

PAPER – 8: COST ACCOUNTING & FINANCIAL MANAGEMENT

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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
	APPLICATION How you are expected to apply your knowledge	Illustrate	Use an example to describe or explain something
		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
	ANALYSIS How you are expected to analyse the detail of what you have learned	Solve	Find an answer to
		Tabulate	Arrange in a table
		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) Compute the Inventory turnover ratio from the following:

Opening Stock - ₹ 12,200

Closing Stock - ₹ 19,000

Material Consumed - ₹ 78,000

Solution :

$$\text{Inventory Turnover Ratio} = \frac{\text{Value of average stock held during the period}}{\text{Value of material consumed during the period}}$$

$$\begin{aligned}\text{Average Stock} &= \frac{\text{Opening Stock} + \text{Closing Stock}}{2} \\ &= \frac{12,200 + 19,000}{2} \\ &= 15,600\end{aligned}$$

$$\text{Inventory Turnover Ratio} = \frac{78,000}{15,600} = 5.$$

(b) State the Scope and objective of CAS – 7 [Employee Cost] in brief.

Solution :

CAS - 7 [Employee Cost]

Scope: This standard should be applied to cost statements which require classification, measurement, assignment, presentation and disclosure of Employee Cost including those requiring attestation.

Objective: To bring uniformity and consistency in the principles and methods of determining the Employee Cost with reasonable accuracy.

(c) List the advantages of Cost control.

Solution :

The advantages of cost control are mainly as follows:

- (i) Achieving the expected return on capital employed by maximising or optimizing profit;
- (ii) Increase in productivity of the available resources;
- (iii) Reasonable price of the customers;

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- (iv) Continued employment and job opportunity for the workers;
- (v) Economic use of limited resources of production;
- (vi) Increased credit worthiness;
- (vii) Prosperity and economic stability of the industry.

(d) Write a note on – Cost Collection.

Solution :

Cost Collection is the process of booking costs against a particular Cost Account code under a particular cost centre or directly under a cost unit, as the case may be. Source documents are used to generate the record of the costs incurred or to be incurred. These source documents are properly authorised and numbered. They act as the primary source of entry. In addition to these documents there could be other documents and reports such as allocation sheets, labour utilisation reports, idle time & overtime analysis, scrap reports etc which help in identifying costs. Let us see how the costs are collected.

(e) For a department the standard overhead rate is ₹2.50 per hour and the overhead allowances are as follows:

Activity Level (Hours)	Budget overhead Allowance (₹)
3,000	10,000
7,000	18,000
11,000	26,000

Calculate:

i) Fixed cost

ii) The standard activity level on the basis of which the standard overhead rate has been worked out.

Solution:

(i) Fixed Cost

$$\begin{aligned}\text{Variable OH per hour} &= \frac{\text{High level cost} - \text{Low level cost}}{\text{High level hours} - \text{Low level hours}} \\ &= \frac{[(26,000 - 10,000) / (11,000 - 3,000)]}{} \\ &= ₹ 2 \text{ per hour}\end{aligned}$$

$$\text{Fixed Cost} = 10,000 - (3,000 \times 2) = ₹ 4,000$$

(ii) Standard activity level at which the rate has been determined

Standard activity level at which the rate has been determined

$$= \text{Fixed Cost} / \text{Fixed OH per hour}$$

$$= 4,000 / (2.5 - 2) = 8,000 \text{ hours}$$

(f) The average annual consumption of a material is 36,500 units at a price of ₹ 73.00 per unit. The storage cost is 20% on an average inventory and the cost of placing an order is ₹ 100. How much quantity is to be purchased at a time?

Solution:

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$$EOQ = \sqrt{\frac{2 \times 36,500 \times 100}{73.00 \times 20/100}} = \sqrt{\frac{73,00,000}{14.60}} \approx 710 \text{ units}$$

- (g) Income from Operating Activities is ₹70 lakhs;**
Fixed Asset sold for ₹100 lakhs;
Machinery Sold for ₹130 lakhs;
Income from Financing Activities is ₹20 lakhs, compute the net effect on Cash Flow.

