

# **Answer to MTP\_Intermediate\_Syllabus 2012\_Dec2014\_Set 1**

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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 information relating to a type of Raw material is available:**

Annual Demand 3,000 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.

**Answer:**

**Economic order quantity (EOQ)**

Annual consumption (A) = 3,000 units

Fixed cost per order (O) = ₹20

Carrying cost per unit p.a (CC) =  $[(₹20 \text{ p.u.} \times 2\%) + (\₹20 \text{ p.u.} \times 8\%)] = ₹2$

$$\therefore \text{Economic Order Quantity} = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 3,000 \times 20}{2}} = 245$$

**(b) What is the basis for cost classification as per Cost Accounting Standard 1?**

**Answer:**

As per Cost Accounting Standard 1 (CAS- 1), the basis for cost classification is as follows:

- Nature of expenses
- Relation to Object –Traceability
- Functions / Activities
- Behaviour – Fixed, Semi- Variable or Variable
- Management decision making
- Production Process
- Time Period

**(c) The extracts from the payroll of Dutta Bros. is as follows:-**

<b>Number of employees at the beginning of 2013</b>	<b>140</b>
<b>Number of employees at the end of 2013</b>	<b>210</b>
<b>Number of employees resigned</b>	<b>20</b>
<b>Number of employees discharged</b>	<b>5</b>
<b>Number of employees replaced due to resignation and discharges</b>	<b>20</b>

Calculate the Labour Turnover Rate for the factory by different methods.

**Answer:**

<b>(i) Separation Method</b>	$= 25 \div (140+210)/2 \times 100$
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	=0.1429 x100
	=14.29%

<b>(ii) Replacement Method</b>	$=(20/175) \times 100$
	=11.43%

<b>(iii) Flux Method</b>	$=(25+20)/175 \times 100$
	= 25.71%

**(d) Write the two advantages of JIT.**

**Answer:**

The advantages of JIT are

- Increased emphasis on supplier relationships. A company without inventory does not want a supply system problem that creates a part shortage. This makes supplier relationships extremely important.
- Supplies come in at regular intervals throughout the production day. Supply is synchronized with production demand and the optimal amount of inventory is on hand at any time. When parts move directly from the truck to the point of assembly, the need for storage facilities is reduced.

**(e) Gross pay ₹10,30,000 (including cost of idle time hours paid to employee ₹35,000); Accommodation provided to employee free of cost [this accommodation is owned by employer, depreciation of accommodation ₹1,05,000, maintenance charges of the accommodation ₹85,000, municipal tax paid for this accommodation ₹3,000], Employer's Contribution to P.F. ₹1,00,000 (including a penalty of ₹2,000 for violation of PF rules), Employee's Contribution to P.F. ₹75,000. Compute the Employee cost.**

**Answer:**

Computation of Employee Cost

	<b>Particulars</b>	<b>Amount (₹)</b>
	Gross Pay ( net of cost of idle time) = [10,30,000 (-) 35,000]	9,95,000
<b>Add</b>	Cost of accommodation provided by employer = Depreciation (+) Municipal Tax paid (+) maintenance charges = 1,05,000 + 85,000 + 3,000 = 1,93,000	1,93,000
<b>Add</b>	Employer's Contribution to PF excluding penalty paid to PF authorities [= 1,00,000 (-) 2,000]	98,000

**Note:**

- Assumed that the entire accommodation is exclusively used by the employee. Hence, cost of accommodation provided includes all related expenses/costs, since these are identifiable /traceable to the cost centre.
- Cost of idle time hours is an excludable item. Since it is already included in the gross pay, hence excluded.
- Penalty paid to PF authorities is not a normal cost. Since, it is included in the amount of contribution, it is excluded.

**(f) State the features of Fixed Cost.**

**Answer:**

Fixed Costs are stated to be by and large uncontrollable, in the sense they are not influenced by the action of a specified member of an undertaking. For example, the

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supervisor has practically no control over the fixed costs like depreciation of plant & machinery. The production supervisor can only see that the maximum possible utilization of the assets is made.

The fixed overhead amount is constant per period; the cost per unit of production varies with the volume. This variation is inverse since with increase in production, cost per unit decreases as the same amount of fixed overheads is spread over larger units of production.

