

PAPER – 8: COST ACCOUNTING & FINANCIAL MANAGEMENT

Answer to PTP_Intermediate_Syllabus 2012_June2015_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	List	Make a list of
	What you are expected to know	State	Express, fully or clearly, the details/facts
		Define	Give the exact meaning of
		COMPREHENSION	Describe
	What you are expected to understand	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	Apply	Put to practical use
	How you are expected to apply your knowledge	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	Analyse	Examine in detail the structure of
	How you are expected to analyse the detail of what you have learned	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) The following data relating to a machine is available:

Cost of the machine is ₹80,000; estimated scrap value is ₹10,000. Working life = 8 years. The machine had to be discarded at the end of 4th year due to obsolescence and was sold for ₹ 10,000. Calculate the resultant loss. (Use straight line depreciation on net value).

Answer:

Cost of Machine = ₹ 80,000
Less: Scrap value = ₹10,000
Net cost = ₹70,000

Life = 8 years.

Depreciation per annum straight line = ₹8,750 p.a.
Depreciation up to the end of 4th year = ₹35,000.

WDV at end of 4th year = ₹80,000 – ₹35,000 = ₹45,000
Less: Sale value = ₹10,000
Resultant Loss = ₹35,000

(b) A concern producing a single product estimates the following expenses for a production period.

Particulars	₹
Direct Material	68,750
Direct Labour	68,750
Direct Expenses	6,875
Overhead Expenses	2,88,750

Estimate the overhead recovery rate based on prime cost.

Answer:

Prime cost = Direct Material + Direct Labour + Direct Expenses = ₹1,44,375
Overhead Expenses = ₹ 2,88,750

Overhead recovery rate based on prime cost = ₹2,88,750/ ₹1,44,375 = 2 times or 200 % of prime cost.

(c) A work measurement study was carried out in a firm for 25 hours and the following information was generated:

Units produced	400
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Idle time	10%
Performance rating	125%
Allowance time	10% of standard time

Estimate the standard time for task.

Answer:

Calculation of standard time for task:

Total time = 25 x 60	1500 minutes
(-) Down time or Idle time @ 10%	150 minutes
Actual time	1350 minutes
Normal Time = 1350 x 125%	1687.5 minutes
(+) Relaxation allowance (10% or 1/10 on standard time i.e., 1/9 on normal time)	187.5 minutes
Standard time for job	1875 minutes

Standard time for each unit = 1875/400 = 4.688 minutes.

(d) Calculate the total wages earned by a workman for a working day of 8 hours under Rowan plan:

- **Standard production per hour** **110 units**
- **Actual production of the day** **1,100 units**
- **Wages rate per hour** **₹ 30**

Answer:

$$\text{Standard time} = \frac{1,100}{110} = 10 \text{ hrs}$$

Total wages in Rowan Plan:

Total wages

$$= (\text{Actual time} \times \text{wages rate}) + \left(\frac{\text{Standard time} - \text{Actual time}}{\text{Standard time}} \right) \times \text{Actual Time} \times \text{wage rate}$$

$$= 8 \times 30 + \left(\frac{10 - 8}{10} \right) \times 8 \times 30$$

$$= ₹ 288.$$

(e) Effective Production hrs loss = 50,000 hrs

Sales = 80 lakhs for 4,00,000 hrs

P/v ratio = 20%

Calculate the total loss due to labour turnover.

Answer:

$$\text{Cost/labour turnover} = \frac{20\% \text{ of } 80 \text{ lakhs}}{4,00,000 \text{ hrs}} = \frac{16,00,000}{4,00,000} = ₹ 4/\text{lt}$$

$$\text{Therefore, loss due to labour turnover} = 50,000 \times 4 = ₹ 2,00,000$$

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- (f) Re-order quantity of material 'A' is 5,000 kg.; Maximum level 8,000 kg.; Minimum usage 50 kg. per hour; minimum re-order period 5 days; daily working hours in the factory is 8 hours. You are required to calculate the re-order level of material 'A'.

