

[GROUP - II]

COST AND MANAGEMENT ACCOUNTING

BASIC ASPECTS OF COST ACCOUNTING

Descriptive Questions :

- Q1. (a) Cost Management
(b) Cost Drivers
(c) Target costing [Ref: Q8. (d), (e), (f) Dec '08 / Paper-9]
- Q2. Direct Expenses [Ref: Q8. (a) June '08 / Paper-5]

MATERIALS

Descriptive Questions :

- Q1. Write a short note on :
Economic Batch Quantity. [Ref: Q8. (a) Dec '08 / Paper-5]
- Q2. Purposes of Material Requirement Planning. [Ref: Q8. (d) June '08 / Paper-5]
- Q3. What are the implications of Economic Order Quantity in proper inventory management?
[Ref: Q4. (a) Dec '07 / Paper-5]
- Q4. Write a short note on :
Economic Order Quantity (EOQ). [Ref: Q8. (a) June '06 / Paper-5]
- Q5. Write a short note on :
ABC analysis. [Ref: Q8. (a) Dec '05 / Paper-5]
- Q6. Write a short note on :
Material Requirement Planning. [Ref: Q8. (e) Dec '05 / Paper-5]
- Q7. What are over and under-absorption of overheads? How are such under or over absorbed overheads treated in cost accounts? [Ref: Q2. (a) June '05 / Paper-5]

Practical Questions :

- Q1. A Company has the option to procure a particular material from two sources. Source I assures that defectives will not be more than 2% of supplied quantity. Source II, on the other hand, does not give any assurances regarding the likelihood of the quantum of defectives but on the basis of past experiences of supplies received from it, it is observed that the percentage of defective is likely to be 2.8%.

The material is supplied in lots of 1000 units. Source II supplies at a price, which is lower by Rs. 100 per lot as compared to Source I. The defective units of material can be rectified for use at cost of Rs. 5 per unit.

You are required to suggest to the Purchase Manager which of the two sources is more economical. [Ref: Q6. (a) Dec. '08 / Paper-9]

Q2. For the manufacture of a certain product two components A and B are used. The following particulars about these components are available :

	A	B
Normal usage (per week)	60 nos.	60 nos.
Maximum usage (")	80 nos.	80 nos.
Minimum usage (")	30 nos	30 nos.
Recorder quantity	400 nos.	600 nos.
Recorder period	4 to 6 weeks	2 to 4 weeks

You are required to calculate for each component :

- (i) Reordering level ;
- (ii) Minimum level ;
- (iii) Maximum level ;
- (iv) Average stock level.

[Ref: Q2. (a) June '04 / Paper-5]

LABOUR

Descriptive Questions :

- Q1. Enumerate the principles of a good incentive scheme which should be given due consideration prior to its implementation. [Ref: Q2. (a) Dec. '08 / Paper-5]
- Q2. What is labour turnover? What are the costs associated with it? How would you treat it in costing? [Ref: Q2. (a) June '06 / Paper-5]
- Q3. Accounting of idle time. [Ref: Q8. (e) June '06 / Paper-5]
- Q4. (a) Job evaluation [Ref: Q8. (b) June '05 / Paper-5]
(b) Incentive to indirect workers. [Ref: Q8. (e) June '05 / Paper-5]
- Q5. "Change has become inevitable in the dynamic business world of today. Employees in the organization often tend to vehemently resist the change for various reasons."
(i) List some of the most important reasons for resistance to change.
(ii) Suggest measures, which could be used to overcome such a resistance. [Ref: Q2. (a) Dec. '04 / Paper-9]
- Q6. Performance budgeting. [Ref: Q8. (d) Dec. '04 / Paper-9]

Practical Questions :

- Q1. APEX Ltd. has its factories at two locations. Rowan Plan is in use at location-A and Halsey Plan at location-B. Standard time and basic rate and basic rate of wages are same for a job which is similar and is carried out on similar machinery. Time allowed is 60 hours.
Job at location-A is completed in 36 hours while at B it has taken 48 hours.
Conversion cost at respective places are Rs. 2,448 and Rs. 3,000. Overheads account for Rs. 40 per hour.
Requirement :
(i) Find out the Normal Wage Rate : and
(ii) Prepare the Comparative Conversion Costs in detail. [Ref: Q2. (b) Dec. '08 / Paper-5]
- Q2. A factory has a piece-work scheme for mass production of a certain component for a T.V. manufacturer. The standard production fixed for a day of 8 hours is 40 units. The piece work rate is Rs. 4 per piece. The details of remuneration payable to the workers are as follows :

Production	Wages	Dearness allowance	Incentive bonus
Upto 80% efficiency	P.W. wages @ of Rs. 4 per piece subject to guaranteed minimum wages of Rs. 100/day	Rs. 60/day	Nil
Above 80%	- do -	- do -	Rs. 40/- for every 1% increase in efficiency above 80%

Three workers Ram, Salim, Tom gave the following performance for May 2007 :

Name of the worker	No. of days worked	Output (units)
Ram	20	480
Salim	24	864
Tom	25	1,100

Calculate their total earnings.

[Ref : Q3. (a) June '07 / Paper-5]

Q3. The profitability position of TARGET LTD. for the year ending 31.03.2006 is as under.

	(Rs. in lakhs)	(Rs. in lakhs)
Annual Turnover		200
Variable Costs :		
Direct Material	60	
Direct Labour	40	
Variable Overheads	<u>50</u>	<u>150</u>
Marginal Contribution		50
Fixed Overheads		<u>10</u>
Profit		<u>40</u>

The profit for the year did not match with Company's expectation and works management attributed it to Labour turnover.

Analysis of the data revealed the following :

Permanent workmen worked during the year	9,60,000	Direct labour hours
Apprentice workmen worked	<u>80,000</u>	Direct labour hours
	<u>10,04,000</u>	Direct labour hours

The effectiveness of Direct labour hours put in by apprentice workmen was 50% and delay in replacing against separations during the year resulted in loss of 20,000 Direct labour hours.

You are required to calculate the loss of Profit on account of loss of production from Labour turnover.

[Ref : Q2. (b) June '06 / Paper-5]

INDIRECT EXPENSES

Theoretical Questions :

- Q1. Methods for disposal of under/over-absorbed overheads. [Ref: Q8. (c) Dec. '06 / Paper-5]
- Q2. Briefly state the salient features of 'Management'. [Ref: Q2. (b) Dec. '04 / Paper-9]

Practical Questions :

- Q1. A machine shop of Avon Ltd. has six identical machines manned by 6 operators. The machines cannot be worked without an operator wholly engaged on it. The cost of all these 6 machines including installation charges works out to Rs. 12 lakhs and these machines are deemed to have a scrap value of 10% at the end of its effective life (9 years). These particulars are furnished for a six months period :

Normal available hours per month	218
Absenteeism (without pay) hours	18
Leave (with pay) — hours	20
Stoppage for repairs and maintenance etc. — hours	20
Average rate of wages per day of 8 hours	Rs. 80
Production bonus estimated	15% on wages
Value of power consumed	Rs. 24,150
Supervision and indirect labour	Rs. 9,900
Lighting and electricity	Rs. 4,800
These particulars are for a year :	
Repairs and maintenance including consumables	Rs. 36,000
Insurance	Rs. 60,000
Other sundry works expenses	Rs. 36,000
General management expenses allocated	Rs. 1,09,040

You are required to work out a comprehensive machine hour rate for the machine shop.

[Ref: Q2. (a) June '05 / Paper-5]

Q2. M M Ltd. has three production departments X, Y, Z and two service departments S and C. The following details are extracted from the books of accounts in respect of indirect expenses incurred during April 2005 :

Indirect Cost	Amount (Rs.)
Indirect wages	9,000
Lighting and heating	1,200
Rent and rates	12,000
Electric power	6,000
Depreciation	24,000
Sundry expenses	<u>7,800</u>
	<u>60,000</u>

Following further details are collected for distribution of the above costs :

Particulars	Departments				
	X	Y	Z	S	C
Value of machinery (in Rs. '000)	60	50	80	10	—
Horse power of machines	40	45	60	5	—
Light ponts (Nos.)	20	30	40	20	10
Floor space (sq. metres)	150	200	250	100	50
Direct wages (in Rs. '000)	30	20	40	4	6
Machine hours worked	4250	3380	7120		

The costs of the service departments are apportioned percentagewise as follows :

Departments	X	Y	Z	S	C
S	20	30	40	—	10
C	40	20	30	10	—

Calculate :

- Overhead Recovery Rates showing the basis of apportionment.
- Total cost of job 321 (with elementwise and deptwise cost break down), the job card of which contain the following details :

Particulars	Dept X	Dept Y	Dept Z
Direct materials used	Rs. 268	Rs. 131	Rs. 102
Direct wages	Rs. 300	Rs. 250	Rs. 300
Machine hours worked	10	12	12

[Ref: Q2. Dec. '05 / Paper-5]

- Q3. Asheeka Ltd. collects overhead underhead expenses under three production departments – MIXING, MAKING, and PACKING and two service departments – MACHINE SHOP and CANTEEN. The following expenses figures are extracted from the accounts of November 2008 :

(Figures in Rs.)

Indirect wages	2,400
Rent & Rates	5,000
Power	15,000
General Lighting	900
Welfare Expenses	2,200
Depreciation – Machines	8,800
Other Expenses	3,200

The following details are also available :

Particulars	Units	Departments				
		Mixing	Making	Packing	Machine Shop	Canteen
Floor Space	Sq. Mtr.	400	600	500	400	100
Light Points	Numer	20	30	30	10	10
Direct Wages	Rs. 000	60	40	44	—	—
Machine Power	H.P.	100	60	90	—	—
Cost of Machine	Rs. 000	25	30	45	10	—
No. of Employees	—	25	20	40	10	15
Machine Hours	Hours	1200	1200	2600	—	—

Service	Production Departments/Service Departments				
Departments	Mixing	Making	Packing	Machine Shop	Canteen
Machine Shop	20	30	40	—	10
Canteen	35	20	30	15	—

Requirements :

- Calculate the Overhead Recovery Rate per Machine hour for each of the three production departments showing the basis of apportionment.
- Find out the total cost of product-DN2 with material cost Rs. 200 and direct labour cost of Rs. 120, which is processed for manufacture in departments – Mixing, Making and Packing for 6, 5 and 4 hours respectively.

[Ref : Q3. Dec. '08 / Paper-5]

Q4. Calculate the comprehensive Machine Hour Rate of a machine from the following :

- (i) Cost of the machine Rs. 25 lakhs, having a scrap value of Rs. 1 lakh after 10 years.
- (ii) The machine will be operated for three shifts of 7 hrs. each for 300 working days in a year of which 300 hrs. will be utilized for minor repairs and maintenance.
- (iii) Wages payable : Rs. 8,000 p.m. for an operator and Rs. 3,000 p.m. for a helper for very shift. Rs. 16,000 per month to one supervisor per shift for the department accommodating four machines including the above machine.
- (iv) Other details :
 - Power consumption : 25 units (KWH) @ Rs. 4.80 per unit
 - Repairs and maintenance : Rs. 30,000 per annum
 - General lighting : Rs. 4,000 p.m. for the whole department having the four machines
 - Insurance : Rs. 18,000 per machine per annum
 - Rent, Rates and Taxes : Rs. 3,000 p.m. for the department
 - Factory overhead : Rs. 36,000 per annum for the department.

[Ref : Q3. (b) June '07 / Paper-5]

Q5. A company has three production departments P.Q.R and two service departments M and C. The following details in respect of Indirect expenses incurred are furnished for a typical month.

Item of expenses	Amount (Rs.)
Indirect labour	9,000
Lighting	1,200
Rent & rates	12,000
Power	6,000
Depreciation	24,000
Sundry expenses	<u>7,800</u>
	<u>60,000</u>

Following further data are available for distribution of overheads :

Particulars	Departments				
	P	Q	R	M	C
Value of machinery ('000 of Rs.)	60	50	40	10	—
H.P. of machines	40	45	60	15	—
Light points (Nos.)	20	30	40	20	10
Floor space (Sq. meters)	150	200	250	100	50
Direct wages ('000 of Rs.)	30	20	40	4	6
Machine hrs. worked	2,940	2,060	2,150	—	—

The Service Dept. costs are apportioned as follows :

Department	P	Q	R	M	C
M (%)	20	30	40	—	10
C (%)	40	20	30	10	—

Calculate :

(a) Overhead recovery rates showing the basis of apportionment.