- (g) Optimistic Ltd has an EPS of ₹90 per share. Its Dividend Payout Ratio is 40%. Its earnings and dividends are expected to grow at 5% per annum. Find out the cost of Equity Capital if its Market Price is ₹360 per share.**

**Answer:**

$$Ke = \frac{\text{Dividend per share}}{\text{Market price per share}} + g(\text{growth rate})$$
$$= \frac{₹90 \times 40\%}{₹360} + 5\%$$
$$= 10\% + 5\% = 15\%$$

- (h) T Ltd. requires ₹3 million in cash for meeting its transaction needs over the next 6 months, its planning horizon for liquidity decision. The company currently has the amount in the form of marketable securities. The cash payment will be made evenly over the six month period. T Ltd. earns 12% annual yield on its marketable securities. Conversion and marketable securities into cash entails a fixed cost of ₹1000 per transaction. What will be the optimal conversion size as per Baumol model of cash management?**

**Answer:**

As per Baumol model of cash management,

$$\text{The optimum conversion size} = \sqrt{\frac{2FT}{I}}, \text{ where}$$

F = fixed cost of transaction = ₹1000

T = total cash required = ₹30,00,000

I = interest rate for the required period =  $12\% \times 6/12 = 6\%$

$$\text{Optimal Conversion size} = \sqrt{\frac{2 \times 1000 \times 3000000}{6\%}}$$
$$= ₹316228$$

- (i) Consider the following information for Target Ltd.**

**EBIT** ₹1120 Lakhs

**PBT** ₹320 Lakhs

**Fixed Cost** ₹700 Lakhs

**Calculate the percentage of change in earnings per share, if sales increased by 5%.**

**Answer:**

Contribution = EBIT + Fixed Cost = ₹(1120 + 700) lakhs = ₹1820 Lakhs

Operating Leverage = Contribution/EBIT = 1820/1120 = 1.625

Financial Leverage = EBIT/EBT = 1120/320 = 3.5

Combined Leverage = Operating Leverage × Financial Leverage  
=  $1.625 \times 3.5 = 5.687$

Calculation % change in EPS, if sales increased by 5%

Combined Leverage = % change in EPS / % change in sales

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$$5.687 = \% \text{ change in EPS}/5\% \text{ change in EPS}$$
$$= 5.687 \times 5 = 28.44\%$$

- (j) 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<sub>f</sub> = 10% and R<sub>m</sub> = 18%. What is the required rate of return?**

**Answer:**

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

$$\text{Therefore, required rate of return} = R_f + \beta(R_m - R_f)$$
$$= 10\% + 0.84(18\% - 10\%)$$
$$= 16.72\%$$

**2. Answer any three questions**

[3×16=48]

**(a)**

- (i) Calculate the earnings of workers M and N under Straight Piece Rate system and Taylor's Differential Piece Rate system from the following particulars:-**

Normal rate per hour - ₹1.80

Standard time per unit 20 seconds

Differentials to be applied are:

80% of the piece rate below the standard;

120% of the piece rate at or above standard.

M produced 1,300 units per day of 8 hours & N - 1,500 units per day of 8 hours.

[3+3]

**Answer:**

$$\text{Pieces per minute} = 60/20 = 3 \text{ units}$$

$$\text{Units per hour} = 60 \times 3 = 180 \text{ units}$$

$$\text{Normal piece rate} = 1.8 / 180 = ₹0.01$$

$$\text{Standard production in actual time} = 8 \times 180 = 1440 \text{ units}$$

**Earnings under Straight Piece Rate:**

$$\text{Earnings of M} = 1300 \times 0.01 = ₹13.00$$

$$\text{Earnings of N} = 1500 \times 0.01 = ₹15.00$$

**Earnings under Taylor's Differential Piece Rate:**

$$\text{M's efficiency} = 1300 / 1440 \times 100 = 90.28\%$$

$$= < 100\%$$

$$\text{N's Earnings} = 1300 \times 0.01 \times 80\%$$

$$= ₹10.40$$

$$\text{M's efficiency} = 1500 / 1440 \times 100 = 104.17\%$$

$$= > 100\%$$

$$\text{N's Earnings} = 1500 \times 0.01 \times 120\%$$

$$= ₹18$$

**(ii) State the term Uniform Costing.**

[4]

**Answer:**

Uniform Costing may be defined as the application and use of the same costing principles and procedures by different Organizations under the same management or on a common understanding between members of an association. It is thus not a separate technique or method. It simply denotes a situation in which a number of organizations may use the same costing principles in such a way as to produce costs which are of the maximum

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comparability. From such comparable costs valuable conclusions can be drawn. When the Uniform Costing is made use of by the different concerns the same management it helps to indicate the strengths and/or weaknesses of those concerns. By studying the findings, appropriate corrective steps may be taken to improve the overall efficiency of the organizations. When used by the member concerns of a trade association Uniform Costing helps to reduce expenditure on a comparative marketing, to determine and follow a uniform pricing policy, to exchange information between the members for comprised and improvement and so on.

