

Sreeram Coaching Point, Chennai Bangalore and Ernakulam
CA - PE-II
Cost Accounting & Financial Management – Suggested Answer - Nov. 2008

Total No. of Questions—9]

[Total No. of Printed Pages—19

Time Allowed—3 Hours

Maximum Marks—100

LMV

Answers to questions are to be given only in English except in the case of candidates who have opted for Hindi medium. If a candidate who has not opted for Hindi medium, answers in Hindi, his answers in Hindi will not be valued.

Question Nos. 1 and 6 are compulsory.

Attempt **three** questions out of remaining Question Nos. 2, 3, 4 and 5 and attempt **two** questions from the remaining question Nos. 7, 8 and 9.

Working notes should form part of the answer.

Marks

1. (a) A product passes through three processes 'X', 'Y' and 'Z'. The output of process 9+2+1
~~'X' and Y is transferred to next process at cost plus 20 percent each on~~ =12
transfer price and the output of process 'Z' is transferred to finished stock at
a profit of 25 percent on transfer price. The following informations are available
in respect of the year ending 31st March, 2008 :

	Process X Rs.	Process Y Rs.	Process Z Rs.	Finished Stock Rs.
Opening stock	15,000	27,000	40,000	45,000
Material	80,000	65,000	50,000	
Wages	1,25,000	1,08,000	92,000	
Manufacturing				
Overheads	96,000	72,000	66,500	
Closing stock	20,000	32,000	39,000	50,000
Inter process profit				
Included in Opening stock	NIL	4,000	10,000	20,000

Stock in processes is valued at prime cost. The finished stock is valued at the price at which it is received from process 'Z'. Sales of the finished stock during the period was Rs. 14,00,000.

You are required to prepare :

- (i) Process accounts and finished stock account showing profit element at each stage.
 - (ii) Profit and Loss account.
 - (iii) Show the relevant items in the Balance sheet.
- (b) What are the limitations of inter-firm comparison system ? 3
- (c) What is cost plus contract ? State its advantages. 3

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Solution to Question No. 1 (a)

Process X A/c							
	Total	Cost	Profit		Total	Cost	Profit
To Opening Stock	15000	15000		By Transfer to Y	370000	296000	74000
To materials	80000	80000					
To Wages	125000	125000					
Prime Cost	220000	220000					
Less: Closing stock	20000	20000					
	200000	200000					
To Mfg O/hs	96000	96000					
Process Cost	296000	296000					
To Profit	74000		74000				
	370000	296000	74000		370000	296000	74000

Process Y A/c							
	Total	Cost	Profit		Total	Cost	Profit
To Opening Stock	27000	23000	4000	By Transfer to Z	762500	536379	226121
To Transfer from X	370000	296000	74000				
To Materials	65000	65000					
To Wages	108000	108000					
Prime Cost	570000	492000	78000				
Less: Closing stock	32000	27621	4379				
	538000	464379	73621				
To Mfg O/hs	72000	72000					
Process Cost	610000	536379	73621				
To Profit	152500		152500				
	762500	536379	226121		762500	536379	226121

Process Z A/c							
	Total	Cost	Profit		Total	Cost	Profit
To Opening Stock	40000	30000	10000	By Transfer to Finished Goods	1296000	745629	550371
To Transfer from Y	762500	536379	226121				
To materials	50000	50000					
To Wages	92000	92000					
Prime Cost	944500	708379	236121				
Less: Closing stock	39000	29250	9750				
	905500	679129	226371				
To Mfg O/hs	66500	66500					
	972000	745629	226371				
To Profit	324000		324000				
	1296000	745629	550371		1296000	745629	550371

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Finished Goods A/c							
	Total	Cost	Profit		Total	Cost	Profit
To Opening Stock	45000	25000	20000	By Cost of sales	1291000	741862	549138
To Transfer from Process Z	1296000	745629	550371				
	1341000	770629	570371				
Less: Closing stock	50000	28767	21233				
	1291000	741862	549138		1291000	741862	549138

Profit & loss A/c							
To Cost of sales	1291000	741862	549138	By Sales	1400000	741862	658138
To Profit	109000	109000					
	1400000	741862	549138		1400000	741862	658138

Balance sheet as on 31.03.08					
Liabilities	Rs	Assets	Rs	Rs	
		Stock			
		WIP	76871		
Profit & loss A/c	658138	Finished Goods	28767	105638	

Solution to Question No. 1 (b)

The following are the limitations in the implementation of a scheme of inter-firm comparison:

- Top management feels that secrecy will be lost.
- Middle management is usually not convinced with the utility of such a comparison.
- In the absence of suitable Cost Accounting System, the figures supplied may not be reliable for the purpose of comparison.
- Suitable basis for comparison may not be available.

Solution to Question No. 1 (c)

Cost plus Contract: Under Cost plus Contract, the contract price is ascertained by adding a percentage of profit to the total cost of the work. Such type of contracts are entered into when it is not possible to estimate the Contract Cost with reasonable accuracy due to unstable condition of material, labour services, etc.

