



CA Inter TOP “Category A Practical Questions” along with Solution For Nov 2020 Exam

- Nov Exams are on its way & every student feels fear from costing subject & students always remain tensed regarding his/her level of preparation. I know you need some helping hand .
- Here comes this pdf file which contains “Important Questions For Nov 2020 Exam”.
- Revising These Questions will ensure revision of more than **85% Concepts** of Costing.
- It includes most “**Comprehensive**” as well as “**Tricky**” Questions to check your preparation level for Exam.
- **Past 4 Attempts Trend** has also been considered in deciding importance of chapters & topic therein in Exam. You also watch this vide :- <https://www.youtube.com/watch?v=TsS6XDmbU3k>
- Answer has been presented in “Easy to Understand” Mode. Detailed explanation is also provided wherever required
- Take Its Print out & revise thoroughly all the questions. It will boost up your confidence & will also tell you.
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Question 1

A cast iron foundry is importing forged steel moulds for making its castings. The moulds are of four different sizes A, B, C and D and the CIF values are US \$ 4,140, 4,760, 6,340 and 7,875, respectively. Customs duty may be assumed at 45% and clearing charges 5% of CIF value. The number of castings that can be made out of each mould is: A 2,000, B 2,000, C 1,800, and D 1,500.

The weight of each casting out of A is 300 kg., B 400 kg., C 500 kg., and D 700 kg. The casting suffer a normal rejection of 10%. You are required to calculate the average cost of mould per tonne of saleable casting. (For conversion assume US \$1 = Rs. 8.)

Concept

First of all, Learn the concept of FOB & CIF

Case 1 When Ram purchases goods from John and sells in India (Ram is Buyer)

Case 2 When Ram purchase goods in India and Sells to John (Ram is Seller)

Sequence of Expenditure incurred in foreign Sale case

Seller --- Ex Factory Cost --- Transport charges --- Custom Duty & Clearance charges --- Loading charges in Ship --- Freight of Ship --- Insurance during transit ---- Custom Duty paid by Buyer (Import) ---- Transport charges in foreign ---- Goods in factory of Buyer

Seller shall always be responsible till goods reach port of his country.

Buyer shall always be responsible after goods reach port of buyer's country.

Now Question Arise

“Who will be responsible for goods while in transit in ship” –This Question gave birth to FOB & CIF.

If terms are FOB it means Seller shall be responsible till goods reach port of seller's country.

If terms are CIF it means buyer shall be responsible till goods reach port of buyer's country.

Free on Board means seller shall be free from responsibility once goods reach port of seller country.

If terms are CIF

- Seller is responsible for any loss till goods reach port of buyer's country.
- In case of any loss during transit, seller shall bear loss.
- Seller shall pay all exp. till port of buyer

If terms are FOB



- Seller is responsible for any loss till goods reach port of seller's country.
- In case of loss during transit, seller shall not be responsible.
- Insurance and freight during shipment in ship shall be paid by buyer.

FOB = Free on Board = EX Factory Cost + Transportation Cost + Custom Duty + Clearance Charges + Loading charges

CIF = Cost Insurance Freight = FOB + insurance + Freight

Landed Cost = CIF + Custom Duty (import)

In Given Question terms are CIF, it means Seller is responsible for any loss till goods reach port of buyer's country. So we need to calculate Landed Cost = CIF + Custom Duty (import)

Solution

St. Showing average cost of mould per tonne of saleable casting

	A	B	C	D	TOTAL
CIF Values (US \$)	4,140	4,760	6,340	7,875	23,115
Customs duty & clearing charges (50%)	2,070	2,380	3,170	3,937.50	11,557.50
Total Cost (US\$)	6,210	7,140	9,510	11,812.50	34,672.50
Cost in Rupees (1\$ = Rs. 8) --- A (Assumed)	49,680	57,120	76,080	94,500	2,77,380
Number of castings	2,000	2,000	1,800	1,500	-
Less 10% normal rejections	200	200	180	150	-
Number of saleable castings --- B (Assumed)	1,800	1,800	1,620	1,350	-
Weight of each casting (Kg) ----- C (Assumed)	300	400	500	700	-
Weight of saleable castings (in tonnes) – D (Assumed) B x C _____ 1000 kg in 1 Tonne	540 Tonnes	720 Tonnes	810 Tonnes	945 Tonnes	3,015 Tonnes
Cost per tonne (Rs.) – A / D	92	79.3	93.9	100	91.3

The average cost of mould per tonne of saleable casting is, therefore, Rs.91.3 approx.

Question 2



Following Data is available for ABC

Standard working Hours	8 hours per day of 5 days per week
Maximum capacity	60 employees
Actual Working	50 Employees
Actual hours expected to be worked per four week	8000 Hours
Standard hours expected to be earned per four week	9600 Hours
Actual Hours Worked in the four week Period	7500 Hours
Standard Hours earned in the four week period	8800 hours

The period is of 4 weeks.

Calculate Following Ratios

- (i) Efficiency Ratio
- (ii) Activity Ratio
- (iii) Standard Capacity Usage Ratio
- (iv) Actual Capacity Usage Ratio
- (v) Actual Usage of Budgeted Capacity Ratio

Solution

Following Data is available for ABC

		Analysis	Tech. Term
Standard working Hours	8 hours per day of 5 days per week	A worker "should" work for 5 days in a week and 8 hours in a day.	
Maximum capacity	60 employees	Max. 60 workers can work in this co.	
Actual Working	50 Employees	Actually 50 workers worked	
Actual hours expected to be worked per four week	8000 Hours	50 workers "should" work for 8000 hours in this month. 50 Workers x 4 week x 5 days x 8 hours = 8000 Hours	Budgeted Hours
Standard hours expected to be earned per four week	9600 Hours	If 60 workers work then those 60 workers "should" work for 9600 hours in this month. 60 Workers x 4 week x 5 days x 8 hours = 9600 Hours It is Maximum Hours	Maximum Hours
Actual Hours Worked in the four week Period	7500 Hours	50 workers "Actually" worked for 7500 hours in this month.	Actual Hours



Standard Hours earned in the four week period	8800 hours		Standard Hours
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The period is of 4 weeks.

$$(i) \text{ Efficiency Ratio} = \frac{\text{Standard Hours}}{\text{Actual Hours}} \times 100 = \frac{8800 \text{ Hours}}{7500 \text{ Hours}} \times 100 = 117.33\%$$

$$(ii) \text{ Activity Ratio} = \frac{\text{Standard Hours}}{\text{Budgeted Hours}} \times 100 = \frac{8800 \text{ Hours}}{8000 \text{ Hours}} \times 100 = 110\%$$

(iii) Standard Capacity Usage Ratio =

$$= \frac{\text{Budgeted Hours}}{\text{Maximum possible hours in the budget period}} \times 100 = \frac{8000 \text{ Hours}}{9600 \text{ Hours}} \times 100 = 83.33\%$$

(iv) Actual Capacity Usage Ratio =

$$= \frac{\text{Actual Hours Worked}}{\text{Max.Possible working hours in a period}} \times 100 = \frac{7500 \text{ Hours}}{9600 \text{ Hours}} \times 100 = 78.125\%$$

(v) Actual Usage of Budgeted Capacity Ratio

$$= \frac{\text{Actual Working Hours}}{\text{Budgeted Hours}} \times 100 = \frac{7500 \text{ Hours}}{8000 \text{ Hours}} \times 100 = 93.75\%$$

Question 3

Rs.AT' Ltd. furnishes the following store transactions for September, 20X8:

- 1-9-X8 Opening balance 25 units value Rs. 162.50
- 4-9- X8 Issues Req. No. 85 8 units
- 6-9- X8 Receipts from B & Co. GRN No. 26 50 units @ Rs. 5.75 per unit
- 7-9- X8 Issues Req. No. 97 12 units
- 10-9- X8 Return to B & Co. 10 units
- 12-9- X8 Issues Req. No. 108 15 units
- 13-9- X8 Issues Req. No. 110 20 units
- 15-9- X8 Receipts from M & Co. GRN. No. 33 25 units @ Rs. 6.10 per unit
- 17-9- X8 Issues Req. No. 121 10 units
- 19-9- X8 Received replacement from B & Co. GRN No. 38 10 units
- 20-9- X8 Returned from department, material of M & Co. MRR No. 4 5 units
- 22-9- X8 Transfer from Job 182 to Job 187 in the dept. MTR 6 5 units
- 26-9- X8 Issues Req. No. 146 10 units
- 29-9- X8 Transfer from Dept. "A" to Dept. "B" MTR 10 5 units
- 30-9- X8 Shortage in stock taking 2 units

PREPARE the priced stores ledger on FIFO method and STATE how would you treat the shortage in stock taking.

Solution :-

**Working Notes:**

1. The material received as replacement from vendor is treated as fresh supply.
2. In the absence of information the price of the material received from within on 20-9-X8 has been taken as the price of the earlier issue made on 17-9-X8. In FIFO method physical flow of the material is irrelevant for pricing the issues.
3. The issue of material on 26-9-X8 is made out of the material received from within.
4. The entries for transfer of material from one job and department to other on 22-9-X8 and 29-9-X8 are book entries for adjusting the cost of respective jobs and as such they have not been shown in the stores ledger account.
5. The material found short as a result of stock taking has been written off.

Stores Ledger of AT Ltd. for the month of September, 20X8 (FIFO Method)												
RECEIPT					ISSUE		BALANCE					
Date	GRN no. MRR no.	Qty Units	Rate (Rs.)	Amount (Rs.)	Requisition no.	Qty Units	Rate (Rs.)	Amount (Rs.)	Qty Units	Rate (Rs.)	Amount (Rs.)	(Rs.)
1	2	3	4	5	6	7	8	9	10	11	12	
1-9-X8	--	--	--	--	--	--	--	--	25	6.50	162.50	
4-9-X8	--	--	--	--	85	8	6.50	52	17	6.50	110.50	
6-9-X8	26	50	5.75	287.50	--	--	--	--	17 50	6.50 5.75	398.00	
7-9-X8	--	--	--	--	97	12	6.50	78	5 50	6.50 5.75	320.00	
10-9-X8	--	--	--	--	NIL	10	5.75	57.50	5 40	6.50 5.75	262.00	
12-9-X8	--	--	--	--	108	5 10	6.50 5.75	90	30	5.75	172.50	
13-9-X8	--	--	--	--	110	20	5.75	115	10	5.75	57.50	
15-9-X8	33	25	6.10	152.50	--	--	--	--	10 25	5.75 6.10	210.00	
17-9-X8	--	--	--	--	121	10	5.75	57.50	25	6.10	152.50	
19-9-X8	38	10	5.75	57.50	--	--	--	--	25 10 5	6.10 5.75 5.75	210.00	
20-9-X8	4	5	5.75	28.75	--	--	--	--	25 10	6.10 7.75	258.75	
26-9-X8	--	--	--	--	146	5 5	5.75 6.10	59.25	20 10	6.10 5.75	179.50	
30-9-X8	--	--	--	--	SHORTAGE	2	6.10	12.50	18 10	6.10 5.75	167.30	

Question 4

A Factory Produces two products "A" & "B" from a single process. The Joint processing costs during a particular month are:

Direct Material Cost	Rs.30,000
Direct Labour Cost	Rs.9,600



Variable Overheads	Rs.12,000
Fixed Overheads	Rs.32,000

Sales: A – 100 units @ Rs.600 per unit; B – 120 units @ Rs.200 per unit.

Apportion Joint Costs on the basis of:

- Physical Quantity of each product
- Contribution Margin method
- Determine Profit or Loss under both the methods

Concepts

(i) Physical Quantity of each product

According to this method, The joint costs is to be distributed on the basis of weight or on the basis of quantity of various joint products i.e. Joint cost is distributed in ratio of quantity manufactured.

(ii) Contribution Margin Method

According to this method, Contribution margin method

- Under this method, joint costs are divided into variable cost and fixed cost.
- Variable cost portion of joint cost is divided among products on the basis of physical units (Quantity / Units Ratio)
- Fixed cost portion of joint cost is divided among products on the basis of contribution ratio.

Contribution = Sales – Total variable cost

$$\text{Contribution Ratio} = \frac{\text{Contribution of an individual product}}{\text{Total contribution of all products}} \times 100$$

- Determine Profit or Loss under both these methods

Solution

W. Note 1:- Calculation of Total Joint cost

DMC	Rs.30,000
DLC	Rs.9,600
Variable Overheads	Rs.12,000
Total Variable Cost	Rs.51,600
Fixed Overheads	Rs.32,000
Total Joint Cost	Rs.83,600

(i) Physical Quantity of each product

$$\text{Share of Product A in Joint Cost} = \frac{\text{Rs.83600}}{100 \text{ units} + 120 \text{ units}} \times 100 \text{ units} = \text{Rs.38,000}$$

$$\text{Share of Product B in Joint Cost} = \frac{\text{Rs.83600}}{100 \text{ units} + 120 \text{ units}} \times 120 \text{ units} = \text{Rs.45,600}$$

(ii) Contribution Margin Method

$$\text{Share of Product A in Joint Cost} = \frac{\text{Rs.51600}}{100 \text{ units} + 120 \text{ units}} \times 100 \text{ units} = \text{Rs.23,455}$$

$$\text{Share of Product B in Joint Cost} = \frac{\text{Rs.51600}}{100 \text{ units} + 120 \text{ units}} \times 120 \text{ units} = \text{Rs.28,146}$$

**St. showing apportionment of FC**

Particulars	Product A	Product B
Total Sales	100 units x Rs.600 = Rs.60,000	120 units x Rs.200 = Rs.24,000
Less Total Variable Cost	(Rs.23,455)	(Rs.28,146)
Total Contribution	Rs.36,545	(Rs.4,146)
Total Contribution for FC Purpose	Rs.36,545	Rs.Zero
Contribution Ratio	100%	0%
Share of FC	Rs.32,000	Rs. Zero

Note:- In practical life, if contribution of any product comes negative then entity should choose another method because this method is not suitable.

But since we are supposed to solve this question, we will treat negative contribution as zero contribution.

In this way, we will get contribution ratio as 100% & 0%

(iii) Profit & Loss Under above methods**St. showing Profit & Loss as per Physical unit method**

Particulars	Product A	Product B
Sales	Rs.60,000	Rs.24,000
Less Share in Joint Cost	Rs.38,000	Rs.45,600
Profit	Rs.22,000	Rs.21,600

St. showing Profit & Loss as per Contribution Margin method

Particulars	Product A	Product B
Sales	Rs.60,000	Rs.24,000
Less Share in Joint Var. Cost	Rs.23,455	Rs.28,146
Less Share in Joint Fixed Cost	Rs.32,000	NIL
Profit	Rs.4,545	(Rs.4,146)

Question 5

GZ Ld. pays the following to a skilled worker engaged in production works. The following are the employee benefits paid to the employee:

(a)	Basic salary per day	Rs.1,000
(b)	Dearness allowance (DA)	20% of basic salary



(c)	House rent allowance	16% of basic salary
(d)	Transport allowance	Rs.50 per day of actual work
(e)	Overtime	Twice the hourly rate (considers basic and DA), only if works more than 9 hours a day otherwise no overtime allowance. If works for more than 9 hours a day then overtime is considered after 8 th hours.
(f)	Work of holiday and Sunday	Double of per day basic rate provided works atleast 4 hours. The holiday and Sunday basic is eligible for all allowances and statutory deductions.
(h)	Earned leave & Casual leave	These are paid leave.
(h)	Employer's contribution to Provident fund	12% of basic and DA
(i)	Employer's contribution to Pension fund	7% of basic and DA

The company normally works 8-hour a day and 26-day in a month. The company provides 30 minutes lunch break in between.

During the month of August 2020, Mr.Z works for 23 days including 15th August and a Sunday and applied for 3 days of casual leave.

On 15th August and Sunday he worked for 5 and 6 hours respectively without lunch break.

On 5th and 13th August he worked for 10 and 9 hours respectively. During the month Mr. Z worked for 100 hours on Job no.HT200. You are required to CALCULATE:

- Earnings per day
- Effective wages rate per hour of Mr. Z.
- Wages to be charged to Job no.HT200.

ANSWER :-

First of all we need to understand meaning and implication of lines given in question so we can understand each point from practical point of view

Line Given in Question	Its meaning & Implication
Transport Allowance as Rs.50 per day of Actual Work	If employees comes to Office then he shall be paid Rs.50 per day. This 50 rupees shall be paid even if it is Sunday, it is holiday. It also means that If employee does not come on any day in office then he shall not be paid this Rs.50
Overtime Line (Read from Question)	If worker works for more than 9 hours in a day then he shall be eligible for overtime payment. Overtime rate = Twice the hourly rate (Basic salary Plus DA) Overtime = Actual time worked – 8 hours
Working on holiday (Read From Question)	Holiday Means Sunday and Public Holiday e.g. 15 th August. Overtime rate = Double per day basic Rate



	Condition = Works at least 4 hours. Above Pymt shall be added in Basic as given in Question.
Earned Leave & Casual Leave. These are paid leaves	Company allow some leaves in year for which salary is not deducted. It means if a worker takes CL then his salary shall not be deducted.

Out of Normal Working Days

- On 5th Date – He worked for 10 hours – It means he is eligible for Overtime Payment – He shall be paid Overtime for 2 hours
- On 13th August – He worked for 9 hours – It means he is not eligible for Overtime Payment since this is not more than 9 hours.

Extra Above Normal Working Days

- On 15th August – He worked for 5 hours – it means he is eligible for “Payment for working on holiday” since he worked more than 4 hours
- On 23th August (Sunday) – he worked for 6 hours – It means he is eligible for “Payment for working on holiday” since he worked more than 4 hours

		Time Worked
Actual Worked Days	23 Days	21 days X 7.50 Hour Per Day + 10 Hour – 0.50 hour (Lunch Time) + 9 hour – 0.50 hour (Lunch Time) = 175.50 Hours
2 Days Extra Worked	2 Days	5 hours + 6 Hours = 11 Hour (Lunch Time not included in this as per Qn.)
	Total	186.50 hour

Required Calculations

- Overtime Rate per hour = Twice the hourly rate (Consider basic & DA)

$$= 2 \times \frac{\text{Rs.1000} + \text{Rs.2,000 [20\% of Basic (DA)]}}{8 \text{ hours per day} - 0.50 \text{ hour per day (Lunch Time)}} = 2 \times \text{Rs.160} = \text{Rs.320}$$

(1) . Statement showing Earnings Per Day

Particulars	Amount (Rs.)
Basic Salary Per Day	Rs.1000
DA (20% of Basic Salary)	Rs.200
HRA (16% of Basic Salary)	Rs.160
Transport Allowance	Rs.50
Employer's Contribution to PF (12% of Basic Salary Plus DA)	Rs.144
Employer's Contribution to Pension Fund (7% of Basic Salary Plus DA)	Rs.84
Total Earnings Per Day	Rs.1638

(ii) Calculation of effective wage rate per hour of Mr. Z:



Particulars	Amount (Rs.)
Basic salary (Rs.1,000 × 26 days) (Normal Working Days - 26)	26,000
Additional basic salary for Sunday & holiday (Rs.1,000 × 2 days)	2,000
Dearness allowance (20% of basic salary)	5,600
	33,600
House rent allowance (16% of basic salary)	4,480
Transport allowance (Rs.50 × 23 days)	1,150
Overtime allowance (Rs.160 × 2 × 2 hours)*	640
Employer's contribution to Provident fund (12% × Rs.33,600)	4,032
Employer's contribution to Pension fund (7% × Rs.33,600)	2,352
Total monthly wages	46,254
Hours worked by Mr. Z (hours)	186.5
Effective wage rate per hour	248

*(Daily Basic + DA) ÷ 7.5 hours

= (1,000+200) ÷ 7.5 = Rs.160 per hour

(i) Calculation of wages to be charged to Job no. HT200

= Rs. 248 × 100 hours = Rs. 24,800

Question 6

AP Ltd. received a job order for supply and fitting of plumbing materials. Following are the details related with the job work:

Direct Materials

AP Ltd. uses a weighted average method for the pricing of materials issues. Opening stock of materials as

on 12th August 2020:

- 15mm GI Pipe, 12 units of (15 feet size) @ Rs.600 each
- 20mm GI Pipe, 10 units of (15 feet size) @ Rs. 660 each
- Other fitting materials, 60 units @ Rs. 26 each
- Stainless Steel Faucet, 6 units @ Rs. 204 each
- Valve, 8 units @ Rs. 404 each Purchases:

On 16th August 2020:

- 20mm GI Pipe, 30 units of (15 feet size) @ Rs. 610 each
- 10 units of Valve @ Rs. 402 each On 18th August 2020:
- Other fitting materials, 150 units @ Rs. 28 each



- Stainless Steel Faucet, 15 units @ Rs. 209 each On 27th August 2020:
- 15mm GI Pipe, 35 units of (15 feet size) @ Rs. 628 each
- 20mm GI Pipe, 20 units of (15 feet size) @ Rs. 660 each
- Valve, 14 units @ Rs. 424 each Issues for the hostel job:

On 12th August 2020:

- 20mm GI Pipe, 2 units of (15 feet size)
- Other fitting materials, 18 units On 17th August 2020:
- 15mm GI Pipe, 8 units of (15 feet size)
- Other fitting materials, 30 units On 28th August 2020:
- 20mm GI Pipe, 2 units of (15 feet size)
- 15mm GI Pipe, 10 units of (15 feet size)
- Other fitting materials, 34 units
- Valve, 6 units On 30th August 2020:
- Other fitting materials, 60 units
- Stainless Steel Faucet, 15 units

Direct Labour:

Plumber: 180 hours @ Rs.100 per hour (includes 12 hours overtime) Helper: 192 hours @ Rs.70 per hour (includes 24 hours overtime)
Overtimes are paid at 1.5 times of the normal wage rate.

Overheads:

Overheads are applied @ Rs.26 per labour hour.

Pricing policy:

It is company's policy to price all orders based on achieving a profit margin of 25% on sales price.

You are required to

- CALCULATE the total cost of the job.
- CALCULATE the price to be charged from the customer.