**(iii) Mishra Ltd. has gensets and produced its own power Data for power costs are as follows :-**

	Production Depts.		Service Depts.	
	X	Y	A	B
Horse Power Hours	10,000	20,000	12,000	8,000
Needed at capacity production	8,000	13,000	7,000	6,000
Used during the month of May				

During the month of May costs for generating power amounted to ₹ 9,300, of this ₹ 2,500 was considered to be fixed. Dept A renders service to other Depts. in the ratio of 13:6:1, while B renders service at X & Y in the ratio of 31:3. Given that the direct labour hours in Depts. X and Y are 9900 hours and 1,450 hours respectively, find the power cost per labour hour in each of these two departments. [6]

**Answer:**

**Statement showing apportionment of power cost and computation of cost per hour**

Particulars	Basis	Total	X	Y	A	B	₹
Fixed Cost	(5:10:6:4)	2,500	500	1,000	600	400	
Variable Cost (9,300 – 2,500)	(8:13:7:6)	6,800	1,600	2,600	1,400	1,200	
		9,300	2,100	3,600	2,000	1,600	
Costs of A [(as it renders to more depts. (3))]	(13:6:1)		1,300	600	(2,000)	100	
			3,400	4,200	--	1,700	
Costs of B	(31:3)		1,5500	150	--	(1,700)	
			4,950	4,350	--	--	
Labour Hours			9900	1,450			
Cost of power per labour hour			5	3			

**(b)**

**(i) Write a note on ABC Analysis.**

**[6]**

**Answer:**

**ABC Analysis:**

The "ABC Analysis" is an analytical method of stock control which aims at concentrating efforts on those items where attention is needed most. It is based on the concept that a small number of the items in inventory may typically represent the bulk money value of the total materials used in production process, while a relatively large number of items may

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present a small portion of the money value of stores used resulting in a small number of items be subjected to greater degree of continuous control.

Under this system, the materials stocked may be classified into a number of categories according to their importance, i.e., their value and frequency of replenishment during a period. The first category (we may call it group 'A' items) may consist of only a small percentage of total items handled but combined value may be a large portion of the total stock value. The second category, naming it as group 'B' items, may be relatively less important. In the third category, consisting of group 'C' items, all the remaining items of stock may be included which are quite large in number but their value is not high.

This concept may be clear by the following example:

Category	No. of Items	% of the Total No. of Items	Value ₹	% of the Total Value Item	Average Value ₹
A	75	6	70,000	70	933
B	375	30	20,000	20	53
C	800	64	10,000	10	12
	1250	100	1,00,000	100	9908

Category 'A' items represent 70% of the total investment but as little as only 6% of the number of items. Maximum control must be exercised on these items. Category 'B' is of secondary importance and normal control procedures may be followed. Category 'C' comprising of 64% in quantity but only 10% in value, needs a simpler, less elaborate and economic system of control.

- (ii) The finishing shop of a company employs 60 direct workers. Each worker is paid ₹400 as wages per week of 40 hours. When necessary, overtime is worked up to a maximum of 15 hours per week per worker at time rate plus one-half as premium. The current output on an average is 6 units per man hour which may be regarded as standard output. If bonus scheme is introduced, it is expected that the output will increase to 8 units per man hour. The workers will, if necessary, continue to work overtime up to the specified limit although no premium on incentives will be paid.

The company is considering introduction of either Halsey Scheme or Rowan Scheme of Wage Incentive system. The budgeted weekly output is 19,200 units. The selling price is ₹11 per unit and the direct Material Cost is ₹ 8 per unit. The variable overheads amount to ₹ 0.50 per direct labour hour and the fixed overhead is ₹10,000 per week.