Advantages:

- The Contractor is assured of a fixed percentage of profit. There is no risk of incurring any loss on the contract.
- It is useful especially when the work to be done is not definitely fixed at the time of making the estimate.
- Contractee can ensure himself about 'the cost of the contract', as he is empowered to examine the books and documents of the contractor to ascertain the veracity of the cost of the contract.

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2. (a) A transport company has 20 vehicles, which capacities are as follows : 7+1=8

No. of Vehicles	Capacity per vehicle
5	9 tonne
6	12 tonne
7	15 tonne
2	20 tonne

The company provides the goods transport service between station 'A' to station 'B'. Distance between these stations is 200 kilometres. Each vehicle makes one round trip per day an average. Vehicles are loaded with an average of 90 percent of capacity at the time of departure from station 'A' to station 'B' and at the time of return back loaded with 70 percent of capacity. 10 percent of vehicles are laid up for repairs every day. The following informations are related to the month of October, 2008 :

Salary of Transport Manager	Rs. 30,000
Salary of 30 Drivers	Rs. 4,000 each driver
Wages of 25 Helpers	Rs. 2,000 each helper
Wages of 20 Labourers	Rs. 1,500 each labourer
Consumable stores	Rs. 45,000
Insurance (Annual)	Rs. 24,000
Road Licence (Annual)	Rs. 60,000
Cost of Diesel per litre	Rs. 35
Kilometres run per litre each vehicle	5 Km.
Lubricant, Oil etc.	Rs. 23,500
Cost of replacement of Tyres, Tubes, other parts etc.	Rs. 1,25,000
Garage rent (Annual)	Rs. 90,000
Transport Technical Service Charges	Rs. 10,000
Electricity and Gas charges	Rs. 5,000
Depreciation of vehicles	Rs. 2,00,000

There is a workshop attached to transport department which repairs these vehicles and other vehicles also. 40 percent of transport manager's salary is debited to the workshop. The transport department is charged Rs. 28,000 for the service rendered by the workshop during october, 2008. During the month of October, 2008 operation was 25 days.

You are required :

- (i) Calculate ~~per ton-km~~ operating cost.
 - (ii) Find out the freight to be charged per ton-km, if the company earned a profit of 25 percent on freight.
- (b) Explain the following : 2+2+2=6
- (i) Job costing and batch costing.
 - (ii) Profit centres and investment centres.
 - (iii) Period cost and discretionary costs.

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Solution to Question No. 2 (a)

Operating Cost Statement			
	Rs	Per month	Per ton - km
A STANDING CHARGES			
Depreciation	200000		
Insurance (24000 / 12)	2000		
License (6000 / 12)	5000		
Consumable Stores	45000		
Garage Rent (90000 / 12)	7500		
Workshop Charges	28000		
Electricity	5000		
Transport Technical Service Charges	10000		
Manager's Salary (30000 x 0.6)	18000		
Drivers' Salary (4000 x 30)	120000		
Helpers' Wages (2000 x 25)	50000		
Labourers' Wages (1500 x 20)	<u>30000</u>	520500	0.2759
B OPERATING OR RUNNING CHARGES			
Cost of Diesel (7200x25x35/5)	1260000		
Lubricant & Oil	23500		
Cost of Replacements	<u>125000</u>	1408500	0.7467
C Total Cost		1929000	1.0226
D Profit @ 25% on Freight (33.33% on cost)		643000	0.3409
E Freight		<u>2572000</u>	1.3634

Working Notes:

1. Ton Km per month

Tonnes	No. of Vehicles	Distance Carried	Occupancy	Ton Km
9	5	200	90%	8100
		200	70%	6300
12	6	200	90%	129600
		200	70%	10080
15	7	200	90%	18900
		200	70%	14700
20	2	200	90%	7200
		200	70%	5600
Total	20			83840
% of vehicles available for operation (After deducting vehicles laid off for repairs)				90%
Ton Kms per day				75456
No. of days operated in the month				25
Total Ton Km per month				1886400

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OR

Total capacity Available = $((5 \times 9) + (6 \times 12) + (7 \times 15) + (2 \times 20)) \times 0.9 = 235.8$
 Total Tonnes transported in a day = $(235.8 \times 0.9) + (235.8 \times 0.7) = 377.28$
 Total Tonnes Km per day = $377.28 \times 200 = 75456$
 Total Tonnes Km per month = $75456 \times 25 = 1886400$

2. Cost of Diesel

Distance Travelled	$((20 \times 90\%) \times 200 \times 2 \times 25)$	=	180000
Diesel consumed (in Litres)	$(180000 / 5)$	=	36000
Cost of Diesel per Litre		=	35
Cost of Diesel	(36000×35)	=	1260000

Solution to Question No. 2 (b) (i)

Job Costing: In this case the cost of each job is ascertained separately. It is suitable in all cases where work is undertaken on receiving a customer's order like a printing press, motor workshop, etc. In case a factory produces a certain quantity of a part at a time, say 5,000 rims of bicycle, the cost can be ascertained like that of a job.