(b) Total cost of job No. 234, the job card of which has recorded the following data :

Particulars	Departments		
	P	Q	R
Materials consumed (Rs.)	228	136	100
Direct wages (Rs.)	162	144	256
Machine hrs worked	10	8	12

[Ref : Q3. Dec. '06 / Paper-5]

Q6. FOAMSTAR LTD. makes three main products using broadly the same production methods and equipment for each. A conventional product costing system is used at present, although on Activity Based Costing (ABC) system is being considered. Details of the three products for a typical period are :

	Hours per Unit		Materials per unit Rs.	Volume units
	Labour Hours	Machine Hours		
Product P	0.50	1.50	20	750
Product Q	1.50	1.00	12	1250
Product R	1.00	3.00	25	7000

Direct labour costs Rs. 6 per hour and production overheads are absorbed on a machine hour basis. The rate for the period is Rs. 28 per machine hour.

Further analysis shows that the total of production overheads can be divided as follows :

	%
Cost relating to set ups.	35
Cost relating to machinery	20
Cost relating to materials handling	15
Cost relating to inspection	<u>30</u>
Total production overhead	<u>100</u>

The following activity volumes are associated with the product line for the period as a whole. Total activities for the period :

	Number of set-ups of materials	Number of movements	Number of inspections
Product P	75	12	150
Product Q	115	21	180
Product R	480	87	670
	670	120	1000

Required :

- (i) Calculate the cost per unit for each product using conventional methods :
- (ii) Calculate the cost per unit for each product using Activity Based Costing (ABC) principles :
- (iii) Comment on the reasons for any difference in the costs in your answers to (i) and (ii).

[Ref: Q5. (a) June '05 / Paper-9]

JOB, BATCH, CONTRACT AND PROCESS COSTING

Descriptive Questions :

- Q1. Write short notes on :
 (a) Cost Plus Contract
 (b) Equivalent Production [Ref: Q8. (e), (f) Dec '08 / Paper-5]
- Q2. Obsolescence. [Ref: Q8. (b) June '08 / Paper-5]
- Q3. Briefly elucidate the objective of 'Escalation Clause' in Contract Costing.
 [Ref: Q2. (a) June '08 / Paper-5]
- Q4. Explain the importance of Equivalent production in process costing.
 [Ref: Q2. (a) Dec '07 / Paper-5]
- Q5. Short notes on :
 Equivalent Production. [Ref: Q8. (b) June '07 / Paper-5]
- Q6. Cost-plus contracts. [Ref: Q8. (e) Dec '06 / Paper-5]
- Q7. Write short notes on :
 (a) Equivalent production
 (b) Cost-plus contract [Ref: Q8. (b), (c) Dec '05 / Paper-5]
- Q8. "Profitability alone cannot be the sole criteria for measuring the performance of any public undertaking." – Comment on this statement. [Ref: Q8. (a) Dec '04 / Paper-5]
- Q9. Write short notes on :
 (a) Performance budgeting [Ref: Q8. (d) Dec '04 / Paper-9]
 (b) Responsibility accounting [Ref: Q8. (e) Dec '04 / Paper-9]

Practical Questions :

- Q1. A Limited undertook a contract for Rs. 50,00,000 on 1st April 2006. On 31st March 2007 when accounts were closed the following details were available :

Materials purchased	Rs. 10,00,000
Wages paid	Rs. 4,50,000
General expenses	Rs. 1,00,000
Plant purchased	Rs. 5,00,000
Materials on hand closing	Rs. 2,50,000

Wages outstanding closing	Rs.	50,000
Work certified	Rs.	20,00,000
Cash received	Rs.	15,00,000
Work uncertified	Rs.	1,50,000
Depreciation of plant	Rs.	50,000

The escalator clause in the contract was as follows :

In the event price of materials and rate 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 material and wages rates increased by 25%. The value of the work certified does not take into account the effect of the above clause.

Prepare the contract account (Show the workings). [Ref : Q2. (b) June '08 / Paper-5]

Q2. In a manufacturing concern, 6000 kgs. of oil seeds were introduced @ Rs. 5 per kg in process-I. There was no opening work-in-process. The following information are available for the operation of a period :

(i) Expenses debited to process-I

Direct Materials — Rs. 10,800

Direct Labour — Rs. 13,000

Overheads — Rs. 7,800

(ii) Normal Loss — 5% of the Input

(iii) Closing work-in-process 700 kgs.

Degree of completion — Material 110%

— Labour and overheads 40%

(iv) Finished output transferred to process-II, — 4,800 kgs.

(v) Degree of completion of abnormal loss

Material 100%, Labour & overheads 60%

(vi) Units scrapped as Normal Loss were sold @ Rs. 3 per kg, while

units scrapped as abnormal loss were sold @ Rs. 6/- per kg.

Prepare Statement of Equivalent production, Statement of Cost & Evaluation Process Account and Abnormal Loss Account. [Ref : Q2. (b) Dec '07 / Paper-5]

- Q3. A company manufactures a chemical product by a series of operations in three processes. Raw material is fed into Process I and the finished chemical that comes out of process III is transferred to the finished goods store. The following particulars relating to operations for April 2007 are given below :

Process I	Process II	Process III	
Raw materials issued 80,000 kg	Rs. 9,60,000	—	—
Direct wages	Rs. 1,25,600	Rs. 1,72,000	Rs. 1,42,500
Overhead costs	Rs. 1,68,000	Rs. 1,77,280	Rs. 1,24,690
Normal processing loss (% of input)	3%	2%	1%
Output transferred to next process	74,000 kg	69,400 kg	69,000 kg
Work-in-process (cb)	3,000	2,400	—
(processed material awaiting transfer to next process)			

Prepare the accounts of Process I, II and III and also abnormal loss and abnormal gain accounts, if any. [Ref: Q4. June '07 / Paper-5]

- Q4. (a) What are equivalent units of production? Mention two principal methods of calculating equivalent units.
- (b) SBL Ltd. furnishes you the following information relating to process-B for the month of April, 2006 :
- Opening work-in-progress : NIL
 - Units introduced — 10,000 units @ Rs. 5 per unit.
 - Expenses debited to the process-B
Rs. 5,000
 - 8,000 units of finished output were transferred to the next process during the month.
 - Normal Loss in process — 10% of input
 - Closing work-in progress — 800 units.
 - 80%
 - Scrap realization : Normal Loss @ Rs. 2 per unit : Abnormal Loss @ Rs. 4 per unit.

You are required to prepare :

- Statement of Equivalent production.
- Statement of Cost of each element.
- Statement of Evaluation.
- Process-B Account.
- Abnormal Loss Account.

[Ref: Q4. (a), (b) June '06 / Paper-5]

- Q5. A product passes through two distinct process X and Y before completion. During a certain period 10,000 units of crude material were introduced in process X at a cost of Rs. 40,000. After processing in dept X, 9,000 units of processed material were transferred to process Y for finishing. From process Y finally 8,600 units of the finished product were obtained and transferred to Finished Goods store.

Further data regarding normal waste, costs etc. are given below :

		Process X	Process Y
Costs incurred :	Material	Rs. 10,00	Rs. 5,000
	Labour	20,000	15,000
	Overhead	10,00	8,00
Normal waste (% of input)		8%	5%
Realisable value of waste per unit		Rs. 5	Rs. 8

There was no opening or closing stocks in any process.

Required :

- Process Accounts
- Normal Loss Account
- Abnormal Loss/Gain Accounts
- Selling price per unit of the finished product, if management wants 25% profit on sales.

[Ref: Q3. Dec. '05 / Paper-5]

- Q6. The pupils' Book Co. has two book selling outlets : Kalidas Book House and Tulsidas Book House. Each store has a manager who has a great deal of decision authority over the individual stores. A central office however, handles advertising, marketing research, acquisition of books, legal services, and other staff functions. The Pupils' Book Co's current accounting system allocates all costs to the stores.

Results for 2002-03 were :

Item	Amount in Rs.		
	Total Company	Kalidas Book House	Tulsidas Book House
Sales	7,00,000	3,50,000	3,50,000
Cost of merchandise sold	4,50,000	2,25,000	2,25,000
Gross Margin	2,50,000	1,25,000	1,25,000
Operating Expenses :			
Salaries and wages	63,000	30,000	33,000
Supplies	45,000	22,500	22,500
Rent and Utilities	60,000	40,000	20,000
Depreciation	15,000	7,000	8,000
Allocated staff cost	60,000	30,000	30,000
Total operating expenses	2,43,000	1,29,000	1,13,500
Operating income (Loss)	7,000	(4,500)	11,500

Each bookstore manager makes decisions that affect salaries and wages, supplies and depreciation. In contrast, rent and utilities are beyond the managers' control because the managers did not choose the location or size of the store.

Supplies are variable costs. Variable salaries and wages are equal to 8% of the cost of merchandise sold ; the remainder of salaries and wages is a fixed cost. Rent, utilities and depreciation are also fixed costs. Allocated staff costs are unaffected by any events at the bookstores, but they are allocated as a proportion of sales revenue.

Required :

- (i) Using the contribution approach, prepare a Performance report that distinguishes the Performance of each bookstore from that of the bookstore manager.
- (ii) Evaluate the performance of each bookstore.
- (iii) Evaluate the performance of each manager. [Ref: Q3. (b) Dec. '04 / Paper-9]

Q7. Great Eastern Enterprises which makes only one product, sells 1,00,000 units of its product making a loss of Rs. 1,00,000. The variable cost per unit of the product is Rs. 8 and the fixed cost is Rs. 3,00,000. The company has estimated its sale demand as follows :

Sales Unit	Probability
1,00,000	0.10
1,20,000	0.15
1,40,000	0.20
1,60,000	0.30
1,80,000	0.25

Required :

- (i) What is the probability that the company will continue to make losses ?
- (ii) What is the probability that the company will make a profit of least Rs. 60,000? [Ref: Q4. (a) Dec. '04 / Paper-9]

JOINT PRODUCT & BY PRODUCT APPORTIONMENT OF JOINT COST

Descriptive Questions :

- Q1. Distinguish between Joint Products and By-Products. [Ref: Q4. (a) Dec. '08 / Paper-5]
- Q2. Joint products and By-products. [Ref: Q2. (c) Dec. '06 / Paper-5]

Practical Questions :

- Q1. (a) Mention the different methods by-product cost accounting.
- (b) In a chemical plant four different products viz. AB, BC, CD and DD emerge from the input of crude oil. Product AB can be sold immediately, but the remaining three products require further processing before they can be marketed.
- In a month, 40,000 litres of crude oil were procured at a cost of Rs. 30 per litre and processed at a cost of Rs. 3 lakhs. The details of output obtained, further processing cost, selling price per unit etc. are given below :

Product	Output	Further processing cost (Rs)	Selling price at the point of Sale
AB	8000 kg	—	Rs. 45/kg
BC	10000 "	80000	Rs. 60/kg
CD	12000 "	120000	Rs. 70/kg
DD	5000 litres	60000	Rs. 80/litre

Prepare :

- (i) Statement showing apportionment of joint cost on suitable basis and product-wise profitability statement.
- (ii) If the company finds a market for CD at Rs. 63/kg without further processing, will be advisable to accept it ? [Ref: Q4. (a), (b) Dec. '06 / Paper-5]
- Q2. Modern Mills Ltd. manufactures certain grades of products known as M, B₁ and B₂. In course of manufacture of Product M (main product), by products- B₁ and B₂ emerge. The joint expenses of manufacture amount to Rs. 2,37,600.

All the three products are processed further after separation and sold as per details given below :

	Product-M	(By products)	
	Product	Product B ₁	Product B ₂
Sales	Rs. 2,00,000	1,20,000	80,000
Cost incurred after separation	Rs. 20,000	15,000	10,000
Profit as percentage on sales	25	20	15

Total fixed selling expenses are 10% of total cost of sales which are apportioned to the three products in the ratio of 20 : 40 : 40.

Required :

- (i) Prepare a statement showing the apportionment of joint costs to the products (M, B₁ and B₂).
- (ii) If the Product B₁ (by product) is not subject to further processing and is sold at the point of separation, for which there is a market at Rs. 1,00,440 without incurring any selling expenses. Would you advise its disposal at this stage? Show the working.

[Ref: Q4. (a) June '05 / Paper-5]

Q3. A certain raw material on undergoing a chemical process yields three products A, B and C and a by-product X. The relevant particulars of the process for a month are given below :

Joint processing cost :

Raw materials input	: 20,000 kg @ Rs. 15
Other materials	: Rs. 13,600
Direct labour	: 400 hours @ Rs. 20
Production overheads	: Rs. 1,00,000

Output, selling price and other particulars :

Product	Output (kg) if sold without further processing	Selling price/kg processing cost	Further after further processing	Selling price/kg
A	8,000	Rs. 28	Rs. 56,000	Rs. 38
B	6,000	30	60,000	42
C	5,000	32	60,000	43
X	500	6	1,500	8

Required :

- (a) If the company apportions the joint cost after taking credit for the sale value of the by-product, in proportion to the sale value of the three main products at the point of separation, what is the cost per kg of each production at that stage?
- (b) Which of the products should be processed further? Show workings.

