chapter 7: Cost Accounting System	
1	❖ Costing profit and loss account can be prepared in the form of cost sheet ❖ **Factory overheads has to be taken as 20 percent of prime cost. Prime cost = Direct material + Direct wages. Administrative OH is to be taken as 10% of factory cost. Factory cost = Prime cost + Factory OH.** ❖ Closing stock of FG has to be valued on the basis of current year cost of production. The company has produced 52,000 units and there are 2,000 units in stock ❖ Compare the cost sheet with financial P&L and identify the various item causing difference in profit and present the same in costing profit and loss account
2	❖ Creditors account will help us in calculating the amount of purchases ❖ Stores ledger control account will help us in calculating the amount of RM issued for consumption ❖ Prepare other accounts like wages control, OH control and WIP control account ❖ **Closing balance of WIP = Material cost + labour cost (400 hours * Rs.50/hour) + overhead cost (400 hours * Rs.20/hour)**
3	❖ Prepare the reconciliation statement by identifying the various plus and minus items
4	❖ Direct material will be transferred to WIP control and indirect material will be transferred to factory OH

	❖ Direct wages will be transferred to WIP control and indirect wages will be transferred to factory OH ❖ Over absorption of factory OH will be transferred to credit side of P&L (income) and under-absorption of admin OH will be transferred to debit side of P&L (expense)
5	❖ Identify the various plus and minus item using the eight column format ❖ Plus items will have to be credited and minus items will have to be debited in memorandum reconciliation account
6	❖ **Deficiency found in stock taking will be treated as normal loss and transferred to factory OH** ❖ **Difference between wages paid and wages charged will be the indirect wages and the same would be transferred to factory OH** ❖ **Balancing figure of WIP will be the cost of sales and same would be directly transferred to costing P&L. Sales will be taken as cost of sales plus 15%** ❖ Under/over absorption of factory OH can either be carried forward or charged to costing P&L
7	❖ Similar to question no.5
8	❖ **Finished product (at cost) will be interpreted as the production during the year** ❖ **Sales returned at cost will be the reversal of cost of sales. FG control will be debited as the same will increase and cost of sales will be credited**
9	❖ **Goods finished at cost refer to the amount of production during the year** ❖ **COGS will be reduction of FG and the same will be debited to cost of sales** ❖ **RM – credited by suppliers will be the amount of purchase returns** ❖ WIP rejected with no scrap value will be treated as abnormal loss and debited to costing P&L ❖ RM inventory loss can be treated as normal loss and be treated as factory OH
10	❖ Open all the accounts given in the question and record all transactions ❖ OAR = Budgeted OH/Budgeted labour hours. OAR multiplied with labour hours can help us in getting the amount of overheads absorbed ❖ WIP = DM + DL + OH (1,200 * OAR) ❖ Wages paid will be 28,200 hours * Rs.2.5/hour. The rate of Rs.2.5 per hour is identified from note (e) and it is mentioned that the company pays the same amount per hour
11	❖ Prepare a profit and loss account and cost sheet to calculate costing and financial profit ❖ Identify the various items causing difference in profits and capture the same in reconciliation account ❖ **Costing records: Closing FG has to be valued based on current year production and the company can either follow FIFO or weighted average cost method**
Chapter 8 – Unit and batch costing	
1	❖ OAR for factory OH = Budgeted factory OH / budgeted labour cost ❖ OAR for admin OH = Budgeted admin OH / budgeted factory cost ❖ **The material cost and labour cost is available for next year. Factory OH will be taken as the specified percentage of direct wages. Factory cost = DM + DL + FOH. Admin OH will be taken as specified percentage of factory cost. Add delivery cost and then get the cost of sales.** ❖ Profit margin will be 1/10 on sales and it will be 1/9 on cost. Using that calculate the amount of sales
2	❖ Calculate the number of batches for the required units and calculate the total cost ❖ Sales value = Total cost + Desired profit margin. The company required ¼ margin on sales and the same would correspond to 1/3 on cost
Chapter 9 – Job and contract costing	

1	❖ **Sale of material has to be recorded in the credit side of contract account. Loss on sale of material will be treated as abnormal loss and hence removed from credit side of contract account and then transferred to profit and loss account** ❖ **Sale of plant and closing plant value will be credited to contract account and hence the net balance of depreciation will be recorded** ❖ Difference between debit and credit side of contract account will give notional profit We need to calculate estimated profit of the contract with the given estimates and then transfer to P&L will be the lowest of the four formulae
2	❖ Contract account will have three segments. Segment one will help us in calculating cost incurred till date. Segment two will record closing work certified and closing work uncertified and the same will help in getting notional profit. Segment 3 will calculate the transfer to P&L ❖ Transfer to P&L would depend on the degree of completion and then1/3rd or 2/3rd or estimated profit method is to be used ❖ **Work certified will be valued at contract price and work uncertified will be valued at cost price**
4	❖ Material returned to store will be recorded in the credit side of contract account ❖ Prepaid site office cost would be adjusted with site office cost and only the net cost would be charged to contract account ❖ Direct wages outstanding would be added to direct wages paid to get the amount of expenditure for the current period ❖ Plant will be recorded at original cost on debit side and the WDV (plant value – Depreciation) will be recorded in the credit side ❖ **Loss of material by fire is an abnormal item and will be removed by crediting the same to contract account** ❖ **Contract WIP = Work certified + Work uncertified – WIP Reserve – Contractee account balance**
5	❖ No special adjustment ❖ Contractee account will record the opening balance and the additional amount received in the current year ❖ Wages expenditure in the contract account = Wages paid + Closing outstanding – Opening outstanding
6	❖ Cost of work certified can be calculated by doing the contract account in three segments. ❖ Segment one will record all debit and credit side items except value of work certified. The balancing figure would be the cost of work certified ❖ Segment two will record cost of work certified and value of work certified. This would provide the amount of notional profit ❖ Segment three will record the amount of notional profit, transfer to P&L and WIP reserve
7	❖ Record the various items of income and expense in the contract account ❖ **Depreciation can be calculated and recorded as a single item in the contract account. We normally record the cost in debit side and WDV in credit side. However this problem it will be easier to do it through recording of depreciation. Depreciation should be calculated only on 80% of machinery as only 80% is at site**
8	❖ Prepare contract account in three segments. Segment one we will record all items except work certified and work uncertified. This will give us the cost incurred till date ❖ Segment two – Record work certified and work uncertified. This will give the amount of notional profit ❖ Segment three – Record transfer to P&L and WIP reserve

	❖ **Contract is more than 90 percent complete and hence we need to calculate estimated profit on the contract. Estimate profit = Contract price – Cost incurred till date – further cost to complete contract**
9	❖ Part one – Calculate cost incurred till date. Estimated profit = Contract price – Cost incurred till date – estimated further cost to complete contract ❖ Use F2 formula of transfer of profit rules and find out the amount of profit to be transferred to P&L ❖ Part two – DOC will be less than 90% and hence transfer to P&L has to be based on 2/3rd rule
10	❖ Notional profit = Work certified + Work uncertified – Cost incurred till date ❖ Estimated profit = Total contract price – estimated contract costs ❖ Get DOC and find the profit transfer based on 2/3rd rule ❖ **Part two: If the contractee has become bankrupt then we are not expected to receive additional money. Loss = Cost incurred till date – progress payments received. This amount is to be charged to P&L**
11	❖ **Donation paid to local clubs can be ignored in contract costing if the same is not exclusively related to contract** ❖ Depreciation on machinery has to be calculated on the basis of number of days ❖ Get the amount of notional profit and then find out the transfer to P&L based on transfer of profit rules ❖ **Land purchase and registration duty is not exclusively related to contract and hence cannot be charged to contract account**
12	❖ Prepare a contract account for all three contracts and get the amount of notional profit/loss ❖ **Estimated profit for contract III can be calculated by doing the contract account in three segments. Segment one will show the amount of cost incurred till date, segment two will indicate the amount of notional profit.** ❖ **Estimated profit for contract III = Contract price – cost incurred till date – estimated further cost** ❖ Find the amount of transfer to P&L using profit transfer rules
13	❖ Prepare a job cost sheet for the original information and get various overhead absorption rates for usage in part 2 of the question ❖ Use the OAR calculated above and then use the profit margin given in the question. This will enable us to get the sales value for the additional order
	Chapter 12 – Service costing
1	❖ **Calculate KM run and total passenger KM. Number of KM = One-way distance * 2 * no of trips * 25 days * 12 months * 6 buses; Passenger KM = No of KM run * No of passenger** ❖ Prepare operating cost sheet reflecting all expenses. The profit margin is 1/3 of sales and hence the same can be taken as ½ of cost ❖ Diesel cost = No of KM run * Cost per litre of diesel / No of KM per litre ❖ Fare per passenger KM = Total collections / total passenger KM
2	❖ Calculate KM run and passenger KM. Number of KM = One way distance * 2 * Number of trips * 25 days * 12 months * 1 bus; Passenger KM = No of KM run * No of passengers ❖ **Calculate the annual cost of running bus. Profit margin is 15 percent of sales, commission is 10 percent of sales and hence the total cost *(excluding commission)* would be equal to 75 percent of sales. Considering this information we need to calculate the total collections and based on that we can calculate commission and profit** ❖ Fare per passenger KM = Total collections / total KM
3	❖ Calculate KM run and passenger KM

	❖ **Calculate annual operating cost of the bus. Profit would be 25 percent of sales and passenger tax would be 22 percent of sales. Hence cost would be 53 percent of collections and based on that we can compute profit and passenger tax** ❖ Cost per passenger KM = Total cost / Number of passenger KM
4	❖ **Absolute tonne KM = (One way distance * weight-up) + (One way distance * weight-down). We need to compute this for every booking and add the total KM. We would also need the total KM run and the same would be used for calculating diesel and other costs** ❖ Monthly operating cost for 4 trucks is to be calculated. Diesel, engine oil, repairs and maintenance and depreciation would be calculated with the help of distance travelled ❖ Cost per ton KM = Total cost / total ton KM
5	❖ Calculate distance travelled and ton KM. Ton KM = Distance travelled * Average load ❖ Calculate monthly operating cost. Cost per KM = Monthly cost / distance travelled; Cost per ton KM = Monthly cost / ton KM
6	❖ Step 1: Calculate the annual operating cost of the restaurant. Attendant wages = No of rooms occupied * Rs.500/day. Profit will be taken as ¼ of collection and hence same will be 1/3 of cost. We can compute the total collections by adding profit to cost ❖ **We will assume the rent of deluxe room to be X and hence rent of super deluxe room will be 2X and rent of luxury room will be 3X. Compute total collections in terms of X and equate that will collection figure computed above. We can therefore calculate rent for different category of rooms**
7	❖ We should compute the total fixed cost and variable cost per KM for different options ❖ Fixed cost is zero and VC is Rs.10/KM for taxi ❖ Fixed cost is Rs.37,200 and VC is Rs.3.4/KM for new nano ❖ Fixed cost is Rs.44,400 and VC is Rs.2.8/KM for old innova ❖ We can compute total cost at 10,800 KM and 18,000 KM and decide the one which has the lowest cost ❖ **BEP = Increase in fixed cost / saving in VC/KM**
8	❖ Calculate distance travelled and total ton KM ❖ Calculate the operating cost for four weekly period ❖ Cost per KM = Total cost/ Distance travelled; Cost per ton KM = Total cost/ Ton KM
9	❖ We need to compute the cost of package and the same would involve travelling to multiple locations ❖ **Diesel cost = Distance travelled / KM per litre * Respective diesel cost** ❖ Calculate other costs for a single trip. Chauffeur's salary of Rs.12,000 per month is to be proportionately calculated for 3 days; Depreciation is to be proportionately calculated based on distance travelled; Proportionate servicing cost on basis of KM travelled; Meal allowance has to be taken as Rs.50 for every 200 completed KM; Other set-up is to be apportioned on basis of number of days ❖ **Total cost + Profit = Net takings; Net takings + Service tax = Total takings** ❖ Profit will be taken as ¼ of net takings and hence it will become 1/3 of total cost ❖ Total takings = Net takings + 12.36% service tax
10	❖ Calculate distance travelled and number of litres carried ❖ Operating cost statement is to be prepared for every location. The various costs are calculated below: ❖ Toll tax = Cost per month is given

	❖ Petrol cost = Distance travelled * Petrol cost / Respective mileage. The mileage will be 10 KMPL in first two years, it will be 8 KMPL in next two years and 6 KMPL in later years ❖ Depreciation = 10% of original cost and same should be divided by 12 to get monthly cost ❖ Servicing cost – To be calculated based on KM run. We need to consider free service period while calculating this ❖ Driver salary, cleaner salary, garage fee are other allied costs
11	❖ Comprehensive problem on service costing – apportion the expenses to various streams using the principles of primary overhead distribution
Chapter 10 – Process and operation costing	
1	❖ Two material problem as there is a transfer of material from previous process and addition of material in current process ❖ Prepare input-output statement, statement of equivalent units, statement of cost per unit and statement of distribution of cost ❖ **We can follow FIFO/Weighted average cost method as both will have no impact due to absence of opening WIP**
2	❖ Prepare input-output statement and get the abnormal loss/abnormal gain ❖ Prepare process account. Cost per unit = (Total cost – Sale value of normal loss) / expected output ❖ Record the sale in individual process account and the profit on sale should be transferred to P&L account ❖ **Selling expenses will be directly recorded in profit and loss account as the same is not allocable to individual processes**
3	❖ Similar to question no.1 ❖ Abnormal loss account will have the transfer entry from process account and sale transaction is to be recorded. The net abnormal loss will be charged to costing profit and loss account
4	❖ Similar to question no.2 ❖ Indirect expenses will not be recorded in process account and the same would be directly recorded in profit and loss account ❖ Profit and loss account will also have an entry for net abnormal gain/loss. **Net abnormal gain/loss = No of units * (Cost price – Realizable value)**
5	❖ One material problem and FIFO method is to be followed ❖ Normal loss is to be taken as percentage of total input ❖ Follow six steps to identify the required information
6	❖ Multiple process, weighted average cost method and single material ❖ Follow five steps and get to the desired information ❖ **Closing WIP = Input – output transferred – Normal loss**
7	❖ FIFO method and two material problem ❖ Normal loss is to be taken as 5 percent of processed production ❖ No other adjustment
8	❖ **Opening WIP + Input – Closing WIP – Loss = Production during the year**. We can compute the input with this equation ❖ Normal loss will be taken as 10 percent of input and the balance will be considered as abnormal loss ❖ We have to compute the number of equivalent units and multiply it with cost per equivalent unit to get the amount of expenses incurred ❖ Process account then can be prepared using the six steps
9	❖ Royalty expense is incurred only for units produced and hence the same can be directly transferred to FG control account

	❖ Cost per good unit can be calculated from the process account without considering the royalty expense
10	❖ Similar to question no.7
11	❖ One material and FIFO method ❖ No special adjustment
12	❖ Prepare process XM account with three columns: Cost, Profit and Total ❖ Figures given in the question represent total column and the profit element should be deducted to get the cost ❖ **Total column would represent the cost to the process and hence profit will be taken as ¼ on total figure for process XM. Process YM will have profit element of 1/4 on total figure and process ZM will have profit element of 1/3 on total figure** ❖ Closing stock is to be recorded in the debit side as minus item
Chapter 11 – Joint products & by products	
1	❖ **Sales data and estimated profits are available for both products. We can compute the total selling and distribution expenses as a balancing figure** ❖ Selling and distribution expense will be split between two products on basis of sales price. ❖ Share of joint cost = Sales price – estimated profit – selling and distribution expense – further processing cost
2	❖ Estimated profit for B1 and B2 are available and hence we can find the share of joint cost as a balancing figure ❖ Share of joint cost for main product = Total joint cost – Share of cost of B1 and B2 ❖ Profit of product = Revenues – share of joint cost – further processing cost – estimated selling and distribution expense
3	❖ Similar to question no.2
4	❖ **Joint cost can be apportioned on the basis of any of the one method** ❖ Profit if product is further processed = Sale value after further processing – share of joint cost – further processing cost ❖ Profit if product is sold at split-off = Sale at split-off point – share of joint cost
5	❖ Joint cost can be apportioned on the basis of any of the one method ❖ We need to compute the joint cost per unit and further processing cost per unit. Entire output is not sold and hence some cost will be carried forward to next year as part of closing stock ❖ Decision on further processing can be done by comparing incremental cost with incremental revenue. Incremental cost is further processing cost per unit and incremental revenue is selling price after further processing – selling price at split-off point
6	❖ Share of joint cost will be the balancing figure ❖ Cost of sales = Sales – estimated profit ❖ Selling and distribution expense will be 10 percent of cost of sales and the same shall be apportioned in the given ratio ❖ Share of joint cost = Cost of sales – selling expense – further processing cost
7	❖ Similar to question no.2
Chapter 13 – Standard Costing	
1	❖ No special adjustment ❖ AQ will be taken as actual quantity consumed. AP = Amount of purchases/quantity purchased
2	❖ Calculate equivalent units of labour and OH as per average cost method ❖ Compute cost per equivalent unit as per average cost method ❖ **Variance calculation: We need to compute equivalent units as per FIFO method and calculate ST with the help of this actual output. Calculate relevant variances**

3	❖ **VC/unit = Change in total cost /change in units** ❖ **Standard absorption rate is 20 per unit and 4 per hour. Hence it can be concluded that one unit takes 5 hours** ❖ VC/unit can be converted into VC/hour using the equation of 1 unit taking 5 hours. FC/hour will be balancing figure and we can proceed to compute all variances
4	❖ **Standard output is 2000 units for a standard gang of 100 workers working for 40 hours. Hence 4000 hours will lead to 2000 units** ❖ The above standard equation can be applied on actual output to get the standard hours ❖ Actual hours paid will be calculated based on 40 hours per worker whereas actual hours worked will be calculated based on 38 hours per worker
5	❖ **Material price variance is given and the difference between SP and AP is available. We can use this information and compute actual quantity consumed** ❖ Actual material cost is available and we can compute actual price. SP can then be computed ❖ SQ will be computed with the help of actual output ❖ Calculate all variances with the help of computation table
6	❖ Problem with no special adjustment ❖ SQ, SH is to be computed with the help of actual output
7	❖ Problem on variable overheads and fixed overheads – no special adjustment
8	❖ SQ of A is to be computed with the help of actual output of M and N. SQ needed for M and SQ needed for N is to be added to get SQ of A ❖ SQ of B is to be computed in similar way. We then need to compute the variances with help of computation table
9	❖ Company follows FIFO method of valuation. Opening stock is assumed to have been carried forward at standard price and current year purchases will be considered on the basis of current purchase price ❖ **AQ = Quantity consumed = Opening stock + Purchases – Closing stock**
10	❖ **Labour efficiency is 105.3%. Labour efficiency = SH/AH; Actual hours is available in the question and based on that SH is computed** ❖ SR is available and AR can be computed based on labour rate variance
11	❖ Compute standard input of B with help of material usage variance ❖ Compute actual input of A with help of material mix variance ❖ Complete computation table and then calculate all missing information
12	❖ **SQ is to be computed with the help of actual output. AQ is to computed with quantity per batch multiplied with number of batches** ❖ Compute all relevant variances
13	❖ Similar to question no.12
14	❖ SQ is to be computed with help of actual output. There is a standard loss of 10 percent and hence input-output ratio will be 100:90 ❖ There is a normal idle time of 5 percent and the actual idle time is not given in the question. Hence it is assumed that there is no abnormal idle time and hence the question is of multiple labour without idle time
15	❖ Overhead variances – no special adjustment
16	❖ Material variances – no special adjustment
Chapter 14 – Marginal costing	
1	❖ **PVR = Change in profit/change in sales** ❖ Fixed expense can be computed by preparing a marginal cost sheet for any one level ❖ Breakeven sales = Fixed cost/PVR ❖ Sales required to earn target profit = (Target profit + Fixed cost)/PVR
2	❖ Let us assumed SP as X and get profits in terms of X. Profits can also be taken as 10%

	of sales. Both are equated and we get the selling price ❖ BEP = TFC/Contribution per unit; MOS = Profit/Contribution per unit ❖ Prepare a revised marginal cost statement and find the revised profit, BEP and MOS ❖ MOS = Profit/original PVR
3	❖ Fixed cost of 2015 = Production of 2015 * Fixed cost per unit ❖ Fixed cost of 2016 = Fixed cost of 2015 + Percentage increase ❖ The company will be first selling opening stock units and will be making contribution of Rs.120 per unit on them. However the variable cost per unit increases for current year production and hence the contribution per unit will reduce ❖ **BEP = (Total fixed cost – Contribution from opening stock units) / Contribution per unit. This BEP is to be added with opening stock units to get the overall BEP**
4	❖ MOS quantity and value can be used to calculate selling price. ❖ BEP units and SP is available and the same can be used to calculate Break-even sales ❖ Total units and SP is available and hence we can compute total sales ❖ **Total sales – total cost = Profit; The company will be making zero profit at break-even sales; PVR = Change in profit/change in sales** ❖ All other information can be computed with the help of marginal cost statement
5	❖ PVR and break-even sales can be used to calculate fixed cost ❖ Profit earned can be computed as MOS * PVR ❖ Sales to achieve target profit = (Target profit + FC)/PVR ❖ Profit of 25 percent on cost can be converted into 20 percent on sales. Assume number of units as X and get profit in terms of X ❖ **BEP is to be brought down by 4,000 units and based on that we can compute target contribution per unit. Selling price = VC + Target contribution per unit**
6	❖ PVR = Change in profit/change in sales ❖ Prepare marginal cost statement and based on that compute the required information ❖ MOS = Profit/PVR ❖ Sales at desired profit = (Desired profit + Fixed cost) / PVR
7	❖ PVR = Change in profit/change in sales ❖ Prepare marginal cost statement and compute amount of fixed cost ❖ BEP = Fixed cost/Contribution per unit ❖ Profit = (No of units * Contribution per unit) – Fixed cost ❖ **Shut-down point = (Fixed cost during operation – Unavoidable fixed cost) / Contribution per unit**
8	❖ Similar to question no.5
9	❖ Fixed cost = Normal fixed cost + Fixed cost content in semi-variable cost ❖ BEP = Total fixed cost / Contribution per unit ❖ Assume no of units as X and get profit in terms of X. Get two equations on profits and equate them to find the number of units ❖ **Number of units to achieve desired profit = (Desired profit + Fixed cost) / Contribution per unit. The Units level go beyond 80 percent and hence we need to work with revised level of fixed cost to get the desired units** ❖ **Target cont per unit = Fixed cost/no of units. Target SP = VC + Contribution per unit**
10	❖ BEP = Total fixed cost/Contribution per bag ❖ Profit at 35,000 bags = (Units sold * Contribution per unit) – Total fixed cost ❖ Discontinuation of commission will lead to reduction in variable cost and increase in fixed cost. Additionally change in selling price will impact contribution per bag. Revised BEP = Revised Fixed cost/Revised contribution per unit ❖ VC will increase due to higher commission and SP will increase. Calculate revised

	contribution per bag and get break-even point
11	❖ BEP = Fixed cost/PVR ❖ PVR = 100% - VCR ❖ MOS = Profit/PVR ❖ Prepare a chart with variable cost, fixed cost, total cost and sales line
12	❖ Absorption costing values FG as total production cost and hence even fixed production cost will be included in valuation. Fixed production cost per unit is calculated based on normal volume and the same would be Rs.100 per unit ❖ Under-over absorption of fixed OH will be shown as an adjustment item to cost of sales ❖ Marginal costing will only consider variable production cost for inventory valuation and hence the profit under both methods will be different ❖ **Profit as per marginal costing = Profit as per absorption costing – inventory valuation difference of closing stock + Inventory valuation difference of opening stock**
13	❖ BEP = Fixed cost / contribution per unit ❖ Cash BEP = Cash fixed cost/contribution per unit ❖ **BEP for company can be calculated by assuming that one set contains one unit of factory A and two sets of factory B. We can compute contribution per set and use the same to calculate breakeven point in sets. This BEP can then be converted into BEP of individual factory**
14	❖ BEP = Fixed cost/PVR ❖ BEP = 80% of capacity sales. Hence based on this capacity sales can be calculated ❖ 80% of capacity sales is BEP and hence profit will be zero at 80% of capacity sales ❖ Profit = (Sales * PVR) – Fixed cost ❖ Sales to achieve desired profit = (Desired profit + Fixed cost) / PVR
15	❖ Marginal cost statement is to be prepared for 10,000 and 15,000 tests to calculate profits at these two levels
16	❖ Existing profit = MOS * PVR ❖ Sales to achieve desired profit = (Existing profit + Incremental profit + Interest cost + Fixed cost)/new PVR ❖ New PVR will be impacted by two events. Reduction in SP and increase in VC. They have mentioned that variable cost will increase by 2 percent on sales and hence the revised Variable cost ratio will be 72%. This gives us the PVR to be 28%
17	❖ Sales to maintain same profit = (Desired profit + Fixed cost)/New PVR ❖ Margin of safety = Profit/PVR
18	❖ We need to prepare a cost sheet to get the COGS and cost of sales ❖ COGS = DM + DL + FOH + AOH + 2,30,000 + 71,000. This will help us in calculating COGS ❖ COS = COGS + SOH + 68,000. This will help us in getting cost of sales. ❖ Balance information can be computed with the help of a cost sheet
19	❖ Prepare a marginal cost statement and the same will provide contribution per unit and total fixed cost ❖ BEP = TFC/Contribution per unit ❖ **Part two:** Assume no of units as X and get profit in terms of X. Solve the equation and get the number of units to be sold to earn 20 percent profit on sales ❖ **Part three:** use the formula of sales to maintain desired profit. This will help us in getting additional units to be sold to maintain profit ❖ **Part four:** Target BEP = Fixed cost/Contribution per unit. This will give us the contribution per unit and SP = VC + Contribution per unit
20	❖ Similar to question No.9