ANSWER :-**(a) Calculation of Total Cost for the Job:**

Particulars	Amount (Rs.)	Amount (Rs.)
Direct Material Cost:		
- 15mm GI Pipe (Working Note- 1)	11,051.28	
- 20mm GI Pipe (Working Note- 2)	2,588.28	
- Other fitting materials (Working Note- 3)	3,866.07	



Stainless steel faucet	3,113.57	
Valve	2,472.75	23,091.95
Direct Labour:		
Plumber [(180 hours × Rs.100) + (12 hours × Rs.50)]	18,600.00	
Helper [(192 hours × Rs.70) + (24 hours × Rs.35)]	14,280.00	32,880.00
Overheads [Rs.26 × (180 + 192) hours]		9,672.00
Total Cost		65,643.95

(b) Price to be charged for the job work:

	Amount (Rs.)
Total Cost incurred on the job	65,643.95
Add: 25% Profit on Job Price $\times \left(\frac{65,643.95}{75\%} \times 25\% \right)$	21,881.32
	87,525.27

W. Note 1 – Calculation of Cost of 15mm material used

Date	Receipts			Issues			Balance		
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
12 th Aug							12	600	7200
17 th Aug				8	600	4800	4	600	2400
27 th Aug	35	628	21980				39	625.1282	24380
28 th Aug				10	625.1282	6251.282	29	625.1282	18128.718
Total						11051.282			

W. Note 2 – Calculation of Cost of 20mm material used

Date	Receipts			Issues			Balance		
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
12 th Aug							10	660	6600
12 th Aug				2	660	1320	8	660	5280
16 th Aug	30	610	18300				38	620.526	23580
27 th Aug	20	660	13200				58	634.1379	36780
28 th Aug				2	634.1379	1268.28			
Total						2588.28			

W. Note 3 – Calculation of Cost of Other Fittings material

Date	Receipts			Issues			Balance		
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt



12 th Aug							60	26	1560
12 th Aug				18	26	468	42	26	1092
17 th Aug				30	26	780	12	26	312
18 th Aug	150	28	4200				162	27.85	4512
28 th Aug				34	27.85	946.96	128	27.85	3565.03
30 th Aug				60	27.85	1671.11	68	27.85	1893.92
Total						3866.07			

W. Note 4 – Calculation of Cost of Stainless Steel

Date	Receipts			Issues			Balance		
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
12 th Aug							6	204	1224
16 th Aug	15	209	3135				21	207.5714	4359
30 th Aug				15	207.5714	3113.57			
Total						3113.57			

W. Note 5 – Calculation of Cost of Valve

Date	Receipts			Issues			Balance		
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
12 th Aug							8	404	3232
16 th Aug	10	402	4020				18	402.8888	7252
27 th Aug	14	424	5936				32	412.125	13188
28 th Aug				6	412.125	2472.75	26	412.125	10715.25
Total						2472.75			

Question 7

M Ltd. produces a product-X, which passes through three processes, I, II and III. In Process-III a by-product arises, which after further processing at a cost of Rs.85 per unit, product Z is produced. The information related for the month of August 2020 is as follows:

	Process-I	Process-II	Process-III
Normal loss	5%	10%	5%
Materials introduced (7,000 units)	1,40,000	-	-
Other materials added	62,000	1,36,000	84,200
Direct wages	42,000	54,000	48,000
Direct expenses	14,000	16,000	14,000

Production overhead for the month is Rs.2,88,000, which is absorbed as a percentage of direct wages. The scrapes are sold at Rs.10 per unit Product-Z can be sold at Rs.135 per unit with a selling cost of Rs.15 per unit No. of units produced:

Process-I- 6,600; Process-II- 5,200, Process-III- 4,800 and Product-Z- 600 There is not stock at the beginning and end of the month. You are required to PREPARE accounts for:



- (i) Process-I, II and III
(ii) By-product process.

ANSWER :-

(i) **Process-I A/c**

Particulars	Units	Amt.(Rs.)	Particulars	Units	Amt.(Rs.)
To Materials	7,000	1,40,000	By Normal loss (5% of 7,000)	350	3,500
To Other materials	-	62,000	By Process-II*	6,600	3,35,955
To Direct wages	-	42,000	By Abnormal loss*	50	2,545
To Direct expenses	-	14,000			
To Production OH (200% of Rs.42,000)	-	84,000			
	7,000	3,42,000		7,000	3,42,000

$$= \frac{\text{Rs.}(3,42,000 - 3,500)}{(7,000 - 350)\text{units}} = \text{Rs.}50.9022$$

Process-II A/c

Particulars	Units	Amt.(Rs.)	Particulars	Units	Amt.(Rs.)
To Process-I A/c	6,600	3,35,955	By Normal loss (10% of 6,600)	660	6,600
To Other materials	-	1,36,000	By Process-III**	5,200	5,63,206
To Direct wages	-	54,000	By Abnormal loss**	740	80,149
To Direct expenses	-	16,000			
To Production OH (200% of Rs.54,000)	-	1,08,000			
	6,600	6,49,955		6,600	6,49,955

$$= \frac{\text{Rs.}(6,49,955 - 6,600)}{(6,600 - 660)\text{units}} = \text{Rs.}108.3089$$

Process-III A/c

Particulars	Units	Amt.(Rs.)	Particulars	Units	Amt.(Rs.)
To Process-I A/c	5,200	5,63,206	By Normal loss (5% of 5,200)	260	2,600



To Other Materials		84,200	By Product-X***	4,800	8,64,670
To Direct wages		48,000			
To Direct Expenses		14,000	By Product-Z#	600	21,000
			(Rs.35×600)		
To Production OH (200% of Rs.48,000)		96,000			
To Abnormal gain***	460	82,864			
	5,660	8,88,270		5,660	8,88,270

$$= \frac{\text{Rs.}(8,05,406 - 2,600 - 21,000)}{(6,600 - 660)\text{units}} = \text{Rs.}180.1396$$

Realisable value = Rs.135 – (85+15) = Rs.35

(ii)

By-Product Process A/c

Particulars	Units	Amt.(Rs.)	Particulars	Units	Amt.(Rs.)
To Process-III A/c	600	21,000	By Product-Z	600	81,000
To Processing cost		51,000			
To Selling expenses		9,000			
	600	81,000		600	81,000

Question 8

A company uses four raw materials A, B, C and D for a particular product for which the following data apply :-

Raw Material	Usage per unit of product (Kg.)	Re-order Quantity (Kg.)	Price per Kg. (Rs.)	Delivery period (in weeks)			Re- order level (Kg.)	Minimum level (Kg.)
				Minimum	Average	Maximum		
A	12	12,000	12	2	3	4	60,000	?
B	8	8,000	22	5	6	7	70,000	?
C	6	10,000	18	3	5	7	?	25,500
D	5	9,000	20	1	2	3	?	?

Weekly production varies from 550 to 1,250 units, averaging 900 units of the said product. What would be the following quantities:-

- Minimum Stock of A?
- Maximum Stock of B?
- Re-order level of C?



- (iv) Average stock level of A?
- (v) Re-order level of D?
- (vi) Minimum Stock level of D?

ANSWER :-**Minimum stock of A**

Average consumption of FG = $550 + 1250 / 2 = 900$ Units

Formula 1:- Re-order level – (Average Usage × Average Lead Time)
= $60000 \text{ kg.} - (900 \text{ units} \times 12 \text{ kg.} \times 3 \text{ weeks}) = 27600 \text{ kg.}$

Maximum stock of B

Formula 1:- Re-order level – (Min. Consumption of raw material × Min. Lead Time) + Re-order quantity
= $70000 \text{ kg.} - (550 \text{ units} \times 8 \text{ kg.} \times 5 \text{ weeks}) + 8000 \text{ kg.}$
= 56000 kg.

Re-order level of C

Formula 1:- Maximum Lead Time × Maximum Usage of raw material
= $7 \text{ weeks} \times (1250 \text{ units} \times 6 \text{ kg.}) = 52500 \text{ kg.}$

OR

Formula 2:- Minimum stock of C + (Average consumption × Average delivery time)
= $25500 \text{ kg.} + [(900 \text{ units} \times 6 \text{ kg.}) \times 5 \text{ weeks}] = 52500 \text{ kg.}$

Average stock level of A

Formula 1:- $\frac{\text{Max.Level (W.N.1)} + \text{Min.Level}}{2} = \frac{58800 + 27600}{2} = 43,200 \text{ Kg}$

W.N.1 Max. Level of A =

Formula 1:- ROL + ROQ – Min. Usage of raw material X Min. Lead Time
= $60000 \text{ kg} + 12000 \text{ kg} - [(550 \text{ units} \times 12 \text{ Kg}) \times 2 \text{ week}] = 58800 \text{ Kg}$

Re-Order Level of D

Formula 1:- Maximum Lead Time × Maximum Usage of raw material
= $3 \text{ weeks} \times (1250 \text{ units} \times 5 \text{ kg.}) = 18750 \text{ kg.}$

Minimum stock of D

Average consumption of FG = $550 + 1250 / 2 = 900$ Units

Formula 1:- Re-order level – (Average Usage × Average Lead Time)
= $18750 \text{ kg.} - (900 \text{ units} \times 5 \text{ kg.} \times 2 \text{ weeks}) = 9750 \text{ kg.}$

Question 9

Aditya Agro Ltd. produces edible oils of different varieties. The monthly demand pattern for the finished products are as follows:



Mustard oil	45,000	Litre
Soybean oil	15,000	Litre
Olive oil	3,000	Litre

To produce one litre of Mustard oil, Soybean oil and Olive oil, 5 kg. of mustards, 6 kg. of soybeans and 4.5 kg. of olives are required respectively. There is no opening and closing stock of materials.

Aditya Agro Ltd. can purchase the materials either from the farmers directly or from the wholesale market. The company can purchase any quantity of materials from the wholesale market but in case of purchase from the farmers, it has to purchase the minimum specified quantity of materials at a time. Following is the material-wise summary related with the purchase of materials:

		Wholesale Market	Farmers
Mustard:			
Minimum Quantity to be purchased		Any quantity	13,50,000 kg.
Purchase price per kg. (Rs.)		15.00	12.50
Goods & Service Tax (GST)*		2%	---
Transportation cost per purchase		6,000	15,000
Sorting and piling cost per purchase		----	1,200
Loading cost per 50 kg.		10.00	5.00
Unloading cost per 50 kg.		2.00	2.00
Soybean:			
Minimum Quantity to be purchased		Any Quantity	2,70,000 kg.
Purchase price per kg. (Rs.)		11.00	9.00
Goods & Service Tax (GST)**		4%	---
Transportation cost per purchase		9,000	12,000
Sorting and piling cost per purchase		---	800
Loading cost per 50 kg.	10.00	3.00	
Unloading cost per 50 kg.	2.00	2.00	
Olive:			
Minimum Quantity to be purchased		Any Quantity	1,62,000 kg.
Purchase price per kg. (Rs.)		36.00	28.00
Goods & Service Tax (GST)***			10%
Transportation Cost per purchase (Rs.)		3,000	11,000
Sorting and piling cost per purchase		1,800	
Loading cost per 50 kg.		10.00	25.00
Unloading cost per 50 kg.		2.00	2.00

The company is paying 12.5% p.a. as interest to its bank for cash credit facility and Rs.100 per 100 kg. as rent to the warehouse.

[*GST will be added with the purchase price of mustards; **GST will not be added with the purchase price of soybeans; ***GST will be added with the purchase price of olives.]

You are required to

- Calculate the purchase cost of each material
 - from Wholesale market
 - from the Farmers



2. Calculate Economic Order Quantity of each material under the both options.
3. Recommend the best purchase option for the material 'olive'.

Solution**1. Calculation of Purchase Cost per Kg. of Materials**

Particulars	Wholesale Market Price (Rs.)	Farmers (Rs.)
Mustard		
Purchase price	15.00	12.50
Add: GST@ 2%	0.30	--
Add: Loading Cost	0.20 $\left(\frac{\text{Rs.10}}{50 \text{ kg}}\right)$	0.10 $\left(\frac{\text{Rs.5}}{50 \text{ Kg}}\right)$
Add: Unloading Cost	0.04 $\left(\frac{\text{Rs.2}}{50 \text{ kg}}\right)$	0.04 $\left(\frac{\text{Rs.2}}{50 \text{ kg}}\right)$
Total	15.54	12.64
Soybean:		
Purchase price	11.00	9.00
Add: Loading Cost	0.20 $\left(\frac{\text{Rs.10}}{50 \text{ kg}}\right)$	0.06 $\left(\frac{\text{Rs.3}}{50 \text{ kg}}\right)$
Add: Unloading Cost	0.04 $\left(\frac{\text{Rs.2}}{50 \text{ kg}}\right)$	0.04 $\left(\frac{\text{Rs.2}}{50 \text{ kg}}\right)$
Total	11.24	9.10
Olive:		
Purchase price	36.00	28.00
Add: GST@ 10%	---	2.80
Add: Loading Cost	0.20 $\left(\frac{\text{Rs.10}}{50 \text{ kg}}\right)$	0.50 $\left(\frac{\text{Rs.25}}{50 \text{ kg}}\right)$
Add: Unloading Cost	0.04 $\left(\frac{\text{Rs.2}}{50 \text{ kg}}\right)$	0.04 $\left(\frac{\text{Rs.2}}{50 \text{ kg}}\right)$
Total	36.24	31.34

2.
$$EOQ = \sqrt{\frac{2 \times A \times O}{C}}$$

 Annual requirement (A)

Commodity	Quantity (Kg.)
Mustard (45,000 Ltr. × 5 Kg. × 12 months)	27,00,000
Soybean (15,000 Ltr. × 6 Kg. × 12 months)	10,80,000
Olive (3,000 Ltr. × 4.5 Kg. × 12 months)	1,62,000

Special note:- Transportation cost and sorting & piling cost is ordering cost.

Cost per order (O)

Particulars	Wholesale Market (Rs.)	Farmers (Rs.)
Mustard:		
Transportation cost	6,000	15,000
Sorting and piling cost	---	1,200
Total	6,000	16,200
Soybean:		
Transportation cost	9,000	12,000
Sorting and piling cost	---	800



Total	9,000	12,800
Olive:		
Transportation cost	3,000	11,000
Sorting and piling cost	1,800	----
Total	4,800	11,000

Carrying Cost per Kg. per annum (C × i)

Particulars	Wholesale Market (Rs.)	Farmers (Rs.)
Mustard:		
Interest on cash credit	1.9425 (Rs. 15.54 X 12.5%)	1.58 (Rs. 12.64 X 12.5%)
Warehouse rent	1	1
Total	2.9425	2.58
Soybean:		
Interest on cash credit	1.4050 (Rs. 11.24 X 12.5%)	1.1375 (Rs. 9.10 X 12.5%)
Warehouse rent	1	1
Total	2.405	2.1375
Olive:		
Interest on cash credit	4.5300 (Rs. 36.24 X 12.5%)	3.9175 (Rs. 31.34 X 12.5%)
Warehouse rent	1	1
Total	5.53	4.9175

$$\text{Warehouse Rent per Kg} = \frac{\text{Rs. } 100}{100 \text{ kg}} = \text{Rs. } 1$$

Calculation of E.O.Q for each material under the both options

Particulars	Wholesale Market (Rs.)	Farmers (Rs.)
Mustard:	$\sqrt{\frac{2 \times 27,00,000 \text{ kg} \times \text{Rs. } 6,000}{\text{Rs. } 2.9425}}$ = 1,04,933.53	$\sqrt{\frac{2 \times 27,00,000 \text{ kg} \times \text{Rs. } 16,200}{\text{Rs. } 2.58}}$ = 1,84,138.47
Soybean:	$\sqrt{\frac{2 \times 10,80,000 \text{ kg} \times \text{Rs. } 9,000}{\text{Rs. } 2.405}}$ = 89,906.40	$\sqrt{\frac{2 \times 10,80,000 \text{ kg} \times \text{Rs. } 12,800}{\text{Rs. } 2.1375}}$ = 1,13,730.98
Olive:	$\sqrt{\frac{2 \times 1,62,000 \text{ kg} \times \text{Rs. } 4,800}{\text{Rs. } 5.53}}$ = 16,769.90	$\sqrt{\frac{2 \times 1,62,000 \text{ kg} \times \text{Rs. } 11,000}{\text{Rs. } 4.9175}}$ = 26,921.34

3. Selection of best purchase option for the purchase of Olives

Particulars	Wholesale Market (Rs.)	Farmers (Rs.)
Annual Requirement (A)	1,62,000	1,62,000



Quantity Ordered	16,769.90 (EOQ)	1,62,000
No. of orders	10 orders ($\frac{1,62,000}{16,769.90} = 9.66$ orders)	1 order ($\frac{1,62,000}{1,62,000} = 1$)
Average Quantity ($\frac{Q}{2}$)	8384.95 ($\frac{16,769.90}{2}$)	81,000 ($\frac{1,62,000}{2}$)

Special note:- since purchase price is different under both wholesale market and farmers market hence purchase price shall be relevant cost for decision making.

Calculation of total cost of material

Particulars	Wholesale Market (Rs.)	Farmers (Rs.)
Purchase Price	58,70,880 (1,62,000 kg X Rs.36.24)	50,77,080 (1,62,000 kg X Rs. 31.34)
Ordering cost	48,000 (10 orders X Rs. 4800)	11,000 (1 order X Rs. 11,000)
Carrying Cost (Avg. Inventory X Carrying cost per kg.)	46,368.77 (8384.95 X Rs. 5.53)	3,98,317.50 (81,000 kg X Rs. 4.9175)
Total cost	59,65,248.77	54,86,397.50

Best option is to buy Olives from farmers.

ABC Ltd. manufactures a product X which requires two raw materials A and B in a ratio of 1:4. The sales department has estimated a demand of 5,00,000 units for the product for the year. To produce one unit of finished product, 4 units of material A is required.

Stock position at the beginning of the year is as follows:

Product X – 12,000 units

Material A – 24,000 units

Material B – 52,000 units

To place an order the company has to spend Rs.15,000. The Company is financing its working capital using a bank cash credit @13% p.a. Product X is sold at Rs.1040 per unit. Material A & B is purchased at Rs.150 and Rs.200 respectively.

Required:

Compute Economic Order Quantity (EOQ):

- If purchase order for the both materials is placed separately.
- If purchase order for the both materials is not placed separately.

Solution:-

Working:

Annual production of product X = Annual Demand – Opening Stock = 500000 units – 12000 units = 488000 units

Annual requirement of raw material = Annual production x Material required per unit – Opening stock of material

Material A = 488000 x 4 units – 24000 units = 1928000 units

Material B = 488000 x 16 units – 52000 units = 7756000 units

Computation of EOQ when PO of both the materials is placed separately.

$$EOQ = \sqrt{\frac{2 \times A \times O}{C}} = \sqrt{\frac{2 \times 1928000 \text{ units} \times \text{Rs.}15000}{13\% \text{ of Rs.}150}} = 54462 \text{ units}$$



$$EOQ = \sqrt{\frac{2 \times A \times O}{C}} = \sqrt{\frac{2 \times 7756000 \text{ units} \times \text{Rs.}15000}{13\% \text{ of Rs.}200}} = 94600 \text{ units}$$

Computation of EOQ when PO of both the materials is not placed separately.

$$EOQ (\text{Material A \& B}) = \sqrt{\frac{2 \times A \times O}{C}} = \sqrt{\frac{2 \times (1928000 + 7756000) \text{ units} \times \text{Rs.}15000}{13\% \text{ of Rs.}190}} = 108452 \text{ units}$$

$$EOQ (\text{Material A}) = \frac{108452 \times 1928000}{9684000} = 21592 \text{ units}$$

$$EOQ (\text{Material B}) = \frac{108452 \times 7756000}{9684000} = 86860 \text{ units}$$

$$\text{Weighted avg. purchase price of raw material} = \frac{150 \times 1928000 + 200 \times 7756000}{9684000} = 190$$

Question 10

Two workers 'A' and 'B' produce the same product using the same material. Their normal wage rate is also the same. 'A' is paid bonus according to Rowan scheme while 'B' is paid bonus according to Halsey scheme. The time allowed to make the product is 50 hours. 'A' takes 30 hours while 'B' takes 40 hours to complete the product. The factory overhead rate is Rs.5 per person-hour actually worked. The factory cost of product manufactured by 'A' is Rs.3,490 and for product manufactured by 'B' is Rs. 3,600.

Required:

- Compute the normal rate of wages.
- Compute the material cost.
- Prepare a statement comparing the factory cost of the product as made by two workers.

Solution:-

W.N. 1 Pl note material cost is not provided in question. Wage rate per hour is also not provided in question. Factory cost is provided in amount and we also know that factory cost is equal to sum total of direct material cost, direct labour cost and factory overhead cost. Let us assume M be the total material cost and W be the wage rate per hour then

Statement showing factory cost of product is as follows:

	Worker A (Rs.)	Worker B (Rs.)
Material Cost	M	M
Wages Cost	30W	40W
Bonus	12W	5W
Factory overhead	30 hours x Rs. 5 = Rs. 150	40 hours x Rs. 5 = 200
Total factory cost	M+42W+150	M+45W+200

$$\text{Bonus Under Rowan Scheme} = \text{hours saved} \times \frac{\text{time taken}}{\text{time allowed}} \times \text{hourly wage rate} = 20 \text{ hours} \times \frac{30 \text{ hours}}{50 \text{ hours}} \times W = 12W$$

$$\text{Bonus under Halsey Scheme} = \text{hours saved} \times \frac{50}{100} \times \text{hourly wage rate} = 10 \text{ hours} \times 50\% \times W = 5W$$



Please note that we are given factory cost in amount in the question so equations shall be as under :-

$$M + 42W + 150 = 3490 \text{ i.e. } M + 42W = 3340$$

$$M + 45W + 200 = 3600 \text{ i.e. } M + 45W = 3400$$

On solving the both equation $W = \text{Rs. } 20$ per hour and M (Material Cost) = Rs. 2500

- i. Normal rate of wages = Rs. 20 per hour
- ii. Cost of materials = Rs. 2500
- iii. Comparative Statement of Factory Cost

Particulars	Worker A	Worker B
Material Cost	2500	2500
Wages	30 hours x Rs. 20 = 600	40 hours x Rs. 20 = 800
Bonus	12 x Rs. 20 = 240	5 x Rs. 20 = 100
Factory Overheads	150	200
Factory Cost	3490	3600

Question 11

The following information is available from the financial books of a company having a normal production capacity of 60,000 units for the current year ended on 31st March.