[Ref: Q3. June '04 / Paper-5]

COST ACCOUNTING FOR SERVICE SECTOR

Practical Questions :

- Q1. (a) Novelty Ltd., produces a variety of products each having a number of component parts. Product-P takes 5 hours to produce on M/c No. 20, working to full capacity. The selling price and marginal cost of Product-P are Rs. 100 and Rs. 60 respectively. A component part-B-15 could be made in the same machine in 2 hours for a marginal cost of Rs. 10 per unit. The supplier's price is Rs. 25 per unit.

You are required to advise whether the company should make or buy the component B-15. (Assume that machine hours is the limiting factor).

- (b) Shree Balaji Textiles Limited follows standard costing system. The standard output for a month is 20,000 units and standard cost and profit/unit are as follows :

	Rs.
Direct Material 3 units @ Rs. 1.50	4.50
Direct Labour 3 hours @ Rs. 1.50	3.00
Direct Expense	0.50
Variable Overheads (Factory)	0.25
Fixed Overheads (Factory)	0.30
Administrative Overheads	<u>0.30</u>
Total Cost	8.85
Profit	<u>1.15</u>
Selling Price	<u>10.00</u>

The actual production and sales for the period was 14400 units. There has been no price revision by the government during the period.

The following variances are worked out at the end of the period :

	Favourable	(Figures in Rs.) Adverse
<i>Direct Material</i>		
Price	—	4250
Usage	1050	
<i>Direct Labour</i>		
Rate		4000
Efficiency	3200	
<i>Factory Overheads</i>		
Variable Expenditure	400	
Fixed Expenditure	400	
Fixed Volume		1680
<i>Administrative Overheads</i>		
Expenditure		400
Volume		1680

You are required to reconcile the actual profit with the standard profit.

[Ref: Q6. (a), (b) June '08 / Paper-5]

Q2. ACME Company is considering three proposals for conveyance facilities for its sales staff, who normally travels on an average 20000 kilometres per annum locally. The proposals are as follows :

- I. Purchase and maintain own fleet of cars. Average cost of a car is Rs. 2.50 lakhs. Petrol consumption is @ 12 kms/litre. Each has a resale value of Rs. 50,000 at the end of five years.
- II. Allow the executives to use their own car and reimburse expenses @ Rs. 5 per km and insurance premia.
- III. Hire cars from outside agency for Rs. 30,000 per year per car, the company shall also bear the cost of petrol (Rs. 3.75 per kms), taxes and tyres etc.

Following cost data are available for consideration : —

- (i) Petrol – Rs. 45 per litre
- (ii) Repairs and maintenane – @ 50 paise per km
- (iii) Insurance – Rs. 4800 per year per car
- (iv) Taxes – Rs. 2,400 per year per car
- (v) Tyres – @ 40 paise per km
- (vi) Driver's wages and Bonus Rs. 30,000 per annum per car

Which of the proposals is acceptable?

[Ref : Q4. (a) June '05 / Paper-5]

ACCOUNTING ENTRIES FOR AN INTEGRATED ACCOUNTING SYSTEM — COST LEDGER**Practical Questions :**

Q1. Integrated accounts.

[Ref: Q8. (c) June '05 / Paper-5]

Practical Questions :

Q1. Gain More Ltd. showed a net loss a net loss of Rs. 6,30,000 as per the financial accounts for the year ended 31st March, 2004. The cost accounts however disclosed a loss of Rs. 5,00,000 for the same period. On scrutiny of the two accounts the following are available :

	Rs.
Factory	70,000
Administration overheads over-recovered	30,000
Depreciation charged to financial accounts	1,50,000
Depreciation charged in cost accounts	1,20,000
Interest on investment not included in cost accounts	30,000
Income Tax provided in financial accounts	1,00,000
Stores adjustments (credit in financial accounts)	10,000

Prepare a Memorandum Reconciliation Account.

[Ref: Q2. (b) June '04 / Paper-5]

MARGINAL COSTING**Descriptive Questions :**

- Q1. Enumerate the important areas where Marginal Costing technique helps short-term decision making. [Ref: Q7. (a) Dec '08 / Paper-5]
- Q2. Explain the relation between contribution and the profits. [Ref: Q3. (a) June '08 / Paper-9]
- Q3. Write short notes on :
Relevant Cost in capital budgeting. [Ref: Q8. (b) June '08 / Paper-9]
- Q4. Write short notes on :
Sensitivity Analysis. [Ref: Q8. (a) Dec '07 / Paper-5]
- Q5. What is profit volume graph? Explain how it is drawn. What are its important limitations? [Ref: Q5. (a) June '07 / Paper-5]
- Q6. Write short notes on :
Principal Budget Factor. [Ref: Q8. (d) June '07 / Paper-5]
- Q7. Briefly distinguish between the following :
(a) Marginal cost and Differential cost [Ref: Q2. (b) Dec '06 / Paper-5]
- Q8. Mention the basic assumptions made for 'Breakeven Analysis' and examine how for they are valid. [Ref: Q5. (a) Dec '06 / Paper-5]
- Q9. Write short notes on :
(a) Application of marginal costing to price fixing. [Ref: Q8. (a) Dec '06 / Paper-5]
- Q10. Write short notes on :
Cost Volume Profit Analysis. [Ref: Q8. (d) Dec '05 / Paper-9]
- Q11. In what circumstances is a company justified in selling its products at a price below variable cost? [Ref: Q5. (b) June '05 / Paper-9]
- Q12. Product pricing is an important area for management decision making. State very briefly the broad objectives of the pricing policy. Mention specifically situations where prices are fixed below the variable cost. [Ref: Q5. (a) Dec '04 / Paper-5]
- Q13. Differential cost analysis in decision making. [Ref: Q8. (a) Dec '04 / Paper-5]
- Q14. (a) Differential cost analysis
(b) Angle of incidence [Ref: Q8. (a), (c) June '05 / Paper-9]
- Q15. A company presently sells an equipment for Rs. 35,000. Increase in prices of labour and material cost are anticipated to the extent of 15% and 10% respectively in the coming year. At present material cost represents 40% of cost of sales and labour cost 30% of the cost of sales. The

remaining relate to overheads. If the existing selling price is retained, despite the increase in labour and material prices, the company would face 20% decrease in the existing amount of profit on the equipment.

You are required to arrive at a selling price so as to give the same percentage of profit on increased cost of sales, as before. Prepare a statement of profit/loss per unit, showing the new selling price and cost per unit in support of your answer. [Ref: Q3. (a) Dec. '06 / Paper-9]

Q16. Write short notes on :

Differential Costing

[Ref: Q8. (a) June '08 / Paper-9]

Q17. Explain the concept of Activity Based Costing and cost drivers.

[Ref: Q6. (a) June '07 / Paper-9]

Practical Questions :

Q1. NOVELTY LTD. operates a chemical process which produces four different products. P, Q, R and T from the input of one raw material plus water.

Budget information for the forthcoming financial year 2008-09 is as follows :

	(Rs. in lakh)
Raw material Cost	2.68
Initial processing Cost	4.64

(Rs. in lakh)

Product	Output in litre	Sales	Additional processing cost
P	400000	7.68	1.60
Q	90000	2.32	1.28
R	5000	0.32	—
T	9000	2.40	0.08

The company policy is to apportion to the cost prior to the split-off-point on a method based on Net Realisable value.

Currently, the intention is to sell product R without further processing but to process the other three products after the split-off-point. However, it has been proposed that an alternative strategy would be to sell all four products at the split-off-point without further processing. If this was done, the selling prices would be as follows :

	Rs. per litre
P	1.28
Q	1.60
R	6.40
T	20.00

Required :

- Prepare a budgeted profit statement showing the profit or loss for each product and in total if the current intention is proceeded with.

- (ii) Show the profit or loss by product and in total if the alternative strategy were to be adopted.
- (iii) Recommend what should be done and why assuming that there is no more profitable alternative use for the plant? [Ref: Q4. (b) Dec. '08 / Paper-5]

Q2. KOOTCHAR Ltd. currently at 80% capacity has the following particulars :

	Rs.
Sales	48,00,000
Direct Materials	15,00,000
Direct Labour	6,00,000
Variable Overheads	3,00,000
Fixed Overheads	19,00,000

An export has been received that would utilize half (50%) the capacity of the factory. The order cannot be split i.e. it either to be taken in full and executed at 10% below the normal domestic price or reject totally.

The alternative available to the Management of the company are :

- (i) Reject the order and continue with domestic sales only : (as at present level of sales).

Or

- (ii) Accept the order, split the capacity (110%) between overseas and domestic sales and turn away excess domestic demand.

Or

- (iii) Increase capacity so as to accept the export order and maintain the present domestic sales by
 - A. buying an equipment that will increase capacity by 10%. This will result in an increase of Rs. 1,50,000 in fixed costs : and

B. work overtime to meet balance of required capacity. In that case labour will be paid at one and a half (1½) times the normal wage rate.

You are required to prepare a comparative statement of profitability and suggest the best alternative. [Ref: Q7. (b) Dec. '08 / Paper-5]

Q3. LK Machinery Limited manufactures 3 components : X-090, Y-070 and Z-559 which are made from 3 parts :

A-1, B-1 and C-1 in the following proportion :

X-090	1 unit of A-1 and 1 unit of B-1
Y-070	2 units of A-1, 2 units of B-1 and 1 unit of C-1
Z-559	3 units of A-1, 1 unit of B-1 and 2 units of C-1

All the above parts are made in the own plant of the company. Further information are as follows :

	A-1	B-1	C-1
Selling price (Rs.)	6	14	24
Direct material (Rs.)	2	2	5
Time cost (Rs.)	2	9	12

Time cost covers direct labour and overheads which is valued at rs. 6 per hour. All parts can be sold individually at the above selling prices, but the market demand, which is hoped, will be satisfied from the expansion will be for the components. Further expansion will provide additional 58000 hours and market demand for the components will rise by 5000 units each. Additional fixed expenses related to the expansion are expected to be Rs. 15,000.

Prepare a statement showing how the additional capacity available should be used to generate maximum additional profit. [Ref: Q2. Dec. '08 / Paper-9]

- Q4. X, Y and Z are the locations of plants owned by a single company. Contemplating merging the plant they went you to find out (i) the capacity of the merged plant at break even, (ii) Profits at 80% capacity after merger, and (iii) Sales for a desired profit of Rs. 35 lacs after merger after merger of plants. The details pre-merger are as under :

		X	Y	Z
Capacity utilization		100%	80%	60%
Turn over	Rs.	400 lacs	290 lacs	160 lacs
Variable cost	Rs.	250 lacs	200 lacs	80 lacs
Fixed cost	Rs.	80 lacs	50 lacs	60 lacs

[Ref: Q4. (b) Dec. '08 / Paper-9]

- Q5. A company is planning to install a water bottling plant. The estimated annual sales would be 50,000 bottles. Sale price will be Rs. 27/- per bottle.

The cost estimates are as under :

Annual Demand	Total Cost p.a. (Rs.)	Fixed portion (%)
Material Cost	5,00,000	NIL
Wages	3,00,000	50%
Factory Overheads	2,00,000	40%
Adm. & selling overheads	1,60,000	60%

Over and above, 10% of sale price is to be paid to the Sales Agency as commission.

- Calculate the Break Even Point and
- What should be the sale price if the desired profit is 10% of sales ?

[Ref: Q7. (b) Dec. '08 / Paper-9]

Q6. (a) Explain the relation between contribution and the profits.

- (b) Division –I of Hindustan Machineries Limited manufactures three standard parts other than the custom made products. Historical data on sales and cost of the division relating to the standard parts No. MUVS-lpi, UVS-X10, MSL-130 for the month of March 2008 are as follows :

	MUVS-lpi (Rs.)	UVS-X10 (Rs.)	MSL-130 (Rs.)	Total (Rs.)
Sales	1,00,000	60,000	40,000	2,00,000
Variable Costs	80,000	42,000	24,000	1,46,000

Apportioned fixed cost per month for the Division is Rs. 27,000.

You are required to calculate PV Ratio, BEP and Variable Cost to Sales.