Solution :

Particulars	₹ in lakhs	₹ in lakhs
A. Cash flow from Operating Activities		70
B. Cash flow from Investing Activities		
Sale of Fixed Asset	100	
Purchase of Machinery	130	230
C. Cash flow from Financing Activities		20
Net increase Cash Flow (A+B+C)		320

- (h) The following information is available for ABC & Co.**

	₹
EBIT	11,20,000
Profit before Tax	3,20,000
Fixed costs	7,00,000

Solution :

$$\text{Combined Leverage} = \text{Contribution/Profit before tax} = 11,20,000 + 7,00,000 / 3,20,000 = 5.69$$

- (i) Bombay Cotton Mills Limited makes a rights issue at ₹5 a share of one new share for every four shares held. Before the issue, there were 10 million shares outstanding and the share price was ₹ 6. What is the value of one right?**

Solution :

$$\text{Value of one right} = \frac{[6 - (4 \times 6) + (1 \times 5)]}{5} = ₹ 0.20$$

- (j) The capital of PQR Limited is as follows:**

9% preference shares of ₹10 each ₹3,00,000
Equity shares of ₹10 each ₹8,00,000
Following further information is available:
Profit after Tax ₹2,70,000
Equity Dividend paid 20%
The market price of equity shares ₹40 each
Compute the EPS and PE ratio .

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Solution :

$$\text{EPS} = \frac{\text{PAT - Preferred dividend}}{\text{No. of Equity share}} = \frac{2,70,000 - 27,000}{80,000} = ₹3.04$$

$$\text{PE ratio} = \frac{\text{Market price}}{\text{EPS}} = \frac{40}{3.04} = 13.16.$$

2. (Answer any three questions)

[3×16=48]

(a)

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

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

Calculate economic order quantity and total annual inventory cost of the raw material. [4]

(ii) Discuss the accounting treatment of idle time wages and overtime wages in cost accounts. [3+3=6]

(iii) List the items of Direct Expenses that are required to be disclosed in a Cost Statement as per CAS – 10. [6]

Solution :

(i)

$$\begin{aligned} \text{EOQ} &= \sqrt{\frac{2 \times \text{Annual Consumption} \times \text{Buying cost per order}}{\text{Storage Cost per unit}}} \\ &= \sqrt{\frac{2 \times 2,000 \times 20}{20 \times \left(\frac{2+8}{100}\right)}} = \sqrt{\frac{80,000}{2}} = 200 \text{ units} \end{aligned}$$

Total Annual Inventory Cost

Cost of 2,000 Units @ ₹ 20 (2,000 x 20)	₹ 40,000
No. of Order 2000/200	10
Ordering Cost 10 x 20	₹ 200
Carrying cost of Average Inventory $\frac{200}{2} \times 20 \times \frac{10}{100}$	₹ 200
	= ₹ 40,400

(ii) Accounting treatment of idle time wages in cost accounts:

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.

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Abnormal idle time: It is defined as the idle time which arises on account of abnormal causes; e.g. strikes, lockouts, floods, major breakdown of machinery, fire etc. such an idle time is uncontrollable.

The cost of abnormal idle time due to any reason should be charged to Costing Profit & Loss Account.

Accounting treatment of overtime wages in cost accounts: If overtime is resorted to at the desire of the customer, then the overtime premium may be charged to the job directly.

- If overtime is required to cope with general production programme or for meeting urgent orders, the overtime premium should be treated, as overhead cost of particular department or cost center which works overtime.
- Overtime worked on account of abnormal conditions should be charged to costing Profit & Loss Account.
- If overtime is worked in a department due to the fault of another department the overtime premium should be charged to the latter department.

(iii) The Cost Statement shall disclose the following items of Direct Expenses as per CAS-10:

- (a) The basis of distribution of direct expenses to cost objects / cost units.
- (b) Quantity and rates of items of direct expenses as applicable.
- (c) Where direct expenses are accounted at standard cost the price and usage variance.
- (d) Direct expenses representing procurement of resources and expenses incurred in connection with resources generated.
- (e) Direct expenses paid or payable to related parties.
- (f) Direct expenses incurred in foreign currency.
- (g) Any subsidy / incentive and any such payment received from direct expenses.
- (h) Credits or recoveries relating to the direct expenses.
- (i) Any abnormal portion of direct expenses.
- (j) Penalties and damages excluded from direct expenses.
- (k) Disclosure shall be made only when material, significant and quantifiable. Disclosures shall be made in the body of the Cost Statement or as a foot note or as a separate schedule.