Answer:

Maximum level = (Re-order level + Re-order quantity) – (Minimum usage x Minimum re-order period)

- ⇒ 8,000 kgs = (Re-order level + 5,000 kgs) – (50 kgs per day x 5 days)
⇒ 8,000 kgs = Re-order level + 5,000 kgs – 250 kgs
⇒ Re-order level = 3,250 kgs

- (g) Find out operating leverage from the following data:

Sales	₹1,00,000
Variable Costs	75%
Fixed Costs	₹18,000

Answer:

Particulars	₹
Sales	1,00,000
Less: Variable cost at 75%	75,000
Contribution	25,000
Less: Fixed Cost	18,000
Operating Profit	7,000

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{Operating Profit}} = \frac{25,000}{7,000} = 3.57$$

- (h) Vividha Ltd. has paid a dividend of ₹ 8 per share with annual growth rate of 5%. The expected return on the market portfolio and the risk free rate of return are estimated to be 15% and 10% respectively. Calculate the Required rate of Return, if the market sensitivity index (β) is 1.5.

Answer:

$$\begin{aligned}\text{Required return } (K_e) &= R_f + (K_m - R_f) \beta \\ &= 0.10 + (0.15 - 0.10) \times 1.5 \\ &= 0.175 \text{ i.e. } K_e \\ &= 17.5\%.\end{aligned}$$

- (i) Cactus Limited paid a dividend of ₹ 10 per share for 2014-15. The company follows a fixed dividend payout ratio of 60%. The company earns a return of 20% on its investment. The cost of capital to the company is 12%. Calculate the expected market price of its share, using the Walter Model.

Answer:

$$\text{EPS} = \frac{\text{Dividend}}{\text{Payout Ratio}} = \frac{₹10}{0.60} = 16.67$$

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Expected market price according to Walter model:

$$P = \frac{D + (E - D) \times \frac{r}{k}}{0.12} = \frac{10 + (16.67 - 10) \times \frac{0.20}{0.12}}{0.12} = ₹175.97$$

- (j) A company has a profit margin of 25% and asset turnover of 3.5 times. What is the company's return on investment, if the profit margin is decreased by 5% and asset turnover is increase to 4 times?

Answer:

Net Profit Ratio = 25%

Revised Net Profit Ratio = (25-5) % = 20%

Revised:

Assets turnover ratio = 3.5 times

Revised Asset turnover ratio = 4 times

Return on investment i.e. ROI = 20% x 4 = 80%

2. (Answer any three questions)

[3×16=48]

(a)

- (i) "The more kilometers you travel with your own vehicle, the cheaper it becomes." Comment briefly on this statement. [2]

Answer:

The cost per kilometer, (if one travels in his own vehicle) will decline when he travels more kilometers. This is because the majority of costs for running and maintaining vehicles are of fixed nature and the component of fixed cost per kilometer goes on decreasing with an increase in kilometer travel. Hence, the given statement is true.

- (ii) The following details have been obtained from the cost records of Comet Paints Limited:

(₹)

Stock of raw materials on 1 st Sept. 2014	75,500
Stock of raw materials on 30 th Sept. 2014	91,500
Purchase of primary packing material	15,000
Opening stock of primary packing material	7,000
Closing Stock of Primary packing material	3,000
Direct Wages	52,500
Indirect wages	2,750
Sales	2,11,000
Work-in-progress on 1 st Sept. 2014	28,000
Work-in-progress on 30 th Sept. 2014	35,000
Purchase of raw materials	66,000
Factory rent rates and power	15,000
Depreciation of plant and machinery	3,500
Expenses on purchases	1,500
Carriage outwards	2,500
Advertising	3,500

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Office rent and taxes	2,500
wages and commission to delivery man	6,500
Opening Stock of Secondary Packing Material	5,000
Purchase of Secondary Packing material	16,000
Closing Stock of Secondary Packing Material	4,000
Stock of finished goods on 1 st Sept. 2014	54,000
Stock of finished goods on 30 th Sept. 2014	31,000

Prepare a Cost Sheet giving the maximum possible break up of costs and profits. [8]

Answer:

Cost Sheet

Particulars	Amount (₹)
Opening stock of Raw Material	75,500
Add: Purchase of Raw Materials	66,000
Add: Expenses on purchases	1,500
Less: Closing Stock of raw Material	(91,500)
Raw Material Consumed	51,500
Add: Direct Wages	52,500
Prime Cost	1,04,000
Add: Factory Overheads	
Indirect Wages	2,750
Factory rent, rates & power	15,000
Depreciation on Plant & Machinery	3,500
Gross Factory Cost	1,25,250
Add: Opening stock of work-in-progress	28,000
Less: Closing Stock of work-in-progress	(35,000)
Net factory cost	1,18,250
Add: Office & Administration overheads	
Office rent & taxes	2,500
Purchase of Primary packing material	15,000
Add: Op. stock of Primary packing material	7,000
Less: Closing Stock of Primary packing material	(3,000)
Cost of Production	1,39,750
Add: Opening Stock of finished goods	54,000
Less: Closing stock of finished goods	(31,000)
Cost of goods sold	1,62,750
Add: Selling & Distribution Overheads:	
Carriage outwards	2,500
Advertising	3,500
Traveler's wages & Commission	6,500
Purchase of secondary packing material	16,000
Add: Opening stock of secondary packing material	5,000
Less: Closing stock of secondary packing material	(4,000)
Cost of sales	1,92,250
Profit	18,750
Sales	2,11,000