Also calculate the impact on Profit and BEP if the sale of MUVS-lpi is dropped by Rs. 40,000 and that for products UVS-X10 and MSL-130 increased by Rs. 20,000 each. [Ref : Q3. (b) June '08 / Paper-9]

Q7. (a) A company manufactures three products A, B, C with a target to produce 1 lakh units, 1.5 lakh units and 0.5 lakh respectively during the year 2009. The expenses, overheads, at 100% (10 lakh hours) capacity production are budgeted as followed :

Fuel and power	Rs. 1,50,000	Indirect Wages	Rs. 80,000
Salaries	Rs. 4,00,000	Repairs	Rs. 5,000
Stores	Rs. 40,000	Defectives	Rs. 20,000
Electricity	Rs. 50,000		

The budgeted hours for the three products A, B and C are 5, 3 and 8 hours respectively.

The overheads increase by 10% for every increase up to 20% in capacity over 100% capacity.

Prepare a production overhead budget for the year 2009 with the above data.

- (b) How budgetary control is possible when overheads are indirect costs?

[Ref : Q4. (a), (b) June '08 / Paper-9]

Q8. Novelty Ltd., produces a variety of products each having a number of component parts. Product-P takes 5 hours to produce on M/c No. 20, working to full capacity. The selling price and marginal cost of Product-P are Rs. 100 and Rs. 60 respectively. A component part-B-15 could be made in the same machine in 2 hours for a marginal cost of Rs. 10 per unit. The supplier's price is Rs. 25 per unit.

You are required to advise whether the company should make or buy the component B-15. (Assume that machine hours is the limiting factor). [Ref : Q6. (a) June '08 / Paper-9]

Q7. (b) A hospital record shows the cost of carrying out health checks in the last five accounting periods as follows :

Period	No. of patients seen	Total cost (Rs.)
1	650	17,125
2	940	17,800
3	1260	18,650
4	990	17,980
5	1150	18,360

Using the high-low method, estimate the cost of carrying out health checks on 850 patients in period 6.
[Ref : Q7. (b) June '08 / Paper-9]

Q8. Relevant Cost in capital budgeting. [Ref : Q8. (b) June '08 / Paper-9]

Q9. A company has a present annual sales turnover of Rs. 60 lakhs and it is currently extending a credit of 30 days to its debtors.

It has been observed that there will be an increase in sales if the credit term is extended as below :

Revised Credit Term (days) (Rs. in lakh)	Revised Sales (per annum)
45	70
60	75

The variable cost is 80% of sales and fixed costs are Rs. 6 lakhs per annum. The company has a target of 20% pre-tax return in investment.

You are required to suggest the most beneficial credit policy for the company.
[Ref : Q4. (b) Dec. '07 / Paper-5]

Q10. A company has a contribution/sales ratio of 40%. It maintains a margin of safety of 20%. If its annual fixed cost amount to Rs. 24 lakhs, calculate its

- (i) Break even sales,
- (ii) Margin of safety,
- (iii) Total sales,
- (iv) Total variable costs and
- (v) Profit.

[Ref : Q5. (b) June '07 / Paper-5]

Q11. X Ltd. manufactures three components used in the finished product. The component workshop is currently unable to meet the demand for components and the possibility of sub-contracting part of the requirement is being investigated on the basis of the following data :

	(Per Unit)		
	Component A	Component B	Component C
	(Rs.)	(Rs.)	(Rs.)
Variable cost of Production	3.00	4.00	7.00
Fixed cost of production	1.00	2.00	4.00
Outside purchase price	2.50	6.00	13.00
Machine hours per unit	1	0.5	2
Labour hours per unit	2	2	4

Your are required :

- to decide which component should be bought out if the company is operating at all capacity.
- to decide which component should be bought out if production is limited to 4000 machine-hours per week.
- to decide which component should be bought out if production is limited to 4000 labour-hours per week.

[Ref: Q4. (a) June '07 / Paper-9]

Q12. Magatron Ltd. is having production shops which are cost centres. Each shop charges other shops for materials supplied and services rendered.

The shops are motivated through goal congruence, autonomy and management efforts. Megatron Ltd. is having a welding shop and painting shop. The welding shop welds annually 7,50,000 purchased items with other 15,00,000 shop made parts into 1,20,000 assemblies.

The assemblies are having variable cost of Rs. 19 each and are sold in the market at Rs. 24 per assembly. Out of the total production, 80% is diverted to painting shop at same price ruling in the market. Welding shop incurs a fixed cost of Rs. 5,00,000 per annum.

The painting shop is having a fixed cost of Rs. 6,00,000 and its cost of painting including transfer price from welding shop comes to Rs. 40 per unit. The painting shop sells all units transfer to it by welding shop at Rs. 50 per assembly.

Requirements :

- Find out profit of individual cost centres and overall profitability of the company.
- Recommend course of action, if painting shop wishes to purchases its full requirement either from open market (@ Rs. 20 per assembly) or from welding shop at Rs. 20 per assembly.

Give reason for your recommendations.

[Ref: Q5. (b) June '07 / Paper-9]

Q13. X Ltd. manufactures special purpose gauges to customer specifications. The highly skilled labour force is always working to full capacity and the budget for the next year shows :

	(Rs.)	(Rs.)
Sales		40,000
Direct Materials	4,000	
Direct Wages (3200 hours @ Rs. 5)	16,000	
Fixed Overhead	<u>10,000</u>	<u>30,000</u>
Profit		<u>10,000</u>

An enquiry is received from XYZ Ltd. for a gauge which would use Rs. 60 of Direct materials and 40 labour hours.

- (a) What is the minimum price to quote to XYZ Ltd?
- (b) Would the minimum price be different if spare capacity were available but materials were subject to a quote of Rs. 4,000 per year? [Ref: Q7. (b) June '07 / Paper-9]

Q14. Two cement plants decide to merge to earn higher profits. The working results of the two plants for last year were as follows :

	Plant-I	Plant-II
Capacity utilization	80%	60%
Sales (lakhs of rupees)	400	240
Variable Cost (")	320	180
Fixed Cost (")	50	40

After merger, the management wants information on the following :

- (i) Capacity at which the combined plant will break even.
- (ii) Profit likely to be made if the combined plant works at 90% capacity.
- (iii) Sales required to earn a profit of Rs. 60 lakhs. If the total fixed costs are reduced by Rs. 10 lakhs, what sales will yield a profit of Rs. 60 lakhs. [Ref: Q5. (b) Dec. '06 / Paper-5]

Q15. A company has two divisions, division 'A' and Division 'B'. Division 'A' has a budget of selling 2,00,000 nos. of a particular component 'X' to fetch a return of 20% on the average assets employed.

The following particulars of Division 'A' are also known :

Fixed Overhead	:	Rs. 5 lakhs
Variable Cost	:	Re. 1 per unit
Average Assets		
Sundry Debtors	:	Rs. 2 lakhs
Inventories	:	Rs. 5 lakhs
Plant & Equipments	:	Rs. 5 lakhs

However, there are certain constraints in marketing and only 1,50,000 units of the component 'X' can be directly sold to the market at the proposed price. It has been gathered that the balance 50,000 units of component 'X' can be taken up by Division 'B'. Division 'A' wants a price of Rs. 4 per unit of 'X' but Division 'B' is prepared to pay rs. 2 per unit of 'X'.

Division 'A' has another option on hand, which is to produce only 1,50,000 units of component 'X'. This will reduce the holding of assets by Rs. 2 lakhs and fixed overhead by Rs. 25,000.

You are required to advise the most profitable course of action for Division 'A'.

[Ref: Q4. (b) Dec. '06 / Paper-9]

Q16. NOVINA INDUSTRIES LTD. has received an export order for its only product that would require the use of half of the factory's present capacity of 400,000 units per annum. The factory is currently operating at 60% level to meet the demand of its domestic market.

As against current price of Rs. 6.00 per unit, the export order offers @ Rs. 4.50 per unit, which is less than the cost of production, the details of which are given below :

Direct Materials	-	Rs. 2.50 per unit
Direct Labour	-	Rs. 1.00 per unit
Direct Expenses	-	Rs. 0.50 per unit
Fixed Overheads	-	Rs. 1.00 per unit

The condition of the export is that it has either to be accepted in full or totally rejected. The

- A. Accept the order and keep domestic sales unfulfilled to the excess demand for the same
- B. Increase factory capacity by installing a few balancing machinery and equipments and also by working extra time to meet the balance of the required capacity. This will increase fixed overheads by Rs. 20,000 annually and the additional cost of Overtime will work out to Rs. 40,000 per annum.
- C. Out-source the production of additional requirement by supplying direct materials and paying Conversion charges of Rs. 1.75 per unit to a small converter, and engaging one Supervisor at a cost of Rs. 3,000 per month to look after quality, packing and despatch.
- D. As a Management Accountant, you are required to make comparative analysis of various proposals and suggest which of the alternative proposals is the most attractive to Novina Industrial Ltd.

Q17. Profit-Volume Chart.

[Ref: Q6. June '06 / Paper-5]

Q18. A review, made by the top management of M/s. Sweat and Struggle Ltd., which makes only one product, of the result of first quarter of the year revealed the following :

Sales in units	10,000
Loss in Rs.	10,000
Fixed cost (for the year Rs. 1,20,000) in Rs.	30,000
Variable cost per unit in Rs.	8

The Finance Manager who feels perturbed suggests that the company should atleast break even in the second quarter with a drive for increased sales. Towards this, the company should introduce a better packing which will increase the cost by Rs. 0.50 per unit.

The Sales Manager has an alternate proposal. For the second quarter additional sales promotion expenses can be increased to the extent of Rs. 5,000 and a profit of Rs. 5,000 can be aimed at for the period with increased sales.

The Production Manager feels otherwise. To improve the demand, the selling price per unit has to be reduced by 3 percent. As a result the sales volume can be increased to attain a profit level of Rs. 4,000 for the quarter.

The Managing Director asks you as a Cost Accountant to evaluate these three proposals and calculate the additional Sales Volume that would be required in each case, in order to help him take a decision.

[Ref: Q2. June '06 / Paper-9]

Q19. A Ltd. has been offered a choice to buy a machine between M1 and M2. The following data are provided :

	M1	M2
Annual output in units	10,000	10,000
Fixed Cost	Rs. 60,000	Rs. 32,000
Profit at above level	Rs. 60,000	Rs. 48,000

The market price of the product is expected to be Rs. 20 per unit.

You are required to compute :

- Break Even Point of each machine,
- the level of sales at which both the machines earn equal profit
- the range of sales at which one is more profitable from the other.

[Ref : Q5. (a) June '06 / Paper-9]

Q20. A company has plans to manufacture five different types of product using a common raw material which is locally available according to requirements at Rs. 16 per kg. However skilled labour required for manufacture is in short supply and current availability is only 30,000 hours per month @ Rs. 20 per hour.

Variable production overheads amount to Rs. 10 per labour hour and variable selling and distribution cost is 10% of sales value.

Total fixed costs of selling, distribution and administration is estimated to be Rs. 3,00,000 per month.

Further details relating to the products are given below :

Product	Current demand (units)	Selling price per unit (Rs.) (kg/unit)	Raw material required (kg/unit)	Direct labour required
A	8,000	100	2	1
B	6,000	120	2.5	1.2
C	5,000	160	3	2
D	3,000	220	4	3
E	2,000	300	5	4

Required :

- Contribution Analysis statement showing the relative profitability of the products under :
 - Normal conditions without any constraints on resources.
 - When skilled labour hours are in short supply.
- Production plan for optimum profit when available labour hours is only 30,000. What is the expected profit?
- If the company decides to produce and sell even relatively less profitable products to meet at least 10% of the current demand, what revised plan will you suggest? What is the anticipated profit?

[Ref : Q5. Dec. '05 / Paper-5]

- Q21. ZED Ltd. produces two products, P and Q. The budgeted selling price per unit for P and Q are Rs. 3600 and Rs. 4320 respectively. Variable costs of production and sales for P and Q are Rs. 1800 and Rs. 3600 respectively. Annual fixed cost of the company amounts to Rs. 176000.

The company has two different production/sales options as under :

Option 1-A mix of 2 units of P for every 3 units of Q

Option 2-A mix of 1 units of P for every 2 units of Q

Find out the combined Break Even Point under each option and the optimal mix that the company should adopt. [Ref: Q6. (b) Dec. '05 / Paper-9]

- Q22. Following data are in respect of a firm manufacturing a single product for a particular period :

	Rs.
Sales (20000 units)	2,00,000
Cost of production (20000 units)	1,20,000
Selling and distribution expenses	30,000
Maximum capacity 25000 units	

Fixed costs included in cost of production are Rs. 40,000 and only variable cost included in selling and distribution expenses are commission @ 10% on sales and packing expenses @ 20 p. per unit.