21	❖ We need to calculate the increase in profit for the available alternatives and need to select an alternative which leads to maximum increase in profit ❖ Elasticity of demand of one would indicate that the overall revenues of the company would remain same and the increase in price would be offset by the fall in volume
Chapter 15 – Budget and Budgetary control	
1	❖ Indifference point = (Change in fixed cost)/Change in variable cost per unit. This will help us in deciding which process the company should choose
2	❖ Revised units sold = Budgeted sales + percentage increase + units increase due to advertisement campaign ❖ Budgeted sales = Units * Revised SP
3	❖ Annual production = Annual sales + Closing FG – Opening FG ❖ Production for quarter I = 70% of Q1 sales + 30% of Q2 sales; production of Q4 will be balancing figure ❖ BEP = TFC/Contribution per unit. TFC = 1,10,000 hours * Rs.2/hour ❖ Identify BEP and find the quarter in which the sales will be reached
4	❖ Flexible budget preparation. Change the variable cost for different levels and keep the fixed cost constant
5	❖ **Any change in variable cost has to be considered as a change in variable cost per unit and any change in fixed cost has to be considered as a change in total fixed cost**
6	❖ **Production = Sales + Closing stock – opening stock. Closing stock of April can be taken as 25% of sales of May. Opening stock of April can be taken as 25% of sales of April** ❖ Production cost = No of units sold * Cost per unit ❖ **Cost per unit = MC + LC + Manufacturing expense per unit; Manufacturing expense per unit = Total expenses/budgeted production**
7	❖ Flexible budget will record the various fixed, variable and semi-variable expenses ❖ Teacher allowance, bus hire charge, special permit fee are semi-variable costs ❖ Block entrance fee, prizes to students are fixed costs ❖ Average cost = Total cost/no of students
8	❖ **Production = Sales + Closing stock – Opening stock** ❖ **RM Consumption = Production * Input / Output** ❖ **RM Purchase = RM consumption + Closing RM – Opening RM** ❖ Direct labour budget will have the required number of skilled and unskilled labour. The same can be calculated with the help of a standard equation
9	❖ Production quantity = Sales + Closing stock + Adjustment for losses ❖ RM Purchases = Quantity required for production + provision for losses ❖ Calculate EOQ for part two of the question ❖ **The company does not want to place more than 40 orders and hence the overall RM purchases has to reduce. This will have consequent effect on production. The loss in production will be equal to the proportionate fall in purchase quantity**
10	❖ FOH ratios are to be computed with the help of computation table used for fixed overhead cost variances ❖ We need to compute efficiency, capacity and activity ratio
11	❖ Flexible budget is to be prepared wherein the fixed cost will remain constant and variable cost will change with the change in production
12	❖ Similar to question no.6
13	❖ Calculate production for two products ❖ Calculate RM consumed based on production ❖ Calculate RM purchased based on RM consumed ❖ Calculate labour requirement based on production and labour requirement per unit.

	Consider efficiency ratio while calculating the hours required
14	❖ Similar to question no.6
15	❖ Fixed cost will remain constant and does not undergo change for various levels ❖ Variable cost will change proportionately with volume of sales ❖ Semi-variable cost will increase by the given percentage for changes in capacity ❖ Total cost = Fixed cost + variable cost + Semi-variable cost ❖ Profit = Sales – total cost

Question No.1 – November 2016

Give the method of costing and the unit of cost against the under noted industries:

(i) Road transport

(ii) Steel

(iii) Bicycles

(iv) Bridge construction

Question no.2 – November 2015

State the method of costing and also the unit of cost for the following industries:

(i) Hotel

(ii) Toy-making

(iii) Steel

(iv) Ship Building

Question No.: 3 (May 2012 exam – 4 Marks)

State the types of cost in the following cases:

(i) Interest paid on own capital not involving any cash outflow.

(ii) Withdrawing money from bank deposit for the purpose of purchasing new machine for expansion purpose.

(iii) Rent paid for the factory building which is temporarily closed

(iv) Cost associated with the acquisition and conversion of material into finished product.

Question No.: 4 (May 2013 exam – 4 Marks)

Cost of a product or service is required to be expressed in suitable cost unit. State the cost units for the following industries:

(i) Steel

(ii) Automobile

(iii) Transport

(iv) Power

Question No.5 – Method of costing – November 2017 – 4 Marks

Identify the methods of costing where:

(i) all costs are directly charged to a specific job.

(ii) all costs are directly charged to a group of products.

(iii) the nature of the product is complex and method cannot be ascertained.

(iv) cost is ascertained for a single product.

CHAPTER 2 – MATERIAL COST

Question No.1 – November 2016

Supreme Limited is a manufacturer of energy saving bulbs. To manufacture the finished product one unit of component 'LED' is required. Annual requirement of component 'LED' is 72,000 units, the cost being ₹ 300 per unit. Other relevant details for the year 2015-2016 are:

Cost of placing an order	:	*₹ 2,250*
Carrying cost of inventory	:	*12% per annum*
Lead time-		
Maximum	:	*20 days*
Minimum	:	*8 days*
Average	:	*14 days*
Emergency purchase	:	*5 days*
Consumption-		
Maximum	:	*400 units per day*
Minimum	:	*200 units per day*
Average	:	*300 units per day*

You are required to calculate:

(i) Re-order quantity

(ii) Re-ordering level

(iii) Minimum stock level

(iv) Maximum stock level

(v) Danger level

Question No.: 2 (November 2012 exam – 5 Marks)

KL Limited produces product 'M' which has a quarterly demand of 8,000 units. The product requires 3 kgs quantity of material 'X' for every finished unit of product. The other information are follows:

Cost of material 'X'	:	*₹ 20 per kg.*
Cost of placing an order	:	*₹ 1000 per order*
Carrying Cost	:	*15% per annum of average inventory*

You are required:

(i) Calculate the Economic Order Quantity for material 'X'.

(ii) Should the' company accept an offer of 2 percent discount by the supplier, if he wants to supply the annual requirement of material 'X' in 4 equal quarterly instalments ?

Question No.: 3 (November 2013 exam – 5 Marks)

Primex Limited produces product 'P'. It uses annually 60,000 units of a material 'Rex' costing ₹ 10 per unit. Other relevant information are:

Cost of placing an order	:	*₹ 800 per order*
Carrying cost	:	*15% per annum of average inventory*
Re-order period	:	*10 days*
Safety stock	:	*600 units*

The company operates 300 days in a year.

You are required to calculated:

(i) Economic Order Quantity for material 'Rex'.

(ii) Re-order Level

(ill) Maximum Stock Level

(iv) Average Stock Level

Question No.: 4 (May 2014 exam – 8 Marks)

A company manufactures a product from a raw material, which is purchased at ₹ 80 per kg. The company incurs a handling cost of ₹ 370 plus freight of ₹ 380 per order. The incremental carrying cost of inventory of raw material is ₹ 0.25 per kg per month. In addition, the cost of working capital finance on the investment in inventory of raw material is ₹ 12 per kg per annum. The annual production of the product is 1,00,000 units and 2.5 units are obtained from one kg. of raw material.

Required:

(i) Calculate the economic order quantity of raw materials.

(ii) Advise, how frequently company should order for procurement be placed.

(iii) If the company proposes to rationalize placement of orders on quarterly basis, what percentage of discount in the price of raw materials should be negotiated?

Assume 360 days in a year. *(8 Marks)*

Question No.5 – November 2014 exam

Following details are related to a manufacturing concern:

Re-order Level	*1,60,000 units*
Economic Order Quantity	*90,000 units*
Minimum Stock Level	*1,00,000 units*
Maximum Stock Level	*1,90,000 units*
Average Lead Time	*6 days*
Difference between minimum lead time and Maximum lead time	*4 days*

Calculate:

(i) Maximum consumption per day

(ii) Minimum consumption per day

Question No.6 – May 2017 RTP

Aditya Ltd. has a monthly requirement for an item of raw material is 1,000 units. The purchase price per unit of material is ₹60. The cost of processing an order is ₹540 and the carrying cost is 20%. There is a single supplier for the material which offers quantity discounts as under:

Order Quantity (in units)	Price per unit (₹)
Less than 2,000 units	60.00
2,000 units and less than 4,000 units	59.80
4,000 units and less than 6,000 units	59.50
6,000 units and less than 8,000 units	58.90
8,000 units and above	58.40

The company uses the cash credit facility provided by the company's banker to finance its raw material purchase. The bank due to its own infrastructural constraint, can accommodate a maximum of five fund transfer (NEFT/ RTGS) requests for any single beneficiary per annum. The company in short term is unable to arrange any other source of finance.

Required:

(i) Calculate the optimum purchase order size for the company;

(ii) Calculate the order level where the company could have minimised its total cost;

(iii) The amount of loss that the company has to bear due to bank's inability to process fund transfer requests.

Question No.7 – May 2016 RTP

JP Limited, manufacturers of a special product, follows the policy of EOQ (Economic Order Quantity) for one of its components. The component's details are as follows:

	(₹)
Purchase Price Per Component	200
Cost of an Order	100
Annual Cost of Carrying one Unit in Inventory	10% of Purchase Price
Total Cost of Inventory and Ordering Per Annum	4,000

The company has been offered a discount of 2% on the price of the component provided the lot size is 2,000 components at a time.

You are required to:

(a) Compute the EOQ

(b) Advise whether the quantity discount offer can be accepted.

(c) Would your advice differ if the company is offered 5% discount on a single order?

(Assume that the inventory carrying cost does not vary according to discount policy)

Question No.8 – November 2015 RTP, May 2018 RTP

Aditya Brothers supplies surgical gloves to nursing homes and polyclinics in the city. These surgical gloves are sold in pack of 10 pairs at price of ₹ 250 per pack.

For the month of November 2015, it has been anticipated that a demand for 60,000 packs of surgical gloves will arise. Aditya Brothers purchases these gloves from the manufacturer at ₹ 228 per pack within a 4 to 6 days lead time. The ordering and related cost is ₹ 240 per order. The storage cost is 10% p.a. of average inventory investment.

Required:

(i) Calculated the Economic Order Quantity (EOQ)

(ii) Calculate the number of orders needed every year

(iii) Calculate the total cost of ordering and storage of the surgical gloves.

(iv) Determine when should the next order to be placed. (Assuming that the company does maintain a safety stock and that the present inventory level is 10,033 packs with a year of 360 working days).

Question No.: 9 (November 2012 RTP)

HTC Ltd. is a manufacturer of laptops and for this it requires microprocessors. A laptop requires one microprocessor. The current market demand for the HTCs laptop is 1,40,000 units per annum.

The cost of placing an order is ₹13,500

Purchase price per unit inclusive of shipment charges is ₹6,000

Annual cost of storage per unit is ₹32.5

Orders are delivered within 4 to 8 weeks and for emergency purchase it takes 2 weeks.

Rate of usage of microprocessor is 1500 units to 2800 units per week.

From the above details you are required to calculate (i) Re-order quantity (ii) Re-ordering level (iii) Maximum level (iv) Minimum level and (v) Danger level.

Question No.: 10 (May 2013 RTP)

The following information has been extracted from the records of a cotton merchant, for the month of March, 2013:

Sales for the month: ₹ 62,00,000

Opening Stock as on 01.03.2013: 22,000 kgs @ ₹ 58.50.

Purchases made during the month

Date	Quantity (kgs.)	Rate (₹)
03.03.2013	35,000	59.00
18.03.2013	32,000	59.50
25.03.2013	22,000	60.00

(on all the above purchases, freight is paid @ ₹ 1.75 per kgs)

Closing stock as on 31.03.2013: 23,000 kgs

Salary paid to accountant ₹ 11,000.

From the above information you are required to calculate the following:

(i) Value of closing stock as on 31.03.2013 (using First In First Out (FIFO) method)

(ii) Cost of goods sold during March, 2013 and

(iii) Profit for the month of March, 2013.

Question No.: 11 (November 2013 RTP)

RTC Limited uses chemical-X in one of its finished products. The chemical-X is purchased from a vendor outside India. RTC Limited purchases 36,000 ltr of chemical-X per year at the rate of ₹ 900 per ltr plus import duty @10% on such purchases.

The chemical-X is used evenly throughout the year in the production process on a 360-day-per-year basis. The company incurs ₹ 1,75,000 on one year agreement for material supply with the vendor and it estimates that ₹ 35,000 will be incurred to place a single purchase order. The chemical-X is needed to be kept in a very carefully controlled temperature and humidity conditions. RTC Ltd. incurs 1.5% and 0.2676% of the value of inventory as storage cost and as insurance cost respectively.

Delivery from the vendor generally takes 12 days, but it can take as much as 16 days. The days of delivery time and percentage of their occurrence are shown in the following tabulation:

Delivery time (days)	:	*12*	*13*	*14*	*15*	*16*
Percentage of occurrence	:	*70*	*10*	*10*	*5*	*5*

Required:

(i) Compute the economic order quantity (EOQ).

(ii) Assume the company is willing to assume a 10% risk of being out of stock. What would be the safety stock? The re-order point?

(iii) Assume 5% stock-out risk. What would be the total cost of ordering and carrying inventory for one year?

Question No.: 12 (May 2015 RTP, Nov 2017 RTP)

Aditya Ltd. produces a product 'Exe' using a raw material Dee. To produce one unit of Exe, 2 kg of Dee is required. As per the sales forecast conducted by the company, it will able to sale 10,000 units of Exe in the coming year. The following is the information regarding the raw material Dee:

(i) The Re-order quantity is 200 kg. less than the Economic Order Quantity (EOQ).

(ii) Maximum consumption per day is 20 kg. more than the average consumption per day.

(iii) There is an opening stock of 1,000 kg.

(iv) Time required to get the raw materials from the suppliers is 4 to 8 days.

(v) The purchase price is ₹125 per kg.

There is an opening stock of 900 units of the finished product Exe.

The rate of interest charged by bank on Cash Credit facility is 13.76%.

To place an order company has to incur ₹ 720 on paper and documentation work.

From the above information find out the followings in relation to raw material Dee:

(a) Re-order Quantity

(b) Maximum Stock level

(c) Minimum Stock level

(d) Calculate the impact on the profitability of the company by not ordering the EOQ.

[Take 364 days for a year]

Question No.1 – November 2015

Human Resources Department of A Ltd. computed labour turnover by replacement method at 3% for the quarter ended June 2015. During the quarter, fresh recruitment of 40 workers was made. The number of workers at the beginning and end of the quarter was 990 and 1,010 respectively.

You are required to calculate the labour turnover rate by Separation Method and Flux Method.

Question No.: 2 (May 2012 exam – 8 Marks)

The management of a company wants to formulate an incentive plan for the workers with a view to increase productivity. The following particulars have been extracted from the books of company:

Piece Wage rate ₹ 10

Weekly working hours 40

Hourly wages rate ₹ 40 (guaranteed)

Standard/normal time per unit 15 minutes.

Actual output for a week:

Worker A	*176 pieces*
Worker B	*140 pieces*

Differential piece rate: 80% of piece rate when output below normal and 120% of piece rate when output above normal.

Under Halsey scheme, worker gets a bonus equal to 50% of Wages of time saved.

Calculate:

(i) Earning of workers under Halsey's and Rowan's premium scheme.

(ii) Earning of workers under Taylor's differential piece rate system and Emerson's efficiency plan. (8 Marks)

Question No.: 3 (May 2013 exam – 6 Marks)

A skilled worker is paid a guaranteed wage rate of ₹ 120 per hour. The standard time allowed for a job is 6 hour. He took 5 hours to complete the job. He is paid wages under Rowan Incentive Plan.

(i) Calculate his effective hourly rate of earnings under Rowan Incentive Plan.

(ii) If the worker is placed under Halsey Incentive Scheme (50%) and he wants to maintain the same effective hourly rate of earnings, calculate the time in which he should complete the job. (6 Marks)

Question No.: 4 (November 2013 exam – 8 Marks)

The rate of change of labour force in a company during the year ending 31st March, 2013 was calculated as 13%,8% and 5% respectively under 'Flux Method', 'Replacement

method' and 'Separation method'. The number of workers separated during the year is 40.

You are required to calculate:

(i) Average number of workers on roll.

(ii) Number of workers replaced during the year.

(iii) Number of new accessions i.e. new recruitment.

(iv) Number of workers at the beginning of the year. *(8 Marks)*

Question No.5 – May 2017 RTP

Jigyasa Ltd. pays a basic wage of ₹ 125 per hour to its production workers. The company works 6 days a week in a single shift of 8:00 AM. to 4:30 PM. The company also pays overtime to its workers apart from basic wages for work beyond its normal working hours. The overtime rule is as under:

(i) No over-time is paid for any work upto 5:30 PM.

(ii) ₹ 62.50 per hour for any work done after 5:30 PM.

(iii) The Maximum over-time payment is restricted to ₹ 375 for a day, However, workers are paid ₹ 80 as diet allowance for work done beyond 8:30 PM.

(iv) On Sunday or any holiday, workers are paid ₹ 375 provided they work atleast for 4 hours.

The extract of attendance for three workers is as follows:

	Worker- A	Worker- B	Worker- C
Monday	8:00AM – 6:30 PM	8:00 AM – 7:30 PM	8:00 AM – 9:30 PM
Tuesday (Holiday)	8:00 AM – 5:30 PM	8:00 AM – 12:30 PM	Absent
Wednesday	8:00 AM – 10:30 PM	8:00 AM – 5:30 PM	8:00 AM – 11:30 PM

Thursday	8:00 AM – 4:30 PM	8:00 AM – 9:30 PM	8:00 AM – 8:30 PM
Friday	8:00 AM – 11:00 PM	8:00 AM – 4:30 PM	8:00 AM – 4:30 PM
Saturday	Absent	8:00 AM – 5:30 PM	8:00 AM – 7:30 PM
Sunday	Absent	8:00 AM – 1:30 PM	8:00 AM – 4:30 PM

Required:

(i) Calculate the amount of overtime and diet allowance payable to each worker.

(ii) Calculate the amount and accounting treatment of overtime and diet allowance in each case:

(a) Worker A and C were involved in a specific job work assigned to them.

(b) Overtime was due to under-estimation of sales demand provided by the sales department.

(c) Overtime was due to make up a shortfall in production due to sudden demand.

Question No.6 – November 2016 RTP

A Company is undecided as to what kind of wage scheme should be introduced. The following particulars have been compiled in respect of three workers. Which are under consideration of the management.

	I	II	III
Actual hours worked	380	100	540
Hourly rate of wages (in ₹)	40	50	60
Productions in units:			
- Product A	210	-	600
- Product B	360	-	1350
- Product C	460	250	-
Standard time allowed per unit of each product is:			
	A	B	C
Minutes	15	20	30

For the purpose of piece rate, each minute is valued at ₹ 1/-

You are required to calculate the wages of each worker under:

(i) Guaranteed hourly rate basis

(ii) Piece work earning basis, but guaranteed at 75% of basic pay (Guaranteed hourly rate if his earnings are less than 50% of basic pay.)

(iii) Premium bonus basis where the worker received bonus based on Rowan scheme.

Question No.7 – May 2016 RTP, Nov 2017 RTP

Jyoti Ltd. wants to ascertain the profit lost during the year 2014-15 due to increased labour turnover. For this purpose, they have given you the following information:

(1) Training period of the new recruits is 50,000 hours. During this period their productivity is 60% of the experienced workers. Time required by an experienced worker is 10 hours per unit.