Batch Costing: It is the extension of job costing. A batch may represent a number of small orders passed through the factory in batch. Each batch here is treated as a unit of cost and thus separately costed. Here cost per unit is determined by dividing the cost of the batch by the number of units produced in the batch.

Solution to Question No. 2 (b) (ii)

Profit centres and investment centres are two classifications of Responsibility centres.

Profit Centres - Centres which have the responsibility of generating and maximising profits are called Profit Centres.

Investment Centres - Those centres which are concerned with earning an adequate return on investment are called Investment Centres.

Solution to Question No. 2 (b) (iii)

Period costs - These are the costs, which are not assigned to the products but are charged as expenses against the revenue of the period in which they are incurred. All non-manufacturing costs such as general and administrative expenses, selling and distribution expenses are recognized as period costs.

Discretionary costs – Such costs are not tied to a clear cause and effect relationship between inputs and outputs. They usually arise from periodic decisions regarding the maximum outlay to be incurred. Examples include advertising, public relations, executive training etc.

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3. (a) In a manufacturing company factory overheads are charged as fixed percentage basis on direct labour and office overheads are charged on the basis of percentage of factory cost. The following informations are available related to the year ending 31st March, 2008 :

3+3
=6

	Product A	Product B
Direct Materials	Rs. 19,000	Rs. 15,000
Direct Labour	Rs. 15,000	Rs. 25,000
Sales	Rs. 60,000	Rs. 80,000
Profit	25% on cost	25% on sales price

You are required to find out :

- (i) The percentage of factory overheads on direct labour.
(ii) The percentage of office overheads on factory cost.
- (b) The following information is collected from the personnel department of ST limited for the year ending 31st March, 2008 :
- | | |
|---|-------|
| Number of workers at the beginning of the year | 8,000 |
| Number of workers at the end of the year | 9,600 |
| Number of workers left the company during the year | 500 |
| Number of workers discharged during the year | 100 |
| Number of workers replaced due to left and discharges | 700 |
| Additional workers employed for expansion during the year | 1,500 |
- You are required to calculate labour turnover rate by using separation method, replacement method and flux method.
- (c) Discuss briefly the benefits of "Direct Product Profitability". 2
(d) How cost audit is useful to the society ? Discuss. 3

Solution to Question No. 3 (a)

Let % of Factory overheads on Direct Labour be x and that of office overheads on factory cost be y.

	A		B
Direct materials	19000		15000
Direct Labour	15000		25000
Prime Cost	34000		40000
Factory overheads @ x% on Labour	15000x		25000x
Factory Cost	34000 + 15000x	14000	40000 + 25000x
Office Overheads @ y% on Factory Cost	y (34000 + 15000x)	(48000-34000)	y(40000 + 25000x)
Cost Of Sales	48000		60000
Profit (A 20% on profit, B 25% on Cost)	12000		20000
Sales	60000		80000

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Therefore

$$\begin{array}{llll}
 & 15000x + Y (34000 + 15000x) & = & 14000 \\
 & 15000x + 34000y + 15000xy & = & 14000 \\
 (\div) \text{ by } 1000; & 15x + 34y + 15xy & = & 14 \quad \text{I} \\
 & 25000x + y (40000 + 25000x) & = & 20000 \\
 & 25000x + 40000y + 25000xy & = & 20000 \\
 (\div) \text{ by } 1000; & 25x + 40y + 25xy & = & 20 \quad \text{II} \\
 & 15x + 34y + 15xy & = & 14 \quad \text{I} \\
 & 25x + 40y + 25xy & = & 20 \quad \text{II} \\
 (x) \text{ by } 5 \text{ on I;} & 75x + 170y + 75xy & = & 70 \quad \text{III} \\
 (x) \text{ by } 3 \text{ on II;} & 75x + 120y + 75xy & = & 60 \quad \text{IV} \\
 (-) \text{ IV from III;} & 50y & = & 10 \\
 \text{Hence} & y & = & 10/50 \\
 & & = & 20\% \\
 Y = 0.2; & 25x + 40 \times 0.2 + 25x \times 0.2 & = & 20 \\
 & 25x + 8 + 5x & = & 20 \\
 & 30x & = & 20-8 \\
 & x & = & 12/30 \\
 & & = & 40\%
 \end{array}$$

- i. The percentage of Factory overheads on direct labour = x = 40%
- ii. The percentage of Office overheads on Factory cost = y = 20%

Check: The above can be counter checked as below:

	A	B
Direct materials	19000	15000
Direct Labour	15000	25000
Prime Cost	34000	40000
Factory overheads @ 40% on Labour	6000	10000
Factory Cost	40000	50000
Office Overheads @ 20% on Factory Cost	8000	10000
Cost Of Sales	48000	60000
Profit (A 25% on cost, B 33.33% on Cost)	12000	20000
Sales	60000	80000

Solution to Question No 3 (b)