1. An offer for purchase of 4000 units is received from outside India. No sales commission is payable on such foreign order but packing costs will be 80 p. per unit.

What minimum price may be quoted for the foreign offer?

2. What should be the minimum price had the offer size been 8000 units instead of 4000 units?

- (b) In a manufacturing process the following standards apply :

Standard prices : Raw material A Rs. 10 per kg.

Standard mix : 75% A and 25% B (by weight)

Standard output (weight of product as a percentage of weight of raw material) — 90%

In a particular period actual costs, usages and output were as follows :

4,400 kgs. of A costing	Rs. 46,500
1,600 kgs. of B costing	Rs. 78,500

Output 5670 kgs. of product.

The budgeted output for the period was 7200 kgs.

Compute the material cost variances.

[Ref: Q7. June '05 / Paper-9]

Q23. Two plants manufacturing the same product decide to merge. Particulars of operation of the two plants before the merger were as follows :

	Plant A	Plant B
Capacity utilized	80%	60%
Sales	Rs. 4.80 crores	Rs. 2.40 crores
Variable cost	3.52 crores	1.80 crores
Fixed cost	0.80 crores	0.40 crores

You are required to work out :

- Break even capacity of the merged plant.
- Profit earned at 75% capacity of the merged plant.
- Sales required to earn a profit of Rs. one crore. [Ref: Q5. (b) Dec. '04 / Paper-5]

Q24. Great Eastern Enterprises which makes only one product, sells 1,00,000 units of its product making a loss of Rs. 1,00,000. The variable cost per unit of the product is Rs. 8 and the fixed cost is Rs. 3,00,000. The company has estimated its sale demand as follows :

Sales Unit	Probability
1,00,000	0.10
1,20,000	0.15
1,40,000	0.20
1,60,000	0.30
1,80,000	0.25

Required :

- What is the probability that the company will continue to make losses ?
- What is the probability that the company will make a profit of least Rs. 60,000? [Ref: Q4. (a) Dec. '04 / Paper-5]

Q25. A company has a project to install a new machine exclusively for the manufacture of a new product which is expected to have goods demand and reasonably high margin. Maximum possible annual sales may not exceed Rs. 50 lakhs and if there is competition it may fall considerably. The company has obtained quotations and short listed two offer for the new machine. Details in respect of the two models are given below :

	Machine models	
Maximum possible sales per year	Rs. 50 lakhs	Rs. 50 lakhs
Fixed costs per year	5 lakhs	8 lakhs
Estimated profit for maximum sales	15 lakhs	17 lakhs

You are required to calculate :

- (i) Break even sales of each machine;
 - (ii) Sales at which both models will give the same profit;
 - (iii) Range of sales over which one model is better than the other.
- (b) For the final assembly of a product in an engineering company, a certain component is required. The company has the options either to produce the component itself or purchase it from the market. The production department which can make the component is currently working to full capacity and earning a contribution of Rs. 10 per hour on an order which will last for another ten months. Repeat orders are very likely. Variable cost of making the component is Rs. 42 and it takes one hour per unit. Market price of the component is Rs. 45 per unit.

What advice will you give to the management of the company?

[Ref : Q5. (a) June '04 / Paper-5]

- Q26. The Chief cost Accountant of M/s XYZ Ltd. found to his surprise that the actual profit for the period ending 30th June, 2006 was the same as budgeted inspite of realizing 10% more than the budgeted selling prices.

The following were the result :

Particulars	Budget (Rs.)	Actual (Rs.)
Sales	5,00,000	8,25,000
Variable cost of sales	3,00,000	5,75,000
Fixed costs	1,00,000	1,50,000
Profit	1,00,000	1,00,000

You are required to assist the Chief cost Accountant in preparing the necessary explanations as to why the profit remained the same despite and increase in sales.

[Ref : Q7. (a) June '07 / Paper-9]

- Q27. The annual flexible budget of TBA Ltd. is as follows :

Production Capacity Costs :	40% Rs.	60% Rs.	80% Rs.	100% Rs.
Direct wages	20,000	30,000	40,000	50,000
Direct material	16,000	24,000	32,000	40,000
Production overheads (Fixed and variable)	11,400	12,600	13,800	15,000
Administrative overheads (Fixed and variable)	5,800	6,200	6,600	7,000
Selling and distribution overheads (Fixed and variable)	6,200	6,800	7,400	8,000
Total	59,400	79,600	99,800	1,20,000

The company is presently passing through a period of very lean market demand and operating at 50% capacity and have also selling its product at a discounted price generating a total sales revenue of Rs. 60,000 at that level.

It is expected that the market scenario will improve in the next year and, on a conservative estimate, the company is likely to operate at 70% capacity level with increased sales revenue of Rs. 1,20,000.

As an option, the management is considering to close down the operation for one year and restart operation after one year when the market conditions are likely to improve. If closed down for the year it is estimated that

- (i) the present fixed costs will reduced by 60%;
- (ii) there will be a cost of Rs. 10,000 towards closing down operations;
- (iii) to maintain a skeleton maintenance service for which Rs. 24,000 to be incurred;
- (iv) an initial cost of re-opening of Rs. 20,000 to be incurred.

The other option is to keep the factory operational for one year and wait for better time next year. You are required to work out the profitability under the two options and give your comment.

[Ref: Q3. June '05 / Paper-5]

Q28. MPC Ltd. of Mumbai presently sells an equipment for Rs. 42,000. Increase in prices of material and labour cost are anticipated to the extent of 10% and 20% respectively in the coming year. Material cost represents 40% of cost of sales and labour cost 30% of cost of sales. The remaining relate to overheads.

If the existing selling price is retained, despite the increase in labour and material prices, the company would face a 25% decrease in the existing amount of profit on the equipment.

Required :

- (i) Calculate a selling price so as to give the same percentage of profit on increased cost of sales, as before.
- (ii) Prepare a statement of profit/loss per unit showing the new selling price and cost per unit in support of your answer.
- (b) Mention some possible courses of action to improve profit volume ratio.

[Ref: Q5. (a) June '05 / Paper-5]

Q29. A company manufactures two product A and B using common facilities. The following cost data for a month is presented to you :

	A	B
Units Produced	1000	2000
Direct Labour hours per unit	2	3
Machine hours per unit	6	1.5
Set up of machines	15	50
Orders	18	70
Machine activity expenses	Rs. 3 lacs	

Set-up relating expenses Rs. 30,000

Expenses relating to orders Rs. 35,000

Calculate the overheads per unit absorbed using activity-based costing approach.

[Ref: Q7. (a) June '08 / Paper-5]

Q30. Fasteners Ltd. produces and sells four products A, B, C and D. Details of the four products and relevant information are given below for week ended 28th April, 2007.

Products	A	B	C	D
Output (units)	120	100	80	120
Cost per unit (Rs.)				
Direct Material	40	50	30	60
Direct Labour	28	21	14	21
Machine-hours (per unit)	4	3	2	3

The four products are similar and are usually produced in production runs of 20 units and sold in batches of 10 units.

The production overheads during the period are as follows :

	Rs.
Factory	20,860
Set up costs	10,500
Stores receiving	7,200
Inspection/Quality control	4,200
Material handling and dispatch	9,240

The production overhead is currently absorbed by using a Machine-hour rate and the company wishes to introduce Activity Based Costing (ABC) system and has identified major cost pools for production overheads and their associated cost drivers.

Information in these activity cost pools and their drivers is given below :

Activity Cost Pools	Cost Drivers
Factory Works Expenses	Machine-hours
Set up Costs	Number of production runs
Stores receiving	Requisition raised
Inspection/Quality Control	Number of production runs
Material handling & dispatch	Number of orders executed

The number of requisitions raised on the stores was 20 for each product and number of orders executed was 42, each order being for a batch of 10 of a product.

Requirements :

- Total cost of each product assuming the absorption of overhead on Machine-hour basis.
- Total cost of each product assuming the absorption of overhead by using Activity Based Costing.
- Show the differences between (i) and (ii) and Comment. [Ref: Q6. (b) June '07/Paper-9]

RELEVANT COSTING

Descriptive Questions :

- Q1. Relevant Cost. [Ref: Q8. (b) Dec. '08 / Paper-5]
 Q2. Relevant Cost. [Ref: Q8. (b) Dec. '07 / Paper-5]
 Q3. Relevant Cost. [Ref: Q8. (a) June '05 / Paper-5]

TRANSFER PRICING

Descriptive Questions :

- Q1. In transfer pricing, what is the common conflict between a division and the company as a whole. [Ref: Q5. (a) Dec. '07 / Paper-9]
 Q2. What is Transfer Price? Briefly state the importance of Transfer Pricing System. [Ref: Q4. (a) Dec. '06 / Paper-9]
 Q3. Explain the meaning of "free reserves" in the context of buy back of shares. State the adjustments that should be made to arrive at the net amount available for the purpose of the buy back. [Ref: Q3. (a) Dec. '05 / Paper-9]
 Q4. Briefly describe the merits and demerits of cost based and market based transfer price. [Ref: Q3. (a) June '05 / Paper-9]

Practical Questions :

- Q1. Your Company fixes the inter-divisional transfer price for its products on the basis of cost plus a return on investment in the Division.

The Investment in Division A for 2008-09 is as under :

	Rs.
Fixed Assets	5,00,000
Current Assets	3,00,000
Debtors	2,00,000

The annual fixed costs of the Division A for 2008-09 has been estimated at Rs. 8,00,000 and variable cost per unit of product will be Rs. 10/-. The estimated Production for the year will be 4,00,000 units. The desired ROI for the Division is 28%.

Determine the transfer price for Division A. [Ref: Q6. (b) Dec. '08 / Paper-9]

- Q2. Division Z is a profit centre, which produces four products A, B, C and D. Each product is sold in the external market also. Data for the period are as follows :

	A	B	C	D
Market price per unit (Rs.)	150	146	140	130
Variable cost of production per unit (Rs.)	130	100	90	85
Labour hours required per unit	3	4	2	3
Maximum external sales units	2800	2500	2300	1600

Product D can be transferred to Division Y, but the maximum quantity that might be required for transfer is 2,500 units of D.

Division Y can purchase the same product at a slightly cheaper rate (price) of Rs. 125 per unit instead of receiving transfers of Product D from Division Z.

What should be the transfer price for each unit for 2,500 units of D, if the total labour hours available in Division Z are :

(i) 20,000 hours?

(ii) 30,000 hours?

[Ref : Q5. (b) Dec. '07 / Paper-9]

- Q3. A company fixes the inter-divisional transfer prices for its products on the basis of cost plus an estimated return on investment in its divisions. The relevant portion of the budget for the Division A for the year 2006-07 is given below :

Fixed assets	Rs. 5,00,000
Current assets (other than debtors)	3,00,000
Debtors	2,00,000
Annual fixed cost of the division	8,00,000
Variable cost per unit of product	10
Budgeted volume of production per year (units)	4,00,000
Desired return on investment	28%

You are required to determine the transfer price for the Division A.

[Ref : Q5. (b) June '06 / Paper-9]

Q4. The Balance Sheet of BXT Ltd. as on 31st March, 2005 was as follows :

	Rs./Lakh		Rs./Lakh
Share Capital		Fixed Assets	
Equity shares of Rs. 10 each, fully paid	20.00	Land and buildings	15.50
Reserves and surplus :		Plant and machinery	9.00
General Reserve	7.00	Investments	
Securities premium	5.00	Corporate securites	4.00
Profit and loss account	8.00	Current assets	
Secured loan		Stock	7.00
10% debentures	6.00	Debtors	10.00
Unsecured loan		Cash and Bank	12.00
Term loan	4.00		
Current liabilities and provision			
Trade creditors	5.00		
Accruals	2.50		
	<u>57.50</u>		<u>57.50</u>

The company has decided to buy back the maximum number of equity shares per missible under the law and has completed the necessary formalities in this respect. The buy back is to take place at a price of Rs. 20 par share.

Pass the necessary journal entries and prepare the post buy back Balance Sheet.

[Ref : Q3. (b) Dec. '05 / Paper-9]

Q5. NOVELTY LTD has two divisions — division DA and division DB. Division DA is currently operating at full capacity. It has been asked to supply its product to division DB. Division DA sells its product to its regular customers for Rs. 60 each. Division DB, currently operating at 50 per cent capacity, is willing to pay Rs. 40 each for the component produced by Divison DA (this represents the full absorption cost per component at division DA). The components will be used by division DB in supplementing its main product to conform to the need of special order. As per the contract terms of sale, the buyer calls for reimbursement of full cost to division DB, plus 10 per cent.