(iii) A manufacturing unit produces two products X and Y. The following information is furnished:

Particulars	Product X	Product Y
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Units Produced (Qty)	57,000	42,750
Units Sold (Qty)	42,750	34,200
Machine Hours Utilised	28,500	14,250
Design Charges	42,750	51,300
Software development charges	85,500	1,08,300

Royalty paid on sales ₹1,92,375 [@ ₹2.5 per unit sold, for both the products]; Royalty paid on units produced ₹99,750 [@ ₹1 per unit purchased, for both the products], Hire charges of equipment used in manufacturing process of Product X only ₹21,375, Compute the Direct Expenses as per CAS 10. [6]

Answer:

Computation of Direct Expenses

	Particulars	Product X	Product Y
	Royalty paid on sales	1,06,875	85,500
Add	Royalty paid on units produced	57,000	42,750
Add	Hire charges of equipment used in manufacturing process of product X only	21,375	-----
Add	Design Charges	42,750	51,300
Add	Software development charges related to production	85,500	1,08,300
	Direct Expenses	3,13,500	2,87,850

Note:

- Royalty on production and royalty on sales are allocated on the basis of units produced and units sold respectively. These are directly identifiable and traceable to the number of units produced and units sold. Hence, this is not an apportionment.
- No adjustments are made related to units held, i.e. closing stock.

(b)

- (i) List the items to be included and to be excluded while measuring the employee cost as per CAS – 7. [5]**

Answer:

Items to be included and to be excluded while measuring the Employee Cost as per CAS –7

The following items are to be '**included**' for the purpose of measuring Employee Cost:

- Any payment made to an employee either in cash or kind;
- Gross payments including all allowances payable and includes all benefits;
- Bonus, ex-gratia, sharing of surplus, remuneration payable to Managerial personnel including Executive Directors and other officers;
- Any amount of amortization arising out of voluntary retirement, retrenchment, termination, etc.;
- Variance in employee payments/costs, due to normal reasons (if standard costing system is followed);
- Any perquisites provided to an employee by the employer.

The following items are to be '**excluded**' for the purpose of measuring employee cost:

- Remuneration paid to Non-Executive Director;
- Cost of idle time i.e. [Hours spent as idle time x hourly rate];

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- Variance in employee payments/costs, due to abnormal reasons (if standard costing system is followed);
- Any abnormal payment to an employee – which are material and quantifiable;
- Penalties, damages paid to statutory authorities or third parties;
- Recoveries from employees towards benefits provided – this should be adjusted/reduced from the employee cost;
- Cost related to labour turnover – recruitment cost, training cost and etc.;
- Unamortized amount related to discontinued operations.

(ii) In a factory bonus to workman is paid according to Rowan Plan. Time allotted for a job is 40 hours and the normal rate of wages is ₹ 1.25 per hour. The factory overhead charges are 50 paise per hour for the hours taken. The factory cost of a work order, executed by a worker is ₹161.875. The cost of material in each case is ₹ 100. Calculate the hours of time taken by the workman to complete the work order. [6]

Answer:

Let 'T' be the time taken by worker.

$$\begin{aligned}\text{Earnings} &= 1.25 T + [(40-T) / 40] \times [1.25 T] \\ &= 1.25 T + [(50T - 1.25 T^2) / 40] \\ &= [50T + 50 T - 1.25T^2] / 40 \\ &= [100 T - 1.25T^2] / 40\end{aligned}$$

Materials + Wages + Factory Overheads = Factory Cost

$$\begin{aligned}\Rightarrow 100 + [100 T - 1.25T^2] / 40 + 0.5 T &= 161.875 \\ \Rightarrow 4000 + 100 T - 1.25T^2 + 20T &= 6475 \\ \Rightarrow 1.25T^2 - 120 T + 2475 &= 0 \\ \Rightarrow 5T^2 - 480 T + 9900 &= 0 \\ \Rightarrow T^2 - 96T + 1980 &= 0\end{aligned}$$

$$T = \frac{96 \pm \sqrt{9,216 - 7,920}}{2}$$

$$T = \frac{96 \pm 36}{2}$$

$$T = 66 \text{ (or) } 30$$

T = 30 hours (because actual time should not be more than standard time).