- (i) Sales Rs.. 10,00,000 (50,000 units).
- (ii) There was no opening and closing stock of finished units.
- (iii) Direct Material and Direct Wages cost were Rs.. 5,00,000 and Rs.. 2,50,000 respectively.
- (iv) Actual Factory Expenses were Rs.. 1,50,000 of which 60% are fixed,
- (v) Actual Administrative Expenses related with production activities were Rs..45,000 which are completely fixed.
- (vi) Actual Selling and Distribution Expenses were Rs..30,000 of which 40% are fixed.
- (vii) Interest and dividends received Rs.. 15,000.

You are required to:

- (a) Find out profit as per financial books for the current year ended on 31st March.
- (b) Prepare Statement of Cost and Profit as per cost accounts for the current year ended on 31st March, 2013 assuming that the indirect expenses are absorbed on the basis of normal production capacity; and
- (c) Prepare a statement reconciling profits shown by financial and cost books.

Solution:

TRADING AND PROFIT AND LOSS ACCOUNT FOR CURRENT YEAR ENDED ON 31ST MARCH

Particulars	Rs. .	Particulars	Rs. .
To Direct Materials	5,00,000	By Sales (50,000 units)	10,00,000
To Direct Wages	2,50,000	By Interest and dividends	15,000
To Actual Factory Expenses	1,50,000		
To Administrative Expenses	45,000		



To Selling and Distribution Expenses	30,000		
To Profit (Balancing figure)	40,000		
	10,15,000		10,15,000

(b) STATEMENT OF COST AND PROFIT [AS PER COST ACCOUNTS]

Particulars	Rs. .	Rs. .
Direct Material	5,00,000	
Direct Wages	2,50,000	
Prime Cost	7,50,000	
Factory Expenses :		
Variable : (150000 x 40%)	60,000	
Fixed : W.NOTE 1	75,000	1,35,000
Works Cost		8,85,000
Administrative Expenses : W.NOTE 1		37,500
Cost of Production (E + F)		9,22,500
Selling & Distribution expenses		
Variable : (30000 x 60%)	18,000	
Fixed : W.NOTE 1		110,000
Cost of Sales		9,50,500
Profit [Balancing figure]		49,500
Sales		10,00,000

RECONCILIATION STATEMENT

Particulars	PLUS ITEMS	MINUS ITEMS
Profit as per Cost Accounts	49,500	
Add : Income from interest and dividends excluded per cost accounts	15,000	
Less : Under Recovery of Factory expenses (Rs.1,50,000 – Rs.1,35,000)		15,000
Under Recovery of Administrative Expenses (Rs. 45,000 – Rs.37,500)		7,500
Under recovery of Selling & Dist. Expenses (Rs.30,000 – Rs.28,000)		2,000
Totals	64,500	24,500
Profit as per Financial Accounts Rs. 40,000		

Working Note 1:- Calculation of Absorbed Fixed Overheads Amount

	Factory Overheads	Adm. Overheads	Selling Overheads
Fixed Amount	90,000	45,000	12,000
Normal Prod. Capacity	60,000 units	60,000 units	60,000 units



Absorption Rate per unit (Rs.)	Rs. 1.50	Rs. 0.75	Rs. 0.20
Actual Production	50,000 units	50,000 units	50,000 units
Absorbed Fixed Overheads	Rs. 75,000	Rs. 37,500	Rs. 10,000

Question 12

Distinguish between Cost control and Cost reduction.

(4 Marks, May 2004; November, 2004; November, 2006; November, 2011)

Answer

Cost Control and Cost Reduction:

Cost control is operated through setting standards or targets and comparing actual performance therewith, with a view to identify deviation from standards or norms and taking corrective action in order to ensure that future performance conforms to standards or norms.

Cost reduction is a continuous process of critical cost examination, analysis and discharge of standards. Each subject of business viz products, process, procedures, methods, origin, personnel etc is critically examined and reviewed with a view of improving the efficiency & effectiveness and reducing the costs. Even in an organization where efficient cost control is in operation, there is always room for cost reduction.

Question 13

State the unit of cost for the following industries

- (a) Transport
 - (b) Power
 - (c) Hotel
 - (d) Hospital
- (2 Marks, November, 2008, May, 2014)

Answer

Industry	Unit of Cost
(a) Transport	– Per passenger k.m. or per tonne. k.m.
(b) Power	– Per Kilo – watt (kw) hour
(c) Hotel	– Per room day / or per meal
(d) Hospital	– Per patient – day

Question 14

Define the following:

- (a) Imputed cost
 - (b) Capitalised cost
- (2 Marks, November, 2009)

Answer

- (a) **Imputed Cost:** These costs are notional costs which do not involve any cash outlay. Interest on capital, the payment for which is not actually made, is an example of Imputed Cost. These costs are similar to opportunity costs.
- (b) **Capitalised Cost:** These are costs which are initially recorded as assets and subsequently treated as expenses.

Question 15



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.

(4 Marks, May, 2012)

Answer

Type of costs

- (i) Imputed Cost
- (ii) Opportunity Cost
- (iii) Shut Down Cost
- (iv) Product Cost

Question 16

Distinguish between cost control and cost reduction. (4 Marks, May, 2014)

Answer

Difference between Cost Control and Cost Reduction

Cost Control	Cost Reduction
1. Cost control aims at maintaining the costs in accordance with the established standards.	1. Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to better them continuously
2. Cost control seeks to attain lowest possible cost under existing conditions.	2. Cost reduction recognises no condition as permanent, since a change will result in lower cost.
3. In case of Cost Control, emphasis is on past and present	3. In case of cost reduction it is on present and future.
4. Cost Control is a preventive function	4. Cost reduction is a corrective function. It operates even when an efficient cost control system exists.
5. Cost control ends when targets are achieved	5. Cost reduction has no visible end.

Question 17

Identify the methods of costing for the following:

- (i) Where all costs are directly charged to a specific job.
- (ii) Where all costs are directly charged to a group of products.
- (iii) Where cost is ascertained for a single product.
- (iv) Where the nature of the product is complex and method can not be ascertained. (4 Marks, November, 2014)

Answer

Sl. No.	Method of Costing
(i)	Job Costing
(ii)	Batch Costing
(iii)	Unit Costing or Single or Output Costing



(iv)	Multiple Costing
------	------------------

Question 18

IPL Limited uses a small casting in one of its finished products. The castings are purchased from a foundry. IPL Limited purchases 54,000 castings per year at a cost of Rs. 800 per casting. The castings are used evenly throughout the year in the production process on a 360-day-per-year basis. The company estimates that it costs Rs. 9,000 to place a single purchase order and about Rs. 300 to carry one casting in inventory for a year. The high carrying costs result from the need to keep the castings in carefully controlled temperature and humidity conditions, and from the high cost of insurance.

Delivery from the foundry generally takes 6 days, but it can take as much as 10 days. The days of delivery time and percentage of their occurrence are shown in the following tabulation:

Delivery time (days):	6	7	8	9	10
Percentage of occurrence:	75	10	5	5	5

Required:

- (i) Compute the economic order quantity (EOQ).
- (ii) Assume the company is willing to assume a 15% risk of being out of stock. What would be the safety stock? The re-order point?
- (iii) Assume the company is willing to assume a 5% risk of being out of stock. What would be the safety stock? The re-order point?
- (iv) Assume 5% stock-out risk. What would be the total cost of ordering and carrying inventory for one year?
- (v) Refer to the original data. Assume that using process re-engineering the company reduces its cost of placing a purchase order to only Rs. 600. In addition, company estimates that when the waste and inefficiency caused by inventories are considered, the true cost of carrying a unit in stock is Rs. 720 per year.
 - (a) Compute the new EOQ.
 - (b) How frequently would the company be placing an order, as compared to the old purchasing policy?

(9 Marks, May 2004)

Answer

- (i) **Computation of economic order quantity (EOQ) :**

(A) Annual requirement = 54,000 castings

(C) Cost per casting = Rs. 800

(O) Ordering cost = Rs. 9,000 / order

(c × i) Carrying cost per casting p.a. = Rs. 300

$$EOQ = \sqrt{\frac{2AO}{c \times i}} = \sqrt{\frac{2 \times 54000 \times 9000}{300}} = 1800 \text{ castings}$$

- (ii) **Safety stock**

(Assuming a 15% risk of being out of stock)

Safety stock for one day = 54,000/360 days = 150 castings

Re-order point = Minimum stock level + Average lead time × Average consumption
= 150 + 6 × 150 = 1,050 castings

- (iii) **Safety stocks:**

(Assuming a 5% risk of being out of stock)

Safety stock for three days = 150 × 3 days = 450 castings



Re-order point = 450 castings + 900 castings = 1,350 castings

- (iv) Total cost of ordering = $(54,000/1,800) \times \text{Rs. } 9,000 = \text{Rs. } 2,70,000$
 Total cost of carrying = $(450 + \frac{1}{2} \times 1,800) \text{ Rs. } 300 = \text{Rs. } 4,05,000$

(v)

- (a) Computation of new EOQ :

$$\text{EOQ} = \sqrt{\frac{2 \times 54000 \times 600}{720}} = 300 \text{ castings}$$

- (b) Total number of orders to be placed in a year are 180. Each order is to be placed after 2 days (1 year = 360 days).
 Under old purchasing policy each order is placed after 12 days.

Question 19

SK Enterprise manufactures a special product "ZE". The following particulars were collected for the year 2004:

Annual consumption 12,000 units (360 days)

Cost per unit Rs. 1

Ordering cost Rs. 12 per order

Inventory carrying cost 24% Normal lead time 15 days Safety stock 30 days consumption

Required:

- (i) Re-order quantity
- (ii) Re-order level
- (iii) What should be the inventory level (ideally) immediately before the material order is received? (4 Marks, May 2005)

Answer

- (i) **How much should be ordered each time i.e., Economic Order Quantity (EOQ)**

$$\text{EOQ} = \sqrt{\frac{2AB}{CS}}$$

Where A is the annual consumption

B is the ordering cost per order

CS is the carrying cost per unit per annum

$$= \sqrt{\frac{2 \times 12,000 \times 12}{1 \times (24/100)}} = \sqrt{12,00,000}$$

= 1095.4 units or say 1,100 units.

- (ii) **When should the order be placed i.e., reordering level**

Reordering level = *Safety stock + normal lead time consumption

$$\text{Reordering level} = \left[\frac{12,000}{360} \times 30 \right] + \left[\frac{12,000}{360} \times 15 \right]$$

$$= 1,000 + 500 = 1,500 \text{ units.}$$

- (iii) **What should be the inventory level (ideally) immediately before the material ordered is received i.e. the Safety Stock.**

$$\text{*Safety Stock} = \left[\frac{12,000}{360} \times 30 \right]$$



= 1,000 units.

Question 20

The following information relating to a type of Raw material is available:

Annual demand	2000 units
Unit price	Rs. 20.00
Ordering cost per order	Rs. 20.00
Storage cost	2% p.a.
Interest rate	8% p.a.
Lead time	Half-month

Calculate economic order quantity and total annual inventory cost of the raw material.

(3 Marks, November 2009)

Answer

$$EOQ = \sqrt{\frac{2 \times \text{Annual Consumption} \times \text{Buying Cost Per Order}}{\text{Storage Cost Per Unit}}}$$

$$= \sqrt{\frac{2 \times 12,000 \times 20}{\text{Rs. } 20 \times (2 + 8/100)}} = \sqrt{\frac{80,000}{2}} = 200 \text{ units}$$

Total Annual Inventory Cost

Cost of 2,000 Units @ Rs.20 (2,000 × 20) = Rs. 40,000

No. of Order $\frac{2,000}{200}$ = Rs.10

Ordering Cost 10 × 20 = Rs. 200

Carrying cost of Average Inventory $\frac{200}{2} \times 20 \times \frac{10}{100}$ = Rs. 200
= Rs. 40,400

Question 21

ABC Limited has received an offer of quantity discounts on its order of materials as under:

Price per tonnes (Rs.)	Tonnes Nos.
4,800	Less than 50
4,680	50 and less than 100
4,560	100 and less than 200
4,440	200 and less than 300
4,320	300 and above

The annual requirement for the material is 500 tonnes. The ordering cost per order is Rs. 6,250 and the stock holding cost is estimated at 25% of the material cost per annum.

Required :

- Compute the most economical purchase level
- Compute E.O.Q. if there are no quantity discounts and the price per tonne is Rs. 5,250. (5 Marks, November 2010)

Answer

- Calculation of most economical purchase level:



A = Annual requirement = 500 tonnes

Order size	No. of Orders	Cost of Purchase	Ordering Cost	Carrying Cost	Total Cost
(Q) Units	(A/Q)	(A x Cost/total)	(A/Q x Rs. 6,250)	(Q/2 x Price/tonne x 25%)	Rs.
40	500/40 = 12.5	500 x 4,800 = 24,00,000	12.5 x 6,250 = 78,125	$\frac{40}{2} \times 4,800 \times .25 = 24,000$	25,02,125
50	500/50 = 10	500 X 4,680 = 23,40,000	10 x 6,250 = 62,500	$\frac{50}{2} \times 4,680 \times .25 = 29,250$	24,31,750
100	500/100 = 5	500 X 4,560 = 22,80,000	5 x 6,250 = 31,250	$\frac{100}{2} \times 4,560 \times .25 = 57,000$	23,68,250
200	500/200 = 2.5	500 x 4,440 = 22,20,000	2.5 x 6,250 = 15,625	$\frac{200}{2} \times 4,440 \times .25 = 1,11,000$	23,46,625
300	500/300 = 1.67	500 X 4,320 = 21,60,000	1.67 X 6,250 = 10,437.50	$\frac{300}{2} \times 4,320 \times .25 = 1,62,000$	23,32,437.50

The total cost of purchase ordering cost and carrying cost of 500 tonnes is minimum Rs. 23,32,437.50 when the order size is 300 tonnes. Hence most economical purchase level is 300 tonnes.

$$(ii) \quad EOQ = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 500 \text{ tonnes} \times 6250 \text{ per order}}{5250 \times .25}} = 69 \text{ tonnes}$$

A is the annual requirement for the material.

O is the ordering Cost per order

C is the carrying Cost per unit per annum.

Question 22

Prepare a Store Ledger Account from the following transactions of XY Company Ltd. April, 2011

1 Opening balance 200 units @ Rs. 10 per unit.

5 Receipt 250 units costing Rs. 2,000

8 Receipt 150 units costing Rs. 1,275

10 Issue 100 units

15 Receipt 50 units costing Rs. 500

20 Shortage 10 units

21 Receipt 60 units costing Rs. 540

22 Issue 400 units

The issues upto 10-4-11 will be priced at LIFO and from 11-4-11 issues will be priced at FIFO.

Shortage will be charged as overhead.

(5 Marks, May 2011)



Answer

Store Ledger Account									
Name :-				Max. Stock Level -			Bin No. -		
Code No. :-				Min. Stock Level -			Location Code -		
Description:-				Re-order level -					
				Re-order quantity					
Date	Receipts			Issues			Balance		
	Qty. Units	Rate Rs.	Amount Rs.	Qty. Units	Rate Rs.	Amount Rs.	Qty. Units	Rate Rs.	Amount Rs.
April 1							200	10	2,000
" 5	250	8	2,000				200	10	4000
							250	8	
" 8	150	8.50	1,275				200	10	5,275
							250	8	
							150	8.50	
" 10				100	8.50	850	200	10	4,425
							250	8	
							50	8.50	
" 15	50	10	500				200	10	4,925
							250	8	
							50	8.50	
							50	10	
" 20				10 (Shortage)	10	10	190	10	4,825
							250	8	
							50	8.50	
							50	10	
" 21	60	9	540				190	10	5,365
							250	8	
							50	8.5	
							50	10	
							60	9	
" 22				190	10	3,580	40	8	1,785 (closing stock)
				210	8		50	8.50	
							50	10	
							60	9	

Question 23

Distinguish between bill of material and material requisition note.

(4 Marks, May 2012)

Answer

Bills of material	Material Requisition Note
1. It is document by the drawing office	1. It is prepared by the foreman of the consuming department.
2. It is a complete schedule of component parts and raw materials required for a particular job or work	2. It is a document authorizing StoreKeeper to issue Material to the consuming department.



order.	
3. It often serves the purpose of a Store Requisition as it shows the complete schedule of materials required for a particular job i.e. it can replace stores requisition.	3. It cannot replace a bill of material.
4. It can be used for the purpose of quotation	4. It is useful in arriving historical cost only.
5. It helps in keeping a quantitative control on materials draw through stores Requisition.	5. It shows the material actually drawn from stores.

Question 24

A company manufactures a product from a raw material, which is purchased at Rs. 80 per kg. The company incurs a handling cost of Rs. 370 plus freight of Rs. 380 per order. The incremental carrying cost of inventory of raw material is Rs. 0.25 per kg per month. In addition, the cost of working capital finance on the investment in inventory of raw material is Rs. 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:

- Calculate the economic order quantity of raw materials.
- Advise, how frequently company should order for procurement be placed.
- 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, May, 2014)

Answer

(i) Calculation of Economic Order Quantity (E.O.Q)

Annual requirement (usage) of raw material in kg. (A) = $\frac{1,00,000 \text{ units}}{2.5 \text{ units per kg.}} = 40,000 \text{ kg.}$

Ordering Cost (Handling & freight cost) (O) = Rs. 370 + Rs. 380 = Rs. 750

Carrying cost per unit per annum (C) i.e. inventory carrying cost + working capital cost

= (Rs. 0.25 × 12 months) + Rs. 12

= Rs. 15 per kg.

$$\text{E.O.Q.} = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 40,000 \text{ kg.} \times \text{Rs. } 750}{\text{Rs. } 15}} = 2,000 \text{ kg.}$$

(ii) Frequency of placing orders for procurement:

Annual consumption (A) = 40,000 kg.

Quantity per order (E.O.Q) = 2,000 kg.

No. of orders per annum $\left(\frac{A}{\text{E.O.Q}}\right) = \frac{40,000 \text{ kg.}}{2,000 \text{ kg.}} = 20 \text{ orders}$

Frequency of placing orders (in days) = $\frac{360 \text{ days}}{20 \text{ orders}} = 18 \text{ days}$

(iii) Percentage of discount in the price of raw materials to be negotiated:

Particulars	On Quarterly Basis	On E.O.Q Basis
1. Annual Usage (in Kg.)	40,000 kg.	40,000 kg.
2. Size of the order	10,000 kg.	2,000 kg.
3. No. of orders (1 ÷ 2)	4	20



4. Cost of placing orders or Ordering cost (No. of orders × Cost per order)	Rs. 3,000 (4 order × Rs. 750)	Rs. 15,000 (20 orders × Rs. 750)
5. Inventory carrying cost (Average inventory × Carrying cost per unit)	Rs. 75,000 (10,000 kg. × ½ × Rs. 15)	Rs. 15,000 (2,000 kg. × ½ × Rs. 15)
6. Total Cost (4 + 5)	Rs. 78,000	Rs. 30,000

When order is placed on quarterly basis the ordering cost and carrying cost increased by Rs. 48,000 (Rs.78,000 - Rs. 30,000).

So, discount required = Rs. 48,000

Total annual purchase = 40,000 kg. × Rs. 80 = Rs. 32,00,000

So, Percentage of discount to be negotiated = $\frac{\text{Rs. 48,000}}{\text{Rs. 32,00,000}} \times 100 = 1.5\%$

Question 25

ZED Limited is working by employing 50 skilled workers. It is considered the introduction of incentive scheme-either Halsey scheme (with 50% bonus) or Rowan scheme of wage payment for increasing the labour productivity to cope up the increasing demand for the product by 40%. It is believed that proposed incentive scheme could bring about an average 20% increase over the present earnings of the workers; it could act as sufficient incentive for them to produce more.

Because of assurance, the increase in productivity has been observed as revealed by the figures for the month of April, 2004.

Hourly rate of wages (guaranteed)	Rs. 30
Average time for producing one unit by one worker at the previous performance (This may be taken as time allowed)	1.975 hours
Number of working days in the month	24
Number of working hours per day of each worker	8
Actual production during the month	6,120 units

Required:

- Calculate the effective rate of earnings under the Halsey scheme and the Rowan scheme.
- Calculate the savings to the ZED Limited in terms of direct labour cost per piece.
- Advise ZED Limited about the selection of the scheme to fulfill their assurance. (8 Marks, May 2004)

Answer

Working notes:

1. Computation of time saved (in hours) per month :

= (Standard production time of 6,120 units – Actual time taken by the workers)
 = (6,120 units × 1.975 hours – 24 days × 8 hrs per day × 50 skilled workers)
 = (12,087 hours – 9,600 hours)
 = 2,487 hours

2. Computation of bonus for time saved hours under Halsey and Rowan schemes:

Time saved hours = 2,487 hours
 (Refer to working note 1)
 Wage rate per hour = Rs. 30
 Bonus under Halsey Scheme = ½ × 2,487 hours × Rs. 30
 (with 50% bonus) = Rs. 37,305



$$\begin{aligned}
 \text{Bonus under Rowan Scheme} &= \frac{\text{Time Saved}}{\text{Time Allowed}} \times \text{Time taken} \times \text{Rate per hour} \\
 &= \frac{2,487 \text{ hours}}{12,087 \text{ hours}} \times 9,600 \text{ hours} \times \text{Rs. } 30 \\
 &= \text{Rs. } 59,258.38
 \end{aligned}$$

(i) **Computation of effective rate of earnings under the Halsey and Rowan schemes:**

Total earnings (under Halsey scheme) = Time wages + Bonus
 (Refer to working note 2)
 = 24 days x 8 hours x 50 skilled workers x Rs. 30 + Rs. 37,305
 = Rs. 2,88,000 + Rs. 37,305 = Rs. 3,25,305

Total earnings (under Rowan scheme) = Time wages + Bonus
 (Refer to working note 2)
 = Rs. 2,88,000 + Rs. 59,258.38 = Rs. 3,47,258.38

Effective rate of earnings per hour (under Halsey Plan Rs. 33.89
 (Rs. 3,25,305 ÷ 9,600 hrs.)