(2) 20% of the output during training period was defective. Cost of rectification of a defective unit was ₹ 25.

(3) Potential productive hours lost due to delay in recruitment were 1,00,000 hours.

(4) Selling price per unit is ₹ 180 and P/V ratio is 20%.

(5) Settlement cost of the workers leaving the organization was ₹ 1,83,480.

(6) Recruitment cost was ₹ 1,56,340

(7) Training cost was ₹ 1,13,180

You are required to calculate the profit lost by the company due to increased labour turnover during the year 2014-15.

Question No.8 – November 2015 RTP

Arnav Limited manufactures and sales plastic chairs. It pays wages under the differential piece rate system by following F.W. Taylor's System with a standard piece rate of ₹ 12.50 per unit of chair produced by the workers. Standard production per hour is 4 chairs. Each worker is supposed to work 8 hours a day from Monday to Friday and 5 hours on Saturday. Presently, there are 118 workers who are entitled for this plan.

The plant and machinery used to manufacture the chairs was purchased long back and does not match with the efficiency of the workers. Workers appraised their concerns to the management and demanded wages on the time rate basis i.e. ₹ 50 per hour and the incentive under the Halsey Premium plan.

The following production estimates has been made for the month of November, 2015 under the three scenarios:

Scenario	Worst case	Optimal case	Best case
Production (in units)	42,400	84,960	1,27,400

Required:

(a) Calculate total wages and average wages per worker per month, under the each scenario, when

(i) Current system of wages and incentive payment system is followed

(ii) Workers' demand for time rate wages and Halsey premium plan is accepted.

(b) Mr. K, during the month of October 2015, has produced 1,050 units. What will be impact on his earning if he will be able to produce the same number of units in next month also. Should he support the workers' demand?

(Take 4 working weeks in a month)

Question No.: 9 (May 2013 RTP)

Mr. X had been allotted a work which had to be completed within 80 hours. He took 74 hours to complete the work. The company pays incentive bonus of 10% on the hourly rate if standard time is achieved and a further incentive bonus of 2% on hourly rate for each 1% in excess of 100% efficiency is payable. The normal wage rate is ₹ 30 per hour.

Calculate the effective wage rate per hour worked and total wages to be paid to Mr. X.

Question No.: 10 (May 2014 RTP)

A, B and C are three industrial workers working in Sports industry and are experts in making cricket pads. A, B and C are working in Mahi Sports, Virat Sports and Sikhar Sports companies respectively. Workers are paid under different incentive schemes. Company wise incentive schemes are as follows:

Company	Incentive scheme
Mahi Sports	Emerson's efficiency system
Virat Sports	Merrick differential piece rate system
Sikhar Sports	Taylor's differential piece work system

The relevant information for the industry is as under:

Standard working hours	8 hours a day
Standard output per hour (in units)	2
Daily wages rate	₹ 360
No. of working days in a week	6 days

Actual outputs for the week are as follows:

A	B	C
132 units	108 units	96 units

You are required to calculate effective wages rate and weekly earnings of all the three workers.

Question No.:11 – November 2014 RTP

Jigyasa Boutiques LLP. (JBL) takes contract on job works basis. It works for various fashion houses and retail stores. It has employed 26 workers and pays them on time rate basis. On an average an employee is allowed 2 hours for boutique work on a piece of garment. In the month of March 2014, two workers Margaret and Jennifer were given 30 pieces and 42 pieces of garments respectively for boutique work. The following are the details of their work:

	Margaret	Jennifer
Work assigned	30 pcs.	42 pcs.
Time taken	28 hours	40 hours

Workers are paid bonus as per Halsey System. The existing rate of wages is ₹ 50 per hour. As per the new wages agreement the workers will be paid ₹ 55 per hour w.e.f. 1st April 2014. At the end of the month March 2014, the accountant of the company has calculated wages to these two workers taking ₹ 55 per hour.

(i) From the above information calculate the amount of loss that the company has incurred due to incorrect rate selection.

(ii) What would be the loss incurred by the JBL due to incorrect rate selection if it had followed Rowan scheme of bonus payment.

(iii) Amount that could have been saved if Rowan scheme of bonus payment was followed.

(iv) Do you think Rowan scheme of bonus payment is suitable for JBL?

Question No.12 – May 2017

(a) RST Company Ltd. has computed labour turnover rates for the quarter ended 31st March, 2017 as 20%, 10% and 5% under flux method, replacement method and separation method respectively. If the number of workers replaced during that quarter is 50, find out (i) Workers recruited and joined (ii) Workers left and discharged and (iii) Average number of workers on roll. (5 Marks)

Question No.13 – November 2017

A skilled worker is paid a guaranteed wage rate of ₹ 150.00 per hour. The standard time allowed for a job is 50 hours. He gets an effective hourly rate of wages of ₹180.00 under Rowan Incentive Plan due to saving in time. For the same saving in time, calculate the hourly rate of wages he will get, if he is placed under Halsey Premium Scheme (50%).

Question No.1 – May 2016

The following particulars refer to process used in the treatment of material subsequently, incorporated in a component forming part of an electrical appliance:

(i) *The original cost of the machine used (Purchased in June 2008) was ₹ 10,000. Its estimated life is 10 years, the estimated scrap value at the end of its life is ₹ 1,000, and the estimated working time per year (50 weeks of 44 hours) is 2,200 hours of which machine maintenance etc., is estimated to take up 200 hours.*

No other loss of working time expected, setting up time, estimated at 100 hours, is regarded as productive time. (Holiday to be ignored).

(ii) *Electricity used by the machine during production is 16 units per hour at cost of a 9 paisa per unit. No current is taken during maintenance or setting up.*

(iii) *The machine required a chemical solution which is replaced at the end of week at a cost of ₹ 20 each time.*

(iv) *The estimated cost of maintenance per year is ₹ 1,200.*

(v) *Two attendants control the operation of machine together with five other identical machines. Their combined weekly wages, insurance and the employer's contribution to holiday pay amount ₹ 120.*

(vi) *Departmental and general works overhead allocated to this machine for the current year amount to ₹ 2,000.*

You are required to calculate the machine hour rate of operating the machine.

Question No.: 2 (May 2012 exam – 5 Marks)

A Machine costing ₹10 lacs was purchased on 1-4-2011. the expected life of the machine is 10 years. At the end of this period its scrap value is likely to be ₹10,000. the total cost of all the machines including new one was ₹90 lacs.

The other information is given as follows:

(i) *Working hours of the machine for the year was 4,200 including 200 non-productive hours.*

(ii) *Repairs and maintenance for the new machine during the year was ₹ 5,000.*

(iii) *Insurance Premium was paid for all the machine ₹ 9,000.*

(iv) *New machine consumes 8 units of electricity per hour, the rate per unit being ₹ 3.75*

(v) *The new machine occupies area of the department. Rent of the department is 2,400 per month.*

(vi) *Depreciation is charged on straight line basis*

Compute machine hour rate for the new machine.

Question No.: 3 (November 2012 exam – 8 Marks)

The following account balances and distribution of indirect charges are taken from the accounts of a manufacturing concern for the year ending on 31st March, 2012: (8 Marks)

Item	Total Amount	Production Departments			Service Departments	
	(₹)	X (₹)	Y (₹)	Z (₹)	A (₹)	B (₹)
Indirect Material	1,25,000	20,000	30,000	45,000	25,000	5,000
Indirect Labour	2,60,000	45,000	50,000	70,000	60,000	35,000
Superintendent's Salary	96,000	-	-	96,000	-	-
Fuel & Heat	15,000					
Power	1,80,000					
Rent & Rates	1,50,000					
Insurance	18,000					
Meal Charges	60,000					
Depreciation	2,70,000					

The following departmental data are also available:

	Production Departments			Service Departments	
	X	Y	Z	A	B
Area (Sq. ft.)	4,400	4,000	3,000	2,400	1,200
Capital Value of Assets (₹)	4,00,000	6,00,000	5,00,000	1,00,000	2,00,000
Kilowatt Hours	3,500	4,000	3,000	1,500	-
Radiator Sections	20	40	60	50	30
No. of Employees	60	70	120	30	20

Expenses charged to the service departments are to be distributed to other departments by the following percentages:

	X	Y	Z	A	B
Department A	30	30	20	-	20
Department B	25	40	25	10	-

Prepare an overhead distribution statement to show the total overheads of production departments after re-apportioning service departments' overhead by using simultaneous equation method. Show all the calculations to the nearest rupee.

Question No.: 4 (November 2013 exam – 8 Marks)

Calculate Machine Hour Rate from the following particulars:

Cost of Machine	-	*₹ 25,00,000*
Salvage Value	-	*₹ 1,25,000*
Estimated life of the machine	-	*25,000 Hours*
Working Hours (per annum)	-	*3,000 Hours*
Hours required for maintenance	-	*400 Hours*
Setting-up time required	-	*8% of actual working hours*

Additional Information:

(i) Power 25 units @ ₹ 5 per unit per hour.

(ii) Cost of repairs and maintenance ₹ 26,000 per annum.

(iii) Chemicals required for operating the machine ₹ 2,600 per month.

(iv) Overheads chargeable to the machine ₹ 18,000 per month.

(v) Insurance Premium (per annum) 2% of the cost of machine

(vi) No. of operators - 02 (looking after three other machines also)

(vii) Salary per operator per month ₹ 18,500 *(8 Marks)*

Question No: 5 – May 2015 exam

A machine shop cost centre contains three machines of equal capacities. Three operators are employed on each machine, payable ₹ 20 per hour each. The factory works for 48 hours in a week which includes 4 hours set up time. The work is jointly done by operators. The operators are paid fully for the 48 hours. In addition, they are also paid a bonus of 10% of productive time. Costs are reported for this company on the basis of thirteen, four-weekly period.

The company, for the purpose of computing machine hour rate includes the direct wages of the operator and also recoups the factory overheads allocated to the machines. The following details of factory overheads applicable to the cost centres are available:

Original Cost of each machine	*- ₹ 52,000*
Depreciation on the original cost of the machine	*-₹ 10% p.a.*
Maintenance & Repair per week per machine	*- ₹ 60*
Consumable Stores per week per machine	*- ₹ 75*
Power: 20 units per hour per machine	*- 80 paise per unit*

Apportionment to the cost centre:

Rent per annum	*₹ 5,400*
Heat and Light per annum	*₹ 9,720*
Foreman's Salary per annum	*₹ 12,960*

Calculate:

(i) the cost of running one machine for a four week period.

(ii) machine hour rate. *(8 Marks)*

Question No.6 – November 2016 RTP

PQR Ltd. manufactures two products A and B. The manufacturing division consists of two production department P_1 and P_2 and two service departments S_1 and S_2. Budgeted overhead rates are used in the production departments to absorb factory overhead to the products. The rate of department P_1 is based on direct machine hours, while the rate of department P_2 is based on direct labour hours. In applying overheads, the pre-determined rates are multiplied by actual hours.

For allocating the service department costs to production departments, the basis adopted is as follows:

(i) Cost of department S_1 to department P_1 and P_2 equal and

(ii) Cost of department S_2 to department P_1 and P_2 in the ratio of 2:1 respectively.

Annual profit plan data:

Factory Overheads budgeted for the year:

Departments	P_1	P_2	S_1	S_2
Amount (₹)	25,50,000	21,75,000	6,00,000	4,50,000

Budgeted output of product A and B are 50,000 units and 30,000 units respectively.

Budgeted raw material cost per unit for product A and B are ₹120 and ₹150 respectively.

Budgeted time required for production per unit:

	Product A	Product B
Department P_1	1.5 machine hours	1.0 machine hours
Department P_2	2 direct labour hours	2.5 direct labour hours

Average wage rates budgeted in Department P_2 are: Product A – ₹ 72 per hour and Product B – ₹ 75 per hour.

All materials are used in Department P_1 only.

Actual data (for the month of July 2016)

Units actually produced: Product A 4,000 units

Product B 3,000 units

Actual direct machine hours worked in Department P_1:

On Product A – 6,100 hours, Product B – 4,150 hours.

Actual direct labour hours worked in Department P_2:

On Product A – 8,200 hours, Product B – 7,400 hours.

Costs actually incurred:

	Product A	Product B
Raw Materials	4,89,000	4,56,000
Wages	5,91,000	5,52,000

Factory Overheads:

Departments	P_1	P_2	S_1	S_2
Amount (₹)	2,31,000	2,04,000	60,000	48,000

You are required to:

(i) Compute the predetermined overhead rate for each production department.

(ii) Prepare a Statement showing Budgeted and Actual costs for the month of July, 2016.

Question No.7 – May 2016 RTP

In an engineering company, the factory overheads are recovered on a fixed percentage basis on direct wages and the administration overheads are absorbed on a fixed percentage basis on factory cost.

The company has furnished the following data relating to two jobs undertaken by it in a period:

	Job 101 (₹)	Job 102 (₹)
Direct Materials	54,000	37,500
Direct Wages	42,000	30,000
Selling Price	1,66,650	1,28,250
Profit Percentage on total cost	10%	20%

Required:

(i) Computation of percentage recovery rates of factory overheads and administrative overheads.

(ii) Calculation of the amount of factory overheads, administrative overheads and profit for each of the two jobs.

(iii) Using the above recovery rates, fix the selling price of job 103. The additional data being.

Direct Materials	₹ 24,000
Direct Wages	₹ 20,000
Profit Percentage on Selling Price	12-1/2%

Question No.8 – November 2015 RTP

PQR manufacturers – a small scale enterprise, produces a single product and has adopted a policy to recover the production overheads of the factory by adopting a single blanket rate based on machine hours. The annual budgeted production overheads for the year 2015-16 are ₹ 44,00,000 and budgeted annual machine hours are 2,20,000.

For a period of first six months of the financial year 2015 -2016, following information were extracted from the books:

Actual production overheads	₹ 24,88,200
Amount included in the production overheads:	
Paid as per court's order	₹ 1,28,000
Expenses of previous year booked in current year	₹ 1,200
Paid to workers for strike period under an award	₹ 44,000
Obsolete stores written off	₹ 6,700

Production and sales data of the concern for the first six months are as under:

Production:	
Finished goods	24,000 units
Works-in-progress	
(50% complete in every respect)	18,000 units
Sale:	
Finished goods	21,600 units

The actual machine hours worked during the period were 1,16,000 hours. It is revealed from the analysis of information that ¼ of the under/ over absorption was due to defective production policies and the balance was attributable to increase/decrease in costs.

Required:

(i) Determine the amount of under/over absorption of production overheads for the six months period of 2015-16.

(ii) Show the accounting treatment of under/ over absorption of production overheads, and

(iii) Apportion the under/ over absorbed overheads over the items.

Question No.: 9 (November 2012 RTP)

NM Ltd. is a manufacturing company having three production departments X, Y and Z and two service departments P and Q. The following is the budget for the year 2012-13.

	Total (₹)	X (₹)	Y (₹)	Z (₹)	P (₹)	Q (₹)
Direct Materials		20,000	35,000	40,000	15,000	25,000
Direct wages		35,000	48,000	26,000	25,000	28,000
Factory rent	42,000					
Power	30,000					
Depreciation	24,000					
Other overheads	84,000					

Additional Information:

Area (Square feet)	1200	600	900	150	150
Capital value of assets (₹ in lakh)	15	30	15	10	5
Machine hours	1,500	3,000	4,200	1,200	900
Horse power of machines	120	80	40	30	30

A technical assessment of the apportionment of expenses of service departments is as under:

	X	Y	Z	P	Q
Service Department P	40%	20%	25%	-	15%
Service Department Q	55%	15%	10%	20%	-

You are required to compute:

(i) A statement showing distribution of overheads to various departments.

(ii) A statement showing re-distribution of service department's expenses to production departments.

Question No.: 10 (November 2013 RTP)

Aditya Ltd. has three production departments P_1, P_2 and P_3 and two service departments S_1 and S_2.

The following data are extracted from the records of the Company for the month of May, 2013:

	(₹)
Rent and rates	*1,23,500*
General lighting	*72,000*
Indirect Wages	*68,200*
Power	*85,000*
Depreciation on machinery	*3,25,000*
Insurance of machinery	*95,000*

Other Information:

	P_1	P_2	P_3	S_1	S_2
Direct wages (₹)	*84,000*	*66,000*	*72,000*	*24,000*	*6,000*
Horse Power of Machines used	*80*	*40*	*60*	*20*	*10*
Cost of machinery (₹)	*14,00,000*	*16,00,000*	*10,00,000*	*3,00,000*	*4,50,000*
Floor space (Sq. ft)	*3,000*	*3,500*	*4,000*	*1,000*	*500*
Number of light points	*30*	*20*	*20*	*15*	*10*
Production hours worked	*6,240*	*4,150*	*4,050*	–	–

Expenses of the service departments S_1 and S_2 are reapportioned as below:

	P_1	P_2	P_3	S_1	S_2
S_1	*30%*	*20%*	*30%*	–	*20%*
S_2	*40%*	*30%*	*15%*	*15%*	–

Required:

(i) Compute overhead absorption rate per production hour of each production department.

(ii) Determine the total cost of product X which is processed for manufacture in department P_1, P_2 and P_3 for 5 hours, 3 hours and 4 hours respectively, given that its direct material cost is ₹ 1,215 and direct labour cost is ₹ 975.

Question No.: 11 (May 2014 RTP)

Arnav Ltd. has three production departments M, N and O and two service departments P and Q. The following particulars are available for the month of September, 2013:

	(₹)
Lease rental	35,000
Power & Fuel	4,20,000
Wages to factory supervisor	6,400
Electricity	5,600
Depreciation on machinery	16,100
Depreciation on building	18,000
Payroll expenses	21,000
Canteen expenses	28,000
ESI and Provident Fund Contribution	58,000

Followings are the further details available:

Particulars	M	N	O	P	Q
Floor space (square meter)	1,200	1,000	1,600	400	800
Light points (nos.)	42	52	32	18	16
Cost of machines (₹)	12,00,000	10,00,000	14,00,000	4,00,000	6,00,000
No. of employees (nos.)	48	52	45	15	25
Direct Wages (₹)	1,72,800	1,66,400	1,53,000	36,000	53,000
HP of Machines	150	180	120	-	-
Working hours (hours)	1,240	1,600	1,200	1,440	1,440

The expenses of service department are to be allocated in the following manner:

	M	N	O	P	Q
P	30%	35%	25%	-	10%
Q	40%	25%	20%	15%	-

You are required to calculate the overhead absorption rate per hour in respect of the three production departments.

Question No.:12 (November 2014 RTP)

Vision Ltd. manufactures luggage trolleys for airports. The factory, in which the company undertakes all of its production, has two production departments- 'Fabrication' and 'Assembly', and two service departments- 'Stores' and 'Maintenance'.

The following information have been extracted from the company's budget for the financial year ended 31st March, 2014:

Allocated Overhead Costs	₹
Fabrication Department	15,52,000
Assembly Department	7,44,000
Stores Department	2,36,000
Maintenance Department	1,96,000
Other Overheads	₹
Factory rent	15,28,000
Factory building insurance	1,72,000
Plant & machinery insurance	1,96,000
Plant & Machinery Depreciation	2,65,000
Subsidy for staffs' canteen	4,48,000

Direct Costs	₹	₹
Fabrication Department:		
Material	63,26,000	
Labour	8,62,000	71,88,000
Assembly Department:		
Material	1,42,000	
Labour	13,06,000	14,48,000

The following additional information is also provided:

	Fabrication Department	Assembly Department	Stores Department	Maintenance Department
Floor area (square meters)	24,000	10,000	2,500	3,500
Value of plant & machinery (₹)	16,50,000	7,50,000	75,000	1,75,000
No. of stores requisitions	3,600	1,400	---	---
Maintenance hours required	2,800	2,300	400	---
No. of employees	120	80	38	12
Machine hours	30,00,000	60,000		
Labour hours	70,000	26,00,000		

Required:

(a) Prepare a table showing the distribution of overhead costs of the two service departments to the two production departments using step method; and

(b) Calculate the most appropriate overhead recovery rate for each department.

(c) Using the rates calculated in part (b) above, calculate the full production costs of the following job order:

Job number IGI2014

Direct Materials	₹ 1,15,200
Direct Labour:	
Fabrication Department	240 hours @ ₹ 18 per hour
Assembly Department	180 hours @ ₹ 18 per hour
Machine hours required:	
Fabrication Department	210 hours
Assembly Department	150 hours

Question No.: 13 – May 2015 RTP, Nov 2017 RTP

The Union Ltd. has the following account balances and distribution of direct charges on 31st March, 2014.

	Total	Production Depts.		Service Depts.	
		Machine Shop	Packing	General Plant	Stores
Allocated Overheads:	(₹)	(₹)	(₹)	(₹)	(₹)
Indirect labour	29,000	8,000	6,000	4,000	11,000
Maintenance Material	9,900	3,400	1,600	2,100	2,800
Misc. supplies	5,900	1,500	2,900	900	600
Supervisor's salary	16,000	--	--	16,000	--
Cost & payroll salary	80,000	--	--	80,000	--

Overheads to be apportioned:

Power	78,000
Rent	72,000
Fuel and Heat	60,000
Insurance	12,000
Taxes	8,400
Depreciation	1,20,000

The following data were compiled by means of the factory survey made in the previous year:

	Floor Space	Radiator Section	No. of employees	Investment	H.P. hours
Machine Shop	2,000 Sq. ft.	45	20	8,00,000	3,500
Packing	800 Sq. ft.	90	12	2,40,000	500

General Plant	400 Sq. ft.	30	4	80,000	-
Stores & maintenance	1,600 Sq. ft.	60	8	1,60,000	1,000

Expenses charged to the stores departments are to be distributed to the other departments by the following percentages:

Machine shop 50%; Packing 20%; General Plant 30%;

General Plant overheads is distributed on the basis of number of employees.

(a) Prepare an overhead distribution statement with supporting schedules to show computations and basis of distribution.

(b) Determine the service department distribution by simultaneous equation method.

Question No.14 – November 2017

APP Limited is a manufacturing concern and recovers overheads at a pre-determined rate of ₹ 30 per man-day.

The following additional information of a period are also available for you:

Total factory overheads incurred	*₹ 51,00,000*
Man-days actually worked	*1,50,000*
Sales (in units)	*50,000*
Stock at the end of the period:	
Completed units	*5,000*
incompleted units (50% completed)	*10,000*

There was no opening stock of finished goods and works in progress.