(iii) Explain Blanket (Single) Overhead Rate. [5]

Answer:

Blanket (Single) Overhead Rate:

A single overhead rate for the entire factory may be computed for the entire factory. So this is known as factory wide or Blanket Overhead Rate Method.

Blanket Rate = Overhead Cost for the factory / Total Quantum of the base.

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Blanket Rate of overheads may be applied suitable in a small size concerns. Blanket Rates are easy to compute. The use of Blanket Rate of overheads gives erroneous and misleading results, where several products passing through number of different departments. With Blanket Rate of overhead, satisfactory level of managerial control is not possible.

(c)

(i) Describe about Generally Accepted Cost Accounting Principles (GACAP). [5]

Answer:

Like Generally Accepted Accounting Principles (GAAP) for Financial Accounting, the Cost Accounting has the Generally Accepted Cost Accounting Principle (GACAP) which are followed by the Indian industry are summarized as below.

The broad principles as applicable to all the elements of cost are:

- When an element of cost is accounted at standard cost, variances due to normal reasons are treated as a part of the element wise cost. Variances due to abnormal reasons will not form part of the cost.
- Any subsidy / grant / incentive and any such payment received / receivable with respect to the input cost is reduced from cost for ascertainment of the cost object to which such amount pertains.
- Any abnormal cost where it is material and quantifiable will not form part of the cost.
- Penalties, damages paid to statutory authorities or other third parties will not form part of the Total Cost.
- Cost reported under various elements of cost will not include Imputed Costs.
- Finance costs incurred in connection with the acquisition of resources such as material, utilities and the like will not form part of the cost of such resources.
- Any credits or recoveries from employees or suppliers or other parties towards the costs incurred by the entity for a resource will be netted against such cost.
- Except otherwise stated, the measurement of costs for Cost Accounting purposes will follow the same principles as set out in Generally Accepted Accounting Principles applicable to the concerned entity.

(ii) A machinery was purchased from a manufacturer who claimed that his machine could produce 142.35 tonnes in a year consisting of 365 days. Holidays, breakdown, etc, were normally allowed in the factory for 65 days. Sales were expected to be 97.5 tonnes during the year and the plant actually produced 98.28 tonnes during the year.

You are required to state the following figures: Rated Capacity; Practical Capacity
Normal Capacity; Actual Capacity. [1+2+1+1=5]

Answer:

Rated Capacity (Refers to the capacity of a machine or a plant as indicated by its manufacturer) = 142.35 tonnes.

Practical Capacity (Defined as actually utilized capacity of a plant)

$$\text{i.e. } \frac{142.35}{365} \times (365 - 65) \text{ tonnes} = 117 \text{ tonnes}$$

Normal Capacity (It is the capacity of a plant utilized based on sales expectancy)
= 97.5 tonnes.

Actual Capacity (Refers to the capacity actually achieved) = 98.25 tonnes.

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(iii) Discuss the treatment of :—

- “Interest on Borrowing for Working Capital”
- “Cost of Containers Relating to Materials Purchased”

[3+3=6]

Answer:

Interest on Borrowing for Working Capital —

Inclusion of interest as an item of overhead in the cost is controversial and will depend upon circumstances. The general opinion is that interest on capital whether for working capital fund or otherwise, should not burden the product costs. If extra working capital funds are required for some specific gainful purpose, viz., to purchase bulk material in view of emergency, the interest may be included as an element of the material cost.

Cost of Containers Relating to Materials Purchased —

Usually the cost of the containers containing the materials purchased is included in the cost of materials and therefore is automatically forms a part of material cost. The containers may be returnable or non returnable. The cost of the non returnable containers should be charged as a part of the materials cost and ultimately would go into the Prime Cost or Factory Overhead depending upon the usage of the materials as direct or indirect. In the case of returnable containers the cost of them should not be included either in cost of materials or in any other head, because when they are returned to the supplier, full credit would be received. If, however, container becomes damaged, it should be charged to the cost of the materials.

(d)

(i) In a manufacturing unit, overhead was recovered at a predetermined rate of ₹ 25 per man-day. The total factory overhead incurred and the man-days actually worked were ₹3,63,12,500 and 13,12,500 respectively. Out of the 40,000 units produced during a period 30,000 units were sold. There were also 30,000 uncompleted units which may be reckoned at 66.67% complete.