(b)

(i) PRO manufacturers - a small scale enterprise produces a single product and has adopted a policy to recover the production overheads of the factory by adopting a single blanked rate based on machine hours. The budgeted production overheads of the factory are Rs.10,08,000 and budgeted machine hours are 96,000.

For the period first six month of the financial year 2015-16, following information were extracted from the books:

Actual production overheads	₹6,79,000
Amount included in the production overheads:	
Paid as per court's order	₹ 45,000
Expenses of previous year booked in current year	₹ 10,000
Paid workers for strike period under an award	₹ 42,000
Obsolete stores written off	₹ 18,000

Production and sales data of the concern for the first six months are as under:

Production:

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Finished goods	22,000 units
Work-in-progress (50% complete in every respect)	16,000 units
Sale: Finished goods	18,000 units

The actual machine hours worked during the period were 48,000 hours. It is revealed from the analysis of information that i of the under-absorption was to defective production policies and the balance was attributable to increase in costs.

You are required:

- I. to determine the amount of under absorption of production overheads for the period,
- II. to show the accounting treatment of under-absorption of production overheads, and
- III. to apportion the unabsorbed overheads over the items.

[3+2+3=8]

(ii) In a manufacturing company, a material is used as follows: Maximum Consumption-12,000 units per week. Minimum Consumption-4,000 units per week. Normal Consumption-8,000 units per week. Reorder Quantity-48,000 units. Time required for delivery: Minimum: 4 weeks; Maximum: 6 weeks. Calculate:

- | | |
|---------------------|--------------------------|
| (a) Re-order level, | (d) Danger level and, |
| (b) Minimum level, | (e) Average Stock level. |
| (c) Maximum level, | |

[5]

(iii) Explain the term Opportunity Cost.

[3]

Solution :

(i)

(I) Amount of under absorption of production overheads during the period of first six months of the year 2015-16:

	(₹)
Total production overheads actually incurred during the period	6,79,000
Less: Amount paid to worker as per court order	45,000
Expenses of previous Year booked in the current year	10,000
Wages paid for the strike period under an award	42,000
Obsolete material written off	<u>18,000</u>
	5,64,000
Less: Production overheads absorbed as per machine hour rate (48,000 hours * ₹ 10.5)	<u>5,04,000</u>
Amount of under absorbed production overheads	60,000

Budgeted machine hours rate = ₹ 10,08,000/ 96,000 hours = ₹10.50 per hour

(II) Accounting treatment of under absorbed production overheads:

As, one fourth of the under absorbed overheads were due to defective production policies, this being abnormal, hence should be debited to profit and loss account.

Amount to be distributed = (60,000 * ¾) = ₹ 45,000.

Supplementary rate = ₹ 45,000 ÷ 30,000 units = ₹ 1.50 per unit

(III) Apportionment of under absorbed production overheads over WIP, finished goods and cost of sales:

	Equivalent completed units	Amount (in ₹)
Work-in progress (16,000units *50%* 1.50)	8,000	12,000
Finished goods(4,000 units*1.50)	4,000	6,000

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Cost of sales (18,000 units* 1.50)	18.000	27,000
Total	30.000	45.000

(ii) Normal Lead Time = $\frac{\text{Minimum Lead time} + \text{Maximum Lead time}}{2}$
 = $\frac{4 \text{ week} + 6 \text{ week}}{2} = 5 \text{ week}$

(a) Reorder Level = Maximum consumption x Maximum Lead time
 = 12,000 units x 6 week = 72,000 units

(b) Minimum Level = Reorder Level - (Normal Consumption x Normal Lead time)
 = 72,000 units - (8,000 x 5) = 32,000 units

(c) Maximum Level = Reorder Level + Reorder Quantity - (Minimum Usage x Minimum period)
 = 72,000 units + 48,000 units - (4,000 units x 4 week) = 1,04,000 units

(d) Danger Level = Normal Consumption x Delivery period emergency purchase
 = 8,000 units x 3 weeks = 24,000 units

Note:- It is assumed that delivery period for emergency purchase is 3 weeks (less than minimum time of delivery).

