

PAPER – 8: COST ACCOUNTING & FINANCIAL MANAGEMENT

Answer to MTP_Intermediate_Syllabus 2012_Jun2015_Set 1

The following table lists the learning objectives and the verbs that appear in the syllabus learning aims and examination questions:

	Learning objectives	Verbs used	Definition
LEVEL B	KNOWLEDGE What you are expected to know	List	Make a list of
		State	Express, fully or clearly, the details/facts
		Define	Give the exact meaning of
	COMPREHENSION What you are expected to understand	Describe	Communicate the key features of
		Distinguish	Highlight the differences between
		Explain	Make clear or intelligible/ state the meaning or purpose of
		Identify	Recognize, establish or select after consideration
		Illustrate	Use an example to describe or explain something
	APPLICATION How you are expected to apply your knowledge	Apply	Put to practical use
		Calculate	Ascertain or reckon mathematically
		Demonstrate	Prove with certainty or exhibit by practical means
		Prepare	Make or get ready for use
		Reconcile	Make or prove consistent/ compatible
		Solve	Find an answer to
		Tabulate	Arrange in a table
	ANALYSIS How you are expected to analyse the detail of what you have learned	Analyse	Examine in detail the structure of
		Categorise	Place into a defined class or division
		Compare and contrast	Show the similarities and/or differences between
Construct		Build up or compile	
Prioritise		Place in order of priority or sequence for action	
Produce		Create or bring into existence	

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Paper – 8: Cost Accounting & Financial Management

Full Marks: 100

Time Allowed: 3 Hours

This paper contains 3 questions. All questions are compulsory, subject to instruction provided against each question. All workings must form part of your answer.
Assumptions, if any, must be clearly indicated.

1. Answer all questions:

[2×10=20]

(a) Using Taylor's differential piece rate system, calculate the earnings of 'X' from the following information:

Standard time per piece	= 12 minutes
Normal rate per hour (in a 8 hours day)	= ₹30
'X' produced	= 37 units

Answer:

$$\text{Standard output per day} = \frac{8 \times 60}{12} = 40 \text{ units}$$

$$\text{Actual output} = 37 \text{ units}$$

$$\text{Efficiency \%} = (37 / 40) \times 100 = 92.5$$

Under this method lower rate is 83% of the normal rate and is applicable if efficiency of worker is below 100%

$$\text{Earning rate per unit} = 83\% \text{ of } 30 / 5 = 4.98 \text{ per unit}$$

$$\text{Earning} = 37 \times 4.98 = ₹184.26$$

Working:

$$\text{In one hour, production will be} = 60 \text{ minutes} / 12 \text{ minutes} = 5 \text{ units}$$

(b) State the conditions when supplementary rates are used.

Answer:

When the amount of under absorbed and over absorbed overhead is significant or large, because of differences due to wrong estimation, then the cost of product needs to be adjusted by using supplementary rates (under and over absorption/ actual overhead) to avoid misleading impression.

(c) The annual carrying cost of material 'A' is ₹7.2 per unit and its total carrying cost is ₹18,000 per annum. Calculate the Economic Order Quantity for material 'A'. If there is no safety stock of material A.

Answer:

$$\text{Total carrying Cost} = \frac{\text{Carrying Cost per unit} \times \text{EOQ}}{2}$$

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$$\text{or, } 18,000 = \frac{7.2 \times \text{EOQ}}{2}$$

$$\text{Or, } = \frac{18,000 \times 2}{7.2}$$

$$= 5,000 \text{ units}$$

(d) State the treatment of Unsuccessful Research and Development in Cost Accounting.

Answer:

Cost of unsuccessful research is treated as factory overhead, provided the expenditure is normal and is provided in the budget. If it is not budgeted, it is written off to the profit and loss account. If the research is extended for long time, some failure cost is spread over to successful research.

(e) Material with invoice value ₹10,000 was received in the Stores Dept. The transport cost was ₹200. Since the material leaked in transit, damage to other goods of ₹350 had to be paid to the transporter. Estimate the material cost.

Answer:

Material Cost = 10,000 + 200 = 10,200.