On analyzing the reasons, it was found that 40% of the unabsorbed overheads were due to defective planning and the rest were attributable to increase overhead costs.

How would unabsorbed overhead be treated in Cost Account?

[5]

Answer:

	₹
Overheads incurred	3,63,12,500
Overheads absorbed (13,12,500 x 25)	3,28,12,500
Under absorption	35,00,000

The under absorption of ₹35,00,000 being considerable whether due to defective planning or due to increase in prices, would be disposed of by applying supplementary OH rate in the following manner:

$$\begin{aligned} \text{Supplementary OH rate} &= \frac{\text{₹}35,00,000}{30,000 + 10,000 + (30,000 \times \frac{2}{3})} \\ &= \frac{35,00,000}{60,000} = 175/3 \\ \text{To be absorbed on cost of goods sold} &= 30,000 \times 175/3 = 17,50,000 \end{aligned}$$

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To be absorbed on closing stock	= 10,000 x 175/3	= 5,83,333
To be absorbed on Work in progress	= 30,000 x 2/3 x 175/3	= 11,66,667
		= 35,00,000

- (ii) Purchase of Materials ₹ 12,70,000 (inclusive of Trade Discount ₹ 19,050); Fee on Board ₹ 63,500; Import Duty paid ₹ 95,250; Freight inward ₹ 1,27,000 ; Insurance paid for import by sea ₹ 69,850; Rebates allowed ₹ 25,400; Cash discount ₹ 19,050; CENVAT Credit refundable ₹ 44,450; Subsidy received from the Government for importation of these materials ₹ 1,27,000. Compute the landed cost of material (i.e. value of receipt of material). [6]

Answer:

Computation of Material Cost

	Particulars	Amount (₹)
	Purchase price of Material	12,70,000
Add	Fee on Board	63,500
Add	Import Duties of purchasing the material	95,250
Add	Freight Inward during the procurement of material	1,27,000
Add	Insurance paid	69,850
Total		16,25,600
Less	Trade Discount	19,050
Less	Rebates	25,400
Less	CENVAT Credit refundable	44,450
Less	Subsidy received from the Government for importation of materials	1,27,000
	Value of Receipt of Material	14,09,700

Note:

- Cash discount is not allowed, as it is a financial item.
- Subsidy received, rebates and CENVAT Credit refundable are to be deducted for the purpose of computing the material cost.

- (iii) Basic pay ₹3,75,000; Accommodation provided to employee free of cost [this accommodation is owned by the employer, depreciation of accommodation ₹67,500, maintenance charges of the accommodation ₹48,750 and municipal tax paid for this accommodation ₹3,750], Employer's Contribution to P.F. ₹56,250, Employee's Contribution to P.F. ₹56,250; Reimbursement of Medical expenses ₹48,750, Festival Bonus ₹15,000, Festival Advance ₹22,500. Compute the Employee cost. [5]

Answer:

Computation of Employee Cost

	Particulars	Amount (₹)
	Basic Pay	3,75,000
Add	Cost of accommodation provided by the employer [Depreciation + Maintenance charges + Municipal Tax paid i.e. ₹67,500 + ₹48,750+₹3,750]	1,20,000
Add	Employer's Contribution to PF	56,250
Add	Reimbursement of Medical Expenses	48,750
Add	Festival Bonus	15,000
	Employee Cost	6,15,000

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Note:

- (i) Festival advance is a recoverable amount, hence not included in employee cost.
- (ii) Employee's contribution to PF is not a cost to the employer, hence not considered.

3. (Answer any two questions)

[2×16=32]

(a)

(i) Explain the GATT.

[3]

Answer:

The General Agreement on Tariffs and Trade (GATT):

GATT was a treaty, not an organization. Main objective of GATT was the reduction of barriers to international trade through the reduction of tariff barriers, quantitative restrictions and subsidies on trade through a series of agreements. It is the outcome of the failure of negotiating governments to create the International Trade Organization (ITO).

The Bretton Woods Conference had introduced the idea for an organization to regulate trade as part of a larger plan for economic recovery after World War II. As governments negotiated the ITO, 15 negotiating states began parallel negotiations for the GATT as a way to tariff reductions. Once the ITO failed in 1950, only the GATT agreement was left.

The functions of the GATT were taken over by the World Trade Organization which was established during the final round of negotiations in early 1990s.