On analyzing the situation, it was discovered that 60% of the unabsorbed overheads were due to defective planning and balance were attributable to increase in overhead costs.

How would you treat unabsorbed overheads in cost accounts? ***(8 Marks)***

CHAPTER 5 – ACTIVITY BASED COSTING

Question No.1 – May 2016 RTP, Nov 2017 RTP

A manufacturing company produces Ball Pens that are printed with the logos of various companies. Each Pen is priced at ₹5. Costs are as follows:

Cost Driver	Unit Variable Cost (₹)	Level of Cost Driver
Units Sold	2.5	-
Setups	225	40
Engineering hours	10	250

Other Data

Total Fixed Costs (conventional)	₹ 48,000
Total Fixed Costs (ABC)	₹ 36,500

Required

(i) Compute the break-even point in units using activity-based analysis.

(ii) Suppose that company could reduce the setup cost by ₹ 75 per setup and could reduce the number of engineering hours needed to 215. How many units must be sold to break even in this case?

Question No.2 – November 2016

Speedo Limited is a specialist car manufacturer that produces various models of cars. The organization is due to celebrate its 100th anniversary next year. To mark the occasion, Speedo Limited intends to produce a sports car; the Model Royal. As this will be a special edition, production will be limited to 1,000 numbers of Model Royal Cars.

Speedo Limited is considering using a target costing approach and has conducted market research to determine the features that consumers require in a sport car. Based on this market research and knowledge of competitor's products, company has decided to price the Model Royal at ₹ 9.75 Lacs. Company requires an operating profit margin of 25% of the selling price of the car. Details for the forthcoming year are as follows:

Forecast of direct costs for a Model Royal Car-

Labour..... ₹ 2,50,000

Material..... ₹ 4,75,000

Forecast of annual overhead costs-

	₹ In lacs	Cost driver
Production line cost	2,310	See note 1
Transportation costs	900	See note 2

Note 1

The production line that would be used for Model Royal has a capacity of 60,000 machine hours per year. The production line time required for Model Royal is 6 machine hours per car. This production line will also be used to make other cars and will be working at full capacity.

Note 2

Some models of cars are delivered to showrooms using car transporters, 60% of the transportation costs are related to the number of deliveries made. 40% of the transportation costs are related to the distance travelled.

The car transporters have forecast to make a total of 640 deliveries in the year and carry 10 cars each time. The car transporter will always carry its maximum capacity of 10 cars.

The total annual distance travelled by car transporters is expected to be 2,25,000 kms. 50,000 kms of this is for the delivery of Model Royal cars only. All 1,000 Model Royal cars that will be produced will be delivered in the year using the car transporters.

Required

(i) Calculate the forecast total cost of producing and delivering a Model Royal car using Activity Based Costing principles to assign the overhead costs.

(ii) Calculate the cost gap that currently exists between the forecast total cost and the target total cost of a Model Royal car. (10 Marks)

Question No.3 – May 2016

Indicate 2 activity drivers in respect of each of the following activity cost pools:

(i) Manufacturing cost

(ii) Human resources cost

(iii) Marketing and sales costs

(iv) Accounting costs (4 Marks)

Question No.4 – May 2015

Linex Limited manufactures three products P, Q and R which are similar in nature and are usually produced in production runs of 100 units. Product P and R require both machine hours and assembly hours, whereas product Q requires only machine hours. The overheads incurred by the company during the first quarter are as under:

	₹
Machine Department expenses	*18,48,000*
Assembly Department expenses	*6,72,000*

Setup costs	90,000
Stores receiving cost	1,20,000
Order processing and dispatch	1,80,000
Inspect and Quality control cost	36,000

The date related to the three products during the period are as under:

	P	Q	R
Units produced and sold	15,000	12,000	18,000
Machine hours worked	30,000 hrs.	48,000 hrs.	54,000 hrs.
Assembly hours worked (direct labour hours)	15,000 hrs.	-	27,000 hrs.
Customers orders executed (in numbers)	1,250	1,000	1,500
Number of requisitions raised on the stores	40	30	50

Prepare a statement showing details of overhead costs allocated to each product type using activity based costing. (8 Marks)

Question No.5 – November 2014

A company manufactures several products of varying designs and models. It uses a single overhead recovery rate based on direct labour hours. The overheads incurred by the Company in the first half of the year are as under:

	₹
Machine operation expenses	20,25,000
Machine maintenance expenses	3,75,000
Salaries of technical staff	12,75,000
Wages and salaries of stores staff	5,25,000

During this period, the company introduced activity based costing system and the following significant activities were identified:

- Receiving materials and components
- Set up of machines for production runs
- Quality inspection

It is also determined that:

- The machine operation and machine maintenance expenses should be apportioned between stores and production activity in 1:4 ratio.
- The technical staff salaries should be apportioned between machine maintenance, set up and quality inspection in 3 : 4 : 3 ratio.

The consumption of activities during the period under review are as under:

- Direct labour hours worked 80,000
- Production set-ups 4,080
- Material and components consignments received from suppliers 3,920
- Number of quality inspection carried out 2,560

The direct wages rate is ₹ 12 per hour.

The data relating to two products manufactured by the company during the period are as under:

		P	Q
Direct Materials costs	₹	12,000	8,000
Direct labour hours	Hrs.	960	100
Direct Materials Consignments received	nos.	48	52
Production runs	nos.	36	24
Number of quality inspection done	nos.	30	10
Quantity Produced	units in nos.	15,000	5,000

A potential customer has approached the company for the supply of 24,000 units of a component 'R' to be delivered in lots of 3,000 units per quarter. The job will involve an initial design cost of ₹60,000 and the manufacture will involve the following per quarter.

Direct Material costs	₹	12,000
Direct labour hours	Hrs.	300
Production runs	nos.	6
Inspections	nos.	24

Number of consignments of direct materials to be received	nos.	20

You are required to:

1. Calculate the cost of products P and Q based on the existing system of single overhead Recovery rate.
2. Determine the cost of product P & Q using Activity Based Costing system.
3. Compute the sales values per quarter of components 'R' using Activity Based Costing system. (considering a mark up of 25% on cost) (10 Marks)

Question No.6 – May 2014

PQR Ltd. specializes in the distribution of pharmaceutical products. It buys from pharmaceutical companies and resells to each of the three different markets:

(i) General Supermarket Chains

(ii) Drug Store Chains

(iii) Chemist Shops

The company plans to use activity based costing for analyzing the profitability of its distribution channels. The following data for the quarter ending March 2014 is given:

	General Supermarket Chains	Drug Store Chains	Chemist Shop
Average sales per delivery	₹ 96,500	₹ 32,450	₹ 6,225
Average cost of goods sold per delivery	₹ 94,650	₹ 31,800	₹ 5,950
Number of deliveries	960	2,470	8,570
Total number of orders	1,000	2,650	9,500
Average number of cartons shipped per delivery	250	75	12
Average number of hours of shelf stocking per delivery	2	0.5	0.1

The following information is available in respect of operating costs (other than cost of goods sold) for the quarter ending March 2014:

Activity Area	Cost Driver	Total Cost (₹)
Customer purchase order processing	Purchase order by customers	5,91,750
Customer store delivery	Number of deliveries	9,60,000
Cartons dispatched to customer stores	Number of Cartons dispatched to customer stores	7,92,135
Shelf stocking at customer store	Hours of shelf stocking	80,240

Compute the operating income of each distribution channel for the quarter ending March 2014 using activity based costing. *(8 Marks)*

Question No.7 – November 2013

MK Ltd. manufactures four products, namely A, B, C and D using the same plant and process. The following information relates to a production period:

Product	A	B	C	D
Output in Units	720	600	480	504

The four products are similar and are usually produced in production runs of 24 units and sold in batches of 12 units. The total overheads incurred by the company for the period are as follows:

	₹
Machine operation and maintenance cost	63,000
Setup costs	20,000
Store receiving	15,000
Inspection	10,000
Material handling and dispatch	2,592

During the period the following cost drivers are to be used for the overhead cost:

Cost	Cost driver
Setup cost	No. of production runs
Store receiving	Requisitions raised
Inspection	No. of production runs
Material handling and dispatch	Orders executed

It is also determined that:

- *Machine operation and maintenance cost should be apportioned between setup cost, store receiving and inspection activity in the ratio 4: 3: 2.*
- *Number of requisition raised on store is 50 for each product and the no. of orders executed is 192, each order being for a batch of 12 units of a product.*

Calculate the total overhead cost per unit of each product using activity based costing after finding activity wise overheads allocated to each product. *(8 Marks)*

Question No.8 – May 2013

DEF Bank operated for years under the assumption that profitability can be increased by increasing Rupee volumes. But that has not been the case. Cost analysis has revealed the following:

Activity	Activity Cost (₹)	Activity Driver	Activity Capacity
Providing ATM service	1,00,000	No. of transactions	2,00,000
Computer processing	10,00,000	No. of transactions	25,00,000
Issuing Statements	8,00,000	No. of statements	5,00,000
Customer inquiries	3,60,000	Telephone minutes	6,00,000

The following annual information on three products was also made available:

	Checking Accounts	Personal Loans	Gold Visa
Units of product	30,000	5,000	10,000
ATM transactions	1,80,000	0	20,000
Computer transactions	20,00,000	2,00,000	3,00,000
Number of statements	3,00,000	50,000	1,50,000
Telephone minutes	3,50,000	90,000	1,60,000

Required:

(i) Calculate rates for each activity.

(ii) Using the rates computed in requirement (i), calculate the cost of each product.

(8 Marks)

Question No.9 – November 2013 RTP

Edward Ltd. manufactures weighing machines of standard size and sells its products to two industrial customers namely MT Ltd. and KG Ltd. and to a dealer MG Bros. having shops in different cities. The maximum retail price per unit of weighing machine is ₹ 11,000 and per unit average cost of production is ₹ 5,500 (40% is general fixed overhead cost).

The Finance Officer has been asked to undertake a customer profitability analysis and calculate and compare the profit margin per customer (before deducting general fixed overhead) to know about the real customer profitability.

Following are the additional overhead information:

Delivery costs	₹ 200 per kilometer
Emergency delivery cost (in addition to delivery cost)	₹ 21,000 per delivery
Order processing cost	₹ 6,000 per order
Specific discount and sales commission	As per negotiation
Product Advertisement cost	Actual cost

The following data are available for each customer

Particulars	MT Ltd.	KG Ltd.	MG Bros.
Sales (in units)	2,000	1,000	800
Total delivery kilometer travelled	1,000	800	900
No. of emergency delivery	2	1	0
No. of orders processed	4	2	8
Specific Discount (percentage of sales revenue)	25%	20%	15%
Sales Commission (percentage of sales revenue)	15%	10%	5%
Advertisement Costs (₹)	8,75,000	6,15,000	4,30,000

You are required to analyse the profitability for each customer, which customer is the most profitable.

Question No.10 – May 2018 RTP

G-2020 Ltd. is a manufacturer of a range of goods. The cost structure of its different products is as follows:

Particulars	Product A	Product B	Product C	
Direct Materials	50	40	40	₹/u
Direct Labour @ ₹ 10/ hour	30	40	50	₹/u
Production Overheads	30	40	50	₹/u
Total Cost	110	120	140	₹/u
Quantity Produced	10,000	20,000	30,000	Units

G-2020 Ltd. was absorbing overheads on the basis of direct labour hours. A newly appointed management accountant has suggested that the company should introduce ABC system and has identified cost drivers and cost pools as follows:

Activity Cost Pool	Cost Driver	Associated Cost (₹)
Stores Receiving	Purchase Requisitions	2,96,000
Inspection	Number of Production Runs	8,94,000
Dispatch	Orders Executed	2,10,000
Machine Setup	Number of Setups	12,00,000

The following information is also supplied:

Details	Product A	Product B	Product C
No. of Setups	360	390	450
No. of Orders Executed	180	270	300
No. of Production Runs	750	1,050	1,200
No. of Purchase Requisitions	300	450	500

Required

CALCULATE activity based production cost of all the three products.

CHAPTER 6 – COST SHEET

Question No.1 – May 2018 RTP

From the following figures, CALCULATE cost of production and profit for the month of March 2018.

	Amount (₹)		Amount (₹)
Stock on 1st March, 2018		Purchase of raw materials	28,57,000
- Raw materials	6,06,000	Sale of finished goods	1,34,00,000
- Finished goods	3,59,000	Direct wages	37,50,000
Stock on 31st March, 2018		Factory expenses	21,25,000
- Raw materials	7,50,000	Office and administration expenses	10,34,000
- Finished goods	3,09,000	Selling and distribution expenses	7,50,000
Work-in-process:		Sale of scrap	26,000
- On 1st March, 2018	12,56,000		
- On 31st March, 2018	14,22,000		

Question No.1 – November 2016

The Trading and Profit and Loss Account of a company for the year ended 31-03-2016 is as under:

Trading and Profit and Loss Account

	₹		₹
To Materials	26,80,000	By Sales (50,000 units)	62,00,000
To Wages	17,80,000	By Closing Stock (2,000 units)	1,50,000
To Factory Expenses	9,50,000	By Dividend received	20,000
To Administrative Expenses	4,80,200		
To Selling Expenses	2,50,000		
To Preliminary Expenses written off	50,000		
To Net Profit	1,79,800		
	63,70,000		63,70,000

In the Cost Accounts:

(i) Factory expenses have been allocated to production at 20% of Prime Cost.

(ii) Administrative expenses absorbed at 10% of factory cost.

(iii) Selling expenses charged at ₹ 10 per unit sold.

Prepare the Costing Profit and Loss Account of the company and reconcile the Profit/Loss with the profit as shown in the Financial Accounts. ***(8 Marks)***

Question No.2 – May 2016

The following information is available from a company's records for March, 2016:

(a)	Opening Balance of Creditors Account	₹ 25,000
(b)	Closing Balance of Creditors Account	₹ 40,000
(c)	Payment made to Creditors	₹ 5,80,000
(d)	Opening Balance of Stores Ledger Control Account	₹ 40,000
(e)	Closing Balance of Stores Ledger Control Account	₹ 65,000
(f)	Wages paid (for 8000 hours) 20% relate to indirect workers	₹ 4,00,000
(g)	Various indirect expenses incurred	₹ 60,000
(h)	Opening balance of WIP control account	₹ 50,000
(i)	Inventory of WIP at the end of the month includes material worth ₹ 35,000 on which 400 labour hours have been booked.	

(j) Factory overhead is charged to production at budgeted rate based on direct labour hours.

(k) Budgeted overhead cost is ₹ 20,80,000 for budgeted direct labour hours 1,04,000.

You are required to prepare Creditors A/c, Stores Ledger Control A/c, WIP Control A/c, Wages Control A/c and Factory Overhead Control A/c. (8 Marks)

Question No.: 3 (November 2012 exam – 8 Marks)

R Limited showed a net loss of ₹ 35,400 as per their cost accounts for the year ended 31st March, 2012. However, the financial accounts disclosed a net profit of ₹ 67,800 for the same period. The following information were revealed as a result of scrutiny of the figures of cost accounts and financial accounts: (8 Marks)

		(₹)
(i)	Administrative overhead under recovered	25,500
(ii)	Factory overhead over recovered	1,35,000
(iii)	Depreciation under charged in Cost Accounts	26,000
(iv)	Dividend received	20,000
(v)	Loss due to obsolescence charged in Financial Accounts	16,800
(vi)	Income tax provided	43,600
(vii)	Bank interest credited in Financial Accounts	13,600
(viii)	Value of opening stock:	
	In Cost Accounts	1,65,000
	In Financial Accounts	1,45,000
(ix)	Value of closing stock:	
	In Cost Accounts	1,25,500
	In Financial Accounts	1,32,000
(x)	Goodwill written-off in Financial Accounts	25,000
(xi)	Notional rent of own premises charged in Cost Accounts	60,000
(xii)	Provision for doubtful debts in Financial Accounts	15,000

Prepare a reconciliation statement by taking costing net loss as base.

Question No.: 4 (November 2013 exam – 5 Marks)

Journalise the following transactions assuming cost and financial accounts are integrated :

		₹
(i)	Materials issued :	
	Direct	3,25,000
	Indirect	1,15,000
(ii)	Allocation of wages (25% indirect)	6,50,000
(iii)	Under/Over absorbed overheads:	
	Factory (Over)	2,50,000
	Administration (Under)	1,75,000
(iv)	Payment to Sundry Creditors	1,50,000
(v)	Collection from Sundry Debtors	2,00,000

Question No.: 5 (May 2014 exam – 5 Marks)

A manufacturing company has disclosed net loss of ₹ 48,700 as per their cost accounting records for the year ended 31st March, 2014. However their financial accounting records disclosed net profit of ₹ 35,400 for the same period. A scrutiny of data of both the sets of books of accounts revealed the following informations:

			₹
(i)		Factory overheads under absorbed	30,500
(ii)		Administrative overheads over absorbed	65,000
(iii)		Depreciation charged in financial accounts	2,25,000
(iv)		Depreciation charged in cost accounts	2,70,000
(v)		Income-tax provision	52,400
(vi)		Transfer fee (credited in financial accounts)	10,200
(vii)		Obsolescence loss charged in financial accounts	20,700
(viii)		Notional rent of own premises charged in cost accounts	54,000
(ix)		Value of opening stock:	
	(a)	in cost accounts	1,38,000
	(b)	in financial accounts	1,15,000
(x)		Value of closing stock:	
	(a)	in cost accounts	1,22,000
	(b)	in financial accounts	1,12,500

Prepare a Memorandum Reconciliation Account by taking costing loss as base.

Question No.6 – November 2014 exam, May 2017

Following information have been extracted from the cost records of XYZ Pvt. Ltd:

	₹
Stores:	
Opening balance	*54,000*
Purchases	*2,88,000*
Transfer from WIP	*1,44,000*
Issue to WIP	*2,88,000*
Issue for repairs	*36,000*
Deficiency found in stock	*10,800*

Work-in-progress:	₹
Opening balance	*1,08,000*
Direct wages applied	*1,08,000*
Overheads charged	*4,32,000*
Closing balance	*72,000*

Finished Production:	₹
Entire production is sold at a profit of 15% on cost at WIP	
Wages paid	*1,26,000*
Overheads incurred	*4,50,000*

Draw the Stores Ledger Control Account, Work-in-Progress Control Account, Overheads Control Account and Costing Profit and Loss Account. *(8 Marks)*

Question No.7 – May 2016 RTP

A manufacturing company disclosed a net loss of ₹ 3,47,000 as per their Cost Accounts for the year ended March 31, 2016. The Financial Accounts however disclosed a net loss of ₹ 5,10,000 for the same period. The following information was revealed as a result of scrutiny of the figures of both the sets of accounts.

	(₹)
(i) Factory Overheads under-absorbed	40,000
(ii) Administration Overheads over-absorbed	60,000
(iii) Depreciation charged in Financial Accounts	3,25,000
(iv) Depreciation charged in Cost Accounts	2,75,000

(v) Interest on investments not included in Cost Accounts	96,000
(vi) Income-tax provided	54,000
(vii) Interest on loan funds in Financial Accounts	2,45,000
(viii) Transfer fees (credit in financial books)	24,000
(ix) Stores adjustment (credit in financial books)	14,000
(x) Dividend received	32,000

Prepare a memorandum Reconciliation Account.

Question No.8 – November 2015 RTP

As of 31st March, 2015, the following balances existed in a firm's cost ledger, which is maintained separately on a double entry basis:

	Debit(₹)	Credit(₹)
Stores Ledger Control A/c	3,20,000	–
Work-in-progress Control A/c	1,52,000	–
Finished Goods Control A/c	2,56,000	–
Manufacturing Overhead Control A/c	–	28,000
Cost Ledger Control A/c	–	7,00,000
	7,28,000	7,28,000

During the next quarter, the following items arose:

	(₹)
Finished Product (at cost)	2,35,500
Manufacturing overhead incurred	91,000
Raw material purchased	1,36,000
Factory wages	48,000
Indirect labour	20,600
Cost of sales	1,68,000
Materials issued to production	1,26,000
Sales returned (at cost)	8,000
Materials returned to suppliers	11,000
Manufacturing overhead charged to production	86,000

You are required to prepare the Cost Ledger Control A/c, Stores Ledger Control A/c, Work-in-progress Control A/c, Finished Stock Ledger Control A/c, Manufacturing Overhead Control A/c, Wages Control A/c, Cost of Sales A/c and the Trial Balance at the end of the quarter as per costing records.

Question No.: 9 (November 2012 RTP)

The following balances were extracted from a company's ledger as on 31st Dec 2011

	₹	₹
Raw materials control account	42,000	
Work-in-progress control account	16,000	
Finished stock control account	24,000	
Nominal ledger control account		82,000
	82,000	82,000

Further transactions took place during the following quarter as follows:

	₹
Factory overhead-allocated to WIP	11,500
Goods finished-at cost	38,800
Raw materials purchased	32,400
Direct wages-allocated to WIP	19,300
Cost of goods sold	46,000
Raw materials-issued to production	21,000
Raw materials-credited by suppliers	1,200
Inventory audit-raw material losses	1,000
WIP rejected (with no scrap value)	1,300
Customer's returns(at cost) of finished goods	3,400

Prepare all the Ledger Accounts in Cost Ledger

Question No.: 10 (May 2013 RTP)

The following incomplete accounts are furnished to you for the month ended 31st March, 2013.

Dr. Stores Control Account Cr.

1.03.13	To Balance b/d	54,000			

Dr. Work in Progress Control Account Cr.

1.03.13	To Balance b/d	6,000			

Dr. Finished Goods Control Account Cr.

1.03.13	To Balance b/d	75,000			

Dr. Factory Overhead Control Account Cr.

	Total debits for March,13	45,000			

Dr. Fixed Overhead Applied Account Cr.

Dr. Cost of Goods Sold Account Cr.

Dr. Creditors Account Cr.

			1.03.13	By Balance b/d	30,000

Additional Information:

(a) The factory overheads are applied by using a budgeted rate based on direct labour hours. The budget for overheads for 2012-13 is ₹ 6,75,000 and budget of direct labour hours is 4,50,000.

(b) The balance in the account of creditors on 31.03.2013 is ₹ 15,000 and payments made to creditors in March, 2013 amount to ₹ 1,05,000.

(c) The finished goods inventory as on 31st March, 2013 is ₹ 66,000.

(d) The cost of goods sold during the month was ₹ 1,95,000.

(e) on 31st March, 2013, there was only one unfinished job in the factory. The cost records show that ₹ 3,000 (1,200 direct labour hours) of direct labour cost and ₹ 6,000 of direct material cost had been charged.