Prepare a Statement to show the effect on the Company's weekly Profit of the proposal to introduce (a) Halsey Scheme, and (b) Rowan Scheme. [5+5]

Answer:

$$\text{Total available hours per week} = 60 \text{ workers} \times 40 \text{ hrs.} = 2,400 \text{ hrs.}$$

$$\text{Total standard hours required to produce 19,200 units} = \frac{19,200 \text{ units}}{6 \text{ units per hr.}} = 3,200 \text{ hrs.}$$

Total labour hours required after the introduction of bonus scheme to produce 19,200 units.

$$= \frac{19,200 \text{ units}}{8 \text{ units per man hr.}} = 2,400 \text{ hrs.}$$

$$\text{Total hours saved} = 3,200 \text{ hrs.} - 2,400 \text{ hrs.} = 800 \text{ hrs.}$$

$$\text{Wage rate per hr.} = \frac{₹400}{40 \text{ hrs.}} = ₹10 \text{ per hr.}$$

$$\begin{aligned}\text{Bonus under Halsey scheme} &= 50\% \times \text{time saved} \times \text{rate per hour} \\ &= 50\% \times 800 \text{ hrs.} \times ₹10 \text{ per hr.} \\ &= ₹4,000\end{aligned}$$

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Bonus under Rowan scheme

$$= \frac{\text{Timesave}}{\text{Time allowed}} \times \text{Timetaken} \times \text{Rate per hr}$$

$$= \frac{800 \text{ hrs.}}{3,200 \text{ hrs.}} \times 2,400 \text{ hrs.} \times ₹10 \text{ per hr.}$$

$$= ₹6,000$$

### Statement showing the effect on Company's weekly profits by the introduction of Halsey and Rowan Schemes

Particulars	Present ₹	Halsey ₹	Rowan ₹
a Sales revenue [19,200 units × 11 per unit]	2,11,200	2,11,200	2,11,200
b Direct material cost [19,200 units × ₹8 per unit]	1,53,600	1,53,600	1,53,600
c Direct wages	$3,200 \times 10 =$ 32,000	$2,400 \times 10 =$ 24,000	$2,400 \times 10 =$ 24,000
d Overtime premium [800 hrs. × ₹ 5 per hr.]	4,000	-	-
e Bonus	-	4,000	6,000
f Variable overheads	$3,200 \times 0.50 =$ 1,600	$2,400 \times 0.50 =$ 1,200	$2,400 \times 0.50 =$ 1,200
g Fixed Overheads	10,000	10,000	10,000
h Total Cost [b + c + d + e + f]	2,01,200	1,92,800	1,92,800
i Profit [a - h]	10,000	18,400	16,400

(c)

(i) Following data is available from the cost records of a company for the month of March 2014:

- Opening stock of job as on 1st March 2014
  - Job no. A 990: Direct Material ₹80, Direct Wages ₹150 and Factory Overheads ₹200
  - Job no. A 770: Direct Material ₹420, Direct Wages ₹450 and Factory Overheads ₹400
- Direct material issued during the month of February 2014 was:
  - Job no A 990 ₹120
  - Job no A 770 ₹280
  - Job no A 660 ₹225
  - Job no A 550 ₹300
- Direct labour details for March 2014 were:
 

Job no	Hours	Amount (₹)
A 990	400	600
A 770	200	450
A 660	300	675
A 550	100	225
- Factory Overheads are applied to jobs on production according to direct labour hour rate which is ₹2 per hour.
- Factory Overhead incurred in March 2014 were ₹2100.
- Job numbers A 990 & A 770 were completed during the month. They were billed to the customers at a price which included 15% of the price of the job for Selling & Distribution expenses and another 10% of the price for Profit.

Prepare:

- (i) Job cost sheet for job number A 770 and A 990 and determine the selling price for the jobs.

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### (ii) Calculate the value of work in process.

[6+4]

**Answer:**

**Remarks:**

- The Factory Overheads actually incurred are ₹ 2100. This amount to be apportioned on the basis of labour hours. So the rate to be considered as ₹ 2.1 per unit = (2100/1000) and not ₹ 2 per unit. If we consider the above mentioned point the calculations for Job Sheets & for the work in progress will change accordingly.
- Work in progress is to be calculated for the incomplete jobs hence job no. A 660 and A 550 should only be included in the calculations of work in progress.

### (i) Job Cost Sheets for the month of March 2014

Cost Items	Job A 770	Job A 990	₹
Direct Material issued	280	120	
Direct labour spent	450	600	
Prime Cost	730	720	
Factory Overheads @ ₹ 2.1 per hour	420	840	
Add: Opening WIP (Material + Labour + Overheads)	1,270	430	
Factory Cost	2,420	1,990	
Add: Selling & Distribution Overheads (Note 1)	484	398	
Cost of Sales	2,904	2,388	
Profit (Note 1)	323	265	
Billing price for the job	3,227	2,653	

#### Note 1

S & D and profit are given in indirect way.