(ii) List out the needs of Capital Budgeting Decisions.

[6]

Answer:

The selection of the most profitable project of capital investment is the key function of Financial Manager. The decisions taken by the management in this area affect the operations of the firm for many years. Capital budgeting decisions may be generally needed for the following purposes:

(a) Expansion; (b) Replacement; (c) Diversification; (d) Buy or lease and (e) Research and Development.

- **Expansion:** The firm requires additional funds to invest in fixed assets when it intends to expand the production facilities in view of the increase in demand for their product in near future. Accordingly the current assets will increase. In case of expansion of the existing infrastructure, to carry out the increased production volume the firm needs funds. This will include not only expenditure on fixed assets (infrastructure) but also an increase in working capital (current assets).
- **Replacement:** The machines and equipment used in production may either wear out or may be rendered obsolete due to new technology. The productive capacity and competitive ability of the firm may be adversely affected. The firm needs funds for modernisation of a certain machines or for renovation of the entire plant etc. Modernization and renovation will be a substitute for total replacement, where renovation or modernization is not desirable or feasible, funds will be needed for replacement also.
- **Diversification:** If the management of the firm decided to diversify its production into other lines by adding a new line to its original line, the process of diversification would require large funds for long-term investment.

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- **Buy or Lease:** This is a most important decision area in Financial Management whether the firm acquire the desired equipment and building on lease or buy it. All of these options require considerable amount of fund. The decision – making area is which course of action will be better to follow? The costs and benefits of the alternative methods should be matched and compared to arrive at a conclusion.
- **Research and Development:** The existing production and operations can be improved by the application of new and more sophisticated production and operations management techniques. New technology can be borrowed or developed in the laboratories. There is a greater need of funds for continuous research and development of new technology for future benefits or returns from such investments.

(iii) Calculate the level of earnings before interest and tax (EBIT) at which the EPS indifference point between the following financing alternatives will occur.

Combination-I

Equity share capital of ₹ 6,00,000 and 12% Debentures of ₹ 4,00,000.

Combination-II

Equity share capital of ₹ 4,00,000, 14% Preference share capital of ₹ 2,00,000 and 12% Debentures of ₹ 4,00,000.

Assume the corporate tax rate is 30% and par value of equity share is ₹ 100 in each case.

[3+4=7]

Answer:

Computation of Level of Earnings before Interest and Tax (EBIT)

EPS in Alternative (i)

$$\begin{aligned} &= \frac{(\text{EBIT} - \text{Interest})(1 - \text{tax rate})}{\text{No. of equity shares}} \\ &= \frac{(\text{EBIT} - 0.12 \times ₹ 4,00,000)(1 - 0.30)}{6,000} \end{aligned}$$

EPS in Alternative (ii)

$$= \frac{(\text{EBIT} - 0.12 \times ₹ 4,00,000)(1 - 0.30) - (0.14 \times ₹ 2,00,000)}{4,000}$$

The Indifference level of EBIT under both the Alternatives:

$$= \frac{(\text{EBIT} - 0.12 \times ₹ 4,00,000)(1 - 0.30)}{6,000} = \frac{(\text{EBIT} - 0.12 \times ₹ 4,00,000)(1 - 0.30) - (0.14 \times ₹ 2,00,000)}{4,000}$$

$$\frac{0.70\text{EBIT} - 33,600}{3} = \frac{0.70\text{EBIT} - 61,600}{2}$$

$$1.40 \text{ EBIT} - 67,200 = 2.10 \text{ EBIT} - 1,84,800$$

$$0.70 \text{ EBIT} = 1,17,600$$

$$\text{EBIT} = 1,17,600 / 0.70$$

$$= ₹ 1,68,000$$

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(b)

- (i) A company operates at a production level of 10,000 units. The contribution is ₹68 per unit, operating leverage is 7.5, and combined leverage is 30. If tax rate is 30%. Estimate the earnings after tax. [5]

Answer:

Computation of earnings after tax:

$$\text{Contribution} = ₹68 \times 10,000 \text{ units} = ₹6,80,000$$

$$\text{Combined leverage} = \text{Operating leverage} \times \text{Financial leverage}$$

$$30 = 7.5 \times \text{Financial leverage}$$

$$\text{Financial leverage} = 30 / 7.5 = 4$$

$$\begin{aligned} \text{Operating leverage} &= \frac{\text{Contribution}}{\text{EBIT}} \\ 7.5 &= ₹6,80,000 / \text{EBIT} \end{aligned}$$

$$\text{EBIT} = ₹90,667$$

$$\text{Financial leverage} = \frac{\text{EBIT}}{\text{EBT}}$$

$$4 = ₹90,667 / \text{EBT}$$

$$\text{EBT} = ₹90,667 / 4 = ₹22,667$$

$$\text{Tax rate} = 30\%$$

$$\text{Earnings after tax} = ₹22,667(1-0.30) = ₹15,867$$

- (ii) From the following interest calculate the total market value of each firm under Net Income Approach.