(e) Average Stock Level = $\frac{\text{Minimum Level} + \text{Maximum Level}}{2}$
 = $\frac{32,000 + 1,04,000}{2}$ units
 = 68,000 units

(iii) Opportunity Cost:

Opportunity cost is the value of alternatives foregone by adopting a particular strategy or employing resources in specific manner. It is the return expected from an investment other than the present one. These refer to costs which result from the use or application of material, labour or other facilities in a particular manner which has been foregone due to not using the facilities in the manner originally planned. Resources (or input) like men, materials, plant and machinery, finance etc., when utilised in one particular way, yield a particular return (or output). If the same input is utilised in another way, yielding the same or a different return, the original return on the forsaken alternative that is no longer obtainable is the opportunity cost. For example, if fixed deposits in the bank are proposed to be withdrawn for financing project, the opportunity cost would be the loss of interest on the deposits. Similarly when a building leased out on rent to a party is got vacated for own purpose or a vacant space is not leased out but used internally, say, for expansion of the production programme, the rent so foregone is the opportunity cost.

(c)

(i) A factory incurred the following expenditure during the year 2015.

	₹	₹
Direct material consumed		12,00,000
Manufacturing wages		7,00,000
Manufacturing overheads:		
Fixed	3,60,000	
Variable	<u>2,50,000</u>	<u>6,10,000</u>
		25,10,000

In the year 2016, following changes are expected in production and cost of production.

1. Production will increase due to recruitment of 60% more workers in the factory.
2. Overall efficiency will decline by 10% on account of recruitment of new workers.
3. There will be an increase of 20% in fixed overhead and 60% in variable overhead.

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4. The cost of direct material will be decreased by 6%.
 5. The company desire to earn a profit of 10% on selling price.
 Ascertain the cost of production and selling price.

[7]

(ii) Discuss Practical Capacity.

[4]

(iii) In a manufacturing concern the daily wage rate is ₹2.50. The standard output in a 6 day week is 200 units representing 100% efficiency. The daily wage rate is paid without bonus to those workers who show up to 66 2/3% of the efficiency standard. Beyond this there is a bonus payable on a graded scale as below:-

82% efficiency - 5% bonus

90% Efficiency - 9% bonus

100% efficiency - 20% bonus

Further increase of 1% for every 1% further rise in efficiency. In a 6 day week A produced 180 units; B 164 units; C 200 units; D 208 units and E 130 units.

Calculate the earnings of these workers.

[5]

Solution:

(i) Budgeted cost sheet for the year 2016

Direct material consumed	12,00,000	
Add: 44% due to increased output	<u>5,28,000</u>	
	17,28,000	
Less: 6% for decline in price	<u>1,03,680</u>	16,24,320
Direct wages (manufacturing)	7,00,000	
Add: 60% increase	<u>4,20,000</u>	<u>11,20,000</u>
Prime cost		27,44,320
Manufactured overhead:		
Fixed	3,60,000	
Add: 20% increase	<u>72,000</u>	4,32,000
Variable	2,50,000	
Add: 60% increase	<u>1,50,000</u>	4,00,000
Cost of production		<u>35,76,320</u>
Add: 1/9 of cost or 10% on selling price		<u>3,97,369</u>
Selling price		39,73,689

Production will increase by 60% but efficiency will decline by 10% i.e. 90% of 160% = 144%. So increase by 44%

(ii) Practical Capacity When this capacity is determined, allowance is given for unavoidable interruptions like time lost for repairs, inefficiencies, breakdown, delay in delivery of raw material and supplies, labour shortages and absence, Sunday, holidays, vacation, inventory taking, etc. Thus, Practical Capacity is the maximum Theoretical Capacity with minor unavoidable interruptions. These unavoidable interruptions are based mostly on internal influences and do not consider main external causes like lack of customers orders. The Practical Capacity is determined with reference to nature of industry and circumstances in which a particular factory is situated. Normal unavoidable interruptions account for 15% to 25% of the maximum capacity.