(f) A total of 28,200 direct labour hours were worked in March, 2013. All factory workers earn same rate of pay.

(g) All actual factory overheads incurred in March, 2013 have been posted.

You are required to find:

(i) Materials purchased during March, 2013.

(ii) Cost of goods completed in March, 2013.

(iii) Overheads applied to production in March, 2013.

(iv) Balance of work in progress on 31st March, 2013.

(v) Direct materials consumed during March, 2013.

(vi) Balance of Stores Control Account on 31st March, 2013.

(vii) Over-absorbed or under-absorbed overheads for March, 2013.

Question No.: 11 (November 2013 RTP, November 2017 RTP)

The financial books of a company reveal the following data for the year ended 31st March, 2013:

Opening Stock:	*(₹)*
Finished goods 625 units	*53,125*
Work-in-process	*46,000*
01.04.2012 to 31.03.2013	
Raw materials consumed	*8,40,000*
Direct Labour	*6,10,000*
Factory overheads	*4,22,000*
Administration overheads	*1,98,000*
Dividend paid	*1,22,000*
Bad Debts	*18,000*
Selling and Distribution Overheads	*72,000*
Interest received	*38,000*
Rent received	*46,000*
Sales 12,615 units	*22,80,000*
Closing Stock: Finished goods 415 units	*45,650*
Work-in-process	*41,200*

The cost records provide as under:

- Factory overheads are absorbed at 70% of direct wages.
- Administration overheads are recovered at 15% of factory cost.
- Selling and distribution overheads are charged at ₹ 3 per unit sold.
- Opening Stock of finished goods is valued at ₹ 120 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

(i) Prepare statements for the year ended 31st March, 2013 show
- *the profit as per financial records*
- *the profit as per costing records.*

(ii) *Present a statement reconciling the profit as per costing records with the profit as per Financial Records.*

Question No.1 – November 2015

M.L. Auto Ltd. is a manufacturer of auto components and the details of its expenses for the year 2014 are given below:

		(₹)
(i)	Opening Stock of Material	1,50,000
(ii)	Closing Stock of Material	2,00,000
(iii)	Purchase of Material	18,50,000
(iv)	Direct Labour	9,50,000
(v)	Factory Overhead	3,80,000
(vi)	Administrative Overhead	2,50,400

During 2015, the company has received an order from a car manufacturer where it estimates that the cost of material and labour will be ₹ 8,00,000 and ₹ 4,50,000 respectively. M.L. Auto Ltd. charges factory overhead as a percentage of direct labour and administrative overhead as a percentage of factory cost based on previous year's cost.

Cost of delivery of the components at customer's premises is estimated at ₹ 45,000.

You are required to:

(i) Calculate the overhead recovery rates based on actual costs for 2014.

(ii) Prepare a detailed cost statement for the order received in 2015 and the price to be quoted if the company wants to earn a profit of 10% on sales. (8 Marks)

Question No.2 – Batch costing

Arnav Confectioners (AC) owns a bakery which is used to make bakery items like pastries, cakes and muffins. AC use to bake at least 50 units of any item at a time. A customer has given an order for 600 cakes. To process a batch, the following cost would be incurred:

Direct materials - ₹ 5,000

Direct wages - ₹ 500 (irrespective of units)

Oven set- up cost - ₹750 (irrespective of units)

AC absorbs production overheads at a rate of 20% of direct wages cost. 10% is added to the total production cost of each batch to allow for selling, distribution and administration overheads.

AC requires a profit margin of 25% of sales value.

Required:

(i) DETERMINE the price to be charged for 600 cakes.

(ii) CALCULATE cost and selling price per cake.

(iii) DETERMINE what would be selling price per unit If the order is for 605 cakes.

Question No.1 – November 2015

PVK Constructions commenced a contract on 1st April, 2014. Total contract value was ₹ 100 lakhs. The contract is expected to be completed by 31st December, 2016. Actual expenditure during the period 1st April, 2014 to 31st March, 2015 and estimated expenditure for the period 1st April, 2015 to 31st December, 2016 are as follows:

	Actual (₹)	Estimated (₹)
	1st April, 2014 to 31st March, 2015	1st April, 2015 to 31st Dec. 2016
Material issued	15,30,000	21,00,000
Direct Wages paid	10,12,500	12,25,000
Direct Wages outstanding	80,000	1,15,000
Plant purchased	7,50,000	-
Expenses paid	3,25,000	5,40,000
Prepaid Expenses	68,000	-
Site office expenses	3,00,000	-

Part of the material procured for the contract was unsuitable and was sold for ₹ 2,40,000 (cost being ₹ 2,55,000) and a part of plant was scrapped and disposed of for ₹ 80,000. The value of plant at site on 31st March, 2015 was ₹ 2,50,000 and the value of material at site was ₹ 73,000. Cash received on account to date was ₹ 36,00,000, representing 80% of the work certified. The cost of work uncertified was valued at ₹ 5,40,000.

Estimated further expenditure for completion of contract is as follows:

- *An additional amount of ₹ 4,62,500 would have to be spent on the plant and the residual value of the plant on the completion of the contract would be ₹ 67,500.*
- *Site office expenses would be the same amount per month as charged in the previous year.*
- *An amount of ₹ 1,57,500 would have to be incurred towards consultancy charges.*

Required:

Prepare Contract Account and calculate estimated total profit on this contract. (8 Marks)

Question No.: 2 (May 2012 exam – 8 Marks)

A contractor commenced a contract on 1-7-2011. The costing records concerning the said contract reveal the following information as on 31-32012.

	Amount (₹)
Material sent to site	7,74,300
Labour paid	10,79,000
Labour outstanding as on 31-3-2012	1,02,500
Salary to Engineer	20,500 per month
Cost of plant sent to site (1-7-2011)	7,71,000
Salary to Supervisor (3/4 time devoted to contract)	9,000 per month
Administration & other expenses	4,60,600
Prepaid Administration expenses	10,000
Material in hand at site as on 31-3-2012	75,800

Plant used for the contract has an estimated life of 7 years with residual value at the end of life ₹ 50,000. Some of material costing ₹ 13,500 was found unsuitable and sold for ₹ 10,000. Contract price was ₹ 45,00,000. On 31-3-2012 two third of the contract was completed. The architect issued certificate covering 50% of the contract price and contractor has been paid ₹ 20,00,000 on account. Depreciation on plant is charged on straight line basis.

Prepare Contract Account. (8 Marks)

Question No.: 3 (November 2012 exam – 4 Marks)

From the following particulars compute a conservative estimate of profit by 4 methods on a contract which has 80 percent complete: (4 Marks)

	₹
Total expenditure to date	8,50,000
Estimate further expenditure to complete the contract	1,70,000

Contract Price	15,30,000
Work Certified	10,00,000
Work not certified	85,000
Cash received	8,16,000

Question No.: 4 (May 2014 exam – 8 Marks)

M/s ABID Constructions undertook a contract at a price of ₹ 171.00 lacs. The relevant data for the year ended 31st March, 2014 are as under:

	(₹'000)
Material issued at site	7700
Direct Wages paid	3300
Site office cost	550
Material return to store	175
Work certified	12650
Work uncertified	225

Progress Payment Received	10120
Prepaid site office cost as on 31-03-2014	50
Direct wages outstanding as on 31-03-2014	100
Material at site as on 31-03-2014	110

Additional Information:

(a) A plant was purchased for the contract at ₹ 8,00,000 on 01-12-2013.

(b) Depreciation @ 15% per annum is to be charged.

(c) Material which cost ₹ 1,30,000 was destroyed by fire.

Prepare:

(i) Contract Account for the year ended 31st March, 2014 and compute the profit to be taken to the Profit & Loss Account.

(ii) Account of Contractee.

(iii) Profit & Loss Account showing the relevant items.

(iv) Balance Sheet showing the relevant items. (8 Marks)

Question No.: 5 – November 2014 exam

Z Limited obtained a contract No. 999 for ₹ 50 lacs. The following details are available in respect of this contract for the year ended March 31, 2014:

	₹
Materials purchased	1,60,000
Materials issued from stores	5,00,000
Wages and salaries paid	7,00,000
Drawing and maps	60,000
Sundry expenses	15,000
Electricity charges	25,000
Plant hire expenses	60,000
Sub-contract cost	20,000
Materials returned to stores	30,000
Materials returned to suppliers	20,000

The following balances relating to the contract No. 999 for the year ended on March 31, 2013 and March 31, 2014 are available:

	as on 31st March, 2013	as on 31st March, 2014
Work certified	12,00,000	35,00,000
Work uncertified	20,000	40,000
Materials at site	15,000	30,000
Wages outstanding	10,000	20,000

The contractor receives 75% of work certified in cash.

Prepare Contract Account and Contractee's Account. (8 Marks)

Question No.6 – May 2017 RTP

The following details have been extracted from the books of DKG Construction LLP, which closes its books on 31st March every year.

	Contract 101	Contract 102
Date of commencement	1st April, 2015	1st December, 2015
Expected date of completion	31st September, 2016	31st December, 2016
	Amount (₹'000)	Amount (₹'000)
Contract price	4,000	1,100
Material issued to construction site	1,400	300
Material returned to store	160	60
Plant & Machinery sent to construction site	2,000	300
Inter-contract material transfer	(80)	80
Materials at site on 31st March, 2016	150	30
Plant hire charges	400	60
Wages paid to workers	600	540
Overhead apportioned	150	36
Other direct expenses	50	8
Value of work certified	3,000	750
Cost of work not certified	320	40
Progress payment received from contractees	2,880	700
Estimated cost of completion	270	220

Depreciation is charged on plant and machinery @ 15% p.a. using straight line method.

Required:

Prepare contract account for each contract using columnar format, showing Cost of work certified and Notional profit / loss on each contract.

Question No.7 – November 2016 RTP

ABC Construction Ltd. has started a contract on 1st April 2015. The Trial balance as on 31st March 2016 showed the following balances:

Particulars	Dr. (₹)	Cr. (₹)
Paid up share capital		1,75,00,000
Land and buildings	46,00,000	
Machinery at cost (80% at site)	36,00,000	
Cash and bank	30,000	
Materials at cost	25,26,000	

Creditors for materials		10,30,600
Direct wages	13,28,000	
Site expenses	9,60,000	
Vehicles	32,20,000	
Furniture	3,22,000	
Office equipments	6,40,000	
Postage and Stationery	29,600	
Office expenses	6,26,000	
Rates and taxes	25,600	
Fuel and power	8,46,000	
Outstanding wages		2,24,000
Advance rates and taxes	1,400	
	1,87,54,600	1,87,54,600

The contract price is ₹ 2,50,00,000 and work certified is ₹ 1,00,00,000. The cost of work uncertified is ₹ 12,00,000. Machinery costing ₹ 2,00,000 was returned to stores at the end of the year. Stock of material at site on 31st March 2016 was of the value of ₹ 50,000. Depreciation on Machinery, Vehicles and furniture are 10%, 20% and 15% respectively.

You are required to calculate the profit from the contract.

Question No.8 – May 2016 RTP

A contractor commenced a building contract on October 1, 2013. The contract price is ₹ 4,40,000. The following data pertaining to the contract for the year 2014-15 has been compiled from his books and is as under:

		(₹)
April, 2014	Work-in-progress not certified	55,000
	Materials at site	2,000
2014-15	Expenses incurred:	
	Materials issued	1,12,000
	Wages paid	1,08,000
	Hire of plant	20,000
	Other expenses	34,000
March 31, 2015	Materials at site	4,000
	Work-in-progress: Not certified	8,000
	Work-in-progress: Certified	4,05,000

The cash received represents 80% of work certified. It has been estimated that further costs to complete the contract will be ₹23,000 including the materials at site as on March 31, 2015.

Required

Determine the profit on the contract for the year 2014-15 on prudent basis, which has to be credited to Costing P/L A/c.

Question No.: 9 (May 2013 RTP)

Giant Construction Ltd. has been constructing a flyover for 15 months and is under progress. The following information relating to the work on the contract has been prepared for the period ended 31st March, 2013.

	Amount (₹)
Contract price	65,00,000
Value of work certified at the end of the year	57,20,000
Cost of work not yet certified at the end of the year	1,20,000
Opening balances:	
Cost of work completed	8,00,000
Materials on site	80,000
Costs incurred during the year:	
Material delivered to site	15,90,000
Wages	14,95,000
Hire of plant	2,86,000
Other expenses	2,30,000
Closing balance: Material on site	40,000

As soon as materials are delivered to the site, they are charged to the contract account. A record is kept on actual use basis, periodically a stock verification is made and any discrepancy between book stock and physical stock is transferred to a general contract material discrepancy account. The stock verification at the year end revealed a stock shortage of ₹ 15,000.

In addition to the direct charges listed above, general overheads are charged to contracts at 5% of the value of work certified. General overheads of ₹ 35,000 had been absorbed into the cost of work completed at the beginning of the year.

It has been estimated that further costs to complete the contract will be ₹ 5,72,000. This estimate includes the cost of materials on site at the end of the year (31.3.2013) and also a provision for rectification.

Required:

(i) Determine profitability of the above contract and recommend how much profit should be taken for the year just ended. (Provide a detailed schedule of costs).

(ii) State how your recommendation in (i) would be affected if the contract price was ₹ 80,00,000 (rather than ₹ 65,00,000) and if no estimate has been made of costs to completion.

Question No.: 10 (May 2014 RTP)

Hut-to-Palace Ltd. undertook a contract in last year. In the agreement between the Hut-to-Palace Ltd. and the contractee, there is a clause stating that Hut-to-Palace Ltd. will receive total cost plus 40% as contract consideration. The following are the details of the contract as on 31st March, 2014:

	(₹)
Total expenditure to date	17,64,525
Estimated further expenditure to complete the contract	8,38,645
Value of work certified	21,07,500
Cost of work not certified	3,11,075
Progress payment received from the contractee	14,75,250

From the above information calculate the

(i) Conservative estimate of profit for the management of Hut-to-Palace Ltd.

(ii) What would be the estimated profit from the contract if management of Hut-to-Palace Ltd has come to know that the contractee has liquidity crunch and it is not able to pay further payments.

Question No.: 11 – May 2015 RTP

Dream house (P) Ltd. is engaged in building two residential housing projects in the city. Particulars related to two housing projects are as below:

	HP-1 (₹)	HP-2 (₹)
Work in Progress on 1st April 2013	7,80,000	2,80,000
Materials Purchased	6,20,000	8,10,000
Land purchased near to the site to open an office	-	12,00,000
Brokerage and registration fee paid on the above purchase	-	60,000
Wages paid	85,000	62,000
Wages outstanding as on 31st March, 2014	12,000	8,400
Donation paid to local clubs	5,000	2,500
Plant hire charges paid for three years effecting from 1st April 2013	72,000	57,000
Value of materials at site as on 31st March, 2014	47,000	52,000
Contract price of the projects	48,00,000	36,00,000
Value of work certified	20,50,000	16,10,000
Work not certified	1,90,000	1,40,000

A concrete mixture machine was bought on 1st April 2013 for ₹ 8,20,000 and used for 180 days in HP-1 and for 100 days in HP-2. Depreciation is provided @ 15% p.a.(this machine can be used for any other projects)

As per the contract agreement contractee shall retain 20% of work certified as retention money.

Prepare contract account for the two housing projects showing the profit or loss on each project for the year ended 31st March, 2014.

Question No.12 – November 2017 RTP

G. Constructions has undertaken three separate building contracts. Information relating to these contracts for the year 2016-17 are as under:

	Contract –I (Amount in ₹'000)	Contract –II (Amount in ₹'000)	Contract –IIII (Amount in ₹'000)
Value of contract	17,500	14,500	24,500
Balance as on 01-04-2016:			
Work completed and certified	--	4,100	8,150
Materials at site	--	220	310
Plant & Machinery (WDV)	--	770	3,760
Wages outstanding	--	48	104
Profit transferred to Costing P/L A/c.	--	--	350
Transaction during the year:			
Materials issued to the sites	870	2,150	4,020
Wages paid to workers	450	1,160	2,180
Salary to site staffs	90	85	135
Travelling and other expenses	18	24	32
Plants issued to sites	910	240	680
Apportionment of Head office expenses	110	90	126
Balance as on 31-03-2017:			
Materials at site	215	152	12
Plant & Machinery (WDV)	728	808	3,552
Wages outstanding	52	98	146
Value of work certified	2,000	8,600	24,000
Cost of work not certified	800	452	560

As per the contract agreement 15% of the certified value of the contract is kept by the contractees as retention money. The Contact-III is scheduled to be completed in the

coming months, however, this contract required a further estimated cost of ₹ 7,20,000 to get it completed.

Required:

(a) Prepare Contract Statement for each of the three contracts and calculate the notional/ estimated profit/ loss

(b) Calculate the profit/ loss to be transferred to Costing Profit & Loss Account for internal managerial purpose.

Question No.13 – May 2018 RTP

A factory uses job costing. The following data are obtained from its books for the year ended 31st March, 2018:

	Amount (₹)
Direct materials	9,00,000
Direct wages	7,50,000
Selling and distribution overheads	5,25,000
Administration overheads	4,20,000
Factory overheads	4,50,000
Profit	6,09,000

Required:

(i) PREPARE a Job Cost sheet indicating the Prime cost, Cost of Production, Cost of sales and the Sales value.

(ii) In 2018-19, the factory received an order for a job. It is estimated that direct materials required will be ₹ 2,40,000 and direct labour will cost ₹ 1,50,000. DETERMINE what should be the price for the job if factory intends to earn the same rate of profit on sales assuming that the selling and distribution overheads have gone up by 15%. The factory overheads is recovered as percentage of wages paid, whereas, other overheads as a percentage of cost of production, based on cost rates prevailing in the previous year.

Question No.14 – November 2017

Premier Construction Company undertook a contract for ₹ 5,00,000 on 1st August, 2016. On 31st March, 2017 when the accounts were closed, the following information was available:

Cost of work uncertified	*₹ 1,20,000*
Cash received	*₹ 2,50,000 (80 of work certified)*
Profit transferred to costing Profit and Loss account at the end of the year on Incomplete contract	*₹ 80,000*

Calculate:

(i) The value of work in progress certified

(ii) Degree of completion of contract

(iii) Notional Profit and

(iv) Cost of contract as on 31-03-2017

CHAPTER 12 – SERVICE COSTING

Question No.1 – November 2016

Royal transport company has been given a 50 kilometre long route to run 6 buses. The cost of each bus is ₹ 7,50,000. The buses will make 3 round trips per day carrying on an average 75 percent passengers of their seating capacity. The seating capacity of each bus is 48 passengers. The buses will run on an average 25 days in a month. The other information for the year 2016-17 is given below:

Garage Rent	*₹ 6,000 per month*
Annual Repairs & Maintenance	*₹ 24,000 each bus*
Salaries of 6 drivers	*₹ 4,000 each per month*
Wages of 6 conductors	*₹ 1,600 each per month*
Wages of 6 cleaners	*₹ 1,000 each per month*

Manager's salary	*₹ 10,000 per month*
Road Tax, Permit fee, etc.	*₹ 6,000 for a quarter*
Office expenses	*₹ 2,500 per month*
Cost of diesel per litre	*₹ 66*
Kilometer run per litre for each bus	*6 kilometres*
Annual Depreciation	*20% of cost*
Annual Insurance	*4% of cost*
Engine oils & lubricants (for 1,000 kilometres)	*₹ 2,000*

You are required to calculate the bus fare to be charged from each passenger per kilometer (upto four decimal points), if the company wants to earn profit of $33\frac{1}{3}$ *percent on taking (total receipts from passengers).* ***(8 Marks)***

Question No.: 2 (November 2013 exam – 8 Marks)

The following information relates to a bus operator:

Cost of the bus	*₹*	*18,00,000*
Insurance charges		*3% p.a.*
Manager-cum accountant's salary	*₹*	*8,000 p.m.*

Annual Tax	₹	50,000
Garage Rent	₹	2,500 p.m.
Annual repair & maintenance	₹	1,50,000
Expected life of the bus		15 years
Scrap value at the end of 15 years	₹	1,20,000
Driver's salary	₹	15,000 p.m.
Conductor's salary	₹	12,000 p.m.
Stationery	₹	500 p.m.
Engine oil, lubricants (for 1200 kms.)	₹	2,500
Diesel and oil (for 10 kms.)	₹	52
Commission to driver and conductor (shared equally)		10% of collections
Route distance		20 km long

The bus will make 3 round trips for carrying on the average 40 passengers in each trip. Assume 15% profit on collections. The bus will work on the average 25 days in a month.

Calculate fare for passenger-km. (8 Marks)

Question No.3 – May 2015 exam

A mini-bus, having a capacity of 32 passengers, operates between two places - 'A' and 'B'. The distance between the place 'A' and place 'B' is 30 km. The bus makes 10 round trips in a day for 25 days in a month. On an average, the occupancy ratio is 70% and is expected throughout the year.

The details of other expenses are as under:

	Amount (₹)	
Insurance	15,600	Per annum
Garage Rent	2,400	Per quarter
Road Tax	5,000	Per annum
Repairs	4,800	Per quarter
Salary of operating staff	7,200	Per month
Tyres and Tubes	3,600	Per quarter
Diesel: (one litre is consumed for every 5 km)	13	Per litre
Oil and Sundries	22	Per 100 km run
Depreciation	68,000	Per annum

Passenger tax @ 22% on total taking is to be levied and bus operator requires a profit of 25% on total taking.

Prepare operating cost statement on the annual basis and find out the cost per passenger kilometer and one way fare per passenger. (8 Marks)

Question No.4 – May 2017 RTP

Happy Transport Service is a Delhi based national goods transport service provider, owning four trucks for this purpose. The cost of running and maintaining these trucks are as follows:

Particulars	Amount
Diesel cost	₹13.75 per km.
Engine oil	₹ 4,200 for every 13,000 km.
Repair and maintenance	₹ 12,000 for every 10,000 km.
Driver's salary	₹18,000 per truck per month
Cleaner's salary	₹7,500 per truck per month
Supervision and other general expenses	₹12,000 per month
Cost of loading of goods	₹150 per Metric Ton (MT)

Each trucks were purchased for ₹ 20 lakhs with an estimated life of 7,20,000 km.

During the next month, it is expecting 6 bookings, the details are as follows:

Sl. No.	Journey	Distance in km	Weight- Up (in MT)	Weight- Down (in MT)
1.	Delhi to Kochi	2,700	14	6
2.	Delhi to Guwahati	1,890	12	0
3.	Delhi to Vijayawada	1,840	15	0
4.	Delhi to Varanasi	815	10	0
5.	Delhi to Asansol	1,280	12	4
6.	Delhi to Chennai	2,185	10	8
	Total	10,710	73	18

Required

(i) Calculate the total absolute Ton-km for the vehicles.