As per CAS, material cost includes purchase cost, transport inwards and excludes any Damages or penalty paid to any authority.

(f) Bonus at 10% of salary is paid to the foreman who supervises five different production shops producing five different products. State the treatment of bonus in the Cost Accounts.

Answer:

Salary to foreman is production overheads. Bonus paid to foreman is part of this employee cost and is taken as production overhead and charged to the production shop based on his time spent in supervising that shop

(g) The proprietor's fund is ₹45,00,000 and ratio of fixed assets to proprietor's funds is 0.75. Calculate the amount of net working capital.

Answer:

Fixed Assets = 0.75 × 45,00,000;

FA 33,75,000.

Net Current Assets = Proprietors Funds – Fixed Assets

⇒ 45,00,000 – 33,75,000 = 11,25,000

⇒ Net working capital = Net current assets.

(h) A project has an equity beta of 1.2 and is going to be financed by 30% debt and 70% equity. Assume debt beta = 0, R_f = 12% and R_m = 18%. What is the required rate of return?

Answer:

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$$\begin{aligned}\text{Beta of portfolio} &= \beta \times E / (D + E) + \beta \times D / (D + E) \\ &= (1.2 \times 0.70) + (0 \times 0.30) = 0.84\end{aligned}$$

$$\begin{aligned}\text{Therefore, required rate of return} &= R_f + \beta(R_m - R_f) \\ &= 12\% + 0.84(18\% - 12\%) \\ &= 17.04\%\end{aligned}$$

- (i) Ascertain the discounted value at 10% p.a. at the end of year 1 of an investment of ₹2,00,000 to be made at the end of year 2 and ₹3,00,000 made immediately.

Answer:

$$\begin{aligned}\text{P.V.} &= 3,00,000 / 1.1 + 2,00,000 / 1.1^2 \\ &= 3,30,000 + 1,81,818 = 5,11,818.\end{aligned}$$

- (j) The following data relates to HN Ltd.

	₹
Earnings before interest and tax (EBIT)	5,00,000
Fixed Cost	10,00,000
Earnings Before Tax (EBT)	4,00,000

Calculate Combined Leverage.

Answer:

Contribution:

$$\text{EBIT} = \text{Contribution} - \text{Fixed Cost}$$

$$5,00,000 = C - 10,00,000$$

$$\Rightarrow \text{Contribution} = 15,00,000$$

$$\Rightarrow \text{Operating Leverage} = C / \text{EBIT} = 15,00,000 / 5,00,000 = 3 \text{ times}$$

$$\Rightarrow \text{Financial Leverage} = \text{EBIT} / \text{EBT} = 5,00,000 / 4,00,000 = 1.25 \text{ times}$$

$$\Rightarrow \text{Combined Leverage} = \text{OL} \times \text{FL} = 3 \times 1.25 = 3.75$$

2. Answer any three questions

[3×16=48]

(a)

- (i) From the records of an oil distributing company, the following summarized information is available for the month of March 2015:

Sales for the month: ₹19,25,000

Opening Stock as on 1-3-15: 1,25,000 liters @ ₹ 6.50/liter.

Purchases (including freight and insurance):

March 5 1,50,000 litres @ ₹ 7.10/litre

March 27 1,00,000 litres @ ₹ 7.00/litre

Closing stock as on 31 -3-15: 1,30,000 litres

General Administration expenses for the month: ₹ 45,000

On the basis of the above information, work out the following using FIFO and LIFO methods of inventory valuation assuming pricing of issues is being done at the end of the month after all receipts during the month:

- (I) Value of closing stock as on 31-3-15

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(II) Cost of goods sold during March '2015

(III) Profit or loss for March '2015.