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The Practical Capacity, thus, ranges between 75% and 85% of maximum capacity after giving allowance for normal unavoidable interruptions.

(iii)

$$A's \text{ efficiency} = (180 / 200) \times 100 = 90\%$$

$$A's \text{ Earnings} = (6 \times 2.5) + 9\% \text{ of } (6 \times 2.5) = ₹ 16.35$$

$$B's \text{ efficiency} = (164 / 200) \times 100 = 82\%$$

$$B's \text{ Earnings} = (6 \times 2.5) + 5\% \text{ of } (6 \times 2.5) = ₹ 15.75$$

$$C's \text{ efficiency} = (200 / 200) \times 100 = 100\%$$

$$C's \text{ Earnings} = (6 \times 2.5) + 20\% \text{ of } (6 \times 2.5) = ₹ 18.00$$

$$D's \text{ efficiency} = (208 / 200) \times 100 = 104\%$$

$$D's \text{ Earnings} = (6 \times 2.5) + 24\% \text{ of } (6 \times 2.5) = ₹ 18.60$$

$$E's \text{ efficiency} = (130 / 200) \times 100 = 65\%$$

$$E's \text{ Earnings} = 6 \times 2.5 = ₹ 15.00$$

(d)

(i) A skilled worker in XYZ Ltd. is paid a guaranteed wage rate of Rs. 30 per hour. The standard time per unit for a particular product is 4 hours. P, a machine man, has been paid wages under the Rowan Incentive Plan and he had earned an effective hourly rate of Rs. 37.50 on the manufacture of that particular product.

What could have been his total earnings and effective hourly rate, had he been put on Halsey Incentive Scheme (50%)? [6]

(ii) Write a note on "Attendance Bonus and its treatment". [4]

(iii) List the inclusions and exclusion in measuring Direct Expenses as per CAS 10. [6]

Solution:

(i)

Normal wage rate per hr.	= ₹ 30
Time allowed	= 4 hrs.
Effective Earnings per hr. (Rowan)	= ₹ 37.50

Let Time taken be x

Time Saved = (4 - x)

$$\text{Effective Earnings Per Hr. (Rowan)} = \frac{\text{TotalWages}}{\text{TimeTaken}}$$

$$37.50 = \frac{\text{TotalWages}}{x}$$

$$\text{Total Wages} = 37.50 \times \text{-----} \text{ (i)}$$

$$\begin{aligned} \text{Total wages (under Rowan)} &= \text{Normal Wages} + \text{Bonus} \\ &= (\text{T.T.} \times \text{wage rate per hr.}) + \left(\frac{\text{T.T.}}{\text{T.A.}} \times \text{TS} \times \text{Wage rate per hr.} \right) \\ &= (x \times 30) + \left[\frac{x}{4} \times (4-x) \times 30 \right] \end{aligned}$$

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$$\begin{aligned} &= 30x + 30x - 7.5x^2 \\ &= 60x - 7.5x^2 \dots\dots\dots(ii) \end{aligned}$$

Equating equation (i) & equation (ii)

$$37.50x = 60x - 7.5x^2$$

$$7.5x^2 = 22.5x$$

$$x = \frac{22.5}{7.5}$$

$$x = 3 \text{ hrs.}$$

Time taken = 3 hrs.

Time saved = 1 hr.

Time allowed = 4 hrs.

$$\begin{aligned} \text{Total wage (under Halsey)} &= \text{Normal Wages} + \text{Bonus} \\ &= (\text{T.T.} \times \text{Wages rate per hr}) + (1/2 \times \text{T.S.} \times \text{Wage rate per hr}) \\ &= (3 \times 30) + (1/2 \times 1 \times 30) \\ &= ₹ 105 \end{aligned}$$

Effective Earnings per Hr = $105/3 = ₹ 35$ per hr.

(ii) Attendance Bonus is paid to workers based on satisfactory attendance over a stated period and is a fringe benefit. The cost is to be collected under a standing order number and charged as a departmental overhead as the expenses cannot be allocated to cost units directly.

In case the cost is disproportionate from months to months, a proportionate amount may be charged in each period to avoid variation in cost.