Assume Selling price as	100
Less: S & D @ 15%	(15)
Less: Profit @ 10%	<u>(10)</u>
Balance has to be the Factory Cost	<u>75</u>
S & D price will be 15/75 of Factory Costs	
Profit will be 10/75 of Factory Cost	

### (iii) Computation of Work in Process for March 2014

Items	Job A 990	Job A 770	₹
Opening balance as on 1 <sup>st</sup> March	430	1,270	1,700
Material issued during the month of March	120	280	
	225	300	925
Direct Labour	600	450	
	675	225	1,950

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Factory Overheads on 1000 hours @ ₹ 2.1			2,100
Factory Cost			6,675
Less: Factory Cost of completed jobs	Job A 770 Job A 990	2,420 1,9900	4,410
Closing work in process as on 28 <sup>th</sup> March 2014			2,265

Another way to calculate WIP is

Job A 660 and A 550 are in progress & WIP includes only incomplete Jobs.

Direct Material (225+300)	525
Direct Labour (675+225)	900
Factory Overheads [2.1 *(300+100)]	<u>840</u>
Total WIP	<u>2,265</u>

**(ii) How you treat the following items in Cost Accounting.**

**I. Cost of Containers Relating to Material Purchased**

**II. Spoiled Work**

**[3+3]**

**Answer:**

**I. 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 contains 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.

**II. Spoiled Work**

The loss by spoilage may be inherent to the nature of the product or it may be caused by normal circumstances. If it is of an inherent nature and cannot be avoided, it would be charged either to the specific job in which it is accrued or should be recovered as overhead charge from the entire production, where there is no specific job or work order. In case it has been caused by abnormal circumstances, it should be charged to the Costing Profit and Loss Account. While accounting for loss by spoilage, any proceeds of the scrap should be accounted for either as a deduction from spoilage or by crediting it to the account which has been debited with the spoilage.

**(d)**

**(i) Distinguish between Chargeable Expenses and Overheads.**

**[4]**

**Answer:**

**Differences between Chargeable Expenses and Overheads:**

Expenses like materials and wages form a part of the total cost. Chargeable expenses are those expenses which can be directly charged to cost units or cost centres. Overhead expenses are those expenses which cannot be directly charged to any cost units or cost centres and is apportioned or allocated.

The dividing line between chargeable expenses and overhead expense is very thin. Same item of expenses can be treated either as chargeable item or overhead item depending upon the situation. Rent for a service department is chargeable to that department cost. To the production units such rent is treated as an indirect cost because the total service

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department cost itself is apportioned to cost units as indirect cost. Where a factory is more decentralised we will find more and more expenditure as direct. Basically we can conclude that chargeable expenses are directly chargeable to the production units whereas overhead expenses include expenses which either cannot be chargeable to any production units or can be charged as direct only up to the department cost.

- (ii) ABC Limited has received an offer of quantity discounts on its order of materials as - under:

Price per tonne ₹	Tonnes Nos.
4,800	Less than 50
4,680	50 and less than 100
4,560	100 and less than 200
4,440	200 and less than 300
4,320	300 and above

The annual requirement for the material is 500 tonnes. The ordering cost per order is ₹6,250 and the stock holding cost is estimated at 25% of the material cost per annum.

Required:

- Compute the most economical purchase level.
- Compute E.O.Q. If there are no quantity discounts and the price per tonne is ₹ 5,000.

[10+2]

**Answer:**

- I. Statement showing computation of most economical purchase level

a. Order size (tonnes)	40	50	100	200	300
b. No. of orders [500 ÷ (a)]	13	10	5	3	2
c. Price per tonne (₹)	4,800	4,680	4,560	4,440	4,320
d. Average inventory (kg) [(a) ÷ 2]	20	25	50	100	150
e. Stock holding cost (₹) [(c) × 25%]	1,200	1,170	1,140	1,110	1,080
f. Purchase Cost (₹) [(c) × 500]	24,00,000	23,40,000	22,80,000	22,20,000	21,60,000
g. Ordering Cost (₹) [(b) × 6,250]	81,250	62,500	31,250	18,750	12,500
h. Holding Cost of Avg. Inventory (₹) [(d) × (e)]	24,000	29,250	57,000	1,11,000	1,62,000
i. Total cost (₹) [(f) + (g) + (h)]	25,05,250	24,31,750	23,68,250	23,49,750	<b>23,34,500</b>

**Advice:** The most economical purchase level is 300 tonnes.

- II. Economic Order Quantity

Annual consumption of raw materials = A = 500 tonnes

Ordering cost per order = O = ₹6,250

Carrying cost per unit p.a. = CC = 25% of ₹ 5,000 = ₹1,250

$$\therefore \text{Economic order Quantity} = \sqrt{\frac{2AO}{CC}} = \sqrt{\frac{2 \times 500 \times 6,250}{1,250}} = 71 \text{ tonnes}$$

3. Answer any two questions

[2×16=32]

(a)

- (i) Discuss Stochastic Model of Cash Management.