Labour Turnover rate (Replacement method)	=	No. of employees replaced / Avg. No. of employees on roll during the period x100
Labour Turnover rate (Separation method)	=	No. of employees separated / Avg. No. of employees on roll during the period x100
Labour Turnover rate (Flux method I)		(No. of employees replaced + No. of employees separated) / Avg. No. of employees on roll during the period x 100
Labour Turnover rate (Flux method II)	=	(No. of employees replaced + No. of employees separated + No. of new recruitments) / Avg. No. of employees on

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		roll during the period x 100
Avg. No. of employees on roll during the period	=	$(8000 + 9600) / 2 = 8800$
No. of Employees replaced	=	700
No. of employees separated	=	$(500+100) = 600$
No. of new recruitments	=	1500
Labour Turnover rate (Replacement method)	=	$700 / 8800 \times 100 = 7.96$
Labour Turnover rate (Separation method)	=	$600 / 8800 \times 100 = 6.82$
Labour Turnover rate (Flux method I)	=	$(1300 / 8800) \times 100 = 14.77$
Labour Turnover rate (Flux method II)	=	$(2800 / 8800) \times 100 = 31.82$

Note: Workers joining a business concern on account of its expansion do not account for labour turnover. But these newly recruited workers are certainly responsible for a change in the composition of labour force. Due to this feature Some Cost accountants measure labour turnover by including newly recruited workers on account of its expansion.

Solution to Question No 3. (c)

Benefits of Direct Product profitability

- Better Cost analysis.
- Better pricing decisions.
- Better management of stores and warehouse expenses.
- The rationalization of product ranges.

Solution to Question No 3. (d)

Advantages of Cost Audit to Society

Cost audit is often introduced for the purpose of fixation of price. The prices so fixed are based on the correct costing data and so the consumers are saved from exploitation. Since price increase by the industry as not allowed without proper justification so as to increase in cost of production, consumers can maintain their standard of living.

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4. (a) The following are the details of receipts and issues of a material of stores in a manufacturing company for the period of three months ending 30th June, 2008 : 7

Receipts :

Date	Quantity (kgs)	Rate per kg. Rs.
April 10	1,600	5
April 20	2,400	4.90
May 5	1,000	5.10
May 17	1,100	5.20
May 25	800	5.25
June 11	900	5.40
June 24	1,400	5.50

There was 1,500 kgs in stock at April 1, 2008 which was valued at Rs. 4.80 per kg.

Issues :

Date	Quantity (kgs)
April 4	1,100
April 24	1,600
May 10	1,500
May 26	1,700
June 15	1,500
June 21	1,200

Issues are to be priced on the basis of weighted average method. The stock verifier of the company reported a shortage of 80 kgs on 31st May, 2008 and 60 kgs on 30th June, 2008. The shortage is treated as inflating the price of remaining material on account of shortage.

You are required to prepare a Stores Ledger account.

- (b) What are the essential prerequisites of integrated accounting system ? 4
- (c) What do you mean by Idle time ? How would you treat idle time in cost accounting ? 3

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Solution to Question No. 4 (a)

Stores Ledger											
Date	Particulars		Receipts			Issues			Balance		
			Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount
01.04.08	Opening Stock								1,500	4.80	7,200.00
04.04.08	Issue of Materials					1,100	4.80	5,280.00	400	4.80	1,920.00
10.04.08	Receipt of materials		1,600	5.00	8,000.00				2,000	4.96	9,920.00
20.04.08	Receipt of materials		2,400	4.90	11,760.00				4,400	4.93	21,680.00
24.04.08	Issue of Materials					1,600	4.93	7,883.64	2,800	4.93	13,796.36
05.05.08	Receipt of materials		1,000	5.10	5,100.00				3,800	4.97	18,896.36
10.05.08	Issue of Materials					1,500	4.97	7,459.09	2,300	4.97	11,437.27

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Solution to Question No 4 (b)

Prerequisites of Integrated Accounting System

The management's decision about the extent of integration of the two sets of books. Some concerns integrate upto the stage of primary cost or factory cost while others prefer full integration of the entire accounting records.

A suitable coding system must be made available so as to serve the accounting purpose of financial and cost accounts.

An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for the preparation of interim accounts.

Perfect coordination between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.

Solution to Question No 4 (c)

Idle Time

It is a time during which no production is carried out because the worker remains idle even though they are paid. Idle time can be normal idle or abnormal idle time.

Normal idle time: It is inherent in any work situation and cannot be eliminated.

Abnormal idle time: Apart from normal idle time, there may be factors which give rise to abnormal idle time.

Treatment of idle time in Cost Accounting: Normal idle time is treated as a part of the cost of production. Thus, in the case of direct workers an allowance for normal idle time is built into the labour cost rates. In the case of indirect workers, normal idle time is spread over all the products or jobs through the process of absorption of factory overheads.

Abnormal idle time cost is not included as a part of production cost and is shown as a separate item in the Costing Profit and Loss Account so that normal costs are not disturbed. The cost of abnormal idle time should be further categorized into controllable and uncontrollable. For each category, the break-up of cost due to various factors should be separately shown.