(ii) Calculate the cost per ton-km.

Question No.5 – November 2016 RTP

P Ltd. distributes its goods to dealers using a delivery van. The dealers' premises are 40 kilometre away from the company's office. The van has a capacity of 10 tonnes and makes the journey twice a day fully loaded on the outward journeys and empty on return journey. The following information is available for a four weekly period during the year 2016:

Diesel consumption	10 kilometre per litre
Diesel cost	₹48 per litre
Lubricant oil	₹600 per week

Drivers salary	₹12,000 per month
Repairs & Maintenance	₹1,800 per month
Garage rent	₹4,800 per months
Cost of van (excluding tyres)	₹16,00,000
Life of van	3,80,000 kilometres
Insurance	₹5,400 per annum
Cost of tyres	₹22,000
Life of tyres	80,000 kilometres
Estimated sale value of van at end of its life	₹2,40,000
Vehicle permit fee	₹3,600 per annum
Other overhead cost	₹66,000 per annum

The van operates five-day a week.

Required:

(i) A statement to show the total monthly cost of operating the vehicle.

(ii) Calculate the operating cost per kilometre and per tonne kilometre.

Question No.6 – May 2016 RTP

JRP Resorts (P) Ltd. offers three types of rooms to its guests, viz Deluxe room, Super Deluxe room and Luxury Suite. You are required to ascertain the tariff to be charged to the customers for different types of rooms on the basis of following information:

Type of Room	Number of Rooms	Occupancy
Deluxe Room	100	90%
Super Deluxe Room	60	75%
Luxury Suite	40	60%

Rent of 'Super Deluxe' room is to be fixed at 2 times of 'Deluxe room' and that of 'Luxury Suite' is 3 times of 'Deluxe room'. Annual expenses are as follows:

Particulars	Amount (₹in lakhs)
Staff salaries	680.00
Lighting, Heating and Power	300.00
Repairs, Maintenance and Renovation	180.00
Linen	30.00
Laundry charges	24.00
Interior decoration	75.00
Sundries	30.28

An attendant for each room was provided when the room was occupied and he was paid ₹ 500 per day towards wages. Further, depreciation is to be provided on building @ 5% on ₹ 900 lakhs, furniture and fixtures @ 10% on ₹ 90 lakhs and air conditioners @ 10% on ₹ 75 lakhs.

Profit is to be provided @ 25% on total taking and assume 360 days in a year.

Question No.: 7 (November 2012 RTP)

An Executive manager spends ₹10.00 per kilometer on taxi fares for his office work. He is considering two other alternatives, the purchase of a new Nano car or a second hand Innova car. The estimated cost figures are as follows:

Items	New Nano Car	Old Innova Car
Purchase Price	₹1,35,000	₹1,60,000
Sale price, after 5 years	₹25,000	₹40,000
Repairs and servicing per annum	₹12,000	₹18,000
Taxes and insurance per annum	₹3,200	₹2,400
Petrol consumption per liter	20 km	15 km
Petrol/ Diesel price, per liter	₹68.00	₹42.00

He estimates that he has to travel 10,800 km annually. Which of the three alternatives will be economical? If his official visit increases and he has to do 18,000 km per annum what should be his decision?

At how many km per annum will the cost of the two cars break-even and why? Ignore interest and income-tax.

Question No.: 8 (November 2013 RTP)

Arnav Automobiles distribute its goods to a regional dealer using a single lorry. The dealer's premises are 20 kilometers away by road. The lorry has a capacity of 10 tonnes and makes the journey twice a day 90% loaded on the outward journeys and 10% on return journeys. The following information is available for a four weekly period during the year 2013:

Petrol consumption	*6 killometer per litre*
Petrol cost	*₹64 per litre*
Lubricants	*₹125 per week*
Driver's salary	*₹2,000 per week*
Repairs	*₹1,250 per week*
Garage rent	*₹1,30,000 per annum*
Cost of lorry (excluding tyres)	*₹9,80,000*
Life of lorry	*80,000 kilometers*
Insurance	*₹13,650 per annum*
Cost of tyres	*₹28,000*
Estimated value of lorry at end of its life	*₹1,80,000*
Vehicle licence cost	*₹5,200 per annum*
Other overhead cost	*₹45,500 per annum*
Life of tyres	*28,000 kilometers*
The lorry operates on a six days week	

Required:

(a) A statement to show the total cost of operating the vehicle for the four weekly period.

(b) Calculate the vehicle cost per kilometre and per tonne kilometre.

Question No.: 9 (May 2014 RTP)

Voyager Cabs Pvt. Ltd. is a New Delhi based cab renting company, provides cab facility on rent for cities Delhi, Agra and Jaipur to the tourists. To attract more tourists it has launched a new three days tour package for Delhi-Jaipur-Agra-Delhi. Following are the relevant information regarding the package:

Distance between Delhi to Jaipur (Km.)	274
Distance between Delhi to Agra (Km.)	242
Distance between Agra to Jaipur (Km.)	238

Price of diesel in Delhi	₹ 54 per litre
Price of diesel in Jaipur	₹ 56 per litre
Price of diesel in Agra	₹ 58 per litre
Mileage of cab per litre of diesel (Km.)	16
Chauffeur's salary	₹ 12,000 per month
Cost of the cab	₹ 12,00,000
Expected life of the cab	24,00,000 kms.
Servicing cost	₹ 30,000 after every 50,000 kilometres run.
Chauffeur's meal allowance	₹ 50 for every 200 kilometres of completed journey
Other set up and office cost	₹ 2,400 per month.

Voyager Cabs has made tie-up with fuel service centres at Agra, Jaipur and Delhi to fill diesel to its cabs on production of fuel passbook to the fuel centre. Company has a policy to get fuel filled up sufficient to reach next destination only.

You are required to calculate the price inclusive of service tax @ 12.36% to be quoted for the package if company wants to earn profit of 25% on its net takings i.e. excluding service tax.

Question No.:10 (November 2014 RTP)

Gopal Milk Co-Operative Society (GMCS) collects raw milk from the farmers of Ramgarh, Pratapgarh and Devgarh panchayats and processes these milk to make various dairy products. GMCS has its own vehicles (tankers) to collect and bring the milk to the processing plant. Vehicles are parked in the GMCS's garage situated within the plant compound. Following are the some information related with the vehicles:

	Ramgarh	Pratapgarh	Devgarh
No. of vehicles assigned	4	3	5
No. of trips a day	3	2	2
One way distance from the processing plant	24 k.m.	34 k.m.	16 k.m.
Toll tax paid p.m. (₹)	2,850	3,020	---

All the 5 vehicles assigned to Devgarh panchayat, were purchased five years back at a cost of ₹ 9,25,000 each. The 4 vehicles assigned to Ramgarh panchayat, were purchased two years back at a cost of ₹ 11,02,000 each and the remaining vehicles assigned to Pratapgarh were purchased last year at a cost of ₹ 13,12,000 each. With the purchase of each vehicle a two years free servicing warranty is provided. A vehicle gives 10 kmpl mileage in the first two year of purchase, 8 kmpl in next two years and 6 kmpl afterwards. The vehicles are subject to depreciation of 10% p.a. on straight line basis irrespective of usage. A vehicle has the capacity to carry 25,000 litres of milk but on an average only 70% of the total capacity is utilized.

The following expenditure is related with the vehicles:

Salary to a Driver (a driver for each vehicle)	₹ 18,000 p.m.
Salary to a Cleaner (a cleaner for each vehicle)	₹ 11,000 p.m.
Allocated garage parking fee	₹ 1,350 per vehicle per month
Servicing cost	₹ 3,000 for every complete 5,000 k.m. run.
Price of diesel per litre	₹ 58.00

From the above information you are required to calculate

(i) Total operating cost per month for each vehicle. (Take 30 days for the month)

(ii) Vehicle operating cost per litre of milk.

Question No.11 – May 2018 RTP

AD Higher Secondary School (AHSS) offers courses for 11th & 12th standard in three streams i.e. Arts, Commerce and Science. AHSS runs higher secondary classes along with primary and secondary classes but for accounting purpose it treats higher secondary as a separate responsibility centre. The Managing committee of the school wants to revise its fee structure for higher secondary students. The accountant of the school has provided the following details for a year:

	Amount (₹)
Teachers' salary (15 teachers × ₹35,000 × 12 months)	63,00,000
Principal's salary	14,40,000
Lab attendants' salary (2 attendants × ₹15,000 × 12 months)	3,60,000
Salary to library staff	1,44,000
Salary to peons (4 peons × ₹10,000 × 12 months)	4,80,000
Salary to other staffs	4,80,000
Examinations expenditure	10,80,000
Office & Administration cost	15,20,000
Annual day expenses	4,50,000
Sports expenses	1,20,000

Other information:

(i)

	Standard 11 & 12			Primary & Secondary
	Arts	Commerce	Science	
No. of students	120	360	180	840
Lab classes in a year	0	0	144	156
No. of examinations in a year	2	2	2	2
Time spent at library per student per year	180 hours	120 hours	240 hours	60 hours
Time spent by principal for administration	208 hours	312 hours	480 hours	1,400 hours
Teachers for 11 & 12 standard	4	5	6	-

(ii) One teacher who teaches economics for Arts stream students also teaches commerce stream students. The teacher takes 1,040 classes in a year, it includes 208 classes for commerce students.

(iii) There is another teacher who teaches mathematics for Science stream students also teaches business mathematics to commerce stream students. She takes 1,100 classes a year, it includes 160 classes for commerce students.

(iv) One peon is fully dedicated for higher secondary section. Other peons dedicate their 15% time for higher secondary section.

(v) All school students irrespective of section and age participates in annual functions and sports activities.

Required:

(i) CALCULATE cost per student per annum for all three streams.

(ii) If the management decides to take uniform fee of ₹ 1,000 per month from all higher secondary students, CALCULATE stream wise profitability.

(iii) If management decides to take 10% profit on cost, COMPUTE fee to be charged from the students of all three streams respectively.

Question No.1 – November 2015

The following information is furnished by ABC Company for Process - II of its manufacturing activity for the month of April 2015:

(i) *Opening Work-in-Progress - Nil*

(ii) *Units transferred from Process I – 55,000 units at ₹ 3,27,800*

(iii) *Expenditure debited to Process – II:*

Consumables	*₹ 1,57,200*
Labour	*₹ 1,04,000*
Overhead	*₹ 52,000*

(iv) *Units transferred to Process III – 51,000 units*

(v) *Closing WIP – 2,000 units (Degree of completion):*

Consumables	*80%*
Labour	*60%*
Overhead	*60%*

(vi) *Units scrapped - 2,000 units, scrapped units were sold at ₹ 5 per unit*

(vii) *Normal loss – 4% of units introduced*

You are required to:

(i) *Prepare a Statement of Equivalent Production.*

(ii) *Determine the cost per unit*

(iii) *Determine the value of Work-in-Process and units transferred to Process – III*

Question No.: 2 (May 2012 exam – 8 Marks)

A product passes through two processes A and B. During the year 2011, the input to process A of basic raw material was 8,000 units @ ₹ 9 per unit. Other information for the year is a s follows:

	Process A	Process B
Output units	7,500	4,800
Normal loss (% to input)	5%	10%
Scrap value per unit (₹)	2	10
Direct wages (₹)	12,000	24,000
Direct expenses (₹)	6,000	5,000
Selling price per unit (₹)	15	25

Total overheads ₹17,400 were recovered as percentage of direct wages. Selling expenses were ₹5,000. There are not allocate to the processes. 2/3 of the output of Process A was passed on to the next process and the balance was sold.The entire output of Process B was sold.

Prepare Process A an B Accounts. *(8 Marks)*

Question No.: 3 – (May 2013 – 10 Marks)

ABX Company Ltd. provides the following information relating to Process-B:

(i) *Opening Work-in-progress* - *NIL*

(ii) *Units Introduced* - *45,000 units @ ₹ 10 per unit*

(iii) *Expenses debited to the process:*

Direct material	-	*₹ 65,500*
Labour	-	*₹ 90,800*
Overhead	-	*₹ 1,80,700*

(iv) *Normal loss in the process* - *2% of Input*

(v) *Work-in progress* - *1800 units*

Degree of completion

Materials	-	*100%*
Labour	-	*50%*
Overhead	-	*40%*

(vi) *Finished output* - *42,000 units*

(vii) *Degree of completion of abnormal loss:*

Materials	-	*100%*
Labour	-	*80%*
Overhead	-	*60%*

(viii) *Units scrapped as normal loss were sold at ₹ 5 per unit.*

(ix) *All the units of abnormal loss were sold at ₹ 2 per unit.*

You are required to prepare:

(a) *Statement of equivalent production.*

(b) *Statement showing the cost of finished goods, abnormal loss and closing balance of work-in-progress.*

(c) *Process-B account and abnormal loss account.* *(10 Marks)*

Question No.: 4 (May 2014 exam – 8 Marks)

M J Pvt. Ltd. produces a product "SKY" which passes through two processes, viz. Process-A and Process-B. The details for the year ending 31st March, 2014 are as follows:

	Process A	Process - B
40,000 Units introduced at a cost of	₹ 3,60,000	-
Material Consumed	₹ 2,42,000	2,25,000
Direct Wages	₹ 2,58,000	1,90,000
Manufacturing Expenses	₹ 1,96,000	1,23,720
Output in Units	37,000	27,000
Normal Wastage of Input	5%	10%
Scrap Value (per unit)	₹ 15	20
Selling Price (per unit)	₹ 37	61

Additional Information:

(a) 80% of the output of Process-A, was passed on to the next process and the balance was sold. The entire output of Process- B was sold.

(b) Indirect expenses for the year was ₹ 4,48,080.

(c) It is assumed that Process-A and Process-B are not responsibility centre.

Required:

(i) Prepare Process-A and Process-B Account.

(ii) Prepare Profit & Loss Account showing the net profit I net loss for the year.

(8 Marks)

Question No.:5 – November 2014 exam

The following information relate to Process A:

(i)	Opening Work-in-Progress	8,000 units at ₹ 75,000
	Degree of Completion:	
	Material	100%
	Labour and Overhead	60%
(ii)	Input 1,82,000 units at	₹ 7,37,500
(iii)	Wages paid	₹ 3,40,600
(iv)	Overheads paid	₹ 1,70,300

(v)	*Units scrapped*	*14,000*
	Degree of Completion:	
	Material	*100 %*
	Wages and Overheads	*80%*
(vi)	*Closing Work - in- Progress*	*18,000 units*
	Degree of Completion:	
	Material	*100%*
	Wages and Overheads	*70%*

(vii) Units completed and transferred 1,58,000 to next process

(viii) Normal loss 5% of total input including opening WIP

(ix) Scrap value is ₹ 5 per unit to be adjusted out of direct material cost

You are required to compute on the basis of FIFO basis:

(i) Equivalent Production

(ii) Cost Per Unit

(iii) Value of Units transferred to next process. *(8 Marks)*

Question No.6 – November 2016 RTP

Following data are available for a product for the month of July, 2016:

Particulars	Process- I (₹)	Process- II (₹)
Opening work-in- progress	Nil	Nil
Costs incurred during the month:		
- Direct materials	6,00,000	
- Labour	1,20,000	1,60,000
- Factory overheads	2,40,000	2,00,000
Units of production:		
Received in process	40,000	36,000
Completed and transferred	36,000	32,000
Closing work-in-progress	2,000	?
Normal loss in process	2,000	1,500

Production remaining in process has to be valued as follows:

Materials 100% Labour 50% Overheads 50%

There has been no abnormal loss in Process- II.

The company follows weighted average method for valuing inventory.

Prepare Process Accounts after working out the missing figures and with detailed workings.

Question No.7 – May 2016 RTP

From the following Information for the month ending October, 2015, prepare Process Cost accounts for Process III. Use First-in-fist-out (FIFO) method to value equivalent production.

Direct materials added in Process III (Opening WIP)	2,000 units at ₹ 25,750
Transfer from Process II	53,000 units at ₹ 4,11,500
Transferred to Process IV	48,000 units
Closing stock of Process III	5,000 units
Units scrapped	2,000 units
Direct material added in Process III	₹ 1,97,600
Direct wages	₹ 97,600
Production Overheads	₹ 48,800

Degree of completion:

	Opening Stock	Closing Stock	Scrap
Materials	80%	70%	100%
Labour	60%	50%	70%
Overheads	60%	50%	70%

The normal loss in the process was 5% of production and scrap was sold at ₹ 3 per unit.

Question No.8 – November 2015 RTP

Star Ltd. manufactures chemical solutions for the food processing industry. The manufacturing takes place in a number of processes and the company uses a FIFO process costing system to value work-in-process and finished goods. At the end of the last month, a fire occurred in the factory and destroyed some of the paper files containing records of the process operations for the month.

Star Ltd. needs your help to prepare the process accounts for the month during which the fire occurred. You have been able to gather some information about the month's operating activities but some of the information could not be retrieved due to the damage. The following information was salvaged:

- Opening work-in-process at the beginning of the month was 800 litres, 70% complete for labour and 60% complete for overheads. Opening work-in-process was valued at ₹ 26,640.
- Closing work-in-process at the end of the month was 160 litres, 30% complete for labour and 20% complete for overheads.
- Normal loss is 10% of input and total losses during the month were 1,800 litres partly due to the fire damage.
- Output sent to finished goods warehouse was 4,200 litres.
- Losses have a scrap value of ₹15 per litre.

- All raw materials are added at the commencement of the process.
- The cost per equivalent unit (litre) is ₹39 for the month made up as follows:

	(₹)
Raw Material	23
Labour	7
Overheads	9
	39

Required:

(a) Calculate the quantity (in litres) of raw material inputs during the month.

(b) Calculate the quantity (in litres) of normal loss expected from the process and the quantity (in litres) of abnormal loss / gain experienced in the month.

(c) Calculate the values of raw material, labour and overheads added to the process during the month.

(d) Prepare the process account for the month.

Question No.: 9 (May 2013 RTP)

MTK Ltd. purchased 10,000 kgs. of a basic material @ ₹ 12 per kg and issued it for further processing in purifying department. In purifying department wages paid amounted to ₹ 4,200 and overhead was applied @ 150% of the labour cost. Indirect materials costing ₹ 1,500 were introduced into the process. The normal yield from the process is 90%. 9,100 kgs of output was obtained from this purifying process. Any difference in weight between the input of basic material and output of purified material can is sold @ ₹ 1.50 per kg.

The process is operated under a licence for which royalty @ ₹ 0.20 per kg. of purified material produced is paid.

You are required to prepare:

(i) Purifying process Account

(ii) Normal loss Account

(iii) Abnormal loss/ gain Account

(iv) Royalty Payable Account.

Question No.: 10 (November 2013 RTP)

From the following information for the month of January, 2013, prepare Process-III cost accounts.

Opening WIP in Process-III	1,600 units at ₹ 24,000
Transfer from Process-II	55,400 units at ₹ 6,23,250
Transferred to warehouse	52,200 units
Closing WIP of Process-III	4,200 units
Units Scrapped	600 units
Direct material added in Process-III	₹ 2,12,400
Direct wages	₹ 96,420
Production overheads	₹ 56,400

Degree of completion:

	Opening Stock	*Closing Stock*	*Scrap*
Material	*80%*	*70%*	*100%*
Labour	*60%*	*50%*	*70%*
Overheads	*60%*	*50%*	*70%*

The normal loss in the process was 5% of the production and scrap was sold @ ₹ 5 per unit.

Question No.: 11 – May 2015 RTP, November 2017 RTP

The following data are available in respect of Process-I for October 2014:

(1) Opening stock of work in process: 600 units at a total cost of ₹ 4,200.

(2) Degree of completion of opening work in process:

Material	100%
Labour	60%
Overheads	60%

(3) Input of materials at a total cost of ₹ 55,200 for 9,200 units.

(4) Direct wages incurred ₹ 18,600

(5) Overheads ₹ 8,630.

(6) Units scrapped 200 units. The stage of completion of these units was:

Materials	100%
Labour	80%
Overheads	80%

(7) Closing work in process; 700 units. The stage of completion of these units was:

Material	100%

Labour	70%
Overheads	70%

(8) 8,900 units were completed and transferred to the next process.

(9) Normal loss is 4% of the total input (opening stock plus units put in)

(10) Scrap value is ₹ 6 per unit.

You are required to:

(a) Compute equivalent production,

(b) Calculate the cost per equivalent unit for each element.

(c) Calculate the cost of abnormal loss (or gain), closing work in process and the units transferred to the next process using the FIFO method.

Question No.12 – May 2017

KMR Ltd. produces product AY, which passes through three processes 'XM', 'YM' and 'ZM'. The output of process 'XM' and 'YM' is transferred to next process at cost plus 20 percent each on transfer price and the output of process 'ZM' is transferred to finished stock at a profit of 25 percent on transfer price. The following information are available in respect of the year ending 31st March, 2017:

	Process-XM (₹)	Process-YM (₹)	Process-ZM (₹)	Finished Stock (₹)
Opening Stock	30,000	54,000	80,000	90,000
Material	1,60,000	1,30,000	1,00,000	-
Wages	2,50,000	2,16,000	1,84,000	-
Manufacturing Overheads	1,92,000	1,44,000	1,33,000	-
Closing Stock	40,000	64,000	78,000	1,00,000
Inter process profit included in Opening Stock	Nil	8,000	20,000	40,000

Stock in processes is valued at prime cost. The finished stock is valued at the price at which it is received from process 'ZM'. Sales of the finished stock during the period was ₹ 28,00,000.

You are required to prepare:

(i) All process accounts and

(ii) Finished stock account showing profit element at each stage. *(8 Marks)*

CHAPTER 11 – JOINT PRODUCTS & BY PRODUCTS

Question No.1 – May 2016

A factory producing article A also produces a by-product B which is further processed into finished product. The joint cost of manufacture is given below:

Material	*₹ 5,000*
Labour	*₹ 3,000*
Overhead	*₹ 2,000*
	₹ 10,000

Subsequent cost in ₹ are given below:

	A	B
Material	*3,000*	*1,500*
Labour	*1,400*	*1,000*
Overhead	*600*	*500*
	5,000	*3,000*

Selling prices are A ₹ 16,000

B ₹ 8,000

Estimated profit on selling prices is 25% for A and 20% for B.