Effective rate of earnings per hour (under Rowan Plan Rs. 36.17
 (Rs. 3,47,258.38 ÷ 9,600 hrs)

(ii) Savings to the ZED Ltd. in terms of direct labour cost per piece:

	Rs.
Direct labour cost (per unit) under time wages system (1.975 times per unit × Rs. 30)	59.25
Direct labour cost (per unit) under Halsey Plan (Rs. 3,25,305 ÷ 6,120 units)	53.15
Direct labour cost (per unit) under Rowan Plan (Rs. 3,47,258.38 ÷ 6,120 units)	56.74
Savings of direct labour cost under:	
♣ Halsey Plan (Rs. 59.25 – 53.15)	Rs. 6.10
♣ Rowan Plan (Rs. 59.25 – 56.74)	Rs. 2.51

(iii) **Advise to ZED Ltd : (about the selection of the scheme to fulfill assurance)**

Halsey scheme brings more savings to the management of ZED Ltd, over the present earnings of Rs. 2,88,000 but the other scheme viz Rowan fulfils the promise of 20% increase over the present earnings of Rs. 2,88,000 by paying 20.58% in the form of bonus. Hence Rowan Plan may be adopted.

Question 26

The existing Incentive system of Alpha Limited is as under:

Normal working week	5 days of 8 hours each plus 3 late shifts of 3 hours each
Rate of Payment	Day work: Rs. 160 per hour
	Late shift: Rs. 225 per hour



Average output per operator for 49-hours week i.e. including 3 late shifts 120 articles

In order to increase output and eliminate overtime, it was decided to switch on to a system of payment by results.

The following Information is obtained:

Time-rate (as usual) : Rs. 160 per hour
 Basic time allowed for 15 articles : 5 hours
 Piece-work rate : Add 20% to basic piece-rate
 Premium Bonus : Add 50% to time.

Required:

Prepare a Statement showing hours worked, weekly earnings, number of articles produced and labour cost per article for one operator under the following systems:

- (a) Existing time-rate
- (b) Straight piece-work
- (c) Rowan system
- (d) Halsey premium system

Assume that 135 articles are produced in a 40-hour week under straight piece work, Rowan Premium system, and Halsey premium system above and worker earns half the time saved under Halsey premium system. **(8 Marks, November, 2005)**

Answer

Table showing Labour Cost per Article

Method of payment	Hours worked	Weekly earnings	Number of article produced	Labour cost per article
Existing time rate	49 Rs.	8,425.00	120	Rs. 70.21
Straight piece rate system	40 Rs.	8,640.00	135	Rs. 64.00
Rowan Premium System	40 Rs.	9,007.41	135	Rs. 66.72
Halsey Premium System	40 Rs.	8,600.00	135	Rs. 63.70

Working Notes:

Existing time rate

Weekly wages 40 hrs @ Rs. 160/hr = Rs. 6,400
 9 hrs @ Rs. 225/hr = Rs. 2,025
Rs. 8,425

Piece Rate System

Basic time: 5 hour for 15 articles. = Rs. 800
 Cost of 15 articles at hourly rate of = Rs. 160/hr
 = Rs.960

∴ Rate per article = Rs. 960 / 15 = Rs. 64

Earnings for the week

= 135 articles × Rs. 64 = Rs. 8,640.

Rowan Premium System

Basic Time : 5 hours for 15 articles
 Add : 50% to time
 7.5 hours for 15 articles



Or
30 minutes per article

∴ Time allowed for 135 articles = 67.5 hours
Actual time taken for 135 articles = 40 hours

$$\begin{aligned}\text{Earnings} &= (\text{HW} \times \text{RH}) + \left[\frac{\text{TA} - \text{HW}}{\text{TA}} \times \text{HW} \times \text{RH} \right] \\ &= (40 \text{ hrs} \times \text{Rs. } 160) + \left[\frac{67.5 - 40}{67.5} \times 40 \times \text{Rs. } 160 \right] \\ &= \text{Rs. } 9,007.41\end{aligned}$$

Halsey Premium System

$$\begin{aligned}\text{Earnings} &= \text{HW} \times \text{RH} + \frac{50}{100} (\text{TA} - \text{HW}) \times \text{RH} \\ &= 40 \times \text{Rs. } 160 + \frac{1}{2} (67.5 - 40) \times \text{Rs. } 160 = \text{Rs. } 8,600.\end{aligned}$$

Question 27

Discuss the treatment of Idle time and Overtime premium in Cost Accounting.

(4 Marks, May 2006)

Answer

Treatment of Idle time and Overtime Premium in Cost Accounting

- Normal idle time is treated as a part of the cost of production. Thus, in the case of direct workers, an allowance for normal idle time is built into labour cost rates. In case of indirect workers, normal idle time is spread over all the products or jobs through the process of absorption of factory overheads.
- Abnormal idle time cost is not included as a part of production cost and is shown as a separate item in costing Profit and Loss Account.
- Management should aim at eliminating controllable idle time and on a long-term basis reduce even the normal idle time.
- If overtime is resorted to at the desire of the customer, then overtime premium may be charged to the job directly.
- If overtime is required to cope with general production programme or for meeting urgent orders, the overtime premium should be treated as overhead cost of the particular department/cost centre.

Question 28

Enumerate the various methods of Time booking.

(2 Marks, May 2007)

Answer

The various methods of time booking are:

- (a) Job ticket.
- (b) Combined time and job ticket.
- (c) Daily time sheet.
- (d) Piece work card.
- (e) Clock card.

Question 29



Enumerate the remedial steps to be taken to minimize the labour turnover.

(3 Marks, Nov 2007)

Answer

The following steps are useful for minimizing labour turnover:

- Exit interview: An interview be arranged with each outgoing employee to ascertain the reasons of his leaving the organization.
- Job analysis and evaluation: to ascertain the requirement of each job.
- Organisation should make use of a scientific system of recruitment, placement and promotion for employees.
- Organisation should create healthy atmosphere, providing education, medical and housing facilities for workers.
- Committee for settling workers grievances.

Question 30

Distinguish between Job evaluation and Merit rating.

(3 Marks, May 2008)

Answer

Job Evaluation and Merit Rating:

- ♦ Job evaluation is the assessment of the relative worth of jobs within a company and merits rating are the assessment of the relative worth of the man behind the job.
- ♦ Job evaluation and its accomplishment are means to set up a rational wage and salary structure where as merits rating provides a scientific basis for determining fair wages for each worker based on his ability and performance.
- ♦ Job evaluation simplifies wage administration by bringing an uniformity in wage rates where as merits rating is used to determine fair rate of pay for different workers.

Question 31

Accountant of your company had computed labour turnover rates for the quarter ended 30th September, 2012 as 14%, 8% and 6% under Flux method, Replacement method and Separation method respectively. If the number of workers replaced during 2nd quarter of the financial year 2012-13 is 36, find the following:

- The number of workers recruited and joined; and
- The number of workers left and discharged.

(4 Marks, November 2012)

Answer

$$\text{Labour Turnover Rate (Replacement method)} = \frac{\text{No. of workers replaced}}{\text{Average No. of workers}}$$

or,

$$\frac{8}{100} = \frac{36}{\text{Average No. of workers}}$$

or,

$$\text{Average No. of workers} = 450$$

$$\text{Labour Turnover Rate (Separation method)} = \frac{\text{no. of workers separated}}{\text{average no. of workers}}$$

or,

$$\frac{6}{100} = \frac{\text{no. of workers separated}}{450}$$

or,

$$\text{No. of workers separated} = 27$$

$$\text{Labour Turnover Rate (Flux Method)} = \frac{\text{No. of Separations} + \text{No. of accession (Joinings)}}{\text{Average No. of workers}}$$



$$\begin{array}{rcl}
 & \text{or,} & \\
 \frac{14}{100} & = & \frac{27 + \text{No. of accessions (Joinings)}}{450} \\
 & \text{or,} & \\
 100 (27 + \text{No. of Accessions}) & = & 6,300 \\
 & \text{or,} & \\
 \text{No. of Accessions} & = & 36
 \end{array}$$

- (i) The No. of workers recruited and Joined = 36
(ii) The No. of workers left and discharged = 27

Question 32

Discuss the treatment of under-absorbed and over-absorbed factory overheads in cost accounting. (4 Marks, May 2004; November 2010) (6 Marks, May 2006) (3 Marks, May 2010)

Answer

Treatment of under absorbed and over absorbed factory overheads in cost accounting:

Factory overheads are usually applied to production on the basis of pre-determined rate

$$= \frac{\text{estimated normal overheads for the period}}{\text{budgeted no. of during the period}}$$

The possible options for treating under / over absorbed overheads are

- Use supplementary rate in the case of substantial amount of under / over absorption
- Write it off to the costing profit & loss account in the event of insignificant amount / or abnormal reasons.
- Carry forward to next accounting period if operating cycle exceeds one year.

Question 33

A manufacturing unit has purchased and installed a new machine of Rs. 12,70,000 to its fleet of 7 existing machines. The new machine has an estimated life of 12 years and is expected to realise Rs. 70,000 as scarp at the end of its working life. **Other relevant data are as follows:**

- Budgeted working hours are 2,592 based on 8 hours per day for 324 days. This includes 300 hours for plant maintenance and 92 hours for setting up of plant.
- Estimated cost of maintenance of the machine is Rs. 25,000 (p.a.).
- The machine requires a special chemical solution, which is replaced at the end of each week (6 days in a week) at a cost of Rs. 400 each time.
- Four operators control operation of 8 machines and the average wages per person amounts to Rs. 420 per week plus 15% fringe benefits.
- Electricity used by the machine during the production is 16 units per hour at a cost of Rs. 3 per unit. No current is taken during maintenance and setting up.
- Departmental and general works overhead allocated to the operation during last year was Rs. 50,000. During the current year it is estimated to increase 10% of this amount.

Calculate machine hour rate, if (a) setting up time is unproductive; (b) setting up time is productive. (5 Marks, May 2005)

Answer

Computation of Machine hour Rate



	Per year	Per hour (unproductive)	Per hour (productive)
Standing charges			
Operators wages $4 \times 420 \times 54$	90,720		
Add: Fringe Benefits 15%	13,608		
	1,04,328		
Departmental and general overhead (50,000 + 5,000)	55,000		
Total Std. Charging for 8 machines	1,59,328		
Cost per Machine $1,59,328/8$	19,916		
Cost per Machine hour $19,916/2,200$		9.05	
$19,916/2,292$			8.69
Machine hours:			
Setting time unproductive $(2,592-300-92)=2200$			
Setting time productive $(2,592-300)=2,292$			
Machine expenses			
Depreciation $(12,70,000 - 70,000)/(12 \times 2,200)$		45.45	
$(12,70,000-70,000)/(12 \times 2,292)$			43.63
Electricity (16×3)		48.00	
$(16 \times 3 \times 2,200)/2,292$			46.07
Special chemical solution $(400 \times 54)/2,200/2,292$		9.82	9.42
Maintenance $(25,000/2,200)$		11.36	
$(25,000/2,292)$			10.91
Machine Hour Rate		123.68	118.72

Question 34

From the details furnished below you are required to compute a comprehensive machine-hour rate:

Original purchase price of the machine (subject to depreciation at 10% per annum on original cost)		Rs. 3,24,000
Normal working hours for the month (The machine works to only 75% of capacity)		200 hours
Wages of Machine man	Rs. 125 per day (of 8 hours)	
Wages for Helper (machine attendant)	Rs. 75 per day (of 8 hours)	
Power cost for the month for the time worked		Rs. 15,000
Supervision charges apportioned for the machine centre for the month		Rs. 3,000
Electricity & Lighting for the month		Rs. 7,500
Repairs & maintenance (machine) including Consumable stores per month		Rs. 17,500
Insurance of Plant & Building (apportioned) for the year		Rs. 16,250
Other general expense per annum		Rs. 27,500

The workers are paid a fixed Dearness allowance of Rs. 1,575 per month. Production bonus payable to workers in terms of an award is equal to 33.33% of basic wages and dearness allowance. Add 10% of the basic wage and dearness allowance against leave wages and holidays with pay to arrive at a comprehensive labour-wage for debit to production. **(14 Marks, May 2005)**

**Answer****Computation of Comprehensive Machine Hour Rate**

	Per month(Rs.)	Per hour(Rs.)
Fixed cost		
Supervision charges	3,000	
Electricity and lighting	7,500	
Insurance of Plant and building (16,250×1/12)	1,354.17	
Other General Expenses (27,500×1/12)	2,291.67	
Depreciation (32,400×1/12)	2,700	
	16,845.84	112.31
Variable Cost		
Repairs and maintenance	17,500	116.67
Power	15,000	100.00
Wages of machine man		44.91
Wages of Helper		32.97
Machine Hour rate (Comprehensive)		Rs. 406.86

Effective machine working hour's p.m.

200 hrs. × 75% = 150 hrs.

Wages per machine hour

	Machine man	Helper
Wages for 200 hours (Rs. 125× 25)	Rs. 3,125	
(Rs. 75× 25)		Rs. 1,875
D.A.	Rs. 1,575	Rs. 1,575
	Rs. 4,700	Rs. 3,450
Production bonus (1/3 of above)	1,567	1,150
	6,267	4,600
Leave wages (10%)	470	345
	6,737	4,945
Effective wage rate per machine hour (150 hrs in all)	Rs. 44.91	Rs. 32.97

Question 35

RST Ltd. has two production departments: Machining and Finishing. There are three service departments: Human Resource (HR), Maintenance and Design.

The budgeted costs in these service departments are as follows:

	HR Rs.	Maintenance Rs.	Design Rs.
Variable	1,00,000	1,60,000	1,00,000
Fixed	4,00,000	3,00,000	6,00,000
	5,00,000	4,60,000	7,00,000

The usage of these Service Departments' output during the year just completed is as follows: Provision of Service Output (in hours of service)



Users of Service		Providers of Service	
	HR	Maintenance	Design
HR	—	—	—
Maintenance	500	—	—
Design	500	500	—
Machining	4,000	3,500	4,500
Finishing	5,000	4,000	1,500
Total	10,000	8,000	6,000

Required:

- Use the direct method to re-apportion RST Ltd.'s service department cost to its production departments.
- Determine the proper sequence to use in re-apportioning the firm's service department cost by step-down method.
- Use the step-down method to reappportion the firm's service department cost. (7 Marks, November 2006)

Answer

(i) Apportionment of Service Department Overheads amongst production departments using Direct Method:

	Production Deptts.		Service Deptts.		
	Machining Rs.	Finishing Rs.	HR Rs.	Maintenance Rs.	Design Rs.
Overhead as per primary distribution			5,00,000	4,60,000	7,00,000
Apportionment design 4,500 : 1,500	5,25,000	1,75,000			
Maintenance 3,500 : 4,000	2,14,667	2,45,333			
HR 4,000 : 5,000	2,22,222	2,77,778			
	9,61,889	6,98,111			

(ii) The proper sequence for apportionment of service department overheads is

First HR
Second Maintenance
Third Design

The sequence has been laid down based on service provided.

(iii) Apportionment of Service Department overheads amongst production departments using step-down method.

	Production Department		Service Department		
	Machining Rs.	Finishing Rs.	HR Rs.	Maintenance Rs.	Design Rs.
Overhead as per primary distribution	—	—	5,00,000	4,60,000	7,00,000
Apportionment HRD 4 : 5 : — : 0.5 : 0.5	2,00,000	2,50,000	(–)5,00,000	25,000	25,000
Maintenance 7 : 8 : — : 1	2,12,188	2,42,500	—	(–)4,85,000	30,312
Design 3 : 1	5,66,484	1,88,828	—	—	(–)7,55,312
	9,78,672	6,81,328			

Question 36



A company has three production departments (M1, M2 and A1) and three service department, one of which Engineering service department, servicing the M1 and M2 only. The relevant information are as follows:

	Product X	Product Y
M1	10 Machine hours	6 Machine hours
M2	4 Machine hours	14 Machine hours
A1	14 Direct Labour hours	18 Direct Labour hours

The annual budgeted overhead cost for the year are

	Indirect Wages (Rs.)	Consumable Supplies (Rs.)
M1	46,520	12,600
M2	41,340	18,200
A1	16,220	4,200
Stores	8,200	2,800
Engineering Service	5,340	4,200
General Service	7,520	3,200

Rs.

- Depreciation on Machinery 39,600
- Insurance of Machinery 7,200
- Insurance of Building 3,240 (Total building insurance cost for M1 is one third of annual premium)
- Power 6,480
- Light 5,400
- Rent 12,675 (The general service deptt. is located in a building owned by the company. It is valued at Rs. 6,000 and is charged into cost at notional value of 8% per annum. This cost is additional to the rent shown above)

The value of issues of materials to the production departments are in the same proportion as shown above for the Consumable supplies.

The following data are also available:

Department	Book value Machinery (Rs.)	Area (Sq. ft.)	Effective H.P. hours %	Production Direct Labour hour	Capacity Machine hour
M1	1,20,000	5,000	50	2,00,000	40,000
M2	90,000	6,000	35	1,50,000	50,000
A1	30,000	8,000	05	3,00,000	
Stores	12,000	2,000	—		
Engg. Service	36,000	2,500	10		
General Service	12,000	1,500	—		

Required:

- (i) Prepare a overhead analysis sheet, showing the bases of apportionment of overhead to departments.
- (ii) Allocate service department overheads to production department ignoring the apportionment of service department costs among service departments.



- (iii) Calculate suitable overhead absorption rate for the production departments.
 (iv) Calculate the overheads to be absorbed by two products, X and Y. (15 Marks, May 2007)

Answer

(i) **Summary of Apportionment of Overheads (Rs.)**

Items	Basis of Apportionment	Total Amount	Production Deptt.			Service Deptt.		
			M1	M2	A1	Store Service	Engineering Service	General Service
Indirect wages	Allocation given	1,25,140	46,520	41,340	16,220	8,200	5,340	7,520
Consumable stores	Allocation given	45,200	12,600	18,200	4,200	2,800	4,200	3,200
Depreciation Capital	value of machine	39,600	15,840	11,880	3,960	1,584	4,752	1,584
Insurance of Machine	Capital value of machine	7,200	2,880	2,160	720	288	864	288
Insurance on Building	$\frac{1}{3}$ to M1 Balance area basis	3,240	1,080	648	864	216	270	162
Power	HP Hr %	6,480	3,240	2,268	324	—	648	—
Light	Area	5,400	1,080	1,296	1,728	432	540	324
Rent	Area	12,675	2,535	3,042	4,056	1,014	1,268	760
Rent of general service	Direct 8% of 6,000	480	—	—	—	—	—	480
TOTAL		2,45,415	85,775	80,834	32,072	14,534	17,882	14,318

(ii) **Allocation of service departments overheads**

Service Deptt.	Basis of Apportionment	Production Deptt.			Service Deptt.		
		M1	M2	A1	Store Service	Engineering Service	General Service
Store	Ratio of consumable value (126 : 182 : 42)	5,232	7,558	1,744	(14,534)	—	—
Engineering service	In Machine hours Ratio of M1 and M2 (4 : 5)	7,948	9,934	—	—	(17,882)	—
General service	LHR Basis 20 : 15 : 30	4,406	3,304	6,608	—	—	(14,318)
Production Department allocated in (i)	_____	85,775	80,834	32,072			
Total		2,45,415	1,03,361	1,01,630	40,424		

(iii) **Overhead Absorption rate**



	M1	M2	A1
Total overhead allocated	1,03,361	1,01,630	40,424
Machine hours	40,000	50,000	—
Labour hours	—	—	3,00,000
Rate per MHR	2.584	2.033	
Rate per Direct labour	—	—	135

(iv) Statement showing overhead absorption for Product X and Y

Machine Deptt.	Absorption Rate	Product X Hours Rs.	Product Y Hours Rs.
M1	2.584	10 25.84	6 15.50
M2	2.033	4 8.13	14 28.46
A1	.135	14 .54	18 2.43
		34.51	46.39

Question 37

You are given the following information of the three machines of a manufacturing department of X Ltd.:

	Preliminary estimates of expenses (per annum)			
	Total	Machines		
	(Rs.)	A (Rs.)	B (Rs.)	C (Rs.)
Depreciation	20,000	7,500	7,500	5,000
Spare parts	10,000	4,000	4,000	2,000
Power	40,000			
Consumable stores	8,000	3,000	2,500	2,500
Insurance of machinery	8,000			
Indirect labour	20,000			
Building maintenance expenses	20,000			
Annual interest on capital outlay	50,000	20,000	20,000	10,000
Monthly charge for rent and rates	10,000			
Salary of foreman (per month)	20,000			
Salary of Attendant (per month)	5,000			

(The foreman and the attendant control all the three machines and spend equal time on them) The following additional information is also available:

	Machines		
	A	B	C
Estimated Direct Labour Hours	1,00,000	1,50,000	1,50,000
Ratio of K.W. Rating	3	2	3
Floor space (sq. ft.)	40,000	40,000	20,000

There are 12 holidays besides Sundays in the year, of which two were on Saturdays. The manufacturing department works 8 hours in a day but Saturdays are half days. All machines work at 90% capacity throughout the year and 2% is reasonable for breakdown.

You are required to :

Calculate predetermined machine hour rates for the above machines after taking into consideration the following factors:

- An increase of 15% in the price of spare parts.



- An increase of 25% in the consumption of spare parts for machine 'B' & 'C' only.
- 20% general increase in wages rates. (8 Marks, May 2011)

Answer**Computation of Machine Hour Rate**

Computation of Machine Hour Rate					
	Basis of apportionment	Total	Machines		
			A	B	C
		Rs.	Rs.	Rs.	Rs.
(A) Standing Charges					
Insurance	Depreciation Basis	8,000	3,000	3,000	2,000
Indirect Labour	Direct Labour	24,000	6,000	9,000	9,000
Building Maintenance expenses	Floor Space	20,000	8,000	8,000	4,000
Rent and Rates	Floor Space	1,20,000	48,000	48,000	24,000
Salary of foreman	Equal	2,40,000	80,000	80,000	80,000
Salary of attendant	Equal	60,000	20,000	20,000	20,000
Total standing charges		4,72,000	1,65,000	1,68,000	1,39,000
Hourly rate for standing charges			84.75	86.29	71.40
(B) Machine Expenses:					
Depreciation	Direct	20,000	7,500	7,500	5,000
Spare parts	Final estimates	13,225	4,600	5,750	2,875
Power	K.W. rating	40,000	15,000	10,000	15,000
Consumable Stores	Direct	8,000	3,000	2,500	2,500
Total Machine expenses		81,225	30,100	25,750	25,375
Hourly Rate for Machine expenses			15.46	13.23	13.03
Total (A + B)		553,225	1,95,100	1,93,750	1,64,375
Machine Hour rate			100.21	99.52	84.43

Working Notes:**(i) Calculation of effective working hours:**

No. of holidays 52 (Sundays) + 12 (other holidays) = 64
 Saturday (52 – 2) = 50
 No. of days (Work full time) = 365 – 64 – 50 = 251

Hours
 Full days work 251 × 8 = 2,008
 Half days work 50 × 4 = 200
2,208

Hours



Effective capacity 90% of 2,208	1,987 (Rounded off)
Less: Normal loss of time (Breakdown) 2%	<u>40 (Rounded off)</u>
Effective running hour	<u>1,947</u>

(ii) Amount of spare parts is calculated as under:

	A	B	C
	Rs.	Rs.	Rs.
Preliminary estimates	4,000	4,000	2,000
Add: Increase in price @ 15%	600	600	300
	4,600	4,600	2,300
Add: Increase in consumption @ 25%	—	1,150	575
Estimated cost	4,600	5,750	2,875

(iii) Amount of Indirect Labour is calculated as under:

	Rs.
Preliminary estimates	20,000
Add: Increase in wages @ 20%	4,000
	24,000

(iv) Interest on capital outlay is a financial matter and, therefore it has been excluded from the cost accounts.