[4+4+2]

Answer:

(I) Valuation of closing stock as on 31-03-2015

A. FIFO Method, (the closing stock will comprise the items purchased in the end)

1,00,000	Litres purchased on 27-3-15 @ ₹ 7.00	₹ 7,00,000
<u>30,000</u>	Litres from purchases made on 5-3-15 @ ₹ 7.10	<u>2,13,000</u>
<u>1,30,000</u>	Value of closing stock under FIFO method	<u>9,13,000</u>

B. LIFO method: (The closing stock will comprise the items lying in opening stock and purchased in the beginning)

1,25,000	Litres from opening stock @ ₹6.50	8,12,500
<u>5,000</u>	Litres from purchases made on 5-3-15 @ ₹ 7.10	<u>35,500</u>
<u>1,30,000</u>	Value of closing stock under LIFO method	<u>8,48,000</u>

(II)

Cost of Goods Sold	FIFO Method	LIFO Method
Opening stock as on 1-03-12015	₹8,12,500	₹8,12,500
Purchases made on 5th March	10,65,000	10,65,000
Purchases made on 27th March	7,00,000	7,00,000
Total	25,77,500	25,77,500
Less Closing stock as per (a)	9,13,000	8,48,000
Cost of material consumed	16,64,500	17,29,500
Add general Administration Expenses	45,000	45,000
Cost of goods sold	17,09,500	17,74,500

(III)

Profits	FIFO Method	LIFO Method
Cost of goods sold	₹17,09,500	₹17,74,500
Sales	19,25,000	19,25,000
Profit	2,15,500	1,50,500

(ii) What is imputed cost? Give an example of imputed cost. Explain its position in a product cost sheet and in the decision making evaluation process. [4]

Answer:

Imputed costs are hypothetical or notional costs, not involving cash outlay, computed only for the purpose of decision making.

CAS specifically provide for exclusion of imputed cost from the cost sheet in every form-material, labour and overhead. Imputed costs are like opportunity costs.

E.g. interest on funds generated internally. When alternative capital investment proposals are evaluated, imputed cost of capital from internal funds is used for decision making.

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- (iii) Calculate the direct expenses as per CAS-10 from the following information: Royalty paid on sales: ₹1,25,000; Royalty paid on production: ₹1,00,000; Design charges ₹26,000; Machine shop expenses ₹45,000; Software development charges related to production: ₹55,000.

[2]

Answer:

As per CAS –10, the direct expenses will be the sum of all the items mentioned.

$$\begin{aligned} \text{Total direct expenses} &= 1,25,000 + 1,00,000 + 26,000 + 45,000 + 55,000 \\ &= ₹3,51,000. \end{aligned}$$

(b)

- (i) Following data is available relating to a company for a certain month:

Particulars	Territories		
	I	II	III
Selling expenses	₹ 7,600	₹ 4,200	₹ 6,240
Distribution costs	₹ 4,000	₹ 1,800	₹ 2,000
No. of units sold	16,000	6,000	10,000
Sales	76,000	28,000	52,000

The company adopts sales basis and quantity basis of application of selling and distribution costs respectively. Compute (I) the territory-wise overhead recovery rates separately for selling and distribution costs and (II) the amounts of selling and distribution costs chargeable to a consignment of 2,000 units of a product, sold in each territory at ₹ 4.50 per unit.

[4+4]

Answer:

- (I) It is required to find out the territory-wise overhead recovery rates separately for selling cost and distribution cost.

	Basis
For Selling Cost	Sales Value
For Distribution Cost	Quantity

Note: Weight is a more appropriate basis for distribution cost. It is presumed that weight of each product sold in all the three territories is the same.

Therefore, overhead recovery rate formula:

$$\text{Selling Cost Recovery Rate} = (\text{Selling expense} \div \text{Sales}) \times 100$$

$$\text{Distribution Cost Recovery Rate} = \text{Distribution cost} \div \text{No. of units sold}$$

Overhead Recovery Rates for each territory

Territory	Selling Cost recovery rate	Distribution cost recovery rate
I	$\frac{7,600}{76,000} \times 100$ or 10% of Sales	$\frac{4,000}{16,000}$ or ₹ 0.25 p.u.

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II	$\frac{4,200}{28,000} \times 100$ or 15% of Sales	$\frac{1,800}{6,000}$ or ₹ 0.30 p.u.
III	$\frac{6,240}{52,000} \times 100$ or 12% of Sales	$\frac{2,000}{10,000}$ or ₹ 0.20 p.u.