When the cost is of a regular nature it may be booked as direct wages and charged by an inflated rate over the Direct Labour Cost. But this is however, not a sound policy.

(iii) Measurement of Direct Expenses: Inclusions and Exclusions:

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

- (I)** Costs which are directly traceable/identifiable with the cost object
- (II)** Expenses incurred for the use of bought in resources
- (III)** Price variance if such expenses are accounted for at standard cost

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

- (I)** If not traceable/identifiable should be considered as overheads
- (II)** Finance cost is not a direct expense
- (III)** Imputed cost (example, if the owner of a company engages himself for facilitating the production or gets actively engaged in production or rendering of services, this would be an imputed cost)
- (IV)** Recoveries, credits, subsidy, grant, incentive or any other which reduces the cost
- (V)** Penalty, damages paid to statutory authorities

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3. (Answer any two questions) [2×16=32]

(a) (i) State the functions performed by the Securities & Exchange Board of India (SEBI). [6]

(ii) Write a note on Venture Capital: [4]

(iii) ABC Ltd. wishes to raise additional finance of ₹ 20 lakhs for meeting its investment plans. The company has ₹ 4,00,000 in the form of retained earnings available for investment purposes. The following are the further details:

- Debt equity ratio 25 : 75.
- Cost of debt at the rate of 10 percent (before tax) upto ₹ 2,00,000 and 13% (before tax) beyond that.
- Earning per share, ₹ 12.
- Dividend payout 50% of earnings.
- Expected growth rate in dividend 10%.
- Current market price per share, ₹ 60.
- Company's tax rate is 30% and shareholder's personal tax rate is 20%.

Required:

(I) Calculate the post tax average cost of additional debt.

(II) Calculate the cost of retained earnings and cost of equity.

(III) Calculate the overall weighted average (after tax) cost of additional finance.

[2+2+2=6]

Solution:

(i) The functions performed by the Securities and Exchange Board of India (SEBI) are enumerated below: Regulate the business in stock exchanges and other securities markets; Registering and regulating the working of stock brokers, sub-brokers, share transfer agents, banker to an issue, merchant bankers, underwriters, portfolio managers, investment adviser and such other intermediaries, who are associated with the securities market in any manner; Registering and regulating the working of depositories, custodians of securities, FII, credit rating schemes, including mutual funds; Promoting and regulating self-Regulatory Organizations (SROs) Prohibiting fraudulent and unfair trade practices relating to the securities market; Providing investors education and training of intermediaries in securities market; Prohibiting & Regulating substantial acquisition of shares and takeovers of companies; Calling of information from, undertaking inspection, conducting inquiries and audits of the stock exchanges and intermediaries and self-regulatory organizations in the securities market; Performing such functions and exercising such powers under the securities contract (Regulation) Act, (SCRA) 1956 as may be delegated to it by the central Government; Levying fees & other charges for carrying out its work; Conducting research for the above purpose;

(ii) Venture Capital:

Venture Capital is a form of equity financing especially designed for funding high risk and high reward projects. There is a common perception that Venture Capital is a means of financing high technology projects.

However, Venture Capital is investment of long term financial made in:

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- 1) Ventures promoted by technically or professionally qualified but unproven entrepreneurs, or
- 2) Ventures seeking to harness commercially unproven technology, or
- 3) High risk ventures. The term 'Venture Capital' represents financial investment in a highly risky project with the objective of earning a high rate of return.

(iii) Pattern of raising capital :

$$\begin{aligned} \text{Debt} &= 25/100 \times 20,00,000 &&= 5,00,000 \\ \text{Equity} &= 75/100 \times 20,00,000 &&= 15,00,000 \end{aligned}$$

Debt

$$\begin{aligned} 10\% \text{ debt} &= ₹ 2,00,000 \\ 13\% \text{ debt} &= ₹ 5,00,000 - ₹ 2,00,000 &&= ₹ 3,00,000 \end{aligned}$$

Equity

$$\begin{aligned} \text{Retained earning} &= ₹ 4,00,000 \\ \text{Equity (additional)} &= ₹ 15,00,000 - ₹ 4,00,000 = ₹ 3,00,000 \end{aligned}$$