Division DA has a variable cost of Rs. 34 per component. The cost per unit of division DB subsequent to the buying part from division DA is estimated as follows :

	Rs.
Purchased parts — outside vendors	180
Purchased component from division DA	40
Other variable costs	100
Fixed overheads including administration	80
	<u>400</u>

The company uses return on investment (ROI) in the measurement of divisional and Division managers performance.

Required :

- (i) As Manager of division DA would you recommend sales of your product to division DB at the stipulated of Rs. 40?
- (ii) Would it be in the overall interest of the company for division DA to sell its product to division DB?
- (iii) Suggest an alternative transfer price and show how could it lead to goal congruence.

[Ref : Q3. (b) June '05 / Paper-9]

- Q6. (a) Royal Industries Ltd. has two divisions-M and N. Division-M manufactures product A-15 which it sells in outside market as well as to Division-N which processes it to manufacture Z-25. The Manager of Division-N has expressed the opinion that transfer price is too high. The two Divisional Managers are about to enter into discussions to resolve the conflict, and Manager of Division-M to supply him with some information prior to discussions.

Division-M has been selling 50,000 units to outsiders and 10,000 units to Division-N, all at Rs. 25 per unit. It is not anticipated that these demand will change. The variable cost is Rs. 15 per unit and the fixed costs are Rs. 3 lakhs. Divisional investment in assets is Rs. 12 lakhs.

The Manager of Division-M anticipates that Division-N will want a transfer price of Rs. 22. If he does not sell to Division-N, Rs. 40,000 of fixed costs and Rs. 2,00,000 of assets can be avoided. The Manager of Division-M would have no control over the proceeds from the sale of the assets and is judged primarily on his rate of return.

Required :

- (i) Should the Manager of Division-M transfer its products at Rs. 22 to Division N?
 - (ii) What is the lowest price that the Division-M should accept?
- (b) Why do transfer pricing systems exist? What are the criteria to be considered in assessing a system of transfer pricing?

[Ref : Q5. (a), (b) June '04 / Paper-9]

BUDGETING**Descriptive Questions :**

- Q1. Write short notes on :
Flexible Budget [Ref: Q8. (c) Dec. '08 / Paper-5]
- Q2. Write short notes on :
Flexible Budgeting [Ref: Q8. (c) Dec. '08 / Paper-5]
- Q3. Write short notes on :
Flexible Budget [Ref: Q8. (c) June '07 / Paper-5]
- Q4. Write short notes on :
Fixed budget and Flexible budget. [Ref: Q2. (a) Dec. '06 / Paper-5]
- Q5. Budgetary control is defined as 'the establishment of budgets relating the responsibilities of the executives to the requirements of a policy and the continuous comparison of actual with budgeted results either to secure by individual action the objective of that policy or to provide a base for its revision". Budgetary Control will involve.
- (a) establishment of budgets for each function relating to the responsibility of individual executives.
 - (b) determining the responsibilities of executives regarding specific tasks to be performed and responsibilities to be discharged.
 - (c) determining the business plan
 - (d) Comparison of actuals with budgets
 - (e) revision of policy and bridging the gaps.

The objectives of the budgetary control may be listed under three heads namely planning, coordination and control. These are :

- (a) Planning
 - (i) to determine overall aims of the business and determining departmental targets of performance.
 - (ii) To assess the problems that would make it difficult to achieve the targets
- (b) Co-ordination
 - Proper balancing of all factors and co-ordinating efforts put together by various departments to reach the goal.
- (c) Control
 - (i) laying down the responsibilities of each individual executives and to introduce Management by objectives (MBO)
 - (ii) Providing basis for comparison of actual performance with predetermined targets and to investigate the deviations. This also involves taking corrective actions so that the plan targets could be achieved. [Ref: Q8. (b) Dec. '06 / Paper-5]

- Q6. (a) Define “flexible budget” and explain its importance as a budgeting technique and tool of control.
 (b) BMS Ltd. has prepared annual budget for the year ending 31.03.07 on the basis of 60%
 [Ref: Q3. (a), (b) June '06 / Paper-5]
- Q7. Briefly distinguish between the two cost control techniques ‘Budgetary Control’ and ‘Standard Costing’.
 [Ref: Q7. (a) Dec. '05 / Paper-5]
- Q8. Flexible budgeting.
 [Ref: Q8. (d) Dec. '05 / Paper-5]
- Q9. (a) Explain what is a Flexible Budget and state how this budget is useful to management.
 (b) What is known as the Principal Budget Factor? [Ref: Q5. (a), (b) Dec. '05 / Paper-9]
- Q10. (a) What do you understand by Budget Manual?
 (b) What are the role of Budget Committee? [Ref: Q2. (a), (b) June '05 / Paper-9]
- Q11. Flexible budget.
 [Ref: Q8. (e) June '04 / Paper-9]
- Q12. Zero base Budgeting.
 [Ref: Q8. (e) Dec. '07 / Paper-5]
- Q13. Zero-Base Budgeting as an approach towards productivity improvement.
 [Ref: Q8. (b) Dec. '08 / Paper-9]
- Q14. Zero Based Budgeting.
 [Ref: Q8. (b) Dec. '05 / Paper-9]

Practical Questions :

- Q1. The operational hours for the direct labour for 3 different products manufactured in a factory, in three different operations are :

Operations	Time taken (minutes) for the products		
	A	B	C
1	18	42	30
2	—	12	24
3	9	6	—

The factory works all days in a week except Sundays and for 8 hours per day. A budget quarter is 13 weeks and hours lost due to leave and holidays are estimated to be 124 hours.

The hourly rate for labour is budgeted to be Rs. 20, Rs. 25 and Rs. 30 respectively for the three operations.

The sales for the period is estimated to be :

Product A	9000 units
Product B	15000 units
Product C	12000 units

Opening stock of Product B was 5000 units and of Product C 4000 units at the beginning of the quarter under analysis. Further it is planned to keep a closing stock at the end of that quarter, for Product A 1000 units and for Product C 2000 units.

You are required to prepare a Labour Budget for the quarter showing :

- (i) Labour hours for operations 1, 2 and 3.
- (ii) Labour cost for each operation.
- (iii) Labour requirement.

[Ref: Q3. Dec. '08 / Paper-9]

Q2. Prepare Budget for 70% capacity the following cost data at 40% capacity :

Direct material cost	Rs. 20 lacs
Administrative overheads	Rs. 8 lacs
Direct HR cost	Rs. 30 lacs
Factory overheads	Rs. 24 lacs
Selling overheads	Rs. 14 lacs
Sales	Rs. 120 lacs

Material cost gets reduced by 20% at 70% capacity utilization. Factory overheads are 50% fixed, Administrative overheads 60% are fixed and selling overheads 40% are fixed. 70% capacity production could be sold only if there is a reduction of 10% in sales price.

[Ref: Q4. (a) Dec. '08 / Paper-9]

Q3. A manufacturing company, currently marketing 15,000 units of a product @ Rs. 120 per unit indicates the following cost structure :

Variable Cost :	Material	—	Rs. 56 per unit
	Labour	—	Rs. 10 per unit
	Expenses	—	Rs. 6 per unit
Fixed Cost			Rs. 1,80,000

Next year's budget has been based on Material Price increased by 6%, labour cost increase by 8% due to new wage-settlement and variable expenses increase by 3%. Fixed expenses are expected to go up by 5%.

You are required to present before the management for decision :

- (a) a statement showing the changes in the cost and profit in the next year's budget;
- (b) the new selling price, if the current profit volume ratio is to be maintained; and
- (c) the quantity to be sold during next year to achieve the same quantum of profit without price increase.

[Ref: Q5. (a) Dec. '07 / Paper-5]

- Q4. MODERN MANUFACTURERS LTD. manufactured and sold two products during the year 2006-07 as per particulars given below :

Quantity	Product A 6,00,000 Rs./Unit	Product B 3,00,000 Rs./Unit
Selling Price	6.00	10.00
Direct Materials	1.00	2.00
Direct Wages	1.20	2.60
Other Overheads (50% variable)	1.00	0.60

Variable factory overheads are absorbed as 50% of Direct Wages.

The summarized statement of profitability for the year ending March, 31, 2007 is as under :

	Rs. in Lakhs
Sales	66.00
Direct Materials	12.00
Direct Wages	15.00
Factory Overheads	13.50 (of this Rs. 6 lakhs is fixed)
Other Overheads (50% fixed)	7.80

For the year 2007-08 due to fall in demand, the production and sales of Product A will be reduced by 20% and Product B by 40%. It is therefore decided to introduce a new Product M, the cost particulars for the same are as under :

Production and Sales	2,00,000 Units
Selling Price	Rs. 7.00 pr unit
Direct Materials	Rs. 1.40 per unit
Direct Wages	Rs. 2.40 per unit
Other Variable Overheads	Same as in Product A

The fixed overheads will remain the same and the variable overheads will continue to be incurred at the same rate as in 2006-07.

Requirements :

- Prepare a productwise and overall budget for the year 2007-08
 - State what conclusions can be drawn from the budget for 2007-08 by using marginal costing technique.
- [Ref: Q4. (a) Dec. '07 / Paper-9]

- Q5. GADGETS LTD. which makes and sells only one product, sold 1,20,000 units incurring a loss of Rs. 1,20,000. The variable cost per unit of the product is Rs. 8 and the fixed costs are Rs. 3,60,000.

The company has estimated its sales demands as under :

Sales Unit	Probability
1,20,000	0.10
1,44,000	0.15
1,68,000	0.20
1,92,000	0.30
2,16,000	0.25

Requirements :

- What is the probability that the company will continue to make losses?
- What is the probability that the company will make a profit of at least Rs. 72,000?

[Ref : Q4. (b) Dec. '07 / Paper-9]

- Q6. A company manufactures two products X and Y. A forecast of unit to be sold in the first four months of the year is given below :

Months	Product X	Product Y
January	1000	2800
February	1200	2800
March	1600	2400
April	2000	2000
May	2400	1600

Other information are as follows :

Cost per unit (Rs.)	Product X	Product Y
Direct Material	12.50	19.00
Direct Labour	4.50	7.00
Factory overhead per unit	3.00	4.00

There will be no opening and closing work-in-progress (WP) at the end of any month and finished product (in units) equal to half of the budgeted sale of the next month should be in stock at the end of each month (including previous year December).

You are required to prepare :

- Production budget for January to April and
- Summarized production cost budget [Ref : Q6. (b) Dec. '06 / Paper-9]

- Q7. Write short notes :

- Master Budget

[Ref : Q8. (ii) Dec. '06 / Paper-9]

Q8. Write short notes

Principal Budget factor

Particulars	Amount (Rs. in lakh)
I. Sales	150.00
II. Direct Materials	36.50
Direct Labour	22.82
Direct Expenses	8.68
III. Semi-Variable Expenses :	
Repairs & Maintenance	5.30
Indirect Labour	7.70
Supervision	6.00
Heating & Lighting	3.00
IV. Fixed Expenses :	
Salaries — Managerial	9.50
Rent, Rates & Taxes	6.60
Depreciation	7.40
Audit Fees	6.50
V. Total Cost of Sales	120.00
VI. Budgeted Profit	30.00

Construct a Flexible Budget for 50%, 75% and 90% capacity utilization, showing (a) variable & semi-Variable Cost (b) cost of Sales and (c) Profit — with the help of the following assumptions :

(i) Semi-variable expenses remain constant between 45% and 64% capacity, increasing by

[Ref : Q8. (b) June '06 / Paper-5]

Q9. Based on the following information, prepare a Cash Budget for ABC Ltd :

	1st Quarter (Rs.)	2nd Quarter (Rs.)	3rd Quarter (Rs.)	4th Quarter (Rs.)
Opening cash balance	10,000	—	—	—
Collection from customers	1,25,000	1,50,000	1,60,000	2,21,000
<i>Payments :</i>				
Purchase of material	20,000	35,000	35,000	17,000
Other expenses	25,000	20,000	20,000	17,000
Salary and wages	90,000	95,000	95,000	1,09,200
Income tax	5,000	—	—	—
Purchase of machinery	—	—	—	20,000

The company desires to maintain a cash balance of Rs. 15,000 at the end of each quarter. Cash can be borrowed or repaid in multiple of Rs. 500 at an interest of 10% per annum. Management does not want to borrow cash more than what is necessary and wants to repay as early as possible. In any event, loans cannot be extended beyond four quarters. Interest is computed and paid when the principal is repaid. Assume that borrowings take place at the beginning and repayments are made at the end of the quarters. [Ref: Q6. June '06 / Paper-9]