Question 38

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:

Item	Total Amount (Rs.)	Production Departments			Service Departments	
		X (Rs.)	Y (Rs.)	Z (Rs.)	A (Rs.)	B (Rs.)
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 (Rs.)	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.

(8 Marks, November 2012)

Answer

Primary Distribution of Overheads

Item	Basis	Total Amount (Rs.)	Production Departments			Service Departments	
			X (Rs.)	Y (Rs.)	Z (Rs.)	A (Rs.)	B (Rs.)
Indirect Material	Actual	1,25,000	20,000	30,000	45,000	25,000	5,000
Indirect Labour	Actual	2,60,000	45,000	50,000	70,000	60,000	35,000
Superintendent's Salary	Actual	96,000	-	-	96,000	-	-
Fuel & Heat	Radiator Sections {2:4:6:5:3}	15,000	1,500	3,000	4,500	3,750	2,250
Power	Kilowatt Hours {7:8:6:3:0}	1,80,000	52,500	60,000	45,000	22,500	-
Rent & Rates	Area (Sq. ft.) {22:20:15:12:6}	1,50,000	44,000	40,000	30,000	24,000	12,000
Insurance	Capital Value of Assets {4:6:5:1:2}	18,000	4,000	6,000	5,000	1,000	2,000
Meal	Charges No. of Employees {6:7:12:3:2}	60,000	12,000	14,000	24,000	6,000	4,000
Depreciation	Capital Value of Assets {4:6:5:1:2}	2,70,000	60,000	90,000	75,000	15,000	30,000
Total overheads		11,74,000	2,39,000	2,93,000	3,94,500	1,57,250	90,250

Re-distribution of Overheads of Service Department A and B

Total overheads of Service Departments may be distributed using simultaneous equation method

Let, the total overheads of A = a and the total overheads of B = b

$$\begin{aligned}
 A &= 1,57,250 + 0.10b && \text{(i)} \\
 \text{or, } 10a - b &= 15,72,500 && [(i) \times 10] \\
 b &= 90,250 + 0.20a && \text{(ii)} \\
 \text{or, } -0.20a + b &= 90,250 \\
 10a - b &= 15,72,500 \\
 \hline
 -0.20a + b &= 90,250 \\
 9.8a &= 16,62,750 \\
 a &= 1,69,668
 \end{aligned}$$

Putting the value of a in equation (ii), we get

$$b = 90,250 + 0.20 \times 1,69,668$$

$$b = 1,24,184$$

Secondary Distribution of Overheads



	Production Departments		
	X (Rs.)	Y (Rs.)	Z (Rs.)
Total overhead as per primary distribution	2,39,000	2,93,000	3,94,500
Service Department A (80% of 1,69,668)	50,900	50,900	33,934
Service Department B (90% of 1,24,184)	31,046	49,674	31,046
Total	3,20,946	3,93,574	4,59,480

Question 39

Calculate Machine Hour Rate from the following particulars:

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

Additional Information:

- Power 25 units @ Rs. 5 per unit per hour.
- Cost of repairs and maintenance Rs. 26,000 per annum.
- Chemicals required for operating the machine Rs. 2,600 per month.
- Overheads chargeable to the machine Rs. 18,000 per month.
- Insurance Premium (per annum) 2% of the cost of machine
- No. of operators - 02 (looking after three other machines also)
- Salary per operator per month Rs. 18,500 (8 Marks, November 2013)

Answer

Computation of Machine Hour Rate

Particulars	Setting-up time is 'Unproductive' (Machine hour 2,407*) (Rs.)	Setting-up time is 'Productive' (Machine hour 2,600) (Rs.)
Fixed Charges (Standing Charges):		
Overhead Chargeable Rs. $18,000 \times 12 =$ Rs. 2,16,000 $\left(\frac{\text{Rs. } 2,16,000}{2,407 \text{ hours}} \right); \left(\frac{\text{Rs. } 2,16,000}{2,600 \text{ hours}} \right)$	89.74	83.08
Operator's Salary: $\frac{\text{Rs. } 18,500 \times 12 \times 2 \text{ Operators}}{4 \text{ machines}} = \text{Rs. } 1,11,000$ $\left(\frac{\text{Rs. } 1,11,000}{2,407 \text{ hours}} \right); \left(\frac{\text{Rs. } 1,11,000}{2,600 \text{ hours}} \right)$	46.12	42.69
Insurance: 2% of Rs. 25,00,000 = Rs. 50,000	20.77	19.23



	156.63	145.00
Variable Expenses (Machine Expenses) per hour		
Depreciation : $\frac{\text{Rs.}25,00,000 - \text{Rs.}1,25,000}{25,000 \text{ hours}}$	95.00	95.00
Power: (25 units × Rs. 5)	125.00	125.00
Repairs and Maintenance : $\left(\frac{\text{Rs.}26,000}{2,407 \text{ hours}} \right) ; \left(\frac{\text{Rs.}26,000}{2,600 \text{ hours}} \right)$	10.80	10.00
Chemical : $\left(\frac{\text{Rs}2,600 \times 12}{2,407 \text{ hours}} \right) ; \left(\frac{\text{Rs}2,600 \times 12}{2,600 \text{ hours}} \right)$	12.96	12.00
Machine Hour Rate	400.39	387.00

*	(Hours)
Working Hours	3,000
Less: Maintenance hours	400
	2,600
Less: Setting-up hours	193
Actual working hours $\left(\frac{2,600 \text{ hours}}{108} \times 100 \right)$	<u>2,407</u>

Assumptions:

1. Working hours (i.e. 3,000 hours) are inclusive of maintenance and setting-up time.
2. It is assumed that no power is consumed by the machine during unproductive hours i.e. during maintenance and unproductive setting-up hours.
3. Depreciation is calculated on the basis of estimated life of the machine hours. Hence per unit machine hour rate of depreciation will be same.

Note: As this numerical problem does not specifically mention about the nature of settingup time; means whether setting-up time is unproductive or productive is not clear. The problem can be solved assuming setting-up time either as productive or as unproductive. The question may be solved based on logical assumption regarding the nature of settingup time (i.e. unproductive or productive) and for furnishing any one or both the situation.

Question 40

As of 31st March, 2008, the following balances existed in a firm's cost ledger, which is maintained separately on a double entry basis:

	Debit Rs.	Credit Rs.
Stores Ledger Control A/c	3,00,000	—
Work-in-progress Control A/c	1,50,000	—
Finished Goods Control A/c	2,50,000	—
Manufacturing Overhead Control A/c		15,000



Cost Ledger Control A/c		6,85,000
	7,00,000	7,00,000

During the next quarter, the following items arose:

	Rs.
Finished Product (at cost)	2,25,000
Manufacturing overhead incurred	85,000
Raw material purchased	1,25,000
Factory wages	40,000
Indirect labour	20,000
Cost of sales	1,75,000
Materials issued to production	1,35,000
Sales returned (at cost)	9,000
Materials returned to suppliers	13,000
Manufacturing overhead charged to production	85,000

You are required to prepare the Cost Ledger Control A/c, Stores Ledger Control A/c, Work-inprogress 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. **(15 Marks, May 2008)**

Answer

Cost Ledger Control Account

Dr.		Cr.	
	Rs.		Rs.
To Store Ledger Control A/c	13,000	By Opening Balance	6,85,000
To Balance c/d	9,42,000	By Store ledger control A/c	1,25,000
		By Manufacturing Overhead Control A/c	85,000
		By Wages Control A/c	60,000
	9,55,000		9,55,000

Stores Ledger Control Account

Dr.		Cr.	
	Rs.		Rs.
To Opening Balance	3,00,000	By WIP Control A/c	1,35,000
To Cost ledger control A/c	1,25,000	By Cost ledger control A/c (Returns)	13,000
		By Balance c/d	2,77,000
	4,25,000		4,25,000

WIP Control Account

Dr.		Cr.	
	Rs.		Rs.
To Opening Balance	1,50,000	By Finished Stock Ledger Control A/c	2,25,000
To Wages Control A/c	40,000	By Balance c/d	1,85,000
To Stores Ledger Control A/c	1,35,000		
To Manufacturing Overhead Control A/c	85,000		
	4,10,000		4,10,000

**Finished Stock Ledger Control Account**

Dr.

Cr.

	Rs.		Rs.
To Opening Balance	2,50,000	By Cost of Sales	1,75,000
To WIP Control A/c	2,25,000	By Balance c/d	3,09,000
To Cost of Sales A/c (Sales Return)	9,000		
	4,84,000		4,84,000

Manufacturing Overhead Control Account

Dr.

Cr.

	Rs.		Rs.
To Cost Ledger Control A/c	85,000	By Opening Balance	15,000
To Wages Control A/c	20,000	By WIP Control A/c	85,000
		By Under recovery c/d	5,000
	1,05,000		1,05,000

Wages Control Account

Dr.

Cr.

	Rs.		Rs.
To Transfer to Cost Ledger Control A/c	60,000	By WIP Control A/c	40,000
		By Manufacturing Overhead Control A/c	20,000
	60,000		60,000

Cost of Sales Account

Dr.

Cr.

	Rs.		Rs.
To Finished Stock Ledger Control A/c	1,75,000	By Finished Stock Ledger Control A/c (Sales return)	9,000
		By Balance c/d	1,66,000
	1,75,000		1,75,000

Trial Balance

	Rs.	Rs.
Stores Ledger Control A/c	2,77,000	
WIP Control A/c	1,85,000	
Finished Stock Ledger Control A/c	3,09,000	
Manufacturing Overhead Control A/c	5,000	
Cost of Sales A/c	1,66,000	
Cost ledger control A/c	--	9,42,000
	9,42,000	9,42,000

Question 41

A manufacturing company has disclosed a net loss of Rs. 2,13,000 as per their cost accounting records for the year ended March 31, 2009. However, their financial accounting records disclosed a net loss of Rs. 2,58,000 for the same period. A scrutiny of data of both the sets of books of accounts revealed the following information:



		Rs.
(i)	Factory overheads under-absorbed	5,000
(ii)	Administration overheads over-absorbed	3,000
(iii)	Depreciation charged in financial accounts	70,000
(iv)	Depreciation charged in cost accounts	80,000
(v)	Interest on investments not included in cost accounts	20,000
(vi)	Income-tax provided in financial accounts	65,000
(vii)	Transfer fees (credit in financial accounts)	2,000
(viii)	Preliminary expenses written off	3,000
(ix)	Over-valuation of closing stock of finished goods in cost accounts	7,000

Prepare a Memorandum Reconciliation Account.

(7 Marks, May 2009)

Answer

Memorandum Reconciliation Account

Particulars	Rs.	Particulars	Rs.
To Net loss as per costing books	2,13,000	By Administrative overhead over absorbed in costs	3,000
To Factory overheads under absorbed	5,000	By Depreciation over charged in cost books (80,000 – 70,000)	10,000
To Income tax not provided in cost books	65,000	By Interest on investments not included in cost books	20,000
To Preliminary expenses written off in financial books	3,000	By Transfer fees not considered in cost books	2,000
To Over-valuation of Closing Stock of finished goods in cost books	7,000	By Net loss as per financial books	2,58,000
	2,93,000		2,93,000

Question 42

What are the main advantages of Integrated accounts?

(2 Marks, May 2010), (4 Marks, May 2012)

Answer

Integrated Accounts is the name given to a system of accounting, whereby cost and financial accounts are kept in the same set of books. There will be no separate sets of books for Costing and Financial records. Integrated accounts provide or meet out fully the information requirement for Costing as well as for Financial Accounts.

Advantages: The main advantages of Integrated Accounts are as follows:

- No need for Reconciliation- The question of reconciling costing profit and financial profit does not arise, as there is one figure of profit only.
- Less efforts- Due to use of one set of books, there is a significant extent of saving in efforts made.
- Less Time consuming- No delay is caused in obtaining information as it is provided from books of original entry.
- Economical process- It is economical also as it is based on the concept of "Centralisation of Accounting function".

Question 43



A manufacturing company has disclosed a net loss of Rs. 8,75,000 as per their cost accounting records for the year ended March 31, 2010. However, their financial accounting records disclosed a net loss of Rs. 7,19,250 for the same period. A scrutiny of the data of both the sets of books of accounts revealed the following information:

	Rs.
(i) Factory overheads over-absorbed	47,500
(ii) Administration overheads under-absorbed	32,750
(iii) Depreciation charged in Financial Accounts	2,25,00
(iv) Depreciation charged in Cost Accounts	2,42,250
(v) Interest on investments not included in Cost Accounts	62,750
(vi) Income Tax provided in Financial Accounts	7,250
(vii) Transfer fees (credit in Financial Accounts)	12,500
(viii) Preliminary expenses written off	27,500
(ix) Under-valuation of opening stock in Cost Accounts	6,250
(x) Under valuations of closing stock in Cost Accounts'	17,500

Required :

Prepare a Memorandum Reconciliation A/c

(8 Marks, November, 2010)

Answer

	Rs.	Rs.
Net Loss as per Cost Accounting Records		8,75,000
Add: Factory overheads over absorbed	48,500	
Excess charge of depreciation in Cost Accounting	17,250	
Interest on Investments not included in Cost Accounting	62,750	
Transfer fees	12500	
Under-valuation of cost stock in Cost Accounts	17,500	1,57,500
		(7,17,500)
Less: Administration overheads under absorbed	32,750	
Income Tax provided in financial accounts	7,250	
Preliminary expenses written off	27,500	
Under-valuation of opening stock in Cost Accounts	6,250	73,750
Net Loss as per Financial Accounting Records		(7,91,250)

Question 44

You are given the following information of the cost department of a manufacturing company:

	Rs
Stores:	
Opening Balance	12,60,000
Purchases	67,20,000
Transfer from work-in-progress	33,60,000
Issue to work-in-progress	67,20,000
Issue to repairs and maintenance	8,40,000
Shortage found in stock taking	2,52,000



Work-in-progress: Opening Balance	25,20,000
Direct wages applied	25,20,000
Overhead applied	90,08,000
Closing Balance	15,20,000

Finished products:

Entire output is sold at a profit of 12% on actual cost from work-in-progress.

Other information:

	Rs
Wages incurred	29,40,000
Overhead incurred	95,50,000
Income from Investment	4,00,000
Loss on sale of fixed assets	8,40,000

Shortage in stock taking is treated as normal loss.

You are required to prepare:

- Stores control account;
- Work-in-progress control account;
- Costing Profit and Loss account;
- Profit and Loss account and
- Reconciliation statement (12 Marks, May 2011)

Answer**Stores Ledger Control Account**

Dr.			Cr.
	Rs		Rs
To Balance b/d	12,60,000	By Work-in-progress control A/c	67,20,000
To General ledger adjustment A/c	67,20,000	By Overhead control A/c	8,40,000
To Work-in progress Control A/c	33,60,000	By Overhead control A/c (Shortage)	2,52,000
		By Balance c/d	35,28,000
	1,13,40,000		1,13,40,000

W.I.P Control A/c

Dr.			Cr.
	Rs		Rs
To Balance b/d	25,20,000	By Stores ledger control A/c	33,60,000
To Stores ledger control A/c	67,20,000	By Costing P&L A/c (Cost of Sales) (Balancing figure)	1,58,88,000
To Direct wages Control A/c	25,20,000		
To Overhead control A/c	90,08,000	BY Balance c/d	15,20,000
	2,07,68,000		2,07,68,000

Costing Profit and Loss A/c

Dr.			Cr.
	Rs		Rs
To W.I.P Control A/c	1,58,88,000	By General Ledger Adj. A/c	1,58,88,000



		Cost of sales Add 12% Profit		
To General ledger Adj. A/c (Profit)	19,06,560		19,06,560	1,77,94,560
	1,77,94,560			1,77,94,560

Financial Profit and Loss A/c

Dr.					Cr.
	Rs	Rs		Rs	Rs
To opening stock : Stores	12,60,000		By Sales		1,77,94,560
W.I.P	25,20,000	37,80,000	By Income from investment		4,00,000
To Purchases		67,20,000	By Closing stock:		
To Wages		29,40,000	Stores	35,28,000	
			W.I.P	15,20,000	50,48,000
To Overhead		95,50,000	By Loss		5,87,440
To Loss on sale of fixed assets		8,40,000			
		2,38,30,000			2,38,30,000

Reconciliation Statement

	Rs	Rs
Profit as per Cost Accounts		19,06,560
Add: Income from investments		4,00,000
		23,06,560
Less : Loss on sale of fixed assets	8,40,000	
Under absorption of overheads (working note)	20,54,000	28,94,000
Loss as per Financial Accounts		5,87,440

Working Notes:**Overhead Control Account**

Dr.			Cr.
	Rs		Rs
To General Ledger Adj. A/c	9550000	By W.I.P control A/c	90,08,000
To Stores Ledger Control A/c	252000	By Balance c/d (under absorption of overheads)	20,54,000
To Stores ledger control A/c	8,40,000		
To Wages control A/c Indirect wages (Rs 29,40,000-25,20,000)	4,20,000		
	1,10,62,000		1,10,62,000

Question 45

R Limited showed a net loss of Rs 35,400 as per their cost accounts for the year ended 31st March, 2012. However, the financial accounts disclosed a net profit of Rs 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:

- (i) Administrative overhead under recovered (Rs) 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.

(8 Marks, November 2012)

Answer

Statement of Reconciliation

Sl. No.	Particulars	Amount (Rs)	Amount (Rs)
	Net loss as per Cost Accounts		(35,400)
	Additions		
1.	Factory O/H over recovered	1,35,000	
2.	Dividend Received	20,000	
3.	Bank Interest received	13,600	
4.	Difference in Value of Opening Stock (1,65,000 – 1,45,000)	20,000	
5.	Difference in Value of Closing Stock (1,32,000 – 1,25,500)	6,500	
6.	Notional Rent of own Premises	60,000	2,55,100
	Deductions		
1.	Administration O/H under recovered	25,500	
2.	Depreciation under charged	26,000	
3.	Loss due to obsolescence	16,800	
4.	Income tax Provided	43,600	
5.	Goodwill written-off	25,000	
6.	Provision for doubtful debts	15,000	(1,51,900)
	Net Profit as per Financial A/cs		67,800

Question 46

EPS is a Public School having 25 buses each plying in different directions for the transport of its school students. In view of large number of students availing of the bus service, the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The workload of the students has been so arranged that in the morning, the first trip picks up senior students and the second trip plying an hour later picks up junior students. Similarly, in the afternoon, the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus, one way is 16 kms. The school works 24 days in a month and remains closed for vacation in May and June. The bus fee, however, is payable by the students for all the 12 months in a year.

**The details of expenses for the year 2003-2004 are as under:**

Driver's salary –payable for all the 12 months	Rs 5,000 per month per driver
Cleaner's salary payable for all the 12 months (one cleaner has been employed for every five buses)	Rs 3,000 per month per cleaner
Licence Fees, Taxes etc.	Rs 2,300 per bus per annum
Insurance Premium	Rs 15,600 per bus per annum
Repairs and Maintenance	Rs 16,400 per bus per annum
Purchase price of the bus	Rs 16,50,000 each
Life of the bus	16 years
Scrap value	Rs 1,50,000
Diesel Cost	Rs 18.50 per litre

Each bus gives an average of 10 kms per litre of diesel. The seating capacity of each bus is 60 students. The seating capacity is fully occupied during the whole year.

The school follows differential bus fees based on distance travelled as under:

Students picked up and dropped within the range of distance from the school	Bus fee	Percentage of students availing this facility
4 kms	25% of Full	15%
8 kms	50% of Full	30%
16 kms	Full	55%

Ignore interest. Since the bus fees has to be based on average cost, you are required to:

- (i) Prepare a statement showing the expenses of operating a single bus and the fleet of 25 buses for a year.
 - (ii) Work out average cost per student per month in respect of:
 - (a) Students coming from a distance of upto 4 kms from the school;
 - (b) Students coming from a distance of upto 8 kms from the school; and
 - (c) Students coming from a distance of upto 16 kms from the school.
- (10 Marks, May 2004)**

Answers

- (i) **EPS Public School Statement showing the expenses of operating a single bus and the fleet of 25 buses for a year**

Particulars	Per bus per annum (Rs)	Fleet of 25 buses per annum (Rs)
Running costs : (A)		
Diesel (Refer to working note 1)	56,832	14,20,800
Repairs & maintenance costs : (B)	16,400	4,10,000
Fixed charges :		
Driver's salary	60,000	15,00,000
Cleaners salary	7,200	1,80,000
Licence fee, taxes etc.	2,300	57,500
Insurance	15,600	3,90,000
Depreciation	93,750	23,43,750
Total fixed charges : (C)	1,78,850	44,71,250
Total expenses: (A + B + C)	2,52,082	63,02,050



(ii) **Average cost per student per month in respect of students coming from a distance of :**

- | | |
|--|-----------|
| a) 4 kms. from the school
(Rs 2,52,082 / 354 students x 12 months)
(Refer to working note 2) | Rs 59.34 |
| b) 8 kms from the school (Rs 59.34 x 2) | Rs 118.68 |
| c) 16 kms from the school (Rs 59.34 x 4) | Rs 237.36 |

Working notes :

1. Calculation of diesel cost per bus:

No. of trips made by a bus each day :	4
Distance travelled in one trip both ways (16 kms x 2 trips) :	32 kms
Distance travelled per day by a bus (32 kms x 4 shifts) :	128 kms
Distance travelled during a month (128 kms x 24 days) :	3,072 kms
Distance travelled per year (3,072 kms x 10 months) :	30,720 kms
No. of litres of diesel required per bus per year (30,720 kms / 10 km) :	3,072 litres
Cost of diesel per bus per year (3,072 litres x Rs 18.50) :	Rs 56,832

2. Calculation of number of students per bus:

Bus capacity of 2 trips :	120 students
1/4th fare students (15% x 120 students) :	18 students
½ fare 30% students (equivalent to 1/4th fare students) :	72 students
Full fare 55% students (equivalent to 1/4th fare students) :	264 students
Total 1/4th fare students :	354 students

Question 47

XYZ Auto Ltd. is in the business of selling cars. It also sells insurance and finance as part of its overall business strategy. The following information is available for the company.