[6]

**Answer:**

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**Stochastic (Miller-Orr) Model:** The model prescribes two control limits, Upper control Limit (UCL) and Lower Control Limit (LCL). When the cash balances reaches the upper limit a transfer of cash to investment account should be made and when cash balances reach the lower point a portion of securities constituting investment account of the company should be liquidated to return the cash balances to its return point. The control limits are converting securities into cash and the vice – versa, and the cost carrying stock of cash. The “O” optimal point of cash balance is determined by using the formula

Where,

O = Target cash balance (Optimal cash balance)

T = Fixed cost associated with security transactions

I = Interest per day on marketable securities

V = Variance of daily net cash flows.

**Limitations:** This model is subjected to some practical problems

- The first and important problem is in respect of collection of accurate data about transfer costs, holding costs, number of transfers and expected average cash balance.
- The cost of time devoted by financial managers in dealing with the transfers of cash to securities and vice versa.
- The model does not take into account the short term borrowings as an alternative to selling of marketable securities when cash balance reaches lower limit.

Besides the practical difficulties in the application of the model, the model helps in providing more, better and quicker information for management of cash. It was observed that the model produced considerable cost savings in the real life situations.

(ii) The capital structure of Assembly Traders Ltd. as on 31.03.2014 is as follows:

(₹ in crores)

Equity capital(100 lakhs equity shares of ₹10 each)	10
Reserves	2
14% Debentures of ₹100 each	3

For the year ended 31.03.2014 the company has paid equity dividend at 20%. As the company is a market leader with good future, dividend is likely to grow by 5% every year. The equity shares are now treated at ₹80 per share in the stock exchange. Income –tax rate applicable to the company is 50%.

Required:

- I. The current weighted cost of capital
- II. The company has plans to raise a further ₹5 crores by way of long term loan at 16% interest. When this takes place the market value of the equity shares is expected to fall to ₹50 per share. What will be the new weighted average cost of capital of the company?

[5+5]

**Answer:**

- I. Current Weighted Average Cost of Capital

A. Cost of Debt Capital

$$K_d = 1(1 - t) = 14\% (1 - 0.5) = 7\%$$

B. Cost of Equity capital applying Dividend growth Model

$$K_e = \frac{D_1}{P_o} + g = \frac{2}{80} + 0.05 = 0.075 \text{ or } 7.5\%$$

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**C. Weighted average Cost of Capital (WACC)**

Particulars	Crores	Weight	Cost of funds %
Shareholder's Funds			
Equity Capital	10		
Reserves	<u>2</u>	12	0.80
Debentures (debt)		3	0.20
Total		15	1.00

$$\begin{aligned}
 \text{WACC} &= (\text{Cost of Equity} \times \% \text{ of Equity}) + (\text{Cost of Debt} \times \% \text{ of Debt}) \\
 &= (7.5 \times 0.80) + (7 \times 0.20) \\
 &= 6 + 1.4 \\
 &= 7.4\%
 \end{aligned}$$

- II.** Weighted Average Cost of capital after Rising Further debt of ₹5 crores
- |                                    |                                      |
|------------------------------------|--------------------------------------|
| Cost of Existing debt of ₹3 crores | = 7%                                 |
| Cost of New Debt of ₹5 crores      | = 16% (1 - 0.5) = 8%                 |
| Cost of Equity                     | = $\frac{2}{50} + 0.05 = 0.09 = 9\%$ |

**New Capital Structure :**

Particulars	Amount (₹ crores)	Weight	Cost of funds %
Shareholders' funds	12	0.60	9
Debentures	3	0.15	7
Long – term loan	2	0.25	8
	20	1.00	

$$\text{New WACC} = (9 \times 0.60) + (7 \times 0.15) + (8 \times 0.25) = 5.4 + 1.05 + 2 = 8.45\%$$

**(b)**

**(i) Write a note on Global Depository Receipt (GDR).**

[6]

**Answer:**

**Global Depository Receipt (GDR)**

A GDR is a negotiable instrument, basically a bearer instrument which is traded freely in the international market either through the stock exchange or over the counter or among Qualified International Buyers (QIB).