Q10. Brilliant Ltd. is engaged in production of certain products, 100% capacity being 10000 units per month. Given below are the information for the just concluded previous two months :

	Month 1	Month 2
Unit Produced	6000	9000
Costs (other than direct material and labour)		
	Rs.	Rs.
Salaries	3000	30000
Power	30000	39000
Consumable Stores	30000	45000
Repair	40000	46000
Indirect Shop Labour	15000	22500
Depreciation	25000	25000
Inspection	10000	13000

Rate of production per hour is 10 units. Direct material costs are Rs. 20 per unit and direct labour hour costs per hour are Rs. 80. You are required to compute cost of production segregating fixed, semi-variable and variable costs separately at 100%, 80% and 50% capacity utilization levels respectively. Also workout the overhead absorption rate per hour at 100% capacity utilization level. (Show your workings as part of the answer.) [Ref: Q5. (c) Dec. '05 / Paper-9]

Q11. Based on the data given below show the calculation of

- Efficiency ratio;
- Production volume ratio;
- Idle capacity ratio;

Data	Standard hour of output	Hours of actual operations
Theoretical capacity	100	100
Theoretical capacity less unavavoidable loss time	95	95
Planned activity for period	81	90
Actual activity for period	68	85

[Ref: Q2. (c) June '05 / Paper-9]

Q12. A company manufactures two products X and Y. A forecast of unit to be sold in the first 4 months of the year is given below :

Months	Product X	Product Y
January	1000	2800
February	1200	2800
March	1600	2400
April	2000	2000
May	2400	1600

Other information are as follows :

Cost per unit (Rs.)	Product X	Product Y
Direct Material	12.50	19.00
Direct Labour	4.50	7.00
Factory overhead per unit	3.00	4.00

There will be no opening and closing work-in-progress (WP) at the end of any month and finished product (in units) equal to half of the budgeted sale of the next month should be in stock at the end of each month (including previous year December).

You are required to prepare :

(a) Production budget for January to April, and

(b) Summarized Production Cost Budget.

[Ref: Q6. (a) Dec. '04 / Paper-9]

Q13. The cost of an article at a capacity level of 5,000 units is given in the table below under column A. For a variation of 25% in capacity above or below this level, the individual expenses vary, as indicated in column B.

	A (Rs.)		B (Rs.)
Material Cost	25,000	100%	variable
Labour Cost	15,000	100%	variable
Power	1,250	80%	semi-variable
Repairs and maintenance	2,000	75%	semi-variable
Stores	1,000	100%	variable
Inspection	500	20%	semi-variable
Administrative overheads	5,000	25%	semi-variable
Selling overheads	3,000	50%	semi-variable
Depreciation	10,000	100%	fixed
Total	62,750		
Cost per unit	12.55		

You are required to prepare the production cost Budget (flexible) at 4000 units and 6000 units.

[Ref: Q6. (b) Dec. '04 / Paper-9]

Q14. The following information relating to the third and last quarter of 2003-04 are frunished by a company which manufactures and sells a single product :

		Third quarter (Actual)	Last quarter (Estimate)
Sales		Rs. 6,24,000	Rs. 6,60,00
Inventory of raw materials and finished goods :			
	Opening balance	Closing balance	Closing balance
Raw material 'A' (kg)	25,000	23,500	25,000
Raw material 'B' (kg)	12,650	13,400	15,000
Finished goods (units)	670	700	1,000
Unit cost data :			
Raw material 'A'		: 10 kg @ Rs. 3	= Rs. 30
Raw material 'B'		: 5 kg @ Rs. 2	= Rs. 10
Direct labour (Machine time 5 hrs. @ Rs. 4)		: Machine shope	= Rs. 20
Assembly 2 hrs. @ Rs. 5 (labour time)			= Rs. 10

Production overheads :

Machine shop @ Rs. 12 per machine hr.

Assembly @ Rs. 10 per labour hr.

Selling and Administration O.H. : 20% of production cost

Profit margin : 10% on selling price

Production and sales occur evenly during the budget period.

Your are required to prepare for the last quarter of the year

- Production budger (in unit)
- Purchase budget (quantity and value)
- Production cost budget.

[Ref : Q4. June '04 / Paper-5]

Q15. (a) What is performance budgeting? What are the stages involved in performance budgeting?

- SVT Ltd., a manufacturing company, having a capacity of 6 lakh units has prepared the following cost sheet :

	Per unit	
	Rs.	
Direct material	25	
Direct wages	10	
Factory and Adm. overheads	20	(50% fixed)
Selling and Adm. overheads	15	(one-third variable)
Selling price	90	

During the year 2003 the sales volume achieved by the company was 5 lakh units. The company has launched an expansion programme, the details of which are as under :

- (i) The capacity will be increased to 10 lakh units.
- (ii) The additional fixed overheads will amount to Rs. 40 lakhs up to 8 lakh units and will increase by Rs. 20 lakhs more beyond 8 lakh units.
- (iii) The cost of investment on expansion is Rs. 80 lakhs, which is proposed to be financed through bank borrowings carrying interest at 15% per annum.
- (iv) The average depreciation rate on the new investment is 10% based on straight line method.

After the expansion is put through, the company has two alternatives for operating expanded plant as under :

- (1) Sales can be increased up to 8 lakh units by spending Rs. 10,00,000 on special advertisement campaign to explore new market ; or
- (2) Sales can be increased to 10 lakh units subject to the following :
 - (i) By an overall reduction of Rs. 10 per unit on all the units sold,
 - (ii) By increasing the variable selling and distribution expenses by 5%,
 - (iii) The direct material costs would go down by 1% due to discount on bulk buying.

Required :

- (i) Prepare a flexible budget at the level of 5 lakh, 8 lakh and 10 lakh units of production.
- (ii) Calculate the Break-Even Point (BEP) before and after expansion.
- (iii) Advise which level of output should be chosen for expansion.

Q8. (b) Planning Programme Budgeting System (PPBS)

[Ref: Q6. (b) Dec. '04 / Paper-9]

STANDARD COSTING

Descriptive Questions :

Q1. Match each expression under column I with column II :

Column I	Column II
(i) Labour efficiency variance	(a) Absorbed overhead
(ii) Standard sales	(b) Material price variance
(iii) Recovered overhead	(c) Aggregate of the expenditure variance and volume variance
(iv) Fixed overhead cost variance	(d) Difference between standard hours for actual output and actual hours
(v) Purchase department is responsible for	(e) Budgeted sales

[Ref: Q1. (b) Dec. '08 / Paper-9]

Q2. Standard Costing.

[Ref: Q8. (b) Dec. '08 / Paper-9]

Q3. Distinguish between Standard Costing and Budgetary Control.

[Ref: Q6. (a) Dec. '06 / Paper-9]

Q4. Write short notes on any four of the following :

(a) Variance analysis

[Ref: Q8. (iii) Dec. '06 / Paper-9]

Q5. Write short notes on the following (any four) :

(a) Responsibility Accounting

[Ref: Q8. (ii) June '06 / Paper-9]

Q6. How are variances disposed of ?

[Ref: Q7. (b) June '04 / Paper-9]

Q7. "All variances should not be investigated", – Do you agree with this statement? What are the reasons for the occurrence of variances and which variances should be investigated?

[Ref: Q6. (a) Dec. '07 / Paper-9]

Practical Questions :

Q1. ASKASH LTD. operates a system of standard costing. The company manufactures a certain insecticide by mixing four chemical A, B, C and D (filter) and processing the same. The standard cost data for the product is as follows :

Material	Quantity (Standard proportion) (kgs.)	Standard Price per kg Rs.
A	5	200
B	20	50
C	25	20
D (filter)	50	7
Total Input	100	
Loss in processing	5	
Output	95	

During November 2008, 18500 kgs. of insecticide was produced incurring actual cost as follows :

Material	Quantity (kg)	Rs.
A	1010	2,10,000
B	4200	2,05,00
C	4800	1,00,000
D (Filter)	10200	68,000

You are required to calculate the following variances duly reconciling them :

- Material Cost Variance;
- Material Price Variance;
- Material Mix Variance;
- Material Yield Variance;
- Material Usage Variance.

[Ref: Q5. Dec. '08 / Paper-9]

Q2. Division –I of Hindustan Machineries Limited manufactures three standard parts other than the custom made products. Historical data on sales and cost of the division relating to the standard parts No. MUVS-lpi, UVS-X10, MSL-130 for the month of March 2008 are as follows :

	MUVS-lpi (Rs.)	UVS-X10 (Rs.)	MSL-130 (Rs.)	Total (Rs.)
Sales	1,00,000	60,000	40,000	2,00,000
Variable Costs	80,000	42,000	24,000	1,46,000

Apportioned fixed cost per month for the Division is Rs. 27,000.

You are required to calculate PV Ratio, BEP and Variable Cost to Sales.

Also calculate the impact on Profit and BEP if the sale of MUVS-lpi is dropped by Rs. 40,000 and that for products UVS-X10 and MSL-130 increased by Rs. 20,000 each. [Ref: Q3. (b) June '08 / Paper-9]

Q3. Shree Balaji Textiles Limited follows standard costing system. The standard output for a month is 20,000 units and standard cost and profit/unit are as follows :

	Rs.
Direct Material 3 units @ Rs. 1.50	4.50
Direct Labour 3 hours @ Rs. 1.50	3.00
Direct Expense	0.50
Variable Overheads (Factory)	0.25
Fixed Overheads (Factory)	0.30
Administrative Overheads	<u>0.30</u>
Total Cost	8.85
Profit	<u>1.15</u>
Selling Price	<u>10.00</u>

The actual production and sales for the period was 14400 units. There has been no price revision by the government during the period.

The following variances are worked out at the end of the period :

		(Figures in Rs.)
	Favourable	Adverse
<i>Direct Material</i>		
Price	—	4250
Usage	1050	
<i>Direct Labour</i>		
Rate		4000
Efficiency	3200	
<i>Factory Overheads</i>		
Variable Expenditure	400	
Fixed Expenditure	400	
Fixed Volume		1680
<i>Administrative Overheads</i>		
Expenditure		400
Volume		1680

You are required to reconcile the actual profit with the standard profit.

[Ref: Q6. (b) June '08 / Paper-9]

- Q4. ABC Enterprise has normal monthly machine-hour capacity of 100 machines working 8 hours per day for 25 working days in a month. The standard time required to manufacture one unit of the product is 4 hours. The budgeted fixed overhead is Rs. 1,50,000.

In a month just concluded, the company worked for 24 days for average 750 machine-hours per day. The production was 4500 units. The actual fixed overhead was Rs. 1,60,000.

You are required to compute.

- (a) Efficiency variance
- (b) Capacity variance
- (c) Calender variance
- (d) Expenses variance
- (e) Volume variance
- (f) Total fixed overhead variance

[Ref: Q3. (b) Dec. '07 / Paper-5]

Q5. A company is manufacturing a chemical product making use of 4 different types of raw materials as follows :

Raw material input (%)	Share of total (Rs./kg)	Cost of raw materials
A	40	50
B	30	80
C	20	90
D	10	100

There is an inevitable normal loss of 10% during the processing.

For April 2007, the management furnished the following information :

Raw material consumed	Quantity Consumed (kg.)	Cost of material (Rs./kg)
A	42,000	48
B	31,000	80
C	18,000	92
D	9,000	110

Output obtained for the month was 92,000 kg.

Calculate :

- (a) Material cost variance,
- (b) Material price variance,
- (c) Material mix variance,
- (d) Material yield variance,
- (e) Material usage variance.

[Ref: Q6. Dec. '07 / Paper-5]

Q6. Futura Ltd., a manufacturing company, having a capacity of 7 lakh units has prepared the following cost sheet :

	(Per Unit) Rs.
Direct Material	: 30
Direct Wages	: 12
Factory Overheads	: 30 (50% Variable)
Selling and Administration Overheads	: 18 (Two-third Fixed)
Selling Price	: 120

During the year 2006-07 the Sales Volume achieved by the company was 6 lakh units. The company has launched an expansion programme, the details of which are as under :

- (i) The capacity will be increased to 12 lakh units.

- (ii) The additional fixed overheads will amount to Rs. 50 lakhs upto 10 lakh units and will increased by Rs. 25 lakh more beyond 10 lakh units.
- (iii) The cost of investment of expansion is Rs. 100 lakhs which is proposed to be financed through Bank borrowings carrying interest at 15% per annum.
- (iv) The average depreciation rate on the new investment is 15% based on straight line method.