	Physical Units	Sales Value
Sales of Cars	10,000 Cars	Rs 30,000 lacs
Sales of Insurance	6,000 Policies	Rs 1,500 lacs
Sales of Finance	8,000 Loans	Rs 19,200 lacs

The Revenue earnings from each line of business before expenses are as follows:

Sale of Cars	3% of Sales value
Sale of Insurance	20% of Sales value
Sale of Finance	2% of Sales value

The expenses of the company are as follows:

Salesman salaries	Rs 200 lacs
Rent	Rs 100 lacs
Electricity	Rs 100 lacs
Advertising	Rs 200 lacs
Documentation cost per insurance policy	Rs 100
Documentation cost for each loan	Rs 200
Direct sales expenses per car	Rs 5,000

Indirect costs have to be allocated in the ratio of physical units sold.

**Required:**

- (i) Make a cost sheet for each product allocating the direct and indirect costs and also showing the product wise profit and total profit.
 (ii) Calculate the percentage of profit to revenue earned from each line of business. (8 Marks, May 2006)

Answer**Product Cost Sheet**

	Total	Cars	Insurance	Finance
Sales units		10,000	6,000	8,000
Sales value (Rs in lakhs)		30,000	1,500	19,200
Revenue earnings		3%	20%	2%
Revenue earned (Rs in lakhs)	1,584	900	300	384
Direct costs (Rs in lakhs)	522	500 (5,000 × 10,000)	6 (100 × 6,000)	16 (200 × 8,000)
Indirect costs (allocated in the ratio of physical units sold) 0.4167:0.25:0.3333				
Salesman salaries (Rs in lakhs)	200			
Rent (Rs in lakhs)	100			
Electricity (Rs in lakhs)	100			
Advertising (Rs in lakhs)	200			
	600	250	150	200
Total costs	1,122	750	156	216
Profits (Revenue – Total cost)	462	150	144	168
% of Profits to revenue earned	29.17%	16.67%	48%	43.75%

Question 48

State the method of costing that would be most suitable for

- (a) Oil refinery
 (b) Bicycle manufacturing
 (c) Interior decoration
 (d) Airlines company

(2 Marks, November 2008)

Answer**Industry Method of Costing**

- (a) Oil Refinery – Process costing
 (b) Bicycle manufacturing – Multiple costing
 (c) Interior decoration – Job costing
 (d) Airlines – Operating costing

Question 49

Pokemon Chocolates manufactures and distributes chocolate products. It purchases Cocoa beans and processes them into two intermediate products:

- ♦ Chocolate powder liquor base
- ♦ Milk-chocolate liquor base.



These two intermediate products become separately identifiable at a single split off point. Every 500 pounds of cocoa beans yields 20 gallons of chocolate - powder liquor base and 30 gallons of milk-chocolate liquor base. The chocolate powder liquor base is further processed into chocolate powder. Every 20 gallons of chocolate-powder liquor base yields 200 pounds of chocolate powder. The milkchocolate liquor base is further processed into milk-chocolate. Every 30 gallons of milkchocolate liquor base yields 340 pounds of milk chocolate.

Production and sales data for October, 2004 are:

- ◆ Cocoa beans processed 7,500 pounds
- ◆ Costs of processing Cocoa beans to split off point (including purchase of beans) = Rs 7,12,500

	Production	Sales	Selling price
Chocolate powder	3,000 pounds	3,000 pounds	Rs 190 per pound
Milk chocolate	5,100	5,100	Rs 237.50 per pound

The October, 2004 separable costs of processing chocolate-powder liquor into chocolate powder are Rs 3,02,812.50. The October 2004 separable costs of processing milk-chocolate liquor base into milk-chocolate are Rs 6,23,437.50.

Pokemon fully processes both of its intermediate products into chocolate powder or milkchocolate. There is an active market for these intermediate products. In October, 2004, Pokemon could have sold the chocolate powder liquor base for Rs 997.50 a gallon and the milk-chocolate liquor base for Rs 1,235 a gallon.

Required:

- (i) Calculate how the joint cost of Rs 7,12,500 would be allocated between the chocolate powder and milk-chocolate liquor bases under the following methods:
 - (a) Sales value at split off point
 - (b) Physical measure (gallons)
 - (c) Estimated net realisable value, (NRV) and
 - (d) Constant gross-margin percentage NRV.
 - (ii) What is the gross-margin percentage of the chocolate powder and milk-chocolate liquor bases under each of the methods in requirements (i) ?
 - (iii) Could Pokemon have increased its operating income by a change in its decision to fully process both of its intermediate products ? Show your computations.
- (13 Marks, November 2004)**

Answer

(i) Comparison of alternative joint-cost allocation methods

Sales value at split-off point method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
*Sales value of products at split off	Rs 2,99,250	Rs 5,55,750	Rs 8,55,000
Weights	0.35	0.65	1.00
Joint cost allocated	Rs 7,12,500 × 0.35 = Rs 2,49,375	Rs 7,12,500 × 0.65 = Rs 4,63,125	

* $300 \times 997.50 = \text{Rs } 2,99,250$; $450 \times 1,235 = \text{Rs } 5,55,750$

Physical measure method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Output	300 gallons	450 gallons	750 gallons



Weight	$300 \div 750 = 0.40$	$450 \div 750 = 0.60$	1.00
Joint cost allocated	$\text{Rs } 7,12,500 \times 0.40 = \text{Rs } 2,85,000$	$\text{Rs } 7,12,500 \times 0.60 = \text{Rs } 4,27,500$	$\text{Rs } 7,12,500$

Net realisable value method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Final sales value of production	$3,000 \text{ lbs} \times \text{Rs } 190 = \text{Rs } 5,70,000$	$5,100 \text{ lbs} \times \text{Rs } 237.50 = \text{Rs } 12,11,250$	$\text{Rs } 17,81,250$
Less separable costs	$\text{Rs } 3,02,812.50$	$\text{Rs } 6,23,437.50$	$\text{Rs } 9,26,250$
Net realisable value at split off point	$\text{Rs } 2,67,187.50$	$\text{Rs } 5,87,812.50$	$\text{Rs } 8,55,000$
Weight	$2,67,187.50 / 8,55,000 = 0.3125$	$5,87,812.50 / 8,55,000 = 0.6875$	
Joint cost allocated	$\text{Rs } 7,12,500 \times 0.3125 = \text{Rs } 2,22,656.25$	$\text{Rs } 7,12,500 \times 0.6875 = \text{Rs } 4,89,843.75$	$\text{Rs } 7,12,500$

Constant + gross margin % NRV method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Final sales value of production	$\text{Rs } 5,70,000$ (Chocolate Powder)	$\text{Rs } 12,11,250$ (Milk Chocolate)	$\text{Rs } 17,81,250$
*Less Gross Margin 8%	$\text{Rs } 45,600$	$\text{Rs } 96,900$	$\text{Rs } 1,42,500$
Cost of goods available for sale	$\text{Rs } 5,24,400$	$\text{Rs } 11,14,350$	$\text{Rs } 16,38,750$
Less Separable costs	$\text{Rs } 3,02,812.50$	$\text{Rs } 6,23,437.50$	$\text{Rs } 9,26,250$
Joint cost allocated	$\text{Rs } 2,21,587.50$	$\text{Rs } 4,90,912.50$	$\text{Rs } 7,12,500$

*Final sales value of total production = $\text{Rs } 17,81,250$
 Deduct joint and separable cost = $\text{Rs } 7,12,500 + \text{Rs } 9,26,250$
 = $\text{Rs } 16,38,750$

Gross Margin = $\text{Rs } 1,42,500$

Gross margin % = $\frac{\text{Rs } 1,42,500}{\text{Rs } 17,81,250} = 8\%$

(ii) Chocolate powder liquor base (calculations in Rs)

	Sales value at split off	Physical Measure	Estimated net realisable value	Constant gross – margin NRV
Final sale value of Chocolate powder.	5,70,000	5,70,000	5,70,000	5,70,000
Less: separable costs	3,02,812.50	3,02,812.50	3,02,812.50	3,02,812.50
Less: Joint costs	2,49,375	2,85,000	2,22,656.25	2,21,587.50
Gross Margin	17,812.50	(17,812.50)	44,531.25	45,600
Gross Margin %	3.125%	(3.125%)	7.8125%	8%

Milk chocolate liquor base(calculations in Rs)

	Sales value	Physical	Estimated net	Constant gross –
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	at split off	Measure	realisable value	margin NRV
Final sale value of milk chocolate.	12,11,250	12,11,250	12,11,250	12,11,250
Less: separable costs	6,23,437.50	6,23,437.50	6,23,437.50	6,23,437.50
Less: Joint costs	4,63,125	4,27,500	4,89,843.75	4,90,912
Gross Margin	1,24,687.50	1,60,312.50	97,968.75	96,900.50
Gross Margin %	10.29%	13.23%	8.08%	8%

(iii) Further processing of Chocolate powder liquor base into Chocolate powder (calculations in Rs)

Incremental revenue (5,70,000 – (997.50 × 300))	2,70,750
Incremental costs	3,02,812.50
Incremental operating income	(32,062.50)

Further processing of Milk chocolate liquor base into milk chocolate (calculations in Rs)

Incremental revenue (12,11,250 – 5,55,750)	6,55,500
Incremental cost	6,23,437.50
Incremental operating income	32,062.50

The above computations show that Pokemon Chocolates could increase operating income by Rs 32,062.50 if chocolate liquor base is sold at split off point and milk chocolate liquor base is processed further.

Question 50

From the following Information for the month ending October, 2005, prepare Process Cost accounts for Process III. Use First-in-first-out (FIFO) method to value equivalent production.

Direct materials added in Process III (Opening WIP)	2,000 units at Rs 25,750
Transfer from Process II	53,000 units at Rs 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	Rs 1,97,600
Direct wages	Rs 97,600
Production Overheads	Rs 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 Rs 3 per unit.

(14 Marks, November 2005)

Answer

Process III Process Cost Sheet Period (FIFO Method)

Op. Stock : 2000 units

Introduced : 53000 units

Statement of Equivalent Production

Input	Output	Equivalent production
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Item	Units	Item	Units	Material A		Material B		Labour & OHs.	
Op stock	2,000	Work on op WIP	2,000	-	-	400	20	800	40
Process II transfer	53,000	Introduced & completed during the period (48,000 – 2000)	46,000	46,000	100	46,000	100	46,000	100
			48,000						
		Normal Loss (2000+53000 – 5000) x 5%	2,500	-	-	-	-	-	-
	55,000	CI WIP	5,000	5,000	100	3,500	70	2,500	50
			55,500	51,000		49,900		49,300	
		Ab. Gain	500	500	100	500	100	500	100
			55,000	50,500		49,400		48,800	

Statement of Cost for each Element

Element of cost	Cost (Rs)	Equivalent Production.	Cost per unit Rs
Material A Transfer from previous. Process	4,11,500		
Less: Scrap value of Normal Loss 2500 × Rs 3	7,500		
	4,04,000	50,500	8
Material B	1,97,600	49,400	4
Wages	97,600	48,800	2
Overheads	48,800	48,800	1
	7,48,000		15

Process Cost Sheet (in Rs)

Op WIP (for completion)	Mat B	400 × Rs 4	= 1,600
	Wages	800 × Rs 2	= 1,600
	OHs.	800 × Rs 1	= 800
			<u>4,000</u>

Introduced and completely processed during the period 46,000 × Rs 15 = Rs 6,90,000

Closing WIP	Mat A	5,000 × 8	= 40,000
	Mat B	3,500 × 4	= 14,000
	Wages	2,500 × 2	= 5,000
	OHs	2,500 × 1	= 2,500
			<u>61,500</u>

Abnormal Gain 500 × Rs 15 = 7,500

Process III A/c

	Units	Amount (Rs)		Units	Amount (Rs)
To bal b/d	2,000	25,750	By Normal Loss	2,500	7,500
To Process II A/c	53,000	4,11,500	By process IV A/c (6,90,000 + 4,000 + 25,750)	48,000	7,19,750
To Direct Material		1,97,600	By bal C/d	5,000	61,500
To Direct Wages		97,600			
To Prodn. OHs		48,800			
To Abnormal Gain	500	7,500			



	55,500	7,88,750		55,500	7,88,750
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Question 51

A Chemical Company carries on production operation in two processes. The material first pass through Process I, where Product 'A' is produced.

Following data are given for the month just ended:

Material input quantity	2,00,000 kgs.
Opening work-in-progress quantity (Material 100% and conversion 50% complete)	40,000 kgs.
Work completed quantity	1,60,000 kgs.
Closing work-in-progress quantity (Material 100% and conversion two-third complete)	30,000 kgs.
Material input cost	Rs 75,000
Processing cost	Rs 1,02,000
Opening work-in-progress cost	
Material cost	Rs 20,000
Processing cost	Rs 12,000

Normal process loss in quantity may be assumed to be 20% of material input. It has no realisable value.

Any quantity of Product 'A' can be sold for Rs 1.60 per kg.

Alternatively, it can be transferred to Process II for further processing and then sold as Product 'AX' for Rs 2 per kg. Further materials are added in Process II, which yield two kgs. of product 'AX' for every kg. of Product 'A' of Process I.

Of the 1,60,000 kgs. per month of work completed in Process I, 40,000 kgs are sold as Product 'A' and 1,20,000 kgs. are passed through Process II for sale as Product 'AX'. Process II has facilities to handle upto 1,60,000 kgs. of Product 'A' per month, if required.

The monthly costs incurred in Process II (other than the cost of Product 'A') are:

	1,20,000 kgs. of Product 'A' input	1,60,000 kgs. of Product 'A' input
	Rs	Rs
Materials Cost	1,32,000	1,76,000
Processing Costs	1,20,000	1,40,000

Required:

- Determine, using the weighted average cost method, the cost per kg. of Product 'A' in Process I and value of both work completed and closing work-in-progress for the month just ended.
- Is it worthwhile processing 1,20,000 kgs. of Product 'A' further?
- Calculate the minimum acceptable selling price per kg., if a potential buyer could be found for additional output of Product 'AX' that could be produced with the remaining Product 'A' quantity.

(14 Marks, November 2006)

Answer

- Process I

Statement of equivalent production

Inputs		Output		Equivalent output			
Particulars	Units Kg.	Particulars	Units Kg.	Material		Conversion	
				%	Units Kg.	%	Units Kg.
Opening W.I.P.	40,000	Normal loss	40,000	—	—	—	—
New material introduced	2,00,000	Units introduced & completed	1,60,000	100	1,60,000	100	1,60,000



		Abnormal loss	10,000	100	10,000	100	10,000
		Closing WIP	30,000	100	30,000	2/3rd	20,000
	2,40,000		2,40,000		2,00,000		1,90,000

Process I**Statement of cost for each element**

Elements of cost	Costs of opening WIP Rs	Costs in process Rs	Total cost Rs	Equivalent units Kg.	Cost/Unit (Kg.) Rs
Material	20,000	75,000	95,000	2,00,000	0.475
Conversion cost	12,000	1,02,000	1,14,000	1,90,000	0.600
	32,000	1,77,000	2,09,000		1.075

Statement of apportionment of cost

Units completed	Elements	Equivalent units	Cost/unit Rs	Cost Rs	Total cost Rs
Work completed	Material	1,60,000	.475	76,000	
	Conversion	1,60,000	.600	96,000	1,72,000
Closing WIP	Material	30,000	.475	14,250	
	Conversion	20,000	.600	12,000	26,250

(ii) Statement showing comparative data to decide whether 1,20,000 kg. of product 'A' should be processed further into 'AX'.**Alternative I – To sell product 'A' after Process – I**

	Rs
Sales $1,20,000 \times 1.60$	1,92,000
Less: Cost from Process I $1,20,000 \times 1.075$	<u>1,29,000</u>
Gain	<u>63,000</u>

Alternative II – Process further into 'AX'

Sales $2,40,000 \times 2.00$	4,80,000
Less: Cost from Process I $1,20,000 \times 1.075 =$	Rs 1,29,000
Material in Process II	= Rs 1,32,000
Processing cost in Process II	= Rs 1,20,000
	<u>3,81,000</u>
Gain	<u>99,000</u>
Hence company should process further	
It will increase profit by $99,000 - 63,000$	= Rs 36,000

(iii) Calculation of minimum selling price/kg:

Cost of processing remaining 40,000 kg. further	Rs
Material $1,76,000 - 1,32,000$	44,000
Processing cost $1,40,000 - 1,20,000$	20,000
Cost from process I relating to 40,000 kg. 'A' ($40,000 \times 1.075$)	43,000
Benefit foregone if 40,000 kg. 'A' are further processed $40,000 (1.60 - 1.075)$	21,000
Total cost	1,28,000
Additional quantity of product 'AX' ($40,000 \times 2$)	80,000



$$\therefore \text{Minimum selling price} \left(\frac{1,28,000}{80,000} \right) = \text{Rs } 1.60$$

Question 52

The following details are available of Process X for August 2011:

- (1) Opening work-in-progress 8,000 units
Degree of completion and cost:
Material (100%) Rs 63,900
Labour (60%) Rs 10,800
Overheads (60%) Rs 5,400
- (2) Input 1,82,000 units at Rs 7,56,900
- (3) Labour paid Rs 3,28,000
- (4) Over heads incurred Rs 1,64,000
- (5) Units scrapped 14,000
Degree of completion:
Material 100%
Labour and overhead 80%
- (6) Closing work-in-process 18000 units
Degree of completion:
Material 100%
Labour and overhead 70%
- (7) 1,58,000 units were completed and transferred to next process.
- (8) Normal loss is 8% of total input including opening work-in-process
- (9) Scrap value is Rs 8 per unit to be adjusted in direct material cost

You are required to compute, assuming that average method of inventory is used:

- (i) Equivalent production, and
- (ii) Cost per unit

(8 Marks, November 2011)

Answer

(i) Statement of Equivalent Production

Particulars Units Material Labour and Overhead % Units % Units Production units completed 1,58,000 100 1,58,000 100 1,58,000
Normal Loss 8% of (1,82,000 + 8,000) 15,200 - - - Closing WIP 18,000 100 18,000 70 12,600 Total 1,91,200 - 1,76,000 -
1,70,600 Less : Abnormal Gain 1,200 100 1,200 100 1,200 Total 1,90,000 1,74,800 1,69,400

(ii) Statement of cost

Particulars	Materials Rs	Labour Rs	Overhead Rs
Opening WIP	63,900	10,800	5,400
Input of Materials	7,56,900	-	-
Expenses	-	3,28,000	1,64,000
Total	8,20,800	3,38,800	1,69,400
Less : Sale of Scrap (15,200 x 8)	1,21,600	-	-



Net cost	6,99,200	3,38,800	1,69,400
Equivalent Units	1,74,800	1,69,400	1,69,400
Cost Per Unit	Rs 4.00	Rs 2.00	Rs 1.00

Total cost per unit = $4+2+1 = \text{Rs } 7.00$

Note: The treatment of scrap can be done alternatively as follows and rest of the problem (Calculation of Cost per Equivalent units and Statement of Cost) can be solved accordingly.

Statement of Equivalent Production:

	Output	Materials		Labour		Overheads	
	Units	%	Units	%	Units	%	Units
Units to Next process	1,58,000	100	1,58,000	100	1,58,000	100	1,58,000
Closing WIP	18,000	100	18,000	70	12,600	70	12,600
Abnormal gain	(1,200)	100	(1,200)	80	(960)	80	(960)
Equivalent Units	1,74,800		1,74,800		1,69,640		1,69,640

Normal Loss = 8% of (Opening WIP + New Inputs)
 = 8% of (8,000+1,82,000) = 15,200 Units

Question 53

Gama Ltd. has furnished the following standard cost data per' unit of production:

- * Material 10 kg @ Rs 10 per kg.
- * Labour 6 hours @ Rs 5.50 per hour
- * Variable overhead 6 hours @ Rs. 10 per hour.
- * Fixed overhead Rs 4,50,000 per month (Based on a normal volume of 30,000 labour hours.)

The actual cost data for the month of August 2011 are as follows:

- * Material used 50,000 kg at a cost of Rs 5,25,000.
- * Labour paid Rs 1,55,000 for 31,000 hours worked
- * Variable overheads Rs 2,93,000
- * Fixed overheads Rs 4,70,000
- * Actual production 4,800 units.

Calculate:

- (i) Material cost variance.
- (ii) Labour cost variance.
- (iii) Fixed overhead cost variance.
- (iv) Variable overhead cost variance. (8 Marks, November 2011)

Answer

Budgeted Production $30,000/6 = 5,000$ units
 Budgeted Fixed Overhead Rate $= 4,50,000 \div 5,000$
 $= \text{Rs } 90$ per unit

1. MCV = Total Standard Cost for Actual Output – Total Actual Cost



- $= 4,800 \times 10 \times 10 - 5,25,000$
 $= 4,80,000 - 5,25,000$
 $= 45,000 \text{ (A)}$
2. LCV = Total Standard Cost of labour for Actual Output – Total Actual Cost of labour
 $= 4,800 \times 6.0 \times 5.50 - 1,55,000$
 $= 1,58,400 - 1,55,000$
 $= 3,400 \text{ (F)}$
3. FOCV = Recovered Fixed overhead - Actual Fixed overhead
 $= 90 \times 4,800 - 4,70,000$
 $= 38,000 \text{ (A)}$
4. VOCV = Recovered Variable overheads – Actual Variables overheads
 $= 4,800 \times 6 \times 10 - 2,93,000$
 $= 5,000 \text{ (A)}$

[MCV- Material Cost Variance, LCV- Labour Cost Variance, FOCV- Fixed Overhead Cost Variance, VOCV- Variable Overhead Cost Variance]

Question 54

SJ Ltd. has furnished the following information:

Standard overhead absorption rate per unit	Rs 20		
Standard rate per hour	Rs 4		
Budgeted production	15,000 units		
Actual production	15,560 units		
Actual overheads were Rs 2,95,000 out of which Rs 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 (Rs)	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:

- Variable overhead efficiency and expenditure variance
- Fixed overhead efficiency and capacity variance.