(I) Post tax cost of debt = Total Interest x (1 – tax rate) / Total Debt
 = (10% of ₹ 2,00,000 + 13% of ₹ 3,00,000) x (1-0.30)/5,00,000 = 8.25%

(II) Cost of Equity = $\frac{D_1}{P_0} + g = (12 \times 50\% \times 1.10)/60 + 10\% = 21\%$

Cost of Retained Earnings = Cost of Equity (since no floatation costs) = 21%

(iii) Overall weighted average (after tax) cost of additional finance :

		Amount (₹)	After tax Cost (%)	After tax Cost (₹)
Equity	Capital	11,00,000	21.00%	2,31,000
Retained	earning	4,00,000	21.00%	84,000
Debt	Total	5,00,000	8.26%	41,300
		20,00,000		3,56,300

Weighted average (post tax) cost of additional finance = 3,56,300 / 20,00,000 = 17.82%

(b) (i) A Company provide the following data:

	Cost per unit (₹)
Raw materials	52.00
Direct labour	19.50
Overheads	39.00
Total cost	110.50
Profit	19.50
Selling price	130.00

The following additional information is available:-

- 1) Average raw materials in stock: one month.
- 2) Average materials in process: half-a-month
- 3) Average finished goods in stock: one month

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- 4) Credit allowed by suppliers: one month
- 5) Credit allowed to debtors: two month
- 6) Time lag in payment of wages: one and a half weeks.
- 7) Overheads: one month
- 8) One-fourth of sales are on cash basis.
- 9) Cash balance is expected to be ₹ 1,30,000

You are required to prepare a statement showing the working capital needed to finance a level of activity of 70,000 units of annual output. The production is carried evenly throughout the year and wages and overheads accrue similarly. (Calculation is made on the basis of 30 days a month and 52 weeks a year.) [8]

(ii) Projects X and Y are analysed and you have determined the following parameters. Advise the investor on the choice of a project:

Particulars	Project X	Project Y
Investment	₹7 Cr.	₹5 Cr.
Project life	8 years	10 years
Construction period	3 years	3 years
Cost of capital	15%	18%
N.P.V. @ 12%	₹3,700	₹4,565
N.P.V. @ 18%	₹ 325	₹325
I.R.R.	45%	32%
Rate of return	18%	25%
Payback	4 years	6 years
B.E.P.	45%	30%
Profitability index	1.76	1.35

[4]

(iii) Mention any four significance of Capital Budgeting Decision.

[4]

Solution:

(i) Statement showing estimate of Working Capital

Particulars	Amount (₹)	Amount (₹)
Current Assets:		
Stock of Raw material (70,000 units x 52 x 30/ 360)		3,03,333
Work in progress:		
Raw materials (70,000 units x 52 x 15/ 360)	1,51,667	
Direct labour (70,000 units x 19.50 x 30/ 360 x 1/2 x 50%)	28,437	
Overheads (70,000 units x 39 x 30/ 360 x 1/2 x 50%)	56,875	2,36,979
Stock of finished goods (70,000 units x 110.50 x 30/ 360)		6,44,583
Debtors (70,000 units x 130 x 60/ 360)		15,16,667
Cash balance		1,30,000
(A)		28,31,562
Current Liabilities:		
Creditors for raw material (70,000 units x 52 x 30/ 360)		3,03,333
Creditor for wages (70,000 units x 19.50 x 1.5/ 52)		39,375

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Creditors for overheads (70,000 units x 39 x 30/ 360)		2,27,500
(B)		5,70,208
Net working Capital (A) – (B)		22,61,354

(ii) Determination of Priority of the Project

	X	Y
NPV at 12%	II	I
NPV at 18%	Same	Same
IRR	I	II
ARR	II	I
Pay back	I	II
PI	I	II

Decision:

1. As the outlays in the projects are different, NPV is not suitable for evaluation.
2. As there is different life periods, ARR is not appropriate method for evaluation.

On the basis of remaining evaluation methods [IRR, PBP, PI] Project X is occupied first priority. Hence, it is advised to choose project X.