After the expansion is put through, the company has two alternatives for operations :

- (i) Sales can be increased up to 10 lakh units by spending Rs. 10,00,000 on special advertisement campaign to explore new market.

Or

- (ii) Sales can be increased to 12 lakh units subject to the following :
 - By an overall reduction reduction Rs. 10 per unit on all the units sold
 - By increasing the variable selling and administration expenses by 8%
 - The direct material costs would go down by 1.5% due to discount on bulk purchasing.

Requirements :

- (i) Construct a Flexible Budget at the level of 6 lakhs, 10 lakhs and 12 lakhs unit of production.
- (ii) Calculate Break Even Point before and after expansion.
- (iii) Advise the optimum level of output for expansion. [Ref : Q4. (b) June '07 / Paper-9]

Q7. A building can be constructed by engaging a gang of workers as per details given below, for 100 working days of eight hours each.

Standard data :

	Skilled	Semi-skilled	Unskilled
No. of workers in the gang	6	8	6
Standard rate of wages/hr.	Rs.25	Rs. 20	Rs. 16

Actual completion of the work however took 104-days of eight hours each. This includes 16 hours of stoppages due to heavy rains. The actual number of workers engaged and the actual rates paid are given below :

	Skilled	Semi-skilled	Unskilled
Number engaged	8	6	6
Actual rate/hr.	Rs. 30	Rs. 24	Rs. 16

Calculation the following variances :

- (a) Labour cost variances
- (b) Labour rate variance
- (c) Labour efficiency variance
- (d) Labour mix variance
- (e) Idle time variance

[Ref : Q6. Dec. '06 / Paper-5]

Q8. Based on the data given below show the calculation of :

- (i) Efficiency ratio;
- (ii) Production volume ratio;
- (iii) Idle capacity ratio.

Data	Standard Hour of Output	Hours of Actual Operations
Theoretical capacity	100	100
Theoretical capacity less		
Unavoidable loss time	95	95
Planned activity for period	81	90
Actual activity for period	68	85

(b) The following cost data are available for the year 2005 :

Budgeted	Actual
Fixed overhead	96,000 (yearly) 8,500 (monthly)
Working days	300 (yearly) —
Production (units)	24,000 (yearly) 2,100 (monthly)
Working hours in a day	8 —
Idle time (hrs.)	— 4

Find out idle time variance.

[Ref: Q7. (a) Dec. '06 / Paper-9]

Q9. (a) What is Sales Value Volume Variance?

(b) The Summarised budget and Actual working results of GEMCO LTD. for the year 2005-06 are given below :

Details	Budget			Actual		
	Products			Products		
	A Rs.	B Rs.	C Rs.	A Rs.	B Rs.	C Rs.
Selling Price per Unit	12	16	25	13	16	27
Cost per Unit	9	11	20	10	12	21
Sales (Units)	40,000	32,000	24,000	42,000	40,000	22,000

Analyse the results and calculate the following :

- (i) Budgeted profit, actual profit and variance in profit.
- (ii) Analysis of the variance in profit into the following :
 - (1) Price variance
 - (2) Cost variance
 - (3) Sales margin volume variance
 - (4) Sales margin mix variance
 - (5) Sales margin quantity variance

[Ref: Q5. June '06 / Paper-5]

Q10. A factory manufactures a chemical product with three ingredient chemicals A, B and C as per standard data given below :

Chemical	Percentage of total input	Standard Cost per kg. (Rs.)
A	50%	40
B	30%	60
C	20%	95

Note : There is a process loss of 5% during the course of manufacture.

The Management gives the following details for a certain week :

Chemical Consumed	Quantity purchased and issued	Actual Cost (Rs.)
A	5200 kg.	234000
B	3600 kg.	219600
C	1700 kg.	158100

Output of finished product : 10,200 kg.

Calculate all the relevant variances.

[Ref: Q7. (b) Dec. '05 / Paper-5]

Q11. A product is manufactured by mixing and processing three raw materials X, Y and Z as per standard data given below :

Raw material	Percentage of input	Cost per kg.
X	40%	Rs. 40
Y	40%	Rs. 60
Z	20%	Rs. 85

Note : Loss during processing is 5% of input and this has no realizable value.

During a certain period 5,80,000 kg of finished product was obtained from inputs as per details given below :

Raw material	Quantity consumed	Cost/kg
X	240000 kg	Rs. 38
Y	250000 kg	Rs. 59
Z	110000 kg	Rs. 88

Calculate the total material cost variance with details of sub-variances relating to Price, Mix, Yield and Usage.

[Ref: Q6. Dec. '04 / Paper-5]

Q12. A Cost Accountant of a company was given the following information regarding the fixed overheads for March, 2003 :

- (i) Overheads cost variance Rs. 2,800 adverse;
- (ii) Overheads volume variance Rs. 2,000 adverse;

- (iii) Budgeted hours for March, 2003, 2,400 hours;
- (iv) Budgeted overheads for March, 2003, Rs. 12,000;
- (v) Actual rate of recovery of overheads Rs. 16 per hour.

You are required to assist him in computing the following for March, 2003.

- (1) Overhead Expenditure variance;
- (2) Actual overhead incurred;
- (3) Actual hours for actual production;
- (4) Overheads capacity variance;
- (5) Overheads efficiency variance;
- (6) Standard hours for actual production.

[Ref : Q7. (a) Dec. '04 / Paper-9]

Q13. Delta Ltd. has a manufacturing division which makes a product to which the following details relate :

	Per unit (Rs.)
Direct Material : 5 kg. at rs. 20	100
Direct labour : 12 hours at Rs. 20	240
Variable overheads : 12 hours at rs. 10	120

Relevant fixed overheads are based at rs. 1,00,000 per month and planned output is 2,000 units per month. The selling price is Rs. 550 per unit. During a recent month when output was 1,800 units, the following actual cost were incurred :

	Rs.
Direct Materials (8,500 kg)	1,72,000
Direct labour (20,000 hours)	4,20,000
Variable overhead	2,20,000
Fixed overhead	<u>98,000</u>
	9,10,000
Profit	<u>40,000</u>
Sales value	<u>9,50,000</u>

- (i) Calculate the variance which occurred during the month.
 - (ii) Reconcile the actual profit with standard profit, showing the causes of the variances.
- (b) How are variances disposed of ?

[Ref : Q7. (a) June '04 / Paper-9]

Q14. ABC Enterprise has normal monthly machine-hour capacity of 100 machines working 8 hours per day for 25 working days in a month. The standard time required to manufacture one unit of the product is 4 hours. The budgeted fixed overhead is Rs. 1,50,000.

In a month just concluded, the company worked for 24 days for average 750 machine-hours per day. The production was 4500 units. The actual fixed overhead was Rs. 1,60,000.

You are required to compute.

- (a) Efficiency variance
- (b) Capacity variance
- (c) Calender variance
- (d) Expenses variance
- (e) Volume variance
- (f) Total fixed overhead variance

[Ref: Q3. (b) Dec. '07 / Paper-5]

Q15. The following information has been obtained from the records of ZENITH LTD., a manufacturing organization using Standard Costing System :

Budget :

No. of working days	25
Working hours per day	8
No. of direct workers	16

Efficiency : One standard hour per clock hour

Down time	20%
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Overheads :

Fixed	Rs. 30,720
Variable	Rs. 40,960

The actual data for the month of December 2007 are as under :

Fixed overhead cost	Rs. 33,000
Net operating hours worked	1,920
Standard hours produced	2,112

There was a special holiday in December, 2007

Required : Work our the Fixed Overhead Variances.

[Ref: Q6. (a) Dec. '07 / Paper-9]

COSTING & PERFORMANCE MANAGEMENT

Descriptive Questions :

- Q1. Operational and Planning variances. [Ref: Q8. (e) June '08 / Paper-9]
- Q2. Describe the scope and technique of Standard costing and Budgetary control. [Ref: Q3. (a) Dec. '07 / Paper-5]
- Q3. Value Analysis [Ref: Q8. (c) June '08 / Paper-9]
- Q4. Distinction between Cost Control and Cost Reduction [Ref: Q8. (i) Dec. '06 / Paper-9]
- Q5. Value analysis [Ref: Q8. (d) June '06 / Paper-5]
- Q6. Important features of a Performance Measurement system [Ref: Q8. (a) Dec. '05 / Paper-9]
- Q7. Define Residual Income and state its advantages and disadvantages in appraisal of divisional performance. [Ref: Q4. (a) June '05 / Paper-9]
- Q8. Value Engineering. [Ref: Q8. (b) June '05 / Paper-9]
- Q9. "Profitability alone cannot be the sole criteria for measuring the performance of any public undertaking." – Comment on this statement. [Ref: Q3. (a) Dec. '04 / Paper-9]

Practical Questions :

- Q1. Apparel division of ALERT LTD. has employed Rs. 20 lakhs and earned an annual profit (after depreciation) of Rs. 3,50,000. The Divisional Manager is considering an investment of Rs. 80,000 in an asset which will have a eight year life with no residual value and will earn a constant annual profit after depreciation of Rs. 12,800.

The cost of capital is 15 percent. Ignore taxation.

You are required to work out.

- (i) the return on divisional investment and the divisional residual income before and after the new investment.
- (ii) the Net present value (NPV) of the new investment. (PV factor of an annuity of Re. 1 for 8 years at 15% = 4.4873)

Also comment on the results.

[Ref: Q4. (b) June '05 / Paper-9]

- (b) The Pupils' Book Co. has two book selling outlets : Kalidas Book House and Tulsidas Book House. Each store has a manager who has a great deal of decision authority over the individual stores. A central office however, handles advertising, marketing research, acquisition of books, legal services, and other staff functions. The Pupils' Book Co's current accounting system allocates all costs to the stores.

Results for 2002-03 were :

Amount in Rs.

Item	Total Company	Kalidas Book House	Tulsidas Book House
Sales Revenue	7,00,000	3,50,000	3,50,00
Cost of merchandise sold	4,50,000	2,25,000	2,25,00
Gross Margin	2,50,000	1,25,000	1,25,000
Operating Expenses :			
Salaries and wages	63,000	30,000	33,000
Supplies	45,000	22,500	22,500
Rent and Utilities	60,000	40,00	20,000
Depreciation	15,000	7,000	8,000
Allocated staff cost	60,000	30,000	30,000
Total operating expenses	2,43,000	1,29,000	1,13,500
Operating income (Loss)	7,000	(4,500)	11,500

Each bookstore manager makes decisions that affect salaries and wages, supplies and depreciation. In contrast, rent and utilities are beyond the managers' control because the managers did not choose the location or size of the store.

Supplies are variable costs. Variable salaries and wages are equal to 8% of the cost of merchandise sold; the remainder of salaries and wages is a fixed cost. Rent, utilities and depreciation are also fixed costs. Allocated staff costs are unaffected by any events at the bookstores, but they are allocated as a proportion of sales revenue.

Required :

- Using the contribution approach, prepare a Performance report that distinguishes the Performance of each bookstore from that of the bookstore manager.
- Evaluate the performance of each bookstore.
- Evaluate the performance of each manager.

[Ref: Q3. (b) Dec. '04 / Paper-9]

RECENT TREND IN COST & MANAGEMENT ACCOUNTING**Descriptive Questions :**

- Q1. Cost control and Cost reduction. [Ref: Q2. (e) Dec. '06 / Paper-5]
- Q2. Distinction between Cost Control and Cost Reduction. [Ref: Q8. (i) June '06 / Paper-9]
- Q3. (a) Define 'Cost Reduction'. How is it different from 'Cost control'?
- (b) List out the main areas to be examined in a manufacturing organization, for a cost reduction study and very briefly mention the relevant points in each area. [Ref: Q4. (a), (b) Dec. '05 / Paper-5]
- Q4. What is responsibility Centre? Briefly differentiate cost, profit and investment centres identifying the basic characteristics of each. [Ref: Q6. (a) Dec. '05 / Paper-9]
- Q5. Value analysis [Ref: Q8. (d) June '05 / Paper-5]
- Q6. Explain the significance of cost reduction in the present global economy. Mention some important techniques used for cost reduction. Also mention the important areas in a manufacturing company to be subjected to cost reduction drives. [Ref: Q7. June '04 / Paper-5]

UNIFORM COSTING**Descriptive Questions :**

- Q1. Value Analysis [Ref: Q8. (c), June '08 / Paper-9]
- Q2. Uniform costing [Ref: Q8. (e) June '07 / Paper-5]
- Q3. Uniform costing [Ref: Q8. (b) June '04 / Paper-5]