(II) Computation of amounts of Selling and Distribution Costs chargeable to consignment.

Territory	I	II	III
No. of units sold	2,000	2,000	2,000
Sales @ ₹ 4.50 p.u.	₹ 9,000	₹ 9,000	₹ 9,000
Selling cost chargeable	900	1,350	1,080
Distribution Cost chargeable	500	600	400
Total Selling & Distribution Costs	1,400	1,950	1,480

(ii) The following are the maintenance costs incurred in a machine shop for six months with corresponding machine hours:

Months	Machine Hours	Maintenance Costs (₹)
January	2,000	300
February	2,200	320
March	1,700	270
April	2,400	340
May	1,800	280
June	1,900	290
Total	12,000	1,800

Analyse the maintenance cost, which is semi-variable, into fixed and variable element.

[8]

Answer:

There are a number of methods of segregating semi-variable cost into fixed and variable element. First of all variable element can be found out by applying only (i) Range or High and Low method, and (ii) Average method.

For finding out variable element

(I) Range Method:

	Machine Hours	Maintenance Cost (₹)
High – April	2,400	340
Low – March	1,700	270
	700	70

Variable cost per hour $70 \div 700 = ₹ ₹ 0.10$

Variable cost for April (240 hours $\times ₹ 0.10$) = ₹ 240

Fixed cost = Total cost less Variable cost = ₹ 340 – 240 = ₹ 100

(II) Average Method:

	Machine Hours	Maintenance Cost (₹)
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Average for first two months	2,100	310
Average for last two months	1,850	285
	250	25

Variable elements = ₹ 25 ÷ 250 or ₹ 0.10 [This is the same as in (i) above.]

Analysis of maintenance Cost into fixed and variable element

Month	Machine Hours	Maintenance Cos	Variable cost @ ₹ 0.10 per hour	Fixed Cost
(1)	(2)	(3) (₹)	(4) (₹)	(5) [Col 3 – Col 4] (₹)
January	2,000	300	200	100
February	2,200	320	220	100
March	1,700	270	170	100
April	2,400	340	240	100
May	1,800	280	180	100
June	1,900	290	190	100

(c)

- (i) The Managing Director of All Found Limited is very much perturbed to see that labour turnover is increasing every year. Before taking an appropriate action, he desires to know the profit foregone on account of labour turnover. You are required to calculate the profit foregone on account of labour turnover from the following:

All Found Ltd.

Income Statement for the year ended 31.-12-2014

Particulars	₹	₹
Sales		2,00,000
Variable Cost:		
Material	50,000	
Direct Labour	40,000	
Variable Overhead	40,000	1,30,000
Contribution		70,000
Less: Fixed Overhead		20,000
Profit before tax		50,000

The direct labour hours worked in the concern during the period were 20,300 of which 500 hours pertained to the new workers on training. Only 40% of the trainees time was productive. As replacement for the worker left was delayed for some time, 600 productive hours were lost.

The direct costs incurred by the Company as a consequence of labour separation and replacement were as follows:

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Separation costs – ₹ 2,000; Selection costs – ₹ 3,000 and Training costs – ₹ 5,000. [8]

Answer:

Direct labour hours worked	20,300
Less: unproductive time of new workers (500 hrs. × 60%)	300
Productive hours	20,000

Lost labour hours 600 (Replacement) + 300 (Training) = 900

Unit sales per Productive Labour Hours ₹ 2,00,000 ÷ 20,000 = ₹ 10

(i)	Loss of potential sales 900 hrs. × ₹ 10	₹ 9,000
	Direct labour cost per hour worked = ₹ 40,000 ÷ 20,300	1.97
(ii)	Increase in direct labour cost of lost hours due to replacement = 600 × 1.97 (300 hours already included while calculating the hourly rate)	1,182
(iii)	Increase in material and variable overhead due to increase in potential sales = (90,000 ÷ 2,00,000) × 9,000	4,050
	Total increase in cost (ii + iii)	5,232
	Contribution foregone (i – iii)	3,768
	Add: Separation, selection and training costs	10,000
	Profit foregone due to labour turnover	13,768

(ii) Two fitters, a labourer and a boy undertake a job on piece rate basis for ₹1,290. The time spent by each of them is 220 ordinary working hours. The rates of pay on time-rate basis are ₹ 1.50 per hour for each of the two fitters, ₹1 per hour for the labourer and ₹ 0.50 per hour for the boy. Calculate:

(I) The amount of piece-work premium and the share of each worker, when the piece-work premium is divided proportionately to the wages paid.