It is denominated in US Dollars and represents shares issued in the local currency.

**Characteristics**

- The shares underlying the GDR do not carry voting rights.
- The instruments are freely traded in the international market.
- The investors earn fixed income by way of dividend.
- GDRS can be converted into underlying shares, depository/ custodian banks reducing the issue.

**The market of GDR: the GDR operates in the following way**

- An Indian company issues ordinary equity shares.
- These shares are deposited with a custodian bank (mostly domestic bank)
- The custodian bank establishes a link with a depository bank overseas.
- The depository bank, in turn issues depository receipts in dollars.
- Funds are raised when the foreign entities purchase those depository receipts at an agreed price.

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- The dividends on such issues are paid by the issuing company to the depository bank in local currency.
- The depository bank converts the dividends into US Dollars at the ruling exchange rate and distributes it among the GDR holders.

### **Advantages of GDR**

- The Indian companies are able to tap global equity market to raise currency.
- The exchange risk borne by the investors as payment of the dividend is made in local currency.
- The voting rights are vested only with depository.

(ii) Sarema Company plans to manufacture and sell 400 units of a domestic appliance per month at a price of ₹600 each. The ratio of cost to selling price are as follows:

Raw materials	30%
Packing materials	10%
Direct labour	15%
Direct expense	5%

Fixed overheads are estimated at ₹4,32,000 per annum.

The following norms are maintained for inventory management:

Raw materials	30 days
Packing materials	15 days
Finished goods	200 units
Work-in-progress	7 days

Other particulars are given below:

- Credit sales represent 80% of total sales and the dealer enjoys 30 working days credit. Balance 20% is cash sales.
- Creditors allow 21 working days credit for payment.
- Lag in payment of overheads and an expense is 15 working days.
- Cash requirements to be 12% of net working capital.
- Working days in a year are taken as 300 for budgeting purpose.

Prepare a working capital requirement forecast for the budget year

[10]

Answer:

### Selling Price and Cost per unit

	₹)
Raw materials	(₹600 × 30/100)
Packing materials	(₹600 × 10/100)
Direct labour	(₹600 × 15/100)
Direct expenses	(₹600 × 5/100)
Fixed overheads	₹4,32,000/(400 × 12)
Total Cost	450
Profit	150
Selling price per unit	600

### Forecast of Working Capital requirement

	₹)
Current Assets:	
Raw materials stock	(4,800 × ₹180 × 30/300)
Packing material stock	(4,800 × ₹60 × 15/300)
Work-in-progress	(4,800 × ₹285 × 7/300)
Finished goods stock	(200 × ₹450)
Debtors	(4,800 × 80/100 × ₹600 × 30/300)
	2,30,400

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Total (A)		4,53,120
Current Liabilities:		
Creditors for raw material suppliers	( $4,800 \times ₹180 \times 21/300$ )	60,480
Creditors for packing material	( $4,800 \times ₹60 \times 21/300$ )	20,160
Creditors for expenses and overheads	( $4,800 \times ₹120 \times 15/300$ )	28,800
Total (B)		1,09,440
Net Working capital (A – B)		3,43,680
Add: Cash required (12% of net working capital)		41,242
Total working capital required		3,84,922

(c)

(i) A company has an old machine having book value zero –which can be sold for ₹50,000. The company is thinking to choose one from following two alternatives:

- I. To incur additional cost of ₹10,00,000 to upgrade the old existing machine.
- II. To replace old machine with a new machine costing ₹20,00,000 plus installation cost ₹50,000.

Both above proposals envisage useful life to be 5 years with salvage value to be nil. The expected after tax profits for the above alternatives are as under:

Year	Old Existing Machine (₹)	Upgraded Machine (₹)	New Machine (₹)
1	5,00,000	5,50,000	6,00,000
2	5,40,000	5,90,000	6,40,000
3	5,80,000	6,10,000	6,90,000
4	6,20,000	6,50,000	7,40,000
5	6,60,000	7,00,000	8,00,000

The tax rate is 40%. The company follows straight line method of depreciation. Assume cost of capital to be 15%. PVF of 15% for 5 years = 0.870, 0.756, 0.658, 0.572 and 0.497. You are required to advise the company as to which alternative is to be adopted. [6+6]

**Answer:**

We have three possibilities coming out of this analysis. They are:

- Retain the existing machine
- Upgrade the existing machine
- Replace the old with a new machine

However, the problem demands that we evaluate only the second and third option. Therefore we would adopt the incremental approach of the second and the third option over the first option. In case the NPV of this incremental approach of both options turn negative, we would reject both and accept the first option, else choose a better option.