(8 Marks, May 2012)

Answer

Workings:

- Variable overhead rate per unit
 $= \text{Difference in total overheads at two levels} / \text{Difference in output at two level}$
 $= (2,70,000 - 2,10,000) / (14,000 - 10,000) = 60,000 / 4,000 = \text{Rs } 15 \text{ per unit}$
- Fixed overhead
 $= 2,70,000 - (14,000 \times 15) = \text{Rs } 60,000$
- Standard Fixed Overhead Rate per Hour
 $= 4 - 3 = 1$
- Standard Hour Per Unit = Standard hours rate per unit / standard overhead rate per hour
 $= 20 \div 4 = 5 \text{ hours}$
- Actual Variable Overhead
 $= 2,95,000 - 62,500 = 2,32,000$
- Actual Variable Overhead per Hour
 $= 2,32,000 / 74,000 = 3.1419$
- Budgeted hours
 $= 15,000 \times 5 = 75,000 \text{ hours}$
- Standard variable overhead rate per hour
 $= \text{Variable overheads} / \text{budgeted hours} = 15,000 \times 15 / 75,000 = \text{Rs } 3.00 \text{ per hour}$
- Standard Hours for Actual Production
 $= 15,560 \times 5 = 77,800 \text{ hours}$

**(i) Variable Overhead efficiency and expenditure Variance:**

Variable overhead efficiency variance = Standard Rate per Hour (Std. Hours – Actual Hours)

= 3 (77,800 – 74,000) = 11,400 (F)

Variable overhead expenditure variance = Actual Hours (Std. Rate per Hour-Actual Rate per Hour)

= 74,000 (3 - 3.1419) = 10,500 (A)

(ii) Fixed overhead efficiency and expenditure variance:

Fixed overhead efficiency variance = Std. Rate per Hour (Std. Hours - Actual Hours)

= 1(77,800-74,000) = 3,800(F)

Fixed overheads Capacity variance = Std. Rate per Hour (Actual Hours- Budgeted Hours)

= 1(74,000 – 75,000)

= 74,000 – 75,000 = 1,000 (A)

Standard Fixed overhead rate per hour is calculated with the help of budgeted hours and the Fixed overhead efficiency and expenditure variance is calculated as follows:

Standard fixed overhead rate per hour

= Fixed overheads/budgeted hours= 60,000 ÷ 75,000 = Rs0.80 per hour

(iii) Fixed overhead efficiency and capacity variance

Fixed overhead efficiency Variance* = Std. Rate per hour (Std. hours - Actual hours)

= Rs 0.80 (15,560 × 5 - 74,000) = Rs 3,040 (F)

Fixed overhead capacity variance* = Std. Rate per hour (Actual hours- Budgeted hours)

= Rs 0.80 (74,000 – 15,000 x 5) = Rs 800 (A)

Question 55

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:

	Rs
Direct materials 10 kg @ Rs 45 per kg	450
Direct labour 8 hours @ Rs 50 per hour	400
Variable Overhead 8 hours @ Rs 10 per hour	80
Fixed Overhead	<u>200</u>
	<u>1,130</u>

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 :

	Rs
Direct Materials 8,900 Kg @ Rs 46 per Kg.	4,09,400
Direct Labour 7,000 hours @ Rs 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, November 2013)

Answer

- (i) Material Usage Variance = Std. Price (Std. Quantity – Actual Quantity)
= Rs 45 (9,000 kgs. – 8,900 kgs.)
= Rs 4,500 (Favourable)
- (ii) Material Price Variance = Actual Quantity (Std. Price – Actual Price)
= 8,900 kgs. (Rs 45 – Rs 46)
= Rs 8,900 (Adverse)
- (iii) Material Cost Variance = Std. Material Cost – Actual Material Cost
= (SQ × SP) – (AQ × AP) = (9,000 kgs. × Rs 45) – (8,900 kgs. × Rs 46)
= Rs 4,05,000 – Rs 4,09,400
= Rs 4,400 (Adverse)
- (iv) Labour Efficiency Variance = Std. Rate (Std. Hours – Actual Hours)
= Rs 50 $\left(\frac{9,000}{10} \times 8 \text{ hours} - 7,000 \text{ hrs} \right)$
= Rs 50 (7,200 hrs. – 7,000 hrs.)
= Rs 10,000 (Favourable)
- (v) Labour Rate Variance = Actual Hours (Std. Rate – Actual Rate)
= 7,000 hrs. (Rs 50 – Rs 52)
= Rs 14,000 (Adverse)
- (vi) Labour Cost Variance = Std. Labour Cost – Actual Labour Cost
= (SH × SR) – (AH × AR)
= (7,200 hrs. × Rs 50) – (7,000 hrs. × Rs 52)
= Rs 3,60,000 – Rs 3,64,000
= Rs 4,000 (Adverse)
- (vii) Variable Cost Variance = Std. Variable Cost – Actual Variable Cost
= (7,200 hrs. × Rs 10) – Rs 72,500
= Rs 500 (Adverse)
- (viii) Fixed Overhead Cost Variance = Absorbed Fixed Overhead – Actual Fixed Overhead
= 200 9,000kgs. 1,92,000 10 kgs. × – Rs Rs
= Rs 1,80,000 – Rs 1,92,000
= Rs 12,000 (Adverse)

Question 56



A company produces single product which sells for Rs 20 per unit. Variable cost is Rs 15 per unit and Fixed overhead for the year is Rs 6,30,000.

Required:

- Calculate sales value needed to earn a profit of 10% on sales.
- Calculate sales price per unit to bring BEP down to 1,20,000 units.
- Calculate margin of safety sales if profit is Rs 60,000.

(3 Marks, November 2007)

Answer

- (a) Suppose sales units are x then

$$S = V + F + P$$

$$S = \text{Sales}$$

$$V = \text{Variable Cost}$$

$$F = \text{Fixed Cost}$$

$$P = \text{Profit}$$

$$20x = 15x + 6,30,000 + 2x$$

$$20x - 17x = 6,30,000$$

$$\therefore x = \frac{6,30,000}{3} = 2,10,000 \text{ units}$$

$$\text{Sales value} = 2,10,000 \times 20 = \text{Rs } 42,00,000$$

- (b) Sales price to down BEP 1,20,000 units

$$S = v + \frac{F}{\text{NEW BEP}} \therefore S = 15 + \frac{6,30,000}{1,20,000} \therefore \text{Rs. } 20.25.$$

- (c) M S Sales = $\frac{\text{profit}}{p/v \text{ ratio}} \therefore \frac{60,000}{p/v}$ where $p/v = \frac{C}{S} \times 100$

$$\therefore \frac{60,000}{25} \times 100 = 2,40,000 \text{ OR } \frac{5}{20} \times 100 = 25\%$$

Question 57

ABC Ltd. can produce 4,00,000 units of a product per annum at 100% capacity. The variable production costs are Rs 40 per unit and the variable selling expenses are Rs 12 per sold unit. The budgeted fixed production expenses were Rs 24,00,000 per annum and the fixed selling expenses were Rs 16,00,000. During the year ended 31st March, 2008, the company worked at 80% of its capacity. The operating data for the year are as follows:

Production	3,20,000 units
Sales @ Rs 80 per unit	3,10,000 units
Opening stock of finished goods	40,000 units

Fixed production expenses are absorbed on the basis of capacity and fixed selling expenses are recovered on the basis of period.

You are required to prepare Statements of Cost and Profit for the year ending 31st March, 2008:

- On the basis of marginal costing
- On the basis of absorption costing.

(8 Marks, November 2008)

Answer

- (i) Statement of Cost and Profit under Marginal Costing for the year ending 31st March, 2008

Output = 3,20,000 units



Particulars	Amount (Rs)	Amount (Rs)
Sales: 3,10,000 units @ Rs 80		2,48,00,000
Less: Marginal cost / variable cost: Variable cost of production (3,20,000 × Rs 40)	1,28,00,000	
Add: Opening stock 40,000 units @ Rs 40	16,00,000	
	1,44,00,000	
Less: Closing Stock [(3,20,000 + 40,000 – 3,10,000) @ Rs 40 = 50,000 units @ Rs 40]	20,00,000	
Variable cost of production of 3,10,000 units	1,24,00,000	
Add: Variable selling expenses @ Rs 12 per unit	37,20,000	1,61,20,000
Contribution (sales – variable cost)		86,80,000
Less: Fixed production cost	24,00,000	
Fixed selling expenses	16,00,000	40,00,000
Actual profit under marginal costing		46,80,000

(ii) Statement of Cost and Profit under Absorption Costing for the year ending 31st March, 2008

Output = 3,20,000 units

Particulars	Amount (Rs)	Amount (Rs)
Sales: 3,10,000 units @ Rs 80		2,48,00,000
Less: Cost of sales: Variable cost of production (3,20,000 @ Rs 40)	1,28,00,000	
Add: Fixed cost of production absorbed 3,20,000 units @ Rs 6 ⁽¹⁾	19,20,000	
	1,47,20,000	
Add: Opening Stock: 40,000 × $\frac{1,47,20,000}{3,20,000}$	18,40,000	
	1,65,60,000	
Less: Closing Stock: 50,000 × $\frac{1,47,20,000}{3,20,000}$	23,00,000	
Production cost of 3,10,000 units	1,42,60,000	
Selling expenses:		
Variable: Rs 12 × 3,10,000 units	37,20,000	
Fixed	16,00,000	1,95,80,000
Unadjusted profit		52,20,000
Less: Overheads under absorbed: ⁽²⁾		
Fixed production overheads		4,80,000
Actual profit under absorption costing		47,40,000

Workings:

- Absorption rate for fixed cost of production = $\frac{\text{Rs } 24,00,000}{4,00,000 \text{ units}}$ = Rs 6 per unit.
- Fixed production overhead under absorbed = Rs (24,00,000 – 19,20,000) = Rs 4,80,000.

Question 58

Answer of the following:

Following information are available for the year 2008 and 2009 of PIX Limited:

Year	2008	2009
Sales	Rs 32,00,000	Rs 57,00,000
Profit/(Loss)	(Rs 3,00,000)	Rs 7,00,000



Calculate –(a) P/V ratio, (b) Total fixed cost, and (c) Sales required to earn a Profit of Rs 12,00,000

(3 Marks, May 2010)

Answer

$$\begin{aligned} \text{(a) P/V Ratio} &= \frac{\text{Change in profit}}{\text{Change in sales}} \times 100 \\ &= \frac{7,00,000 + 3,00,000}{(57,00,000 - 32,00,000)} \times 100 \\ &= \frac{10,00,000}{25,00,000} \times 100 = 40\% \end{aligned}$$

(b) Total fixed cost = Total contribution - Profit

$$\begin{aligned} &= (\text{Sales} \times \text{P/V ratio}) - \text{Profit} \\ &= \left(57,00,000 \times \frac{40}{100} \right) - \text{Rs } 7,00,000 \\ &= \text{Rs } 22,80,000 - \text{Rs } 7,00,000 \\ &= \text{Rs } 15,80,000 \end{aligned}$$

(c) Contribution required to earn a profit of Rs 12,00,000 = Total fixed cost + Profit required

$$\begin{aligned} &= \text{Rs } 15,80,000 + 12,00,000 \\ &= \text{Rs } 27,80,000 \end{aligned}$$

$$\begin{aligned} \text{Required Sales} &= \frac{27,80,000}{\text{PVRatio}} = \frac{27,80,000}{40\%} \\ &= \text{Rs } 69,50,000 \end{aligned}$$

Question 59

MNP Ltd sold Rs 2,75,000 units of its product at Rs 37.50 per unit. Variable costs are Rs 17.50 per unit (manufacturing costs of Rs 14 and selling cost Rs 3.50 per unit). Fixed costs are incurred uniformly throughout the year and amount to Rs 35,00,000 (including depreciation of Rs 15,00,000). There is no beginning or ending inventories.

Required:

- Estimate breakeven sales level quantity and cash breakeven sales level quantity.
- Estimate the P/V ratio.
- Estimate the number of units that must be sold to earn an income (EBIT) of Rs 2,50,000.
- Estimate the sales level achieve an after-tax income (PAT) of Rs 2,50,000. Assume 40% corporate Income Tax rate.

(8 Marks, November 2010)

Answer

$$\text{Break even Sales Quantity} = \frac{\text{Fixed cost}}{\text{Contribution margin per unit}} = \frac{\text{Rs } 35,00,000}{\text{Rs } 20} = 175,000 \text{ units}$$

$$\text{(i) Cash Break even Sales Qty} = \frac{\text{Cash Fixed Cost}}{\text{Contribution margin per unit}} = \frac{\text{Rs } 20,00,000}{\text{Rs } 20} = 1,00,000 \text{ units.}$$

$$\text{(ii) P/V ratio} = \frac{\text{Contribution/ unit}}{\text{Selling Price / unit}} \times 100 = \frac{20}{37.50} \times 100 = 53.33 \%$$

No. of units that must be sold to earn an Income (EBIT) of Rs 2,50,000



$$(iii) = \frac{\text{Fixed cost} + \text{Desired EBIT level}}{\text{Contribution margin per unit}} = \frac{35,00,000 + 2,50,000}{20} = 187,500 \text{ units}$$

Alternative

$$\begin{aligned} \text{Total Sales to earn an EBIT level of Rs 2,50,000} &= \frac{\text{Required Contribution}}{P / V \text{ Ratio}} \\ &= \frac{\text{Fixed Cost} + \text{Desired Profit}}{P / V \text{ Ratio}} \\ &= \frac{\text{Rs } 35,00,000 + \text{Rs } 2,50,000}{53.33\%} = \text{Rs } 70,31,250. \end{aligned}$$

$$\begin{aligned} \text{No. of units to earn an income (EBIT) level of Rs 2,50,000 is} &= \frac{\text{Desired Sales}}{\text{Selling Price Per Unit}} \\ &= \frac{70,31,250}{37.50} = 1,87,500 \text{ units.} \end{aligned}$$

$$\begin{aligned} (iv) \text{ Sales level to achieve an after tax EBIT of Rs 2,50,000} &= \frac{\text{Fixed Cost} + \text{Desired EBIT}}{P / V \text{ Ratio}} \\ &= \frac{35,00,000 + \frac{2,50,000}{1-4}}{0.5333} = 73,43,750 \end{aligned}$$

Alternative:

After Tax Income (PAT) = Rs 2,50,000

Tax rate = 40%

$$\begin{aligned} \text{Desired level of Profit before tax} &= \frac{\text{Rs } 2,50,000}{60} \times 100 \\ &= \text{Rs } 4,16,667 \end{aligned}$$

$$\begin{aligned} \text{Estimate Sales Level} &= \frac{\text{Fixed Cost} + \text{Desired Profit}}{P / V \text{ ratio}} \\ &= \frac{\text{Rs } 35,00,000 + \text{Rs } 4,16,667}{53.33\%} \end{aligned}$$

$$= \text{Rs } 73,43,750/-$$

Question 60

The following figures are related to LM Limited for the year ending 31st March, 2012 :

Sales - 24,000 units @ Rs 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 Rs 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, November 2012)

Answer

Break- even point (in units) is 50% of sales i.e. 12,000 units.

Hence, Break- even point (in sales value) is 12,000 units × Rs 200 = Rs 24,00,000



(i) We know that Break even sales = $\frac{\text{Fixed Cost}}{\text{P / V ratio}}$

$$\text{or Rs 24,00,000} = \frac{\text{Fixed Cost}}{25\%}$$

$$\text{or Fixed Cost} = \text{Rs 24,00,000} \times 25\% = \text{Rs 6,00,000}$$

So Fixed Cost for the year is Rs 6,00,000

(ii) Contribution for the year = $(24,000 \text{ units} \times \text{Rs 200}) \times 25\% = \text{Rs 12,00,000}$

Profit for the year = Contribution – Fixed Cost

$$= \text{Rs 12,00,000} - \text{Rs 6,00,000} = \text{Rs 6,00,000}$$

(iii) Target net profit is Rs 11,00,000

Hence, Target contribution = Target Profit + Fixed Cost

$$= \text{Rs 11,00,000} + \text{Rs 6,00,000} = \text{Rs 17,00,000}$$

Contribution per unit = 25% of Rs 200 = Rs 50 per unit

$$\text{No. of units} = \frac{\text{Rs 17,00,000}}{\text{Rs 50 per unit}} = 34,000 \text{ unit}$$

So, 34,000 units to be sold to earn a target net profit of Rs 11,00,000 for a year.

(iv) Net desired total Sales (Number of unit x Selling price) be X, then desired profit is 25% on Cost or 20% on Sales i.e. 0.2 X

$$\text{Desired Sales} = \frac{\text{Fixed Cost} + \text{Desired Cost}}{\text{PV ratio}}$$

$$X = \frac{6,00,000 + 0.2X}{25\%}$$

$$\text{or, } 0.25 X = 6,00,000 + 0.2 X$$

$$\text{or, } 0.05 X = 6,00,000$$

$$\text{or, } X = \text{Rs 1,20,00,000}$$

$$\text{No. of units to be sold} = \frac{1,20,00,000}{200} = 60,000 \text{ units}$$

(v) If Break- even point is to be brought down by 4,000 units then Break-even point will be

$$12000 \text{ units} - 4000 \text{ units} = 8000 \text{ units}$$

$$\text{Fixed Cost} = \text{Rs 6,00,000}$$

$$\text{Required Contribution per unit} = \frac{6,00,000}{8,000 \text{ unit}} = \text{Rs 75}$$

$$\text{Selling Price} = \frac{\text{Contribution per unit}}{\text{P / V ratio}} = \frac{\text{Rs 75}}{25\%} = \text{Rs 300 per unit}$$

Hence, selling price per unit shall be Rs 300 if Breakeven point is to be brought down by 4,000 units.

Question 61

Zed Limited sells its product at Rs 30 per unit. During the quarter ending on 31st March, 2014, it produced and sold 16,000 units and suffered a loss of Rs 10 per unit. If the volume of sales is raised to 40,000 units, it can earn a profit of Rs 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 Rs 1,50,000. **(4 Marks, November, 2014)**

Answer

Units sold	Sales value (Rs)	Profit/ (loss) (Rs)
16,000 units	4,80,000 (Rs 30 × 16,000 units)	(1,60,000) (Rs 10 × 16,000 units)
40,000 units	12,00,000 (Rs 30 × 40,000 units)	3,20,000 (Rs 8 × 40,000 units)

Question 62

Following is the sales budget for the first six months of the year 2009 in respect of PQR Ltd. :

Month :	Jan.	Feb.	March	April	May	June
Sales (units) :	10,000	12,000	14,000	15,000	15,000	16,000

Finished goods inventory at the end of each month is expected to be 20% of budgeted sales quantity for the following month. Finished goods inventory was 2,700 units on January 1, 2009. There would be no work-in-progress at the end of any month.

Each unit of finished product requires two types of materials as detailed below:

Material X : 4 kgs @ Rs 10/kg Material

Y : 6 kgs @ Rs 15/kg

Material on hand on January 1, 2009 was 19,000 kgs of material X and 29,000 kgs of material Y. Monthly closing stock of material is budgeted to be equal to half of the requirements of next month's production.

Budgeted direct labour hour per unit of finished product is $\frac{3}{4}$ hour.

Budgeted direct labour cost for the first quarter of the year 2009 is Rs 10,89,000.

Actual data for the quarter one, ended on March 31, 2009 is as under:

Actual production quantity : 40,000 units

Direct material cost

(Purchase cost based on materials actually issued to production)

Material X : 1,65,000 kgs @ Rs 10.20/kg

Material Y : 2,38,000 kgs @ Rs 15.10/kg

Actual direct labour hours worked : 32,000 hours

Actual direct labour cost : Rs 13,12,000

Required :

(a) Prepare the following budgets:

- Monthly production quantity for the quarter one.
- Monthly raw material consumption quantity budget from January, 2009 to April, 2009.
- Materials purchase quantity budget for the quarter one.

(b) Compute the following variances :

- Material cost variance
- Material price variance
- Material usage variance
- Direct labour cost variance
- Direct labour rate variance
- Direct labour efficiency variance

(May 2009, 15 Marks)

**Answer****(a) (i) Production Budget for January to March 2009
(Quantitative)**

	Jan	Feb	Mar	April
Budgeted Sales	10,000	12,000	14,000	15,000
Add: Budgeted Closing Stock	2,400	2,800	3,000	3,000
(20% of sales of next month)	12,400	14,800	17,000	18,000
Less: Opening Stock	2,700	2,400	2,800	3,000
Budgeted Output	9,700	12,400	14,200	15,000

Total Budgeted Output for the Quarter ended March 31, 2009
 = (9,700 + 12,400 + 14,200)
 = 36,300 units.