(II) The selling price of the above job on the basis of the following additional data:

Cost of Direct Material ₹ 2010, Works overhead at 20% of prime cost, Selling Overhead at 15% of Works Cost and Profit at 25% on Cost of sales. [8]

Answer:

(I) Calculation of Wages

2 fitters at 1.50 per hour for 220 hours each	₹660
1 labourer at ₹1.00 per hour for 220 hours	₹220
1 boy at ₹0.50 per our for 220 hours	₹110
Total	₹990

Piece work premium

Total wages agreed on piece rate	₹1,290
Less: Wages calculated on time basis	990
	300

The amount of premium will be paid to workers in proportion to the wages paid, i.e., Fitter:
Labourer: Boy = 660 : 220 : 110 as under

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2 fitters	₹200
1 labourer	66.67
1 boy	33.33
Total	300.00

(II) Calculation of Selling Price

Cost of direct materials	₹2,010
Direct Wages as given in (I)	1,290
Prime Cost	3,300
Works Overhead at 20% of Prime cost	660
Works Cost	3,960
Selling Expense 15% of Works Cost	594
Cost of Sales	4,554
Add: Profit 25% on Cost of Sales	1,138.5
Selling Price	5,692.5

(d)

(i) The following details are available in respect of a consignment of 1,250 kgs. of materials 'X' :

- A. Invoice price - ₹ 20 per kg.**
 - B. Excise Duty - 25% of Invoice price**
 - C. Sales Tax - 8% on Invoice price including Excise Duty**
 - D. Trade Discount - 10% on Invoice price**
 - E. Insurance - 1% of Aggregate net price**
 - F. Delivery charges - ₹ 250**
 - G. Cost of containers @ ₹ 60 per container for 50 kg. of material. Rebate is allowed @ ₹ 40 per container if returned within six weeks, which is a normal feature.**
 - H. One container load of material was rejected on inspection and not accepted.**
 - I. Cost of unloading and handling @ 0.25% of the cost of materials ultimately accepted.**
- On the basis of above you are required to find out the landed cost of per kg. of material 'X'. [10]

Answer:

Computation of Landed cost of materials X:

	Total cost for 1,250 kg	Cost per Kg.
Invoice Price	₹25,000.00	₹20.00
Add: Excise duty	6,250.00	5.00
	31,250.00	25.00
Add: Sales Tax	2,500.00	2.00
	33,750.00	27.00
Less: Trade Discount @ 10% on invoice Price	2,500.00	2.00
	31,250.00	25.00
Add: Insurance @ 1% on above	312.50	0.25
	31,562.50	25.25

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Add: Delivery Charges	250.00	0.20
Cost of container @ ₹60 for 50 kg	1,500.00	1.20
	33,312.50	26.65
Less: Cost of one container of 50 kg (33,312.50 ÷ 1250) × 50	1,332.50	-
	31,980.00	26.65
Add: Cost of handling @ 0.25%	79.95	0.07
	32,059.95	26.72
Less: Credit for container returnable: (₹40 ÷ 50Kg) × 1200	960.00	0.80
Total landed cost	31,099.95	25.92

(ii) Name six factors that should be disclosed in the cost statements as per CAS-3. [6]

Answer:

CAS –3 relates to principles and methods of determining overheads.

The following factors are to be disclosed:

- I. The basis of assignment of overheads to cost objects.
- II. Overhead incurred in foreign exchange.
- III. Overheads relating to resources received from or supplied to related parties.
- IV. Any subsidy / grant / incentive or any amount of similar nature received / receivable reduced from overhead.
- V. Credits / recoveries relating to overheads.
- VI. Any abnormal Cost not forming part of the overheads.