Interest (I) at 12% and equity capitalization rate (K_e) given below:

Firms	EBIT	I	K _e
	₹	₹	₹
A	3,00,000	60,000	16%
B	6,00,000	2,40,000	18%
C	5,00,000	2,00,000	15%

[3]

Answer:

Calculation of valuation of each firm under Net Income Approach

Value of firm = Value of equity + Value of debt

Firm	A	B	C
EBIT	3,00,000	6,00,000	5,00,000
Less: Interest	60,000	2,40,000	2,00,000

Answer to PTP_Intermediate_Syllabus 2012_June2015_Set 1

Equity Earnings	2,40,000	3,60,000	3,00,000
Cost of Equity (ke)	16%	18%	15%
Capitalized Value of equity	15,00,000	20,00,000	20,00,000
Add: MV of Debt	5,00,000	20,00,000	16,66,667
Value of firm	20,00,000	40,00,000	36,66,667

(iii) Sampa Ltd is evaluating a project costing ₹20 lakhs. The Project generates savings of ₹2.95 lakhs per annum to perpetuity. The business risk of the project warrants a rate of return of 15%.

- Calculate Base case NPV of the project assuming no tax.
- Assuming Tax Rate of 30% with 14% Cost of Debt constituting 30% of the cost of the project, determine Adjusted Present Value.
- Find out minimum acceptable Base Case NPV, as well as Minimum IRR.

[2+3+3=8]

Answer:

Computation of Base case NPV

Particulars	₹ lakhs
Investment Cost	20.00
Annual saving	2.95
Present value of Perpetual savings = $\frac{\text{Annual Savings}}{\text{Rate of Return}} = \frac{2.95}{15\%}$	19.67
Net Present Value [PV of Inflows 19.67 Less Investment Cost 20.00]	(0.33)

Observation: The base case NPV is negative and therefore, the project cannot be accepted as it is.

Computation of Adjusted NPV

Particulars	₹ lakhs
Total Investment	20.00
Debt Component [30% of Investment Cost of ₹20.00 Lakhs]	6.00
Interest on Debt @14% [₹6 Lakhs x 14%]	0.84
Tax saving on Interest on debt [₹0.84 Lakhs x 30%]	0.252
Present value of tax saving on perpetuity = $\frac{\text{Annual Savings}}{\text{InterestRate}} = \frac{0.252}{14\%}$	1.80
Base case NPV	(0.33)
Adjusted NPV [base Case NPV + PV of tax saving due to Interest on debt]	1.47

Minimum base case NPV without Tax Shield

At Minimum Base case NPV, Adjusted NPV = 0

$$\Rightarrow 0 = \text{Base Case NPV} + \text{tax shield on Interest}$$

$$\Rightarrow 0 = \text{Base Case NPV} + ₹1.80 \text{ Lakhs}$$

$$\Rightarrow \text{Minimum base Case NPV} = \text{₹1.80 lakhs}$$

$$\Rightarrow 0 = \text{PV of perpetual Inflow} - \text{Investment} + \text{Tax shield}$$

Answer to PTP_Intermediate_Syllabus 2012_June2015_Set 1

$$\Rightarrow 0 = \frac{\text{Perpetual Inflow}}{0.15} - 20.00 + 1.80$$

$$\Rightarrow 0 = \frac{\text{Perpetual Inflow}}{0.15} - 18.20$$

$$\Rightarrow 18.2 = \frac{\text{Perpetual Inflow}}{0.15}$$

$$\Rightarrow \text{Perpetual Inflow} = ₹18.20 \text{ Lakhs} \times 0.15 = ₹2.73 \text{ Lakhs} \Rightarrow \frac{₹2.73 \text{ Lakhs}}{₹20.00 \text{ Lakhs}} = 13.65\%$$

(c)

(i) Ambar Limited had the following ledger balances as on 31.03.2015:

	Amount (₹)
Current Liabilities (Cr.)	15,000
Long-Term Notes Payable (Cr.)	25,500
Bonds Payable (Cr.)	35,000
Capital stock (cr.)	85,000
Retaining Earning (Cr.)	24,500
Cash (Dr.)	7,500
Accounts Receivable (Dr.)	30,000
Investments (Dr.)	20,000
Plant assets (Dr.)	67,500
Land (Dr.)	60,000

During 2014-2015, the following transactions took place:

- A tract of land was purchased for ₹ 7,750 cash.
- Bonds payable in the amount of ₹ 6,000 were retired for cash at face value.
- An additional ₹ 20,000 equity shares were issued at par for cash.
- Dividends totalling ₹ 9,375 were paid.
- Net income for 2014-2015 was ₹ 28,450 after allowing for depreciation of ₹ 9,500.
- Land was purchased through the issuance of ₹ 22,500 in bonds.
- Ambar Ltd. sold a part of its investments portfolio for ₹ 12,875 cash. The transaction resulted in a gain of ₹ 1,375 for the firm.
- Current liabilities increased to ₹ 18,000 at 31-3-2015.
- Accounts receivable at 31-3-2015 total ₹ 38,000.

Prepare a statement of cash flows for 2014-2015, under indirect method.

[8]

Answer:

Cash Flow Statement for the year ended 31-03-2015

Particulars	Amount (₹)	Amount (₹)
Cash Flows from Operating Activities		
Net Profit	28,450	
Add : Depreciation	9,500	
Less : Gain on Sale of Investment	(1,375)	

Answer to PTP_Intermediate_Syllabus 2012_June2015_Set 1

Operating Profit before Working Capital changes	36,575	
Add : Increase in current liabilities	3,000	
Less : Increase in accounts receivable	<u>(8,000)</u>	
Net Cash from operating activities		31,575
Cash Flows from Investing activities		
Sale of Investment	12,875	
Purchase of Land (For cash only)	<u>(7,750)</u>	
Net Cash from investing activities		5,125
Cash Flows from Financing Activities		
Issue of shares	20,000	
Redemption of Bonds	(6,000)	
Dividend Paid	<u>(9,375)</u>	
Net Cash from financing activities		<u>4,625</u>
Net Increase in cash and cash equivalents during the period		41,325
Add : Cash and cash equivalents in the beginning of the period		<u>7,500</u>
Cash and cash equivalents at the end of the period		48,825

Note: Significant Non-cash Transactions : Purchase of land by issue of bonds ₹ 22,500.

(ii) The directors of Virat Limited are contemplating the purchase of a new machine to replace a machine which has been in operation in the factory for the last 5 years.

Ignoring interest but considering tax at 30% of net earnings, suggest which of the two alternatives should be preferred. The following are the details:

Particulars	Existing Machine	New Machine
Purchase price	₹1,40,000	₹2,10,000
Estimated life of machine	10 years	10 years
Machine running hours per annum	2,000	2,000
Units per hour	12	18
Wages per running hour	3	5.25
Power per annum	2,000	4,500
Consumables stores per annum	6,000	7,500
All other charges per annum	8,000	9,000
Materials cost per unit	1.00	1.00
Selling price per unit	2.50	2.50

Answer to PTP_Intermediate_Syllabus 2012_June2015_Set 1

You may assume that the above information regarding sales and cost of sales will hold good throughout the economic life of each of the machines. Depreciation has to be charged according to straight-line method. [8]

Answer:

Decision based on calculation of Profit

Particulars	Existing Machine	New Machine
Cost of Machine (₹)	₹1,40,000	₹2,10,000
Life of Machine	10 years	10 Years
Machine running hours	2,000	2,000
Depreciation - [1,40,000 / 10] [2,10,000 / 10](₹)	14,000	21,000
Production in units - [2,000 x 12] [2000 x 18]	24,000	36,000

(₹)		
Sales - [24,000 x 2.50] ;[36,000 x 2.50] [A]	60,000	90,000
Cost of sales:		
Depreciation	14,000	21,000
Wages [2000 x 3] [2000 x 5.25]	6,000	10,500
Power	2,000	4,500
Consumables	6,000	7,500
Other charges	8,000	9,000
Material [24,000 x 1.00] [36,000 x 1.00]	24,000	36,000
Total Cost [B]	60,000	88,500
Profit Before Tax [A-B]	-	1,500
Less: Tax at 50%	-	450
Profit after tax	-	1,050

Comment:

From the above computation, it is clear that new machine can be replaced in place of old machine because it has profit is ₹1,050.