5. (a) **Maximum production capacity of JK Ltd. is 5,20,000 units per annum. Details of estimated cost of production are as follows :** 8
- **Direct material Rs. 15 per unit.**
 - **Direct wages Rs. 9 per unit (subject to a minimum of Rs. 2,50,000 per month).**
 - **Fixed overheads Rs. 9,60,000 per annum.**
 - **Variable overheads Rs. 8 per unit.**

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- Semi-variable overheads are Rs. 5,60,000 per annum up to 50 percent capacity and additional Rs. 1,50,000 per annum for every 25 percent increase in capacity or a part of it.

JK Ltd. worked at 60 percent capacity for the first three months during the year 2008, but it is expected to work at 90 percent capacity for the remaining nine months.

The selling price per unit was Rs. 44 during the first three months.

You are required, what selling price per unit should be fixed for the remaining nine months to yield a total profit of Rs. 15,62,500 for the whole year.

- (b) Calculate machine hour rate for recovery of overheads for a machine from the following information : 6

Cost of machine is Rs. 25,00,000 and estimated salvage value is Rs. 1,00,000. Estimated working life of the machine is 10 years. Annual working hours are 3,000 in the factory. The machine is required 400 hours per annum for repairs and maintenance. Setting-up time of the machine is 156 hours per annum to be treated as productive time. Cost of repairs and maintenance for whole working life of the machine is Rs. 3,50,000. Power used 15 units per hour at a cost of Rs. 5 per unit. No power is consumed during maintenance and setting-up time. A chemical required for operating the machine is Rs. 9,880 per annum. Wages of an operator is Rs. 4,000 per month. The operator, devoted one-third of his time to the machine. Annual insurance charges 2 percent of cost of machine.

Light charges for the department is Rs. 2,500 per month, having 48 points in all, out of which only 8 points are used at this machine. Other indirect expenses are chargeable to the machine are Rs. 6,500 per month.

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Solution to Question No. 5 (a)

	For Ist 3 months		For Last 9 months		For the Whole Year
	p. u.	Amount	p. u.	Amount	Amount
Direct Material	15	1170000	15	5265000	6435000
Direct Wages (W.N.2)	9	750000	9	3159000	3909000
Fixed Overheads	-	240000	-	720000	960000
Variable Overheads	8	624000	8	2808000	3432000
Semi Variable Overheads (W.N.3)		177500		645000	922500
		2961500		12597000	15558500
Profit		470500		1092000	1562500
Sales	44	3432000	39	13689000	17121000

Selling Price should be fixed at Rs 39 for the remaining 9 months to achieve the profit of Rs 1562500 for the year.

Working Notes:

- Calculation Of Units Produced

		3 months	9 months	12 Months
Units Produced	=	78000	351000	429000
	=	(520000 x 60% x 3/12)	(520000 x 90% x 9/12)	
- Direct Wages

I	=	250000 p.m. or Actual on production (Highest)		
	=	750000	2250000	
		(250000 x 3)	(250000 x 9)	
		OR	OR	
II	=	702000	3159000	
		(78000 x 9)	(351000 x 9)	
Direct Wages	=	750000	3159000	3909000
- Semi Variable Expenses

At 50% Production	=	140000	420000	560000
		(560000 x 3/12)	(560000 x 9/12)	
At 60% Production	=	37500	-	37500
		(150000 x 1 x 3/12)		
At 90% Production	=	-	225000	225000
			(150000 x 1 x 3/12)	
Total	=	177500	645000	822500
- Calculation Of Profit

Profit	=	470500	1092000	1562500
			(1562500-470500)	

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Solution to Question No. 5. (b)

Calculation of Machine Hour Rate

It is not clear from the question whether 3000 hours given in the problem is net working hours or gross working hours.

Particulars	Net Working Hours = 3000		Net Working Hours = 2444	
	Amount	Computation	Amount	Computation
Depreciation	240000	$(250000 - 10000) / 10$	240000	$(250000 - 10000) / 10$
Repairs	35000	$350000 / 10$	35000	$350000 / 10$
Power	225000	$(3000 \times 15 \times 5)$	183300	$(3000 - 400 - 156) \times 15 \times 5$
Materials	9880	Given	9880	Given
Wages	16000	$(4000 \times 12) / 3$	16000	$(4000 \times 12) / 3$
Light Charges	5000	$(2500 \times 12) \times 8 / 48$	5000	$(2500 \times 12) \times 8 / 48$
Indirect charges	78000	(6500×12)	78000	(6500×12)
Total Costs Attributable to the Machine	608880		567180	
Machine Hours	3000		2444	
Machine Hour rate	202.96	$567810 / 3000$	232.07	$567810 / 3000$

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6. (a) Balance Sheet of OP Ltd. as on 31st March, 2007 and 2008 are as follows : 3+9
=12