Assume that selling and distribution expenses are in proportion of sales prices. Show how you would apportion joint costs of manufacture and prepare a statement showing cost of production of A and B. (8 Marks)

Question No.: 2 (May 2013 exam – 8 Marks)

A company manufactures one main product (M_1) and two by-products B_1 and B_2. For the month of January 2013, following details are available:

Total Cost upto separation Point ₹ 2,12,400

	M_1	B_1	B_2
Cost after separation	-	*₹ 35,000*	*₹ 24,000*
No. of units produced	*4,000*	*1,800*	*3,000*
Selling price per unit	*₹ 100*	*₹ 40*	*₹ 30*
Estimated net profit as percentage to sales value	-	*20%*	*30%*
Estimated selling expenses as percentage to sales value	*20%*	*15%*	*15%*

There are no beginning or closing inventories.

Prepare statement showing:

(i) Allocation of joint cost; and

(ii) Product-wise and overall profitability of the company for January 2013. (8 Marks)

Question No.:3 – May 2015 exam

A company manufactures one main product (M_1) and two by-products B_1 and B_2. For the month of January 2015, following details are available:

Total cost upto separation point ₹ 2,12,400.

	M_1	B_1	B_2
Cost after separation	-	₹ 35,000	₹ 24,000
No. of Units produced	4,000	1,800	3,000
Selling Price per unit	₹ 100	₹ 40	₹ 30
Estimated net profit as percentage to Sales Value	-	20%	30%
Estimated selling expenses as percentage to Sales Value	20%	15%	15%

There are no opening or closing inventories.

Prepare statement showing:

(i) Allocation of Joint Cost; and

(ii) Product-wise and overall profitability of the company for January, 2015. (8 Marks)

Question No.4 – May 2017 RTP

In an Oil Mill four products emerge from a refining process. The total cost of input during the quarter ending March 2016 is ₹1,48,000. The output, sales and additional processing costs are as under:

Products	Output in Litres	Additional processing cost after split off (₹)	Sales value (₹)
ACH	8,000	43,000	1,72,500
BCH	4,000	9,000	15,000
CSH	2,000	–	6,000
DSH	4,000	1,500	45,000

In case these products were disposed-off at the split off point that is before further processing, the selling price per litre would have been:

ACH (₹)	BCH (₹)	CSH (₹)	DSH (₹)
15.00	6.00	3.00	7.50

Prepare a statement of profitability based on:

(i) If the products are sold after further processing is carried out in the mill.

(ii) If they are sold at the split off point.

Question No.5 – May 2016 RTP

A company processes a raw material in its Department 1 to produce three products, viz. A, B and X at the same split-off stage. During a period 1,80,000 kgs of raw materials were processed in Department 1 at a total cost of ₹ 12,88,000 and the resultant output of A, B and X were 18,000 kgs, 10,000 kgs and 54,000 kgs respectively. A and B were further processed in Department 2 at a cost of ₹ 1,80,000 and ₹ 1,50,000 respectively.

X was further processed in Department 3 at a cost of ₹1,08,000. There is no waste in further processing. The details of sales affected during the period were as under:

	A	B	X
Quantity Sold (kgs.)	17,000	5,000	44,000
Sales Value (₹)	12,24,000	2,50,000	7,92,000

There were no opening stocks. If these products were sold at split-off stage, the selling prices of A, B and X would have been ₹ 50, ₹ 40 and ₹ 10 per kg respectively. Required:

(i) Prepare a statement showing the apportionment of joint costs to A, B and X.

(ii) Present a statement showing the cost per kg of each product indicating joint cost and further processing cost and total cost separately.

(iii) Prepare a statement showing the product wise and total profit for the period.

(iv) State with supporting calculations as to whether any or all the products should be further processed or not

Question No.: 6 (November 2012 RTP)

While manufacture of the main product 'A' two by-products 'P' and 'Q' emerge. The joint expenses of manufacture amount to ₹1,67,550. All the three products are processed further separation and sold as per details given below:

	Main Product	By Products	
	'A'	'P'	'Q'
Sales (₹)	1,30,000	70,000	50,000
Cost incurred after separation (₹)	8,000	7,000	6,000
Profit as percentage on sales (%)	20	10	15

Total fixed selling expenses are 10% of total cost of sales which are apportioned to the three products in the ratio of 5:3:2

Prepare a statement showing the appointment of joints costs to the main product and two by-products.

Question No.7 – November 2017

A Ltd. produces 'M' as a main product and gets two by products - 'P' and 'Q' in the course of processing.

Following information are available for the month of October, 2017:

	M	P	Q
Cost after separation	-	₹ 60,000	₹ 30,000
No. of units produced	4500	2500	1500
Selling price (per unit)	₹ 170	₹ 80	₹ 50
Estimated Net profit to sales	-	30%	25%

The joint cost of manufacture upto separation point amounts to ₹ 2,50,000.

Selling expenses amounting to ₹ 85,000 are to be apportioned to the three products in the ratio of sales units.

There is no opening and closing stock.

Prepare the statement showing:

(i) Allocation of joint cost.

(ii) Product wise over all profitability and

(iii) Advise the company regarding results if the by product ' P' is not further processed and is sold at the point of separation at ₹ 60 per unit without incurring selling expenses. ***(8 Marks)***

Question No.1 – November 2016

The following information is available from the cost records of a Company for the month of July, 2016:

(1)	Material purchased	22,000 pieces	₹ 90,000
(2)	Material consumed	21,000 pieces	
(3)	Actual wages paid for	5,150 hours	₹ 25,750
(4)	Fixed Factory overhead incurred		₹ 46,000
(5)	Fixed Factory overhead budgeted		₹ 42,000
(6)	Units produced	1,900	
(7)	Standard rates and prices are:		
	Direct material	₹ 4.50 per piece	
	Standard input	10 pieces per unit	
	Direct labour rate	₹ 6 per hour	
	Standard requirement	2.5 hours per unit	
	Overheads	₹ 8 per labour hour	

You are required to calculate the following variances:

(i) Material price variance

(ii) Material usage variance

(iii) Labour rate variance

(iv) Labour efficiency variance

(v) Fixed overhead expenditure variance

(vi) Fixed overhead efficiency variance

(vii) Fixed overhead capacity variance. **(8 Marks)**

Question No.2 – May 2016

X Associates undertake to prepare income tax returns for individuals for a fee. They use the weighted average method and actual costs for the financial reporting purposes. However, for internal reporting, they use a standard costs system. The standards, based on equivalent performance, have been established as follows:

Labour per return	5 hrs @ ₹ 40 per hour
Overhead per return	5 hrs @ ₹ 20 per hour

For March 2015 performance, budgeted overhead is ₹98,000 for standard labour hours allowed.

The following additional information pertains to the month of March 2015:

March 1	Return-in-process (25% complete)	200 No.
	Return started in March	825 Nos
March 31	Return-in-process (80% complete)	125 Nos
Cost Data:		
March 1	Return-in-process labour	₹ 12,000
	- Overheads	₹ 5,000
March 1 to 31	Labour : 4,000 hours	₹ 1,78,000
	Overheads	₹ 90,000

You are required to compute:

(a) For each element, equivalent units of performance and the actual cost per equivalent unit.

(b) Actual cost of return-in-process on March 31.

(c) The standard cost per return.

(d) The labour rate and labour efficiency variance as well as overhead volume and overhead expenditure variance. (8 Marks)

Question No.: 3 (May 2012 exam – 8 Marks)

SJ Ltd. has furnished the following information:

Standard overhead absorption rate per unit	₹ 20
Standard rate per hour	₹ 4
Budgeted production	15,000 units
Actual production	15,560 units
Actual overheads were ₹ 2,95,000 out of which ₹ 62,500 fixed .	
Actual hours	74,000

Overheads are based on the following flexible budget

Production (units)	8,000	10,000	14,000
Total Overheads (₹)	1,80,000	2,10,000	2,70,000

You are required to calculate the following overhead variances (on hour's basis) with appropriate workings:

(i) Variable overhead efficiency and expenditure variance

(ii) Fixed overhead efficiency and capacity variance. (8 Marks)

Question No.: 4 (November 2012 exam – 6 Marks)

The standard labour employment and the actual labour engaged in a 40 hours week for a job are as under: (6 Marks)

Category of Workers	Standard		Actual	
	No. of workers	Wage Rate per hour (₹)	No. of workers	Wage Rate per hour (₹)
Skilled	65	45	50	50
Semi-skilled	20	30	30	35
Unskilled	15	15	20	10

Standard output: 2000 units; *Actual output: 1800 units*

Abnormal Idle time 2 hours in the week

Calculate:

(i) Labour Cost Variance

(ii) Labour Efficiency Variance

(iii) Labour Idle Time Variance.

Question No.: 5 (May 2013 exam – 5 Marks)

Following are the details of the product Phomex for the month of April 2013:

Standard quantity of material required per unit	*5 kg*
Actual output	*1000 units*
Actual cost of materials used	*₹ 7,14,000*
Material price variance	*₹ 51,000 (Fav)*

Actual price per kg of material is found to be less than standard price per kg of material by ₹ 10.

You are required to calculate:

(i) Actual quantity and Actual price of materials used.

(ii) Material Usage Variance

(iii) Material Cost Variance

Question No.: 6 (November 2013 exam – 8 Marks)

SP Limited produces a product 'Tempex' which is sold in a 10 Kg. packet. The standard cost card per packet of 'Tempex' are as follows:

	₹
Direct materials 10 kg @ ₹ 45 per kg	*450*
Direct labour 8 hours @ ₹ 50 per hour	*400*
Variable Overhead 8 hours @ ₹ 10 per hour	*80*
Fixed Overhead	*200*
	1,130

Budgeted output for the third quarter of a year was 10,000 Kg. Actual output is 9,000 Kg.

Actual cost for this quarter are as follows :

	₹
Direct Materials 8,900 Kg @ ₹ 46 per Kg.	*4,09,400*
Direct Labour 7,000 hours @ ₹ 52 per hour	*3,64,000*
Variable Overhead incurred	*72,500*
Fixed Overhead incurred	*1,92,000*

You are required to calculate :

(i) Material Usage Variance

(ii) Material Price Variance

(iii) Material Cost Variance

(iv) Labour Efficiency Variance

(v) Labour Rate Variance

(vi) Labour Cost Variance

(vii) Variable Overhead Cost Variance

(viii) Fixed Overhead Cost Variance *(8 Marks)*

Question No.: 7 (May 2014 exam – 8 Marks)

XYZ Co. Ltd. provides the following information:

	Standard	*Actual*
Production	*4,000 Units*	*3,800 Units*
Working Days	*20*	*21*
Fixed Overhead	*₹ 40,000*	*₹ 39,000*
Variable Overhead	*₹ 12,000*	*₹ 12,000*

You are required to calculate following overhead variances:

(a) Variable Overhead Variance

(b) Fixed Overhead Variances

(i) Expenditure Variance

(ii) Volume Variance *(8 Marks)*

Question No.8 – May 2017 RTP

XYZ Ltd. produces two products M and N by using two inputs Material A and B. The standard price per unit of Material A is ₹20 and of Material B is ₹10. The standard quantities of materials for each product are as follows:

Products	Materials	
	A (units)	B (units)
M	2	3
N	1	4

The company actually produced 11,000 units of M and 9,000 units of N and used 32,500 units of Material A at a cost of ₹6,59,750 and 67,000 units of Material B at a cost of ₹ 6,83,400.

Calculate:

(i) Material Price Variance;

(ii) Material Usage Variance;

(iii) Material Cost Variance.

Question No.9 – November 2016 RTP

XYZ Ltd. produces a product X by using two raw materials A and B. The following standards have been set for the production:

Material	Standard Mix	Standard Price (₹)
A	40%	40 per kg.
B	60%	30 per kg.

The standard loss in processing is 15%.

During July, 2016 the company produced 2,000 kg. of finished output.

The positions of stock and purchases for the month of July, 2016 are as under:

Material	Stock on 1st July 2016	Stock on 31st July 2016	Purchases during July 2016	
			Quantity	Amount (₹)
A	40 kg.	10 kg.	900 kg.	42.50
B	50 kg.	60 kg.	1,400 kg.	25.00

Calculate the following variances:

(i) Material Price Variance; (ii) Material Usage Variance;

(iii) Material Mix Variance; (iv) Material Yield Variance;

(v) Total Material Cost Variance.

The company follows FIFO method of stock valuation.

Question No.10 – May 2016 RTP, November 2017 RTP

The following information has been provided by a company:

Number of units produced and sold	6,000
Standard labour rate per hour	₹ 8
Standard hours required for 6,000 units	-
Actual hours required	17,094 hours
Labour efficiency	105.3%
Labour rate variance	₹ 68,376 (A)

You are required to calculate:

(i) Actual labour rate per hour

(ii) Standard hours required for 6,000 units

(iii) Labour Efficiency variance

(iv) Standard labour cost per unit

(v) Actual labour cost per unit.

Question No.: 11 (November 2013 RTP)

Compute the missing data indicated by the question marks from the following:

Particulars	A	B
Standard Price/ unit	₹ 12	₹ 15
Actual Price/ unit	₹ 15	₹ 20
Standard Input (kgs.)	50	?
Actual Input (kgs.)	?	70
Material Price Variance	?	?
Material Usage Variance	?	₹ 300 Adverse
Material Cost Variance	?	?

Material mix variance for both products together was ₹ 45 Adverse.

Question No.: 12 (May 2014 RTP)

Jigyasa Pharmaceuticals Ltd. is engaged in producing dietary supplement 'Funkids' for growing children. It produces 'Funkids' in a batch of 10 kgs. Standard material inputs required for 10 kgs. of 'Funkids' are as below:

Material	Quantity (in kgs.)	Rate per kg. (in ₹)
Vita-X	5	110
Proto-D	3	320
Mine-L	3	460

During the month of March, 2014, actual production was 5,000 kgs. of 'Funkids' for which the actual quantities of material used for a batch and the prices paid thereof are as under:

Material	Quantity (in kgs.)	Rate per kg. (in ₹)
Vita-X	6	115
Proto-D	2.5	330
Mine-L	2	405

You are required to calculate the following variances based on the above given information for the month of March, 2014 for Jigyasa Pharmaceuticals Ltd.:

(i) Material Cost Variance;

(ii) Material Price Variance;

(iii) Material Usage Variance;

(iv) Material Mix Variance;

(v) Material Yield Variance.

Question No.:13 – November 2014 RTP

The standard material cost for a normal mix of one tonne of product "Captain" based on:

Raw Material	Usage (in tonne)	Price per tonne
A	0.740	₹ 12,000
B	0.400	₹ 23,500
C	0.640	₹ 18,000

During the month of July, 2014, 18 tonnes of product "Captain" were produced from:

Raw Material	Consumption (tonnes)	Cost (₹)
A	13.12	1,62,000
B	7.10	1,65,200
C	11.50	2,07,000

Required to Calculate:

(i) Material Cost Variance

(ii) Material Price Variance

(iii) Material Usage Variance

(iv) Material Mix Variance

(v) Material Yield Variance

Question No.14 – May 2015 RTP

ABC Ltd. had prepared the following estimation for the month of April:

	Quantity	Rate (₹)	Amount (₹)
Material-A	800 kg.	45.00	36,000
Material-B	600 kg.	30.00	18,000
Skilled labour	1,000 hours	37.50	37,500
Unskilled labour	800 hours	22.00	17,600

Normal loss was expected to be 10% of total input materials and an idle labour time of 5% of expected labour hours was also estimated.

At the end of the month the following information has been collected from the cost accounting department:

The company has produced 1,480 kg. finished product by using the followings:

	Quantity	Rate (₹)	Amount (₹)
Material-A	900 kg.	43.00	38,700
Material-B	650 kg.	32.50	21,125
Skilled labour	1,200 hours	35.50	42,600
Unskilled labour	860 hours	23.00	19,780

You are required to calculate:

(a) Material Cost Variance;

(b) Material Price Variance;

(c) Material Mix Variance;

(d) Material Yield Variance;

(e) Labour Cost Variance;

(f) Labour Efficiency Variance and

(g) Labour Yield Variance.

Question No.15 – May 2017

AB Ltd. has furnished the following information:

	Budgeted	Actual July 2016
Number of working days	25	27
Production (in units)	20,000	22,000
Fixed Overheads	₹ 30,000	₹ 31,000

Budgeted fixed overhead rate is ₹ 1.00 per hour. In July 2016, the actual hours worked were 31,500. In relation to fixed overheads, calculate:

(i) Efficiency Variance

(ii) Capacity Variance

(iii) Calendar Variance

(iv) Volume Variance

(v) Expenditure Variance *(5 Marks)*

Question No.16 – November 2017

XYZ Limited produces an article and uses a mixture of material X and Y. The standard quantity and price of materials for one unit of output is as under:

Material	Quantity	Price (₹)
X	2000 KG	1.00 per kg.
Y	800 KG	1.50 per kg.

During a period, 1500 units were produced. The actual consumption of materials and prices are given below:

Material	Quantity	Price (₹)
X	31,00,000 kg	1.10 per kg.
Y	12,50,000 kg	1.60 per kg.

Calculate:

(i) Standard cost for actual output

(ii) Material cost variance

(iii) Material Price variance

(iv) Material usage variance ***(8 Marks)***

Question No.1 – November 2016, November 2017 RTP

The following figures are available from the records of ABC Company as at 31st March.

	2015 (₹ in lakhs)	2016 (₹ in lakhs)
Sales	200	250
Profit	30	45

Calculate:

(i) The P/V ratio and total fixed expenses.

(ii) The break-even level of sales.

(iii) Sales required to earn a profit of ₹ 70 lakhs.

Question No.2 – November 2016

A company has introduced a new product and marketed 20,000 units. Variable cost of the product is ₹ 20 per units and fixed overheads are ₹ 3,20,000.

You are required to:

(i) Calculate selling price per unit to earn a profit of 10% on sales value, BEP and Margin of Safely?

(ii) If the selling price is reduced by the company by 10%, demand is expected to increase by 5,000 units, then what will be its impact on Profit, BEP and Margin of Safety?

(iii) Calculate Margin of Safety if profit is ₹ 64,000. ***(8 Marks)***

Question No.3 – May 2016

A dairy product company manufacturing baby food with a shelf life of one year furnishes the following information:

(i) On 1st January, 2016, the company has an opening stock of 20,000 packets whose variable cost is ₹180 per packet.

(ii) In 2015, production was 1,20,000 packets and the expected production in 2016 is 1,50,000 packets. Expected sales for 2016 is 1,60,000 packets.

(iii) In 2015, fixed cost per unit was ₹ 60 and it is expected to increase by 10% in 2016. The variable cost is expected to increase by 25%. Selling price for 2016 has been fixed at ₹ 300 per packet.

You are required to calculate the Break-even volume in units for 2016.

Question no.4 – November 2015

A company gives the following information:

Margin of Safety	*₹ 3,75,000*
Total Cost	*₹ 3,87,500*

Margin of Safety (Qty.)	*15,000 units*
Break Even Sales in Units	*5,000 units*

You are required to calculate:

(i) Selling price per unit

(ii) Profit

(iii) Profit/ Volume Ratio

(iv) Break Even Sales (in Rupees)

(v) Fixed Cost

Question No.: 5 (November 2012 exam – 8 Marks)

The following figures are related to LM Limited for the year ending 31st March, 2012 :

Sales - 24,000 units @ ₹ 200 per unit;

P/V Ratio 25% and Break-even Point 50% of sales.

You are required to calculate:

(i) Fixed cost for the year

(ii) Profit earned for the year

(iii) Units to be sold to earn a target net profit of ₹ 11,00,000 for a year.

(iv) Number of units to be sold to earn a net income of 25% on cost.

(v) Selling price per unit if Break-even Point is to be brought down by 4,000 units. (8 Marks)

Question No.: 6 (May 2014 exam – 5 Marks)

SHA Limited provides the following trading results:

Year	*Sale*	*Profit*
2012-13	*₹ 25,00,000*	*10% of Sale*
2013-14	*₹ 20,00,000*	*8% of Sale*

You are required to calculate:

(i) Fixed Cost

(ii) Break Even Point

(iii) Amount of profit, if sale is ₹ 30,00,000

(iv) Sale, when desired profit is ₹ 4,75,000

(v) Margin of Safety at a profit of ₹ 2,70,000

Question No.7 – November 2014 exam

Zed Limited sells its product at ₹ 30 per unit. During the quarter ending on 31st March, 2014, it produced and sold 16,000 units and suffered a loss of ₹ 10 per unit. If the volume of sales is raised to 40,000 units, it can earn a profit of ₹ 8 per unit.

You are required to calculate:

(i) Break Even Point in Rupees.

(ii) Profit if the sale volume is 50,000 units.

(iii) Minimum level of production where the company needs not to close the production if unavoidable fixed cost is ₹ 1,50,000.

Question No.:8 – May 2015 exam

ABC Limited started its operations in the year 2013 with a total production capacity of 2,00,000 units. The following information, for two years, are made available to you:

	Year 2013	Year 2014
Sales (units)	*80,000*	*1,20,000*
Total Cost (₹)	*34,40,000*	*45,60,000*

There has been no change in the cost structure and selling price and it is anticipated that it will remain unchanged in the year 2015 also.

Selling price is ₹ 40 per unit.

Calculate :

(i) Variable cost per unit.

(ii) Profit Volume Ratio.

(iii) Break-Even Point (in units)

(iv) Profit if the firm operates at 75% of the capacity.

Question No.9 – May 2017 RTP

A Company manufactures a product, currently utilizing 80% capacity with a turnover of ₹ 8,00,000 at ₹ 25 per unit. The cost data are as under:

Material cost ₹7.50 per unit, Labour cost ₹6.25 per unit.

Semi variable cost (including variable cost of ₹3.75 per unit) ₹1,80,000. Fixed cost ₹ 90,000 upto 80% level of output, beyond this an additional ₹20,000 will be incurred.

Calculate:

(i) Level of output at Break-even Point

(ii) Number of units to be sold to earn a net income of 8% of sales.

(iii) Level of output needed to earn a profit of ₹95,000

(iv) What should be the selling price per unit, if break-even point is to be brought down to 40% activity level?

Question No.10 – November 2016 RTP

ABC Baggage Ltd. sells different styles of laptop bags with identical purchase costs and selling prices. The company is trying to find out the profitability of opening another store which will have the following expenses and revenues:

	Amount per piece (₹)
Selling Price	600
Variable costs:	
Material cost	410
Salesmen's commission	60
Total variable cost	470
Annual fixed expenses are:	(₹)
- Rent	6,00,000
- Office and administrative expenses	20,00,000
- Advertising	8,00,000
- Other fixed expenses	2,00,000

For the each following independent situation, you are required to:

(i) Calculate the annual break-even point in units and in value. Also determine the profit or loss if 35,000 units of bags are sold.