3. Answer any two questions [2×16=32]

(a)

(i) Calculate — (I) Stock turnover ratio, (II) Debtors' turnover ratio (in number of days) and (III) Working capital turnover ratio from the following information:

Sales (all credit): ₹ 10,00,000;

Stock: ₹ 90,000;

Debtors: ₹ 20,000;

Sundry creditors: ₹ 60,000;

Bills payable: ₹ 30,000;

Provision for taxation: ₹ 10,000;

Gross profit: ₹ 1,50,000;

Marketable securities: ₹ 40,000 ;

Cash at Bank: ₹ 20,000.

[6]

Answer:

$$(I) \text{ Stock turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

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$$\begin{aligned}
 &= \frac{\text{Sales} - \text{gross profit}}{\text{Average stock}} \\
 &= \frac{\text{₹ } 10,00,000 - \text{₹ } 1,50,000}{\text{₹ } 90,000} \\
 &= 9.44 \text{ times}
 \end{aligned}$$

$$\begin{aligned}
 \text{(II) Debtors' turnover ratio} &= \frac{\text{Debtors}}{\text{Sales}} \times 365 \\
 &= \frac{\text{₹ } 20,000}{\text{₹ } 10,00,000} \times 365 \\
 &= 7.3 \text{ days}
 \end{aligned}$$

$$\begin{aligned}
 \text{(III) Working capital turnover ratio} &= \frac{\text{Sales}}{\text{Working capital}} \\
 &= \frac{\text{₹ } 10,00,000}{\text{₹ } [(90,000 + 20,000 + 40,000 + 20,000) - (60,000 + 30,000 + 10,000)]} \\
 &= 14.29 \text{ times}
 \end{aligned}$$

(ii) A manufacturing company is planning to install either of the following two machines which are mutually exclusive. The details of their purchase price and operating costs are as given below:

	Machine I (₹)	Machine II (₹)
Purchase price including cost of installation	1,00,000	80,000
Operating costs: Year wise:		
1	20,000	25,000
2	20,000	25,000
3	20,000	25,000
4	25,000	36,000
5	25,000	36,000
6	25,000	36,000
7	30,000	---
8	30,000	---
9	30,000	---
10	30,000	---

The salvage value of the Machine I is expected to be ₹15,000 at the end of its life of 10 years, while for Machine II it is ₹10,000 at the end of the 6th year.

The cost of capital is 15%.

You can assume that technically both the Machines are equally useful.

You are required to answer the following:

- I. The present value of costs for Machine I.
- II. The present value of costs for Machine II.

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- III. The annual capital charge for Machine I.
 IV. The annual capital charge for Machine II.
 V. Which of the Machines is cheaper?

Given:

Year	Rate	PVFA	PVF
3	15%	2.283	0.658
4	15%	2.855	.572
6	15%	3.784	.432
10	15%	5.019	.247

[2 1/2+2 1/2+2+2+1]

Answer:

Since initial outlay and operating costs are given, the appropriate method to be applied is Annual Capital Charge;

The present value of cost for Machine I and Machine II

Year	Operating Cost of Machine I (₹)	Operating Cost of Machine II (₹)	PVF	PV of Machine I (₹)	PV of Machine II (₹)
1	20,000	25,000	0.870	17,400	21,750
2	20,000	25,000	0.756	15,120	18,900
3	20,000	25,000	0.658	13,160	16,450
4	25,000	36,000	0.572	14,300	20,592
5	25,000	36,000	0.497	12,425	17,892
6	25,000	36,000	0.432	10,800	15,552
7	30,000	----	0.376	11,280	----
8	30,000	----	0.327	9,810	----
9	30,000	----	0.284	8,520	----
10	30,000	----	0.247	7,410	----
Total Cost				1,20,225	1,11,136
Purchase price including installation				1,00,000	80,000
PV of total outflow				2,20,225	1,91,136
Less: Salvage Value				3,705	4,320
Net Present Value of Outflow				2,16,520	1,86,816
PVFA				5.019	3.784
Annual Capital Change				43,140.07	49,369.98

As annual capital charge for Machine I is low, Machine I is cheaper.