Liabilities	Amount 31.3.2007 Rs.	Amount 31.3.2008 Rs.	Assets	Amount 31.3.2007 Rs.	Amount 31.3.2008 Rs.
Share capital	20,00,000	20,00,000	Land and Building	15,00,000	14,00,000
General reserve	4,00,000	4,50,000	Plant and Machinery	18,00,000	17,50,000
Profit and Loss A/c	2,50,000	3,60,000	Investment	4,00,000	3,72,000
10% debentures	10,00,000	8,00,000	Stock	4,80,000	8,50,000
Bank Loan (long-term)	5,00,000	6,00,000	Debtors	6,00,000	7,98,000
Creditors	4,00,000	5,80,000	Prepaid Expenses	50,000	40,000
Outstanding Expenses	20,000	25,000	Cash and Bank	1,40,000	85,000
Propose Dividend	3,00,000	3,60,000			
Provision for taxation	1,00,000	1,20,000			
	<u>49,70,000</u>	<u>52,95,000</u>		<u>49,70,000</u>	<u>52,95,000</u>

Additional informations :

- (i) New machinery for Rs. 3,00,000 was purchased but an old machinery costing Rs. 1,45,000 was sold for Rs. 50,000 and accumulated depreciation thereon was Rs. 75,000.
- (ii) 10% debentures were redeemed at 20% premium.
- (iii) Investment were sold for Rs. 45,000, and its profit was transferred to general reserve.
- (iv) Income-tax paid during the year 2007-08 was Rs. 80,000.
- (v) An interim dividend of Rs. 1,20,000 has been paid during the year 2007-08.
- (vi) You are assume the provision for taxation as current liability and proposed dividend as non-current liability.
- (vii) Investment are non-trade investment.

You are required to prepare :

- (i) Schedule of changes in working capital.
 - (ii) Funds flow statement.
- (b) Explain the following :
- (i) Seed capital assistance.
 - (ii) Bridge finance.

2+2=4

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Solution to Question No. 6 (a)

Adjusted Profit and Loss account			
To Depreciation		By Balance b/d	250
Land & Building	100	By FFO (Bal. Fig.)	943
Plant & Machinery	280		
To Loss	20		
To General Reserve	33		
To Redemption on red	40		
To proposed dividend	360		
To Balance c/d	360		
	1193		1193

Funds Flow statement			
Sources		Application	
Sale of P&M	50	Purchase of P & M	300
Sale of Inv	45	Red of Debt	240
Bank Loan	100	Dividend	300
FFO	943	Increase in Working Capital	298
	1138		1138

Plant & Machinery			
To Balance b/d	1800	By Cash	50
To Bank	300	By Loss	20
		By Depreciation	280
		By Balance c/d	1750
	2100		2100

Statement of changes in working capital		
	31.03.07	31.03.08
Current Assets		
Stock	480	850
Debtors	600	798
Prepaid expenses	50	40
Cash and bank	140	85
	1270	1773
Current Liabilities		
Creditors	400	580
Outstanding expenses	20	25
Provision for tax	100	120
	520	725
Working capital	750	1048
Increase in working capital		298

Solution to Question No. 6 (b) (i)

Seed Capital Assistance: The Seed capital assistance scheme is designed by IDBI for professionally or technically qualified entrepreneurs and/or persons possessing relevant experience, skills and entrepreneurial traits. All the projects eligible for financial assistance from IDBI, directly or indirectly through refinance are eligible under the scheme. The project cost should not exceed Rs. 2 crores and the maximum assistance under the project will be restricted to 50% of the required promoter's contribution or Rs. 15 lacs whichever is lower. The Seed Capital Assistance is interest free but carries a service charge of one per cent per annum for the first five years and at increasing rate thereafter. However, IDBI will have the option to charge interest at such rate as may be determined by IDBI on the loan if the financial position and profitability of the company so permits during the currency of the loan. The repayment schedule is fixed depending upon the repaying capacity of the unit with an initial moratorium upto five years.

For projects with a project cost exceeding Rs. 200 lacs, seed capital may be obtained from the Risk Capital and Technology Corporation Ltd. (RCTC) For small projects costing upto Rs. 5 lacs, assistance under the National Equity Fund of the SIDBI may be availed.

Solution to Question No. 6 (b) (ii)

Bridge Finance: Bridge finance refers to loans taken by a company normally from commercial banks for a short period, pending disbursement of loans sanctioned by financial institutions. Normally, it takes time for financial institutions to disburse loans to companies. However, once the loans are approved by the term lending institutions, companies, in order not to lose further time in starting their projects, arrange short term loans from commercial banks. Bridge loans are also provided by financial institutions pending the signing of regular term loan agreement, which may be delayed due to non-compliance of conditions stipulated by the institutions while sanctioning the loan. The bridge loans are repaid/ adjusted out of the term loans as and when disbursed by the concerned institutions. Bridge loans are normally secured by hypothecating movable assets, personal guarantees and demand promissory notes. Generally, the rate of interest on bridge finance is higher as compared with that on term loans.