(ii) Raw Material Consumption Budget (in quantity)

Month	Budgeted Output (Units)	Material 'X' @ 4 kg per unit (Kg)	Material 'Y' @ 6 kg per unit (Kg)
Jan	9,700	38,800	58,200
Feb	12,400	49,600	74,400
Mar	14,200	56,800	85,200
Apr	15,000	60,000	90,000
Total		2,05,200	3,07,800

(iii) Raw Materials Purchase Budget (in quantity) for the Quarter ended (March 31,2009)

	Material X (kg)	Material Y (kg)
Raw material required for production	1,45,200	2,17,800
Add: Closing Stock of raw material	30,000	45,000
	1,75,200	2,62,800
Less: Opening Stock of raw material	19,000	29,000
Material to be purchased	1,56,200	2,33,800

Alternative Solution**(iii) Raw Materials Purchase Budget (in quantity)
for the Quarter ended (March 31,2009)****Material X**

	Jan	Feb	Mar	Total
Raw material required for production (x)	38,800	49,600	56,800	1,45,200
Add: Closing stock of raw material	24,800	28,400	30,000	83,200
	63,600	78,000	86,800	2,28,400
Less: Opening stock of raw material X	19,000	24,800	28,400	72,200
Materials to be purchased X	44,600	53,200	58,400	1,56,200

Raw Materials Purchase Budget (in quantity) for the Quarter ended (March 31,2009)**Material Y**

	Jan	Feb	Mar	Total
Raw material required for production(Y)	58,200	74,400	85,200	2,17,800



Add: Closing stock of raw material	37,200	42,600	45,000	1,24,800
	95,400	1,17,000	1,30,200	3,42,600
Less: Opening stock of raw material Y	29,000	37,200	42,600	1,08,800
Materials to be purchased Y	66,400	79,800	87,600	2,33,800

(b) Calculation of Material Cost Variance

(a)	(b)
Std Price × Std Mix × Std Qty for actual output	Std. Price × Std. Mix × Actual Qty.
X – 10 × 4 × 40,000 = 16,00,000	X – 10 × $\frac{4}{10}$ × 4, 03,000 = 16,12,000
Y – 15 × 6 × 40,000 = 36,00,000	Y – 15 × $\frac{6}{10}$ × 4,03,000 = 36,27,000
52,00,000	52,39,000

(c)	(d)
Std Price × Actual Mix × Actual Qty	Actual Price × Actual Mix × Actual Qty.
X – 10 × 1,65,000 = 16,50,000	X – 10.20 × 1,65,000 = 16,83,000
Y – 15 × 2,38,000 = 35,70,000	Y – 15.10 × 2,38,000 = 35,93,800
52,20,000	52,76,800

Direct Material Usage Variance = (a – c)

$$X - 16,00,000 - 16,50,000 = 50,000 \text{ (A)}$$

$$Y - 36,00,000 - 35,70,000 = 30,000 \text{ (F)}$$

$$52,00,000 - 52,20,000 = 20,000 \text{ (A)}$$

Direct Material Price Variance = (c – d)

$$X - 16,50,000 - 16,83,000 = 33,000 \text{ (A)}$$

$$Y - 35,70,000 - 35,93,800 = 23,800 \text{ (A)}$$

$$52,20,000 - 52,76,800 = 56,800 \text{ (A)}$$

Direct Material Cost Variance = (a – d)

$$X - 16,00,000 - 16,83,000 = 83,000 \text{ (A)}$$

$$Y - 36,00,000 - 35,93,800 = 6,200 \text{ (F)}$$

$$52,00,000 - 52,76,800 = 76,800 \text{ (A)}$$

Verification:

$$\begin{aligned} \text{Direct Material Cost Variance} &= \text{Direct Material Usage Variance} + \text{Direct Material Price Variance} \\ &= 20,000 \text{ (A)} + 56,800 \text{ (A)} \\ &= 76,800 \text{ (A)} \end{aligned}$$

Alternative Solution (Total basis)

$$\text{Direct Material Cost Variance} = 52,00,000 - 52,76,800 = 76,800 \text{ (A)}$$

$$\text{Direct Material Price Variance} = 52,20,000 - 52,76,800 = 56,800 \text{ (A)}$$

$$\text{Direct Material Usage Variance} = 52,20,000 - 52,00,000 = 20,000 \text{ (A)}$$

Calculation of Labour Cost Variances:

$$\text{Budgeted output for the quarter} = 36,300 \text{ units}$$



$$\begin{aligned}
 \text{Budgeted direct labour hours} &= 36,300 \times \frac{3}{4} \text{ hrs.} \\
 &= 27,225 \text{ hours} \\
 \text{Standard or Budgeted labour rate per hour} &= \frac{\text{budgeted direct labour cost}}{\text{budgeted direct labour hours}} \\
 &= \frac{\text{Rs } 10,89,000}{27,225 \text{ hours}} = \text{Rs } 40
 \end{aligned}$$

$$\begin{aligned}
 \text{Standard labour hours for actual output:} \\
 &= 40,000 \text{ units} \times \frac{3}{4} \text{ hour} \\
 &= 30,000 \text{ hours}
 \end{aligned}$$

$$\text{Actual labour hour rate} = \frac{\text{Rs } 13,12,000}{32,000 \text{ hrs}} = \text{Rs } 41$$

$$\begin{aligned}
 \text{Direct Labour Efficiency Variance} &= \text{Standard Rate} \times (\text{Std. hrs} - \text{Actual hrs.}) \\
 &= \text{Rs } 40 \times (30,000 - 32,000) \\
 &= \text{Rs } 80,000 \text{ (A)}
 \end{aligned}$$

$$\begin{aligned}
 \text{Direct Labour Rate Variance} &= \text{Actual hrs.} \times (\text{Std. Rate} - \text{Actual Rate}) \\
 &= 32,000 \times (40 - 41) \\
 &= \text{Rs } 32,000 \text{ (A)}
 \end{aligned}$$

$$\begin{aligned}
 \text{Direct Labour Cost Variance} &= (\text{Std. rate} \times \text{Std. hrs.}) - (\text{Actual rate} \times \text{Actual hrs.}) \\
 &= (40 \times 30,000) - (41 \times 32,000) \\
 &= 12,00,000 - 13,12,000 \\
 &= 1,12,000 \text{ (A)}
 \end{aligned}$$

Verification:

$$\begin{aligned}
 \text{Direct Labour Cost Variance} &= \text{Direct Labour Efficiency Variance} + \text{Direct Labour Rate Variance} \\
 &= \text{Rs } 80,000 \text{ (A)} + \text{Rs } 32,000 \text{ (A)} \\
 &= 1,12,000 \text{ (A)}
 \end{aligned}$$

Question 63

RST Limited is presently operating at 50% capacity and producing 30,000 units. The entire output is sold at a price of Rs 200 per unit. The cost structure at the 50% level of activity is as under:

	Rs
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. (8 Marks, November, 2014)

**Answer****Expense Budget of RST Ltd. for the period**

	Per unit (Rs)	30,000 units Amount (Rs)	36,000 units Amount (Rs)
Sales (A)	200.00	60,00,000	72,00,000
Less: Variable Costs:			
- Direct Material	82.50	24,75,000	29,70,000
- Direct Wages	27.50	8,25,000	9,90,000
- Variable Overheads	27.50	8,25,000	9,90,000
- Direct Expenses	16.50	4,95,000	5,94,000
- Variable factory expenses (75% of Rs 20 p.u.)	16.50	4,95,000	5,94,000
- Variable Selling & Dist. exp. (80% of Rs 10 p.u.)	8.80	2,64,000	3,16,800
Total Variable Cost (B)	179.30	53,79,000	64,54,800
Contribution (C) = (A – B)	20.70	6,21,000	7,45,200
Less: Fixed Costs:			
- Office and Admin. exp. (100%)	--	1,72,500	1,72,500
- Fixed factory exp. (25%)	--	1,72,500	1,72,500
- Fixed Selling & Dist. exp. (20%)	--	69,000	69,000
Total Fixed Costs (D)	--	4,14,000	4,14,000
Profit (C – D)	--	2,07,000	3,31,200

Question 64

Deluxe Limited undertook a contract for Rs. 5,00,000 on 1st July, 2012. On 30th June, 2013, when the accounts were closed, the following details about the contract were gathered:

Materials Purchased Rs. 1,00,000, Wages Paid Rs. 45,000, General Expenses Rs. 10,000, Plant Purchased Rs. 50,000, Materials on Hand 30.06.2013 Rs. 25,000, Wages Accrued 30.06.2013 Rs. 5,000, Work Certified Rs. 2,00,000, Cash Received Rs. 1,50,000, Work Uncertified Rs. 15,000, Depreciation of Plant Rs. 5,000.

The above contract contained an escalator clause which read as follows: "In the event of prices of materials and rates of wages increase by more than 5%, the contract price would be increased accordingly by 25% of the rise in the cost of materials and wages beyond 5% in each case."

It was found that since the date of signing, the agreement, the prices of materials and wages rates increased by 25%. The value of the work certified does not take into account the effect of the above clause.

Required: Prepare the Contract Account.

Solution to:-

Contract A/c for year ending on 30th June 2013

Particulars		Rs.	Particulars	Rs.
To Materials Purchased		1,00,000	By closing stock of material	25,000
To Wages Paid	45,000		By Work-in-progress:	
Add: Closing Accrued	5,000	50,000	Value of Work Certified	2,00,000



To General Expenses		10,000	Cost of Work uncertified	15,000
To Depreciation on Plant		5,000	Contract Escalation claim	5,000
To Notional Profit		80,000		

Working Notes:**1. Statement showing the Calculation of Escalation Claim**

Cost Item	Standard cost (Actual Cost / 125%)	Excess Cost (Actual cost – Std. cost x 105%)	Escalation Claim (25% of Excess cost)
Material	Rs. 75,000 × 100/125 = 60,000	75000 – 60000 × 1.05 = 12000	12,000 × 25% = 3,000
Wages	Rs. 50,000 × 100/125 = 40,000	50000 – 40000 × 1.05 = 8000	8,000 × 25% = 2,000
Total			Rs. 5,000

Meaning of escalation clause

1. If increase in material-price & wage-rate is below 5% - No escalation amount shall be given.
2. If increase in material-price & wage-rate is equal to 5% - No escalation amount shall be given.
3. If increase in material-price & wage-rate is more than 5% - Yes escalation amount shall be given.

Escalation amount to be given in case 3 shall be “25% of the increase in the cost of materials and wages beyond 5%”

Question 65

M/s. Bansals Construction Company Ltd. took a contract for Rs. 60,00,000 expected to be completed in three years. The following particulars relating to the contract are available:

	2011	2012	2013
	(Rs.)	(Rs.)	(Rs.)
Materials	6,75,000	10,50,000	9,00,000
Wages	6,20,000	9,00,000	7,50,000
Cartage	30,000	90,000	75,000
Other expenses	30,000	75,000	24,000
Cumulative work certified	13,50,000	45,00,000	60,00,000
Cumulative work uncertified	15,000	75,000	—

Plant costing Rs. 3,00,000 was bought at the commencement of the contract. Depreciation was to be charged at 25% per annum, on the written down value method. The contractee pays 75% of the value of work certified as and when certified, and makes the final payment on completion of the contract.

You are required to make a contract account for three years and total estimated profit/loss from the contract.

Solution Answer Rectified**Contract A/c for year 2011**

Particulars	Amt (Rs.)	Particulars	Amt (Rs.)
To Materials issued	6,75,000		
To Wages	6,20,000	By Work-in-progress c/d :	
To Cartage	30,000	Work certified	Rs. 13,50,000
To Other expenses	30,000	Work uncertified	Rs. 15,000
			13,65,000



To Plant – Dep.	75000	By Costing P & L A/c	65,000
	1430000		1430000

Contract A/c for year 2012

Particulars	Amt (Rs.)	Particulars	Amt (Rs.)
To Work-in-progress b/d :		Work-in-progress c/d :	
Work certified 13,50,000		Work certified Rs 45,00,000	
Work uncertified 15,000	13,65,000	Work uncertified Rs75,000	45,75,000
To Plant – Dep.	56,250		
To Materials	10,50,000		
To Wages	9,00,000		
To Cartage	90,000		
To Other expenses	75,000		
To Notional profit (Costing P&L A/c)	10,38,750		
	4575000		4575000

Contract A/c for year 2013

Particulars	Amt (Rs.)	Particulars	Amt (Rs.)
To Work-in-progress b/d:			
Work certified 45,00,000		By Contractee's A/c (contract price)	60,00,000
Work uncertified 75,000	45,75,000	By Costing P&L A/c	3,66,188
To Plant – Dep.	42188		
To Materials	9,00,000		
To Wages	7,50,000		
To Cartage	75,000		
To Other expenses	24,000		
	63,66,188		63,66,188

Costing P&L A/c

Date	Particulars	Amount (Rs.)	Date	Particulars	Amount (Rs.)
2011	To Contract Account (Notional Loss)	65,000	2012	By Contract Account (Notional Profit)	10,38,750
2013	To Contract Account (Notional Loss)	3,66,187			
2013	To Estimated Profit	6,07,563			
		10,38,750			10,38,750

Question 66

The Excel Ltd. make and sell two products, V4 and V2. Both products are manufactures through two consecutive process-making and packing raw materials is input at the commencement of the making process. The following estimated information is available for the period ending 31 March.

	Making	Packing
--	---------------	----------------



Conversion cost	Rs. (000)	Rs. (000)
Variable	350	280
Fixed	210	140

40% of fixed costs are product specific, the remainder are company fixed costs. Fixed Costs will remain un-changed throughout a wide activity range.

Product information	V4	V2
Production time per unit		
Making (minutes)	5.25	5.25
Packing (minutes)	6	4
Production sales (units)	5,000	3,000
Selling price per unit(Rs.)	150	180
Direct material per unit (Rs.)	30	30

(iii) Conversion costs are absorbed by products using estimated time based rates.

Required:

- (a) Using the above information. Calculate unit costs for each product, analysed as relevant.
- (b) Comment on a management suggestion that the production and sale of one of the product should not proceed in the period ending 31 March.
- (c) Additional information is gathered for the period ending 31 March has follows:
 - (i) The proportion of product specific conversion costs (variable and fixed) are analysed as follows: Making Process: moulding (60%); trimming (40%)
Packing Process; conversion (70%), Packing material (30%)
 - (ii) The making process consist of two consecutive activities, mounding and trimming. The moulding variable and product fixed cost conversion costs are incurred in proportion to the temperate required in the moulds. The trimming conversion variable and product fixed costs are incurred in proportion to the consistency of the material. The variable and Product fixed packing process conversion cost are incurred in proportion to the time required for each product. Packing materials (which are part of the variable packing cost) requirements depends on the complexity of packing specified for each product.
 - (iii) An investigation into the effect of the cost drivers on costs has indicated that the proportions in which the total product specific conversion costs are related to V4 and V2 are as follows:

Particulars	V4	V2
Temperature (moulding)	2	1
Material consistency (trimming)	2	5
Time (packing)	3	2



Packing (complexity)	1	3
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- (i) Company fixed costs is apportioned to product at an overall average rate per product unit based on the estimated figures.

Required: Calculate amended unit costs for each product where activity based costing is used and company fixed costs are apportioned as detailed above.

Solution:-

Statement of cost Pool (Activity Based Costing)

Overhead	Amount	Basis	No. of Activity	Cost per Activity (Rs)
Making Cost				
Variable Cost	350000	Making Time	42000	8.33
Avoidable FC	84000	Making Time	42000	2.00
Unavoidable FC	126000	Making Time	42000	3.00
Packing Cost				
Variable Cost	280000	Packing Time	42000	6.66
Avoidable FC	56000	PackingTime	42000	1.33
Unavoidable FC	84000	PackingTime	42000	2.00

W.Note 1 Calculation of Making Time (minutes)

V4 = 5000 units x 5.25 minute = 26250 minutes

V2 = 3000 units x 5.25 minute = 15750 minutes

Total Making Time = 42000 minutes

W. Note 2 Calculation of Packing Time (Minutes)

V4 = 5000 units x 6 minute = 30000 minutes

V2 = 3000 units x 4 minute = 12000 minutes

Total Packing Time = 42000 minutes

Statement of cost

Particulars	V4	V2
DMC (5000 units x Rs.30), (3000 units x Rs. 30)	150000	90000
Making Cost		
Conversion (26250 minute, 15750 minute) @ Rs. 8.33	218750	131250
Avoidable FC (26250 minute, 15750 minute) @ Rs. 2.00	52500	31500
Unavoidable FC (26250 minute, 15750 minute) @ Rs. 3.00	78750	47250
Packing Cost		
Conversion (30000 minute, 12000 minute) @ Rs. 6.66	200000	80000
Avoidable FC (30000 minute, 12000 minute) @ Rs. 1.33	40000	16000
Unavoidable FC (30000 minute, 12000 minute) @ Rs. 2.00	60000	24000
Total Cost - A	800000	420000



Units	5000	3000
Cost per unit	160	140

Statement of profit

Particulars	V4	V2
Sales	750000	540000
Less Total Cost	(800000)	(420000)
Profit	(50000)	120000

Comment :-

- ❖ The Company will definitely continue V2 since it is showing profit
- ❖ If Company continue V4 then there shall be loss of Rs. 50000 and in case company discontinue V4 then loss shall be Rs. 78750 + 60000 = 138750 which is unavoidable Fixed Cost. Hence it is better to continue V4 also.

Notes to understand Only

Making - 350000 + 84000 = 434000	
Moulding (60%) 260400	Trimming (40%) 173600
Packing 280000 + 56000 = 336000	
Conversion (70%) 235200	Packing (30%) 100800
Unavoidable FC	
V4 = Rs.78750 + 60000 = 138750	V2 = Rs.47250 + 24000 = 71250

Statement of cost Pool (Activity Based Costing)

Overhead	Amount	Basis	No. of Activity	Cost per Activity (Rs)
Moulding	260400	Temperature	3	86800
Trimming	173600	Material consistency	7	24800
Conversion	235200	Time (Packing)	5	47040
Packing	100800	Complexity	4	25200

Statement of cost

Particulars	V4	V2
Material	150000	90000
Moulding (2 & 1) @ Rs.86,800	173600	86800
Trimming (2 & 5) @ Rs.24,800	49,600	124000
Conversion (3 & 2) @ Rs.47040	141120	94080
Packing (1 & 3) @ Rs.25200	25200	75600
Unavoidable FC	138750	71250
Total Cost - A	678270	541730

Question 67



A bank offers three products, viz., deposits, Loans and Credit Cards. The bank has selected 4 activities for a detailed budgeting exercise, following activity based costing methods.

The bank wants to know the product wise total cost per unit for the selected activities, so that prices may be fixed accordingly.

The following information is made available to formulate the budget:

	Activity	Present Cost (Rs)	Estimation for the Budget Period
(i)	ATM Service		
	(a) Machine Maintenance	4,00,000	(all fixed, no change)
	(b) Rents	2,00,000	(fully fixed, no change)
	(c) Currency Replenishment Cost	1,00,000	(expected to double during budget period)
		7,00,000	(This activity is driven by no. of ATM transaction)
(ii)	Computer Processing	5,00,000	(Half this amount is fixed and no change is expected) (The variable portion is expected to increase to three times the current level) This activity is driven by the number of Computer transactions.
	Issuing Statement	18,00,000	Presently 3 lacs statement are made. In the budget period, 5 lac statements are expected. For every increase of one lac statement, one lacs rupees is the budget increase (this activity is driven by the number of statements).
	Customer Inquiries	2,00,000	Estimated to increase by 80% during the budget period. (This activity is driven by telephone minutes).

The activity drivers and their budgeted quantifies are given below:

	Deposits	Loans	Credit Cards
No. of ATM Transactions	1,50,000	-	50,000
No. of Computer Processing Transactions	15,00,000	2,00,000	3,00,000
No. of Statements to be issued	3,50,000	50,000	1,00,000
Telephone Minutes	3,60,000	1,80,000	1,80,000

The bank budgets a volume of 58,600 deposit accounts, 13,000 loan accounts, and 14,000 Credit Card Accounts.

Required:

- Calculate the budgeted rate for each activity.
- Prepare the budgeted cost statement activity wise.
- Find the budgeted product cost per account for each product using (i) and (ii) above.

Solution

Working Note 1: Calculation of Activity cost in budgeted period:

ATM Service:



Particulars	Rs.
Machine maintenance	400000
Rent	200000
Currency cost (Rs. 100000 x 2)	200000
Total	800000

Computer processing:-

Particulars	Rs.
Fixed	250000
Variable (Rs. 250000 x 3)	750000
Total	1000000

Issuing statement

Particulars	Rs.
3 Lac statements	1800000
1 Lac statements	100000
1 Lac statements	100000
Total	2000000

Computer enquiries = 200000 x 1.80 = Rs. 360000

Statement of cost Pool (Activity Based Costing)

Overhead	Amount	Basis	No. of Activity	Cost per Activity (Rs)
ATM Service	800000	No. of ATM services	200000	4.00
Computer processing	1000000	No. of computer processing	2000000	0.50
Issuing statements	2000000	No. of statements	500000	4.00
Customers enquiries	360000	Telephone minutes	720000	0.50

Statement of cost (Activity Based Costing)

Particulars	Deposit A/cs	Loan A/cs	Credit A/cs
ATM Service (150000 : 0 : 50000)	600000	--	200000
Computer processing (15 lac : 2 lac : 3 lac)	750000	100000	150000
Issuing statements (350000 : 50000 : 100000)	1400000	200000	400000
Customers enquiries (360000 : 180000 : 180000)	180000	90000	90000
Total Cost	2930000	390000	840000
Units	58600	13000	14000
Cost per unit	50	30	60

Question 68.

The X Ltd. submits the following information for current year:

Sales for the year	2,75,000	Direct labour	65,000
Inventories at the beginning:		Factory overhead was 60% of the direct	



Finished goods	7,000	labour cost	
Work-in-progress	4,000		
Purchases of materials	1,10,000	<i>Inventories at the end of the year:</i>	
		Work-in-progress	6,000
		Finished goods	8,000
<i>Materials inventory:</i>		<i>Other expenses for the year:</i>	
at the beginning of the year	3,000	Selling expenses 10% of sales	
at the end of the year	4,000	Administrative expenses 5% of sales	

Required: Prepare a Statement of Cost and Profit & Loss Statement.

Solution : STATEMENT OF COST AND PROFIT & LOSS STATEMENT

Particulars	Amt (Rs.)	Total units
Opening stock of raw material	3000	
Add:- Purchase of raw material including carriage inwards (Note 1)	110000	
Less:- Closing stock of raw material	(4000)	
Direct material consumed / DMC	109000	
Direct Labour Cost	65000	
Direct Expenses / Chargeable Expenses	-	
Prime Cost/Direct Cost	174000	
Factory/works/Manufacturing/Production overhead (60% of DLC)	39000	
Plus Opening stock of WIP	4000	
Less closing stock of WIP	(6000)	
Factory Cost	211000	
Quality Control Cost	-	
Research & Development Cost (Process Related)	-	
Adm. Overheads (Related to Production Activity)	-	
Less:- Credit for Recoveries / Scrap / By –Products / Misc. Income	-	
Primary Packing Cost	-	
Office and administration overhead	-	
Cost of Production (For FG Produced)	211000	



Plus opening stock of finished goods	7000	
Less closing stock of finished goods	(8000)	
Cost of goods Sold (For FG Sold)	210000	
Selling and distribution overhead (10% of sales)	27500	
General Admin Overheads (5% of sales)	13750	
Total cost / Cost of sales	251250	
Profit	23750	
Total Sales	275000	

Note 1:- Admin. Exp assumed to be General Administrative OH.