Cash Outflow

- In case machine is upgraded:  
Up gradation cost = ₹10,00,000.
- In case new machine installed:

Cost	₹20,00,000
<b>Add:</b> Installation Cost	₹50,000
Total Cost	₹20,50,000
<b>Less:</b> Disposal of old machine (₹50,000 – 40% tax)	₹30,000

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Total Cash Outflow	₹20,20,000
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**Working Note:**

- Depreciation in case machine is up graded ₹10,00,000/5 = ₹2,00,000
- Depreciation in case new machine is installed ₹20,50,000/5 = ₹4,10,000
- Old existing machine-book value is zero, hence no depreciation.

Incremental Cash Inflows after taxes (CFAT) of up graded over Old

1	2	3	4	5	6
	Old Machine	Up graded Machine			
Year	PAT/ CFAT	PAT	depreciation	CFAT	Incremental CFAT (5-2)
1	5,00,000	5,50,000	2,00,000	7,50,000	2,50,000
2	5,40,000	5,90,000	2,00,000	7,90,000	2,50,000
3	5,80,000	6,10,000	2,00,000	8,10,000	2,30,000
4	6,20,000	6,50,000	2,00,000	8,50,000	2,30,000
5	6,60,000	7,00,000	2,00,000	9,00,000	2,40,000
Total	29,00,000				

Incremental Cash Inflows after taxes (CFAT) of New over Old

1	2	3	4	5	6
	Old Machine	New Machine			
Year	PAT/ CFAT	PAT	Depreciation	CFAT	Incremental CFAT (5-2)
1	5,00,000	6,00,000	4,10,000	10,10,000	5,10,000
2	5,40,000	6,40,000	4,10,000	10,50,000	5,10,000
3	5,80,000	6,90,000	4,10,000	11,00,000	5,20,000
4	6,20,000	7,40,000	4,10,000	11,50,000	5,30,000
5	6,60,000	8,00,000	4,10,000	12,10,000	5,50,000
Total	29,00,000				

Calculation of NPV of both options

Year	Upgraded Machine			New Machine		
	Incremental CFAT	PVF	Total PV	Incremental CFAT	PVF	Total PV
1	2,50,000	0.870	2,17,500	5,10,000	0.870	4,43,700
2	2,50,000	0.756	1,89,000	5,10,000	0.756	3,85,560
3	2,30,000	0.658	1,51,340	5,20,000	0.658	3,41,160
4	2,30,000	0.572	1,31,560	5,30,000	0.572	3,03,160
5	2,40,000	0.497	1,19,280	5,50,000	0.497	2,73,350
<b>Total PV of CFAT</b>			8,08,680			17,47,930
<b>Less: Cash Outflows</b>			10,00,000			20,20,000
<b>NPV</b>			(1,91,320)			(2,72,070)

As the NPV in both the new (alternative) proposals is negative, the company should continue with the existing old machine.

**(ii) State the term Bill Discounting.**

**[4]**

**Answer:**

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Generally, a trade bill arises out of a genuine credit trade transaction. The supplier of goods draws a bill on the purchaser for the invoice price of the goods sold on credit. It is drawn for a short period of 3 to 6 months and in some cases for 9 months. The buyer of goods accepts the same and binds himself liable to pay the amount on the due date. In such a case, the supplier of goods has to wait for the expiry of the bill to get back the cost of the goods sold. It involves locking up of his working capital which is very much needed for the smooth running of the business or for carrying on the normal production process. It is where the Commercial Banks enter into as a financier.

The Commercial Banks provide immediate cash by discounting genuine trade bills. They deduct a certain charge as discount charges from the amount of the bill and the balance is credited to the customer's account and thus, the customer is able to enjoy credit facilities against the discounting of bills. Of course, this discount charges include interest for the unexpired period of the bill plus some service charges. Bill financing is the most liquid one from the banker's point of view since, in time of emergencies, they can take those bills to the Reserve Bank of India for rediscounting purposes. In fact, it was viewed primarily as a scheme of accommodation for banks. Now, the situation is completely changed. To-day it is viewed as a kind of loan backed by the security of bills.