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7. (a) WX Ltd. has a machine which has been in operation for 3 years. Its remaining estimated useful life is 8 years with no salvage value in the end. Its current market value is Rs. 2,00,000. The company is considering a proposal to purchase a new model of machine to replace the existing machine. The relevant informations are as follows :

8

	Existing Machine	New Machine
Cost of machine	Rs. 3,30,000	Rs. 10,00,000
Estimated life	11 years	8 years
Salvage value	Nil	Rs. 40,000
Annual output	30,000 units	75,000 units
Selling price per unit	Rs. 15	Rs. 15
Annual operating hours	3,000	3,000
Material cost per unit	Rs. 4	Rs. 4
Labour cost per unit	Rs. 40	Rs. 70
Indirect cash cost per annum	Rs. 50,000	Rs. 65,000

The company follow the straight line method of depreciation. The corporate tax rate is 30 percent and WX Ltd. does not make any investment, if it yields less than 12 percent. Present value of annuity of Re. 1 at 12% rate of discount for 8 years is 4.968. Present value of Re. 1 at 12% rate of discount, received at the end of 8th year is 0.404. Ignore capital gain tax.

Advise WX Ltd. whether the existing machine should be replaced or not.

- (b) Discuss the factors to be taken into consideration while determining the requirement of working capital.

4

Solution to Question No. 7 (a)

Note: It seems that material cost shall be Rs. 0.40 instead of Rs. 4 and labour cost Rs. 4 instead of Rs. 40 as the sum of material and labour costs exceeds Rs. 15.

Comparative analysis			
	Existing		New
Material	0.4		0.4
Labour	4		7
	4.4		7.4
Selling price	15		15
Contribution per unit	10.6		7.6
No of units	30000		75000
Contribution	318000		570000
Fixed cost	50000	65000	
Depreciation	30000	80000	120000
Profit before tax	238000		385000
Profit after tax	166600		269500

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Cash inflow (PAT + Depn.)		196600		389500
Incremental cash inflow				192900
Annuity Factor				4.968
DISCCI	1			958327
DISCCI	2	40000	0.404	16160
				974487
DISCCO		1000000	200000	800000
NPV				174487

Solution to Question No. 7 (b)

Determinants of Working Capital: The following factors will generally influence the working capital requirements of the firm:

- Nature of Business.
- Market and demand conditions.
- Technology and manufacturing Policies.
- Credit Policy of the firm.
- Availability of credit from suppliers.
- Operating efficiency.
- Price Level Changes.

8. (a) The following is the capital structure of a Company : 3+2+2=7

Source of capital	Book value Rs.	Market value Rs.
Equity shares @ Rs. 100 each	80,00,000	1,60,00,000
9 percent cumulative preference Shares @ Rs. 100 each	20,00,000	24,00,000
11 percent debentures	60,00,000	66,00,000
Retained earnings	40,00,000	—
	<u>2,00,00,000</u>	<u>2,50,00,000</u>

The current market price of the company's equity share is Rs. 200. For the last year the company had paid equity dividend at 25 percent and its dividend is likely to grow 5 percent every year. The corporate tax rate is 30 percent and shareholders personal income tax rate is 20 percent.

You are required to calculate :

- Cost of capital for each source of capital.
- Weighted average cost of capital on the basis of book value weights.
- Weighted average cost of capital on the basis of market value weights.

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- (b) Annual sales of a company is Rs. 60,00,000. Sales to variable cost ratio is 150 percent and Fixed cost other than interest is Rs. 5,00,000 per annum. Company has 11 percent debentures of Rs. 30,00,000. 3

You are required to calculate the operating, Financial and combined leverage of the company.

- (c) What is “Internal Rate of Return” ? State its acceptance rule. 2

Solution to Question No. 8 (a)

A. Cost of equity (K_e)

$$\begin{aligned} d_1 &= d_0(1 + g) &= 25(1 + 0.05) &= 26.25 \\ K_e &= d_1/P_0 + g &= 26.25/200 + 0.05 &= 18.125\% \end{aligned}$$

B. Cost of preference (K_p)

$$K_p = d_0/p = 9/100 = 9.00\%$$

C. Cost of Debt (K_d)

$$(K_d) = \text{Interest}(1-t)/\text{Price} = 11 \times [1 - 0.30]/100 = 7.70\%$$

D. Cost of retained earnings

$$K_r = K_e = 18.125\%$$

Solution to Question No. 8 (a) (ii) & (iii)

Cost of capital	K	Book value weight	WACC	K	Market value weight	WACC
i. Equity capital	18.125	0.4	7.25	18.125	0.64	11.6
ii. Preference capital	9	0.1	0.9	9	0.096	0.864
iii. Debt	7.7	0.3	2.31	7.7	0.264	2.0328
iv. Retained earnings	18.125	0.2	3.625	-	-	-
		1	14.085		1	14.4968

Solution to Question No. 8 (b)

	Rs.000s
Sales	6000
Variable cost = $[6000/150] \times 100$	4000
Contribution	2000
Fixed cost	500
PBIT	1500
Interest	330
PBT	1170

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Operating leverage	=	Contribution / PBIT	
	=	2000 / 1500	= 1.33
Financial leverage	=	PBIT / PBT	
	=	1500 / 1170	= 1.28
Combined leverage	=	Contribution / PBT	
	=	2000 / 1170	= 1.71

Solution to Question No. 8 (b)

Internal Rate of Return Method

Internal rate of return method considers the time value of money, the initial cash investment, and all cash flows from the investment. It does not use the desired rate of return but estimates the discount rate that makes the present value of subsequent net cash flows equal to the initial investment. Using this estimated rate of return, the net present value of the investment will be zero. This estimated rate of return is then compared to a criterion rate of return that can be the organization's desired rate of return, the rate of return from the best alternative investment, or another rate the organization chooses to use for evaluating capital investments.