(iii) Capital Budgeting decisions are considered important for a variety of reasons. Some of them are the following:

- (a)** Crucial decisions: Capital budgeting decisions are crucial, affecting all the departments of the firm. So the capital budgeting decisions should be taken very carefully.
- (b)** Long-run decisions: The implications of capital budgeting decisions extend to a longer period in the future. The consequences of a wrong decision will be disastrous for the survival of the firm.
- (c)** Large amount of funds: Capital budgeting decisions involve spending large amount of funds. As such proper care should be exercised to see that these funds are invested in productive purchases.
- (d)** Rigid: Capital budgeting decision cannot be altered easily to suit the purpose. Because of this reason, when once funds are committed in a project, they are to be continued till the end, loss or profit no matter

(c) (i) A company manufacturing electronic equipments is currently buying component A from a local supplier at a cost of Rs 30 each. The company has a proposal to install a machine for the manufacture of the component. Two alternatives are available as under :

- i. Installation of semi-automatic machine involving an annual fixed expenses of ₹ 18 lakhs and a variable cost of ₹ 12 per component manufactured.**
- ii. Installation of automatic machine involving an annual fixed cost of ₹ 30 lakhs and a variable cost of ₹10 per component manufactured.**

Answer to PTP_Intermediate_Syllabus 2012_Jun 2016_Set 1

Required :

1. Find the annual requirement of components to justify a switch over from purchase of components to (i) manufacture of the same by installing semi-automatic machine and (ii) manufacture of the same by installing automatic machine.
2. If the annual requirements of the component is 5,00,000 units, which machine would you advise the company to install?
3. At what annual volume would you advise the company to select automatic machine instead of semiautomatic machine? [8]

(ii) From the following figures, prepare a statement showing the changes in the working capital and fund flow statement during the year 2015:-

Assets	Dec.31,2014	Dec.31,2015
Fixed Assets (net) ₹	5,10,000	6,20,000
Investment	30,000	80,000
Current Assets	2,40,000	3,75,000
Discount on debentures	10,000	5,000
	7,90,000	10,80,000
Liabilities		
Equity share capital	3,00,000	3,50,000
Preference share capital	2,00,000	1,00,000
Debentures	1,00,000	2,00,000
Reserves	1,10,000	2,70,000
Provision for doubtful debts	10,000	15,000
Current liabilities	70,000	1,45,000
	7,90,000	10,80,000

You are informed that during the year:

- (a) A machine costing ₹ 70,000 book value ₹ 40,000 was disposed of for ₹ 25,000.
- (b) Preference share redemption was carried out at a premium of 5% and
- (c) Dividend at 10% was paid on equity share for the year 2012.

Further:

- 1) The provision for depreciation stood at ₹ 1,50,000 on 31.12.14 and at ₹ 1,90,000 on 31.12.15; and
- 2) Stock which was valued at ₹ 90,000 as on 31.12.14; was written up to its cost, ₹ 1,00,000 for preparing Profit and Loss account for the year 2015. [3+5]

Solution :

1. Annual Requirement

Particulars	Semi-Automatic Machine	Automatic Machine
a. Purchase price per unit	₹ 30	₹ 30
b. Variable Cost per unit	₹ 12	₹ 10
c. Saving per unit = [a - b]	₹ 18	₹ 20
d. Cost of machine	₹ 18,00,000	₹ 30,00,000
e. Minimum annual requirement = [d * c]	1,00,000 units	1,50,000 units

Answer to PTP_Intermediate_Syllabus 2012_Jun 2016_Set 1

2. If Annual Requirement is 5,00,000 units

Total cost in semi-automatic machine - $(₹ 12 \times 5,00,000) + ₹ 18,00,000 = ₹ 78,00,000$

Total cost in automatic machine = $(₹ 10 \times 5,00,000) + ₹ 30,00,000 = ₹ 80,00,000$

Semi-automatic machine is preferable since its total cost is lower

3. Minimum volume to justify automatic machine

Let the required minimum volume be Q.

∴ To justify automatic machine, its total cost should be lower than that of semi-automatic machine.

$$\Rightarrow (₹ 10 \times Q) + ₹ 30,00,000 < (₹ 12 \times Q) + ₹ 18,00,000$$

$$\Rightarrow ₹ 2*Q > ₹ 12,00,000$$

$$\Rightarrow Q > 6,00,000 \text{ units}$$