Working Notes:

Calculation of Salvage Value

Machine I	Machine II
₹15,000 x 0.247 = ₹3,705	₹10,00 x 0.432 = ₹4,320

(b)

(i) Explain the Stable Dividend Policy. Why should it be followed?

[2+3]

Answer:

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The term "stability of dividends" means consistency or lack of variability in the stream of dividends payments and it may be in the form of (i) constant dividend per share, (ii) constant pay-out ratio, and (iii) stable rupee dividend plus extra dividend.

A policy of constant dividend per share is most suitable to concerns whose earnings are expected to remain stable over a no. of years.

A policy of constant payout ratio may be supported by a firm because it is related to the firm's ability to pay dividends.

The policy of constant low dividends per share plus some extra dividend in the year of high profits is suitable to the firms having fluctuating earnings from year to year

(ii) The following summarizes the % changes in operating income, % changes in revenues, and betas for four firms.

Firm	Change in Revenue	Change in Operating Income	Beta
ABC Ltd.	27%	25%	1.00
DEF Ltd.	25%	32%	1.15
GHI Ltd.	23%	36%	1.30
JKL Ltd.	21%	40%	1.40

(I) Calculate the degree of operating leverage for each of these firms. Comment also

(II) Use the operating leverage to explain why these firms have different betas. [4+3]

Answer:

(I) Degree of operating leverage = $\frac{\% \text{ change in operating income}}{\% \text{ change in revenue}}$

Firm	Change in Revenue (a)	Change in operating income (b)	DOL (a) ÷ (b)
ABC Ltd.	27%	25%	0.9259
DEF Ltd.	25%	32%	1.2800
GHI Ltd.	23%	36%	1.5652
JKL Ltd.	21%	40%	1.9048

Comments:

Analysis of operating leverage of a firm is very useful to the financial manager. It tells the impact changes in sales on operating income. A firm having higher DOL can experience a magnified effect on EBIT for even a small change in sales level. Higher DOL can dramatically increase the operating profits. But if there is decline in sales level, EBIT may be wiped out, and a loss may be operated.

The operating leverage depends on fixed costs. If the fixed costs are higher, the higher would be firm's operating leverage and its operating risks.

If operating leverage is high, it automatically means that the break-even point would also be reached at a high level of sales. Also, in the case of higher operating leverage, the margin of safety would be low. Therefore, it is preferred to operate sufficiently above break-even point, to avoid the danger of fluctuations in sales and profits.

In the given problem, JKL Ltd. has the highest DOL. Hence, it has the highest risk. Similarly, ABC Ltd. has the least DOL. Hence, it has the least risk.

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(II) The degrees of operating leverage as well as beta are both measures of risk. As computed in part (I), the companies have different DOL. Hence, their levels of risks are different. As a result, the levels of beta are also different.

Moreover, it may be noted that higher the DOL, higher is the risk. The same rule applies to beta as well. It may be observed that the company having highest DOL has the highest beta and the one having lowest DOL has the lowest beta.

(iii) Distinguish between financial lease and an operating lease.

[4]

Answer:

Operating Lease	Financial Lease
Short term. The lease period is usually less than the life of the asset.	Usually long term. Lease period almost coincides with the useful life of the asset.
The Present value may not match the cost of the asset. The lessor may have to again lease it out to the same or another party	The Present value of the lease rentals usually exceeds or at least is substantially equal to the whole of the cost of the asset.
Usually cancellable at short notice.	Not normally cancellable at short notice.
Lessee generally has the option of renewal. Otherwise another party takes the asset on a fresh lease since the useful life is normally not over.	Usually provides the lessee the option of renewal.
Lessor is generally responsible for insurance, maintenance and taxes.	Lessee is generally responsible for insurance, taxes and maintenance.
Common to equipments requiring expert technical staff. The lessors normally limit their purchases to many equipments of the same type to ensure cost effective maintenance.	Common to assets like land, building, machinery, fixed equipments. Lessor has a wider variety of assets since he does not use technical experts to maintain.

(c)

(i) Explain the debt-service coverage ratio.