Acceptance Rule

The use of IRR, as a criterion to accept capital investment decision involves a comparison of IRR with the required rate of return known as cut off rate. The project should be accepted if IRR is greater than cut-off rate. If IRR is equal to cut off rate the firm is indifferent. If IRR less than cut off rate the project is rejected.

- 9 (a) A publishing house purchases 72,000 rims of a special type paper per annum at cost Rs. 90 per rim. Ordering cost per order is Rs. 500 and the carrying cost is 5 percent per year of the inventory cost. Normal lead time is 20 days and safety stock is NIL. Assume 300 working days in a year : 2+2+
4=8

You are required :

- (i) Calculate the Economic Order Quantity (E.O.Q.)
- (ii) Calculate the Reorder Inventory Level.
- (iii) If a 1 percent quantity discount is offered by the supplier for purchases in lots of 18,000 rims or more, should the publishing house accept the proposal ?

- (b) What is Capital rationing ? Describe various ways of implementing it. 4

Solution to Question No. 9 (a) (i)

$$\begin{aligned}
 \text{EOQ} &= \sqrt{\frac{2AB}{C}} \\
 &= \sqrt{\frac{2 \times 72000 \times 500}{0.05 \times 90}} \\
 &= 22
 \end{aligned}$$

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$$= \sqrt{\frac{72000000}{4.50}} = 4000 \text{ rims}$$

Solution to Question No. 9 (a) (ii)

$$\begin{aligned} \text{Reorder Inventory level} &= \text{Safety stock} + \text{NLT} \times \text{Normal usage rate} \\ &= 0 + 20 \times 72000 / 300 = 4800 \end{aligned}$$

Solution to Question No. 9 (a) (iii)

		ROQ = EOQ	ROQ = 18000
(a)	Units (Rims)	4000	18000
(b)	No. of orders	18	4
(c)	Ordering cost @ Rs. 500	9000	2000
(d)	Average Inventory	2000	9000
(e)	Price per unit	90	89.10
(f)	Carrying cost per unit @ 5% p.a.	4.50	4.455
(g)	Carrying cost (d) x (f)	9000	40095
(h)	Purchase Cost (a) x (b) x (e)	6480000	6415200
(i)	Total Cost (c) + (g) + (h)	6498000	6457295

Since the total cost is lower by Rs. 40,705 when ROQ of 1800 units, the company shall buy after availing 1% discount.

Solution to Question No. 9 (b)

CAPITAL RATIONING: Generally, firms fix up maximum amount that can be invested in capital projects, during a given period of time, say a year. The firm then attempts to select a combination of investment proposals that will be within the specific limits providing maximum profitability and rank them in descending order according to their rate of return; such a situation is of capital rationing.

A firm should accept all investment projects with positive NPV, with an objective to maximize the wealth of shareholders. However, there may be resource constraints due to which a firm may have to select from among various projects. Thus there may arise a situation of capital rationing where there may be internal or external constraints on procurement of necessary funds to invest in all investment proposals with positive NPVs.

Capital rationing can be experienced due to external factors, mainly imperfections in capital markets which can be attributed to non-availability of market information, investor attitude etc. Internal capital rationing is due to the self-imposed restrictions imposed by management

like not to raise additional debt or laying down a specified minimum rate of return on each project.

There are various ways of resorting to capital rationing. For instance, a firm may effect capital rationing through budgets. It may also put up a ceiling when it has been financing investment proposals only by way of retained earnings (ploughing back of profits). Since the amount of capital expenditure in that situation cannot exceed the amount of retained earnings, it is said to be an example of capital rationing.

Capital rationing may also be introduced by following the concept of 'Responsibility Accounting', whereby management may introduce capital rationing by authorising a particular department to make investment only up to a specified limit, beyond which the investment decisions are to be taken by higher-ups.

The selection of project under capital rationing involves two steps:

- (i) To identify the projects which can be accepted by using the technique of evaluation discussed above.
- (ii) To select the combination of projects.

In capital rationing it may also be more desirable to accept several small investment proposals than a few large investment proposals so that there may be full utilisation of budgeted amount. This may result in accepting relatively less profitable investment proposals if full utilisation of budget is a primary consideration. Similarly, capital rationing may also mean that the firm foregoes the next most profitable investment following after the budget ceiling even though it is estimated to yield a rate of return much higher than the required rate of return. Thus capital rationing does not always lead to optimum results.