(ii) The sales commissions are proposed to be discontinued, but instead a fixed amount of ₹ 9,00,000 is to be incurred in fixed salaries. A reduction in selling price of 5% is also proposed. What will be the break-even point in units?

(iii) It is proposed to pay the store manager ₹ 5 per piece as further commission. The selling price is also proposed to be increased by 5%. What would be the break-even point in units?

Question No.11 – May 2016 RTP

You are given the following data for the year 2015 of Rio Co. Ltd:

Variable cost	60,000	60%
Fixed cost	30,000	30%
Net profit	10,000	10%
Sales	1,00,000	100%

Find out (a) Break-even point, (b) P/V ratio, and (c) Margin of safety. Also draw a break-even chart showing contribution and profit.

Question No.12 – November 2015 RTP

T Ltd produces a single product 'T-10' and sells it at a fixed price of ₹ 2,050 per unit. The production and sales data for first quarter of the year 2014-15 are as follows:

	April	May	June
Sales in units	4,200	4,500	5,200
Production in units	4,600	4,400	5,500

Actual/budget information for each month was as follows:

Direct materials	4 kilograms at ₹120 per kilogram
Direct labour	6 hours at ₹60 per hour
Variable production overheads	150% of direct labour
Sales commission	15% of sales value
Fixed production overheads	₹ 5,00,000
Fixed selling overheads	₹ 95,000

There was no opening inventory at the start of the quarter. Fixed production overheads are budgeted at ₹ 60,00,000 per annum and are absorbed into products based on a budgeted normal output of 60,000 units per annum.

Required:

(a) Prepare a profit statement for each of the three months using absorption costing principles.

(b) Prepare a profit statement for each of the three months using marginal costing principles.

(c) Present a reconciliation of the profit or loss figures given in your answer to (a) and (b).

Question No.: 13 (November 2012 RTP)

Marlboro Ltd. has two factories for producing cigarettes of identical quality. The figures of F/Y 2011-12 are as follows:

	Factory-A	Factory-B
Selling price per packet (₹)	75	75
Variable cost per packet (₹)	60	65
Fixed cost (₹)	3,10,000	2,15,000
Sales (units)	35,000	40,000
Production capacity (units)	40,000	45,000

Fixed cost includes depreciation on plant and machinery in factory A and factory B ₹40,000 and ₹ 38,000 respectively. You are required to calculate:

(i) Break-even Point in sales and units for each factory separately.

(ii) Cash BEP in units for each factory separately.

(iii) BEP in units for company as a whole. Current product mix of factory A and factory B is 1:2.

Question No.: 14 (May 2013 RTP)

The ratio of variable cost to sales is 60%. The break-even point occurs at 80% of the capacity sales.

(i) Find the capacity sales when fixed costs are ₹ 1,60,000

(ii) Compute profit at 80% of the capacity sales.

(iii) Find profit if sales is ₹ 5,70,000 and fixed cost remain same as above.

(iv) Find sales, if desired profit is ₹ 44,000, and fixed cost is ₹ 1,42,000.

Question No.: 15 (November 2013 RTP)

A laboratory carrying out various tests on products produced by various drug companies to ascertain whether drugs are fit for medical use or not. At present, the laboratory carries out 10,000 tests each year and a survey carried out by the laboratory shows a rise in number of tests to 15,000 tests a year, to carrying out all these tests would require an additional shift to be worked.

The current cost of carrying out a full test is:

	₹ per test
Materials	1,500
Technicians' fees	130
Variable expenses	25
Fixed cost	100

Working the additional shift would

(i) require a shift premium of 50 per cent to be paid to the technicians on the additional shift;

(ii) enable a quantity discount of 10 per cent to be obtained for all materials if an order was placed to cover 15,000 tests;

(iii) increase fixed costs by ₹ 5,00,000 per year.

The current fee per test is ₹ 2,000.

Required

(a) Calculate the profit for the period at the current capacity of 10,000 tests.

(b) A profit statement if the additional shift was worked and 15,000 tests were carried out .

Question No.: 16 (May 2014 RTP)

Maryanne Petrochemicals Ltd. is operating at 80 % capacity and presents the following information:

Break-even Sales	₹ 400 crores
P/V Ratio	30 %
Margin of Safety	₹ 120 crores

Maryanne's management has decided to increase production to 95 % capacity level with the following modifications:

(a) The selling price will be reduced by 10%.

(b) The variable cost will be increased by 2% on sales

(c) The fixed costs will increase by ₹ 50 crores, including depreciation on additions, but excluding interest on additional capital.

Additional capital of ₹ 100 crores will be needed for capital expenditure and working capital.

Required:

(i) Indicate the sales figure, with the working, that will be needed to earn ₹ 20 crores over and above the present profit and also meet 15% interest on the additional capital.

(ii) What will be the revised

(a) Break-even Sales

(b) P/V Ratio

(c) Margin of Safety

Question No.:17 – November 2014 RTP

Maxim Ltd. manufactures a product "N-joy". In the month of August 2014, 14,000 units of the product "N-joy" were sold, the details are as under:

	(₹)
Sale Revenue	2,52,000
Direct Material	1,12,000
Direct Labour	49,000
Variable Overheads	35,000
Fixed Overheads	28,000

A forecast for the month of September 2014 has been carried out by the General manger of Maxim Ltd. As per the forecast, price of direct material and variable overhead will be increased by 10% and 5% respectively.

Required to calculate:

(i) Number of units to be sold to maintain the same quantum of profit that made in August 2014.

(ii) Margin of safety in the month of August 2014 and September 2014.

Question No.: 18 – May 2015 RTP

Arnav Ltd. manufacture and sales its product R-9. The following figures have been collected from cost records of last year for the product R-9:

Elements of Cost	Variable Cost portion	Fixed Cost
Direct Material	30% of Cost of Goods Sold	--
Direct Labour	15% of Cost of Goods Sold	--
Factory Overhead	10% of Cost of Goods Sold	₹ 2,30,000
General & Administration Overhead	2% of Cost of Goods Sold	₹ 71,000
Selling & Distribution Overhead	4% of Cost of Sales	₹ 68,000

Last Year 5,000 units were sold at ₹185 per unit. From the given data find the followings:

(a) Break-even Sales (in rupees)

(b) Profit earned during last year

(c) Margin of safety (in %)

(d) Profit if the sales were 10% less than the actual sales.

Question No.19 – May 2017

The following information was obtained from the records of a manufacturing unit:

	₹	₹
Sales 80,000 units @ ₹ 25		*20,00,000*
Material consumed	*8,00,000*	
Variable Overheads	*2,00,000*	
Labour Charges	*4,00,000*	
Fixed Overheads	*3,60,000*	*17,60,000*
Net Profit		*2,40,000*

Calculate:

(i) The number of units by selling which the company will neither lose nor gain anything.

(ii) The sales needed to earn a profit of 20% on sales.

(iii) The extra units which should be sold to obtain the present profit if it is proposed to reduce the selling price by 20% and 25%.

(iv) The selling price to be fixed to bring down its Break-even Point to 10,000 units under present conditions. *(8 Marks)*

Question No.20 – November 2017

A company, with 90% Capacity utilization, is manufacturing a product and makes a sale of ₹ 9,45,000 at ₹ 30 per unit. The cost data is as under:

Materials	*- ₹ 9 .00 per unit*
Labour	*- ₹ 7,00 per unit*
Semi variable cost (including variable cost of ₹ 4.25 per unit)	*- ₹ 2,10,000.*

Fixed cost is ₹ 94,500 upto 90% level of output (capacity). Beyond this, an additional amount of ₹ 15,000 will be incurred.

You are required to calculate:

(i) Level of output at break-even point

(ii) Number of units to be sold to earn a net income of 10% of sales

(iii) Level of output needed to earn a profit of ₹ 1,41,375 ***(8 Marks)***

Question No.21 – May 2018 RTP

A company manufactures two types of herbal product, A and B. Its budget shows profit figures after apportioning the fixed joint cost of ₹15 lacs in the proportion of the numbers of units sold. The budget for 2018, indicates:

	A	B
Profit (₹)	1,50,000	30,000
Selling Price / unit (₹)	200	120
P/V Ratio (%)	40	50

Required:

COMPUTE the best option among the following, if the company expects that the number of units to be sold would be equal.

(i) Due to exchange in a manufacturing process, the joint fixed cost would be reduced by 15% and the variables would be increased by 7½ %.

(ii) Price of A could be increased by 20% as it is expected that the price elasticity of demand would be unity over the range of price.

(iii) Simultaneous introduction of both the option, viz, (i) and (ii) above.

Question No.1 – May 2016

(i) *The M-Tech Manufacturing Company is presently evaluating two possible processes for the manufacture of a toy. The following information is available:*

Particulars	Process A (₹)	Process B (₹)
Variable cost per unit	12	14
Sales price per unit	20	20
Total fixed costs per year	30,00,000	21,00,000
Capacity (in units)	4,30,000	5,00,000
Anticipated sales (Next year, in units)	4,00,000	4,00,000

Suggest:

1. *Which process should be chosen?*
2. *Would you change your answer as given above, if you were informed that the capacities of the two processes are as follows:*

   A - 6,00,000 units; B - 5,00,000 units? Why? *(4 Marks)*

Question No.2 – November 2015

XY Co. Ltd manufactures two products viz., X and Y and sells them through two divisions, East and West. For the purpose of Sales Budget to the Budget Committee, following information has been made available for the year 2014-15:

Product	Budgeted Sales		Actual Sales	
	East Division	West Division	East Division	West Division
X	400 units at ₹ 9	600 units at ₹ 9	500 units at ₹ 9	700 units at ₹ 9
Y	300 units at ₹ 21	500 units at ₹ 21	200 units at ₹ 21	400 units at ₹ 21

Adequate market studies reveal that product X is popular but under priced. It is expected that if the price of X is increased by ₹ 1, it will, find a ready market. On the other hand, Y is overpriced and if the price of Y is reduced by ₹ 1 it will have more demand in the market. The company management has agreed for the aforesaid price changes. On the basis of these price changes and the reports of salesmen, following estimates have been prepared by the Divisional Managers:

Percentage increase in sales over budgeted sales

Product	East Division	West Division
X	+ 10%	+ 5%
Y	+ 20%	+ 10%

With the help of intensive advertisement campaign, following additional sales (over and above the above mentioned estimated sales by Divisional Mangers) are possible:

Product	East Division	West Division
X	60 units	70 units
Y	40 units	50 units

You are required to prepare Sales Budget for 2015-16 after incorporating above estimates and also show the Budgeted Sales and Actual Sales of 2014-15. (8 Marks)

Question No.: 3 (May 2012 exam – 5 Marks)

AK Limited produces and sells a single product. Sales budget for calendar year 2012 by a quarters is as under:

Quarters	I	II	III	IV
No. of units to be sold	18,000	22,000	25,000	27,000

The year is expected to open with an inventory of 6,000 units of finished products and close with inventory of 8,000 units. Production is customarily scheduled to provide for 70% of the current quarter's sales demand plus 30% of the following quarter demand. The budgeted selling price per unit is ₹ 40 . The standard cost details for one unit of the product are as follows:

Variable Cost ₹ 34.50 per unit

Fixed Overheads ₹2 hours 30 minutes @ ₹ 2 per hour based on a budgeted production volume of 1,10,000 direct labour hours for the year. Fixed overheads are evenly distributed through-out the year.

You are required to:

(i) Prepare Quarterly Production Budget for the year.

(ii) In which quarter of the year, company expected to achieve bread-even point.

Question No.: 4 (May 2013 exam – 7 Marks)

Pentax Limited has prepared its expense budget for 20,000 units in its factory for the year 2013 as detailed below:

	₹ per unit
Direct Materials	50
Direct Labour	20
Variable Overhead	15
Direct Expenses	6
Selling Expenses (20% fixed)	15
Factory Expenses (100% fixed)	7
Administration expenses (100% fixed)	4
Distribution expenses (85% variable)	12
Total ₹	129

Prepare an expense budget for the production of 15,000 units and 18,000 units.

Question No.: 5 – November 2014 exam

RST Limited is presently operating at 50% capacity and producing 30,000 units. The entire output is sold at a price of ₹ 200 per unit. The cost structure at the 50% level of activity is as under:

	₹
Direct Material	75 per unit
Direct Wages	25 per unit
Variable Overheads	25 per unit
Direct Expenses	15 per unit
Factory Expenses (25% fixed)	20 per unit
Selling and Distribution Exp. (80% variable)	10 per unit
Office and Administrative Exp. (100% fixed)	5 per unit

The company anticipates that the variable costs will go up by 10% and fixed costs will go up by 15%.

You are required to prepare an Expense budget, on the basis of marginal cost for the company at 50% and 60% level of activity and find out the profits at respective levels.

Question No.: 6 – May 2015 exam

X Y Z Limited is drawing a production plan for its two products - Product 'xml' and 'Product 'yml' for the year 2015-16. The company's policy is to maintain closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month.

The following are the estimated data for the two products:

	xml	yml
Budgeted Production (in units)	2,00,000	1,50,000
Direct Material (per unit)	₹ 220	₹ 280
Direct Labour (per unit)	₹ 130	₹ 120
Direct Manufacturing Expenses	₹ 4,00,000	₹ 5,00,000

The estimated units to be sold in the first four months of the year 2015-16 are as under:

	April	May	June	July
xml	8,000	10,000	12,000	16,000
yml	6,000	8,000	9,000	14,000

Prepare:

(i) Production Budget (Month wise)

(ii) Production cost Budget (for first quarter of the year)

Question No.7 – May 2017 RTP

Vivekananda Primary School has a total of 150 students consisting of 5 sections with 30 students per section. The school plans for a picnic around the city during the weekend to places such as the zoo, the Japanese park, Birla planetarium etc. A private transport operator has come forward to lease out the buses for taking the students. Each bus will have a maximum capacity of 50 (excluding 2 seats reserved for the teachers accompanying the students.) The school will employ two teachers for each bus paying them an allowance of ₹500 per teacher. It will also lease out the required number of buses. The following are the other cost estimates:

Particulars	Cost per student (₹)
Breakfast	50
Lunch	100
Tea	30
Entrance fee at zoo	20
Bus hire charge	6,500 per bus
Special permit fee	500 per bus
Block Entrance fee at the planetarium	2,500
Prizes to students for games	2,500

No costs are incurred in respect of the accompanying teachers (except the allowances of ₹ 500 per teacher).

You are required to prepare:

(a) A flexible budget estimating the total cost for the students' levels of 30, 60, 90, 120 and 150. Each item of cost is to be indicated separately.

(b) Compute the average cost per student at these levels.

(c) What will be your conclusions regarding the break-even level of students if the school proposes to collect ₹ 450 per student.

Question No.8 – November 2016 RTP

Aditya Ltd. manufactures two products K and H. The sales director has anticipated to sale 8,000 units of Product K and 4,200 units of Product H. The Standard cost data for the products for next year are as follows:

	Product- K Per unit	Product- H Per unit
Direct materials:		
-Material X @ ₹ 15 per kg.	12 kg.	15 kg.
-Material Y@ ₹ 16 per kg.	15 kg.	6 kg.
-Material Z @ ₹ 5 per ltr.	8 ltr.	14 ltr.

Direct wages:		
-Unskilled @ ₹ 40 per hour	12 hour	10 hour
-Skilled @ ₹ 75 per hour	8 hour	5 hour

Budgeted stocks for next year are as follows:

		Product- K (Units)	Product- H (Units)
1st April, 2016		800	1,600
31st March, 2017		1,000	2,100
	Material-X (kg)	**Material-Y (kg)**	**Material-Z (ltr)**
1st April, 2016	25,000	30,000	14,000
31st March, 2017	30,000	18,000	7,500

Prepare the following budgets for next year:

(a) Production budget, in units;

(b) Material purchase budget, in quantity and in value;

(c) Direct labour budget, in hours and in value.

Question No.9 – November 2015 RTP, November 2017 RTP

G Ltd. manufactures two products called 'M' and 'N'. Both products use a common raw material Z. The raw material Z is purchased @ ₹ 36 per kg from the market. The company has decided to review inventory management policies for the forthcoming year.

The following forecast information has been extracted from departmental estimates for the year ended 31st March 2016 (the budget period):

	Product M	Product N
Sales (units)	28,000	13,000
Finished goods stock increase by year-end	320	160
Post-production rejection rate (%)	4	6
Material Z usage (per completed unit, net of wastage)	5 kg	6 kg
Material Z wastage (%)	10	5

Additional information:

- Usage of raw material Z is expected to be at a constant rate over the period.
- Annual cost of holding one unit of raw material in stock is 11% of the material cost.
- The cost of placing an orders is ₹ 320 per order.
- The management of G Ltd. has decided that there should not be more than 40 orders in a year for the raw material Z.

Required:

(a) Prepare functional budgets for the year ended 31st March 2016 under the following headings:

(i) Production budget for Products M and N (in units).

(ii) Purchases budget for Material Z (in kgs and value).

(b) Calculate the Economic Order Quantity for Material Z (in kgs).

(c) If there is a sole supplier for the raw material Z in the market and the supplier do not sale more than 4,000 kg. of material Z at a time. Keeping the management purchase policy and production quantity mix into consideration, calculate the maximum number of units of Product M and N that could be produced.

Question No.: 10 (November 2012 RTP)

Blueberry Ltd. is producing two products namely I-Phone and Tablet PC. Each unit of I-Phone and Tablet PC takes 12 hours and 14 hours respectively for production. During the F/Y 2011-12 Blueberry produced 15,000 units of I-Phone and 10,000 units of Tablet PC. Budgeted machine hours were 3,10,000 hours whereas actual machine hours were 3,00,000 hours. You are required to compute various control ratios.

Question No.: 11 (May 2013 RTP)

M/s NNSG Ltd, specialised in manufacturing of piston rings for motor vehicle. It has prepared budget for 8,000 units per annum at budgeted cost of ₹ 21,64,400 as detailed below:

	(₹)	(₹)
Fixed cost (Manufacturing)		2,28,000
Variable costs:		
Power	18,000	
Repairs, etc.	16,000	
Other variable cost	6,400	
Direct material	6,16,000	
Direct labour	12,80,000	19,36,400
		21,64,400

Considering the possible impact on sales turnover by market trends, the company decides to prepare flexible budget with a production target of 4,000 and 6,000 units. On behalf of the company you are required to prepare a flexible budget for production levels at 50% and 75%.

Assuming the selling price per unit is maintained at ₹ 400 as at present, indicate the effect on net profit. Administration, selling and distribution overheads continue at ₹72,000.

Question No.: 12 (November 2013 RTP)

Jigyasa Ltd. is drawing a production plan for its two products Minimax (MM) and Heavyhigh (HH) for the year 2013-14. The company's policy is to hold closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month. The following are the estimated data for two products:

	Minimax (MM)	Heavyhigh (HH)
Budgeted Production units	1,80,000	1,20,000
	(₹)	(₹)
Direct material cost per unit	220	280
Direct labour cost per unit	130	120
Manufacturing overhead	4,00,000	5,00,000

The estimated units to be sold in the first four months of the year 2013-14 are as under

	April	May	June	July
Minimax	8,000	10,000	12,000	16,000
Heavyhigh	6,000	8,000	9,000	14,000

Prepare production budget for the first quarter in monthwise.

Question No.: 13 (May 2014 RTP)

Concorde Ltd. manufactures two products using two types of materials and one grade of labour. Shown below is an extract from the company's working papers for the next month's budget:

	Product-A	Product-B
Budgeted sales (in units)	2,400	3,600
Budgeted material consumption per unit (in kg):		
Material-X	5	3
Material-Y	4	6
Standard labour hours allowed per unit of product	3	5

Material-X and Material-Y cost ₹ 4 and ₹ 6 per kg and labours are paid ₹ 25 per hour. Overtime premium is 50% and is payable, if a worker works for more than 40 hours a week. There are 180 direct workers.

The target productivity ratio (or efficiency ratio) for the productive hours worked by the direct workers in actually manufacturing the products is 80%. In addition the non-productive down-time is budgeted at 20% of the productive hours worked.

There are four 5-days weeks in the budgeted period and it is anticipated that sales and production will occur evenly throughout the whole period.

It is anticipated that stock at the beginning of the period will be:

Product-A	400 units
Product-B	200 units
Material-X	1,000 kgs.
Material-Y	500 kgs.

The anticipated closing stocks for budget period are as below:

Product-A	4 days sales
Product-B	5 days sales
Material-X	10 days consumption
Material-Y	6 days consumption

Required:

Calculate the Material Purchase Budget and the Wages Budget for the direct workers, showing the quantities and values, for the next month.

Question No.: 14 – May 2015 exam

X Y Z Limited is drawing a production plan for its two products - Product 'xml' and 'Product 'yml' for the year 2015-16. The company's policy is to maintain closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month.

The following are the estimated data for the two products:

	xml	***yml***
Budgeted Production (in units)	*2,00,000*	*1,50,000*
Direct Material (per unit)	*₹ 220*	*₹ 280*
Direct Labour (per unit)	*₹ 130*	*₹ 120*
Direct Manufacturing Expenses	*₹ 4,00,000*	*₹ 5,00,000*

The estimated units to be sold in the first four months of the year 2015-16 are as under:

	April	*May*	*June*	*July*
xml	*8,000*	*10,000*	*12,000*	*16,000*
yml	*6,000*	*8,000*	*9,000*	*14,000*

Prepare:

(i) Production Budget (Month wise)

(ii) Production cost Budget (for first quarter of the year)

Question No.15 – May 2017

You are given the following data of a manufacturing concern:

	₹
Variable Expenses (at 50% capacity):	
Materials	*48,00,000*
Labour	*51,20,000*

Others	*7,60,000*
Semi variable expenses (at 50% capacity):	
Maintenance and Repairs	*5,00,000*
Indirect Labour	*19,80,000*
Sales Dept. Salaries	*5,80,000*
Sundry Administrative Expenses	*5,20,000*
Fixed Expenses:	
Wages & Salaries	*16,80,000*
Rent, Rates and Taxes	*11,20,000*
Depreciation	*14,00,000*
Sundry Administrative Exp.	*17,80,000*

The fixed expenses remain constant for all levels of production. Semi variable expenses remain constant between 45% and 65% of capacity whereas it increases by 10% between 65% and 80% capacity of 20% between 80% and 100 % capacity.

Sales at various levels are as under:

Capacity	***Sales (₹)***
75%	*2,40,00,000*
100%	*3,20,00,000*

Prepare flexible budget at 75% and 100% capacity. *(8 Marks)*