[3]

Answer:

Debt service coverage ratio indicates whether the business profits are sufficient to pay up the interest and the principal due to be paid.

It helps the lender to assess the borrower's ability to pay on time the installment, consisting of interest and principal.

A ratio of 2 is considered satisfactory. The greater this ratio, the better the repayment ability.

$$\text{Debt Service Coverage ratio} = \frac{\text{PAT} + \text{Depreciation} + \text{Interest on Loan}}{\text{Interest on Loan} + \text{Loan repayment in a year}}$$

(ii) Hems Ltd. is commencing a new project for manufacture of electric toys. The following cost information has been ascertained for annual production of 60,000 units at full capacity.

	Amount per unit	Amount per unit
Raw materials		20
Direct labour		15

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Manufacturing overheads:		
Variable	15	
Fixed	10	25
Selling & distribution overheads:		
Variable	3	
Fixed	1	4
Total cost		64
Profit		16
Selling price		80

In the first five year of operations expected production and sales are 40,000 units and 35,000 units respectively. To assess the need of Working Capital, the following additional information is available:

Stock of raw materials	3 months consumption
Credit allowable for debtors	1 1/2
Credit allowable by creditors	4 months
Lag in payment of wages	1 month
Lag in payment of overheads	0.5 month
Cash in hand and bank is expected to ₹60,000	

You are required to prepare a projected statement of working capital requirement for the first year of operations. Debtors are taken at cost. [10]

Answer:

Working Notes:

I.Statement Showing Cost and Sales for the First Year

Particulars	Units
(a) Annual production capacity (units)	60,000
(b) Production (units)	40,000
(c) Sales (units)	35,000
	Amount (₹)
(d) Sales revenue (₹80 x c)	28,00,000
Cost of production	
(e) Material (₹20 x b)	8,00,000
(f) Direct labour (₹15 x b)	6,00,000
Manufacturing overheads	
(g) Variable (₹15 x b)	6,00,000
(h) Fixed (₹10 x a)	6,00,000
(i) Cost of production (e + f + g + h)	26,00,000
(j) Value of closing Stock (b – c) x i/b	3,25,000
(k) Cost of goods sold (i – j)	22,75,000
Selling & distribution overhead	
(l) Variable fixed (₹3 x c)	1,05,000
(m) Fixed (₹1 x a)	60,000
(n) Cost of sales (k + l + m)	24,40,000
(o) Profit	3,60,000

Answer to MTP_Intermediate_Syllabus 2012_Jun2015_Set 1

II. Purchase of raw material during the first year

Particulars	Amount (₹)
Raw material consumed during the year	8,00,000
Closing stock of raw material (3/12 x a)	2,00,000
Opening stock of raw material	0
Purchase during the year (a + b - c)	10,00,000

Working Capital Requirement

Particulars	Amount (₹)	Amount (₹)
Current assets:		
Raw material stock (8,00,000 x 3/12)	2,00,000	
Finished goods (Note #1)	3,25,000	
Debtors (24,00,000 x 1.5/ 12)	3,05,000	
Cash and Bank	60,000	8,90,000
Current liabilities:		
Creditors for materials (10,00,000 x 4/12)	3,33,333	
Creditors for wages (6,00,000 x 1/12)	50,000	
Creditors for overheads (13,65,000 x 0.5/ 12)	56,875	4,40,208
Working capital		4,49,792
Estimated working capital requirement		4,49,792

- (iii) PQR Ltd. operating income (before interest and tax) is ₹11,25,000. The firm's cost of debts is 10% and currently firm employs ₹37,50,000 of debts. The overall cost of capital of firm is 12%. Calculate cost of equity. [3]

Answer:

Value of the firm (V) = EBIT/ Overall cost of capital (K_o) = ₹11,25,000/ 12% = ₹93,75,000

Market value of debts (D) = 37,50,000

Market value of equity (S) = V - Debts = 93,75,000 - 37,50,000 = ₹56,25,000

Cost of Equity (K_e) = $(K_o \cdot V - K_d \cdot D) / S = (0.12 \times 93,75,000 - 0.10 \times 37,50,000) / 56,25,000 = 13.33\%$