INTERMEDIATE EXAMINATION

GROUP I

(SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS

JUNE 2016

Paper-8: COST ACCOUNTING AND FINANCIAL MANAGEMENT

Time Allowed: 3 Hours **Full Marks: 100**

The figures on the right-hand margin indicate full marks.

All Sections are compulsory. Each section contains instructions regarding the number of questions to be attempted within the section.

All working notes must form part of the answers.

Wherever necessary, candidates may make suitable assumptions and clearly state them in the answer.

No present value factor table or other statistical table will be provided along with this question paper.

SECTION – A

***Question No.1 is compulsory*. Answer *all* questions under each subdivision.**

1. I. Answer the following questions. Each question carries 2 marks. 2×5 = 10

(i) Calculate the reorder level from the following date:
Lead time: 3weeks; Safety stock: 100 units; Annual uniform usage: 2,600 units.

(ii) Standard time for a job = 20 hours. Rate per hour = Rs. 2. The actual time taken by a worker is 15 hours. Calculate his earning under Barth Variable Sharing Plan.

(iii) A Ltd. uses pre-determined overhead absorption rates. In a certain period, actual overheads incurred were Rs. 5 lacs and not mostly related to time. Overheads absorbed were Rs. 1.5 lacs, 50% of unabsorbed overheads was due to faulty planning. How will such under absorption due to defective planning be treated in Cost Accounts?

(iv) B's cash flows are Rs. 1,000 on 01.07.2014; RS. 1,100 on 01.07.2016; Rs. 1,000 on 01.07.2018; Considering annual rests, interest rate of 10% and using P.V. factor only up to one decimal, calculate the present value of his cash flows as on 01.07.2016.

(v) The current market price and expected year-end dividend of an equity share are Rs. 90 and Rs. 4.50 respectively. The dividend growth rate is expected at 7% annually. Compute the cost of capital under the dividend growth model.

II. State whether the following are true or false: (Legibly write only the question Roman numeral and whether true or false). 1×5 = 5

(vi) When under absorption of overheads is corrected by applying supplementary rates, there is no impact in the current period profits due to under absorption as it is corrected and all overheads are charged in the current period.

(vii) Marginal cost per unit remains constant irrespective of the number of units produced within the normal output level.

(viii) Companies P and Q are competitors for product PQ. P has a higher degree of operating leverage than Q. if demand for PQ decreases, profits of Q will decrease at a slower rate than P.

(ix) The internal rate of return (IRR) assumes that cash flows are reinvested at the firm's cost of capital.

(x) M Ltd. provides free service for its cars for the first year of purchase. The cost of this service for M. Ltd. is treated as selling and distribution overhead.

III. Fill in the blanks (Legibly write only the question Roman numeral and the content filling the blanks): 1×5 = 5

(xi) In a certain factory, normal capacity was 50000 units. Actual capacity utilization was 52000 units. Fixed production overheads should be absorbed based on _____ capacity.

(xii) X factory outsources the manufacture of a major component to a contractor. The transportation of the component of X factory's premises is borne by X. This transportation cost will be treated as _____ cost (give the element of cost).

(xiii) In the _____ method of pricing material issues, where the prices are falling, profits will rise.

(xiv) In India, commercial papers can be issued in multiples of Rs._____.

(xv) _____ are the rules applied by a country to domestic regulations to promote foreign investment.

IV. Match the following (You may opt to write the Roman numeral and the matched alphabet instead of copying contents into the answer books): 1×5 = 5

(xvi)	**Normal Waste**	**a)**	**Credit facility is up to 80% of bill value**
(xvii)	**Salaries of directors**	**b)**	**Credit facility is higher than 80% of bill value**
(xviii)	**Cost of new spare net of cost of reconditioning old spare**	**c)**	**Absorbed in cost of production**
(xix)	**Factoring**	**d)**	**CAS-11**
(xx)	**Forfaiting**	**e)**	**CAS-12**

Answers:

I.

(i) Re-order Level = Safety Stock + lead time consumption
= Units (2600/52) x 3 + 100
= Units 150 + 100 = 250 units

(ii) Total Earnings under Barth Variable Sharing Plan

=Rate per Hour $\times \sqrt{Standard\ Hours \times Actual\ Hours\ taken}$

= Rs. 2 $\times \sqrt{20 \times 15}$ = Rs. 2 × 17.321 = Rs. 34.64

(iii) Overheads under absorbed, whether due to faulty planning or otherwise, if considerable, have to be adjusted to cost of sale, WIP and Finished Goods by using a supplementary rate.

(Candidates need not show the correct amount of overheads due to faulty planning. Figures are given with adequate information to understand that the amount under absorbed is considerable.)

(iv) P.V. on 1.7.2016 =Rs. [(1.2 x 1,000)+ (0.8 x 1,000) +(1x 1,100)] = Rs. 3,100 or
Simply, Rs. (1,000 +1,000+1,100) = Rs. 3,100

(Since the Cash Flows are equidistant and equal from the date of P.V., the undiscounted Cash Flows may be added. Alternatively, a student can do the above usual working.)

Note: If students take more than one decimal point (though Question States one decimal), the figures would be Rs.(1,210 + 826 +1,100 = 3,136). The concept being correct one mark may be awarded.

(v) Cost of equity = k_e =[(D_1/P_o) + g]= [(4.5/90)+.07 = .12 = 12%.

Or- Alternative Presentation:

P_o =[D_1 /(k_e –g)] or 90 = [4.5/ (k_e -0.07)] or 90 k_e -6.3 = 4.5

or, 90 k_e =4.5 +6.3 =10.8 ∴ k_e = 0.12 or 12%

II.

(vi) False. (By using supplementary rates, some portion of the under absorption gets loaded onto the finished goods and WIP inventory –c/f to the next year.)

(vii) True. (Marginal Cost increases with output, but is constant per unit of output.)

(viii) True. (A higher leverage means faster increase in both profits and losses. Hence P's losses will increase faster, or profits will decrease faster.)

(ix) False. (The IRR assumes that Cash Flows are reinvested at the IRR)

(x) True. (This is part of after sales service.)

III.

(xi) Actual capacity (whichever is higher should be the base)

(xii) Material Cost. (the component is a material element; landed cost of the material as per CAS for material cost)

(xiii) LIFO (Last prices will be lower; issues priced at lower cost will result in lower consumption value and hence increased profits)

(xiv) 5 lacs

(xv) TRIMS (Trade Related Investment Measures)

IV.

(xvi)	Normal Waste	c)	Absorbed in cost of production
(xvii)	Salaries of directors	d)	CAS-11
(xviii)	Cost of new spare net of cost of reconditioning old spare	e)	CAS-12
(xix)	Factoring	a)	Credit facility is up to 80% of bill value
(xx)	Forfaiting	b)	Credit facility is higher than 80% of bill value

SECTION – B
Answer *any three* questions from question numbers 2, 3, 4 and 5.
Each question carries 15 marks.

2. (a) The following information is available to Z Ltd. for the Financial Year ending 31st March, 2016:

Particulars	Rs.
Direct Material	3,45,000
Direct Wages	3,90,000
Production Overheads (75% variable)	2,40,000
Administration Overheads (75% fixed)	1,20,000
Selling and Distribution Overheads (50% fixed)	1,60,000
Sales - 10000 units	15,50,000
Opening Stock - Nil	
Closing Stock - Finished Goods - 5000 Units	
No WIP (Opening/ Closing)	

For the year 2016-17, it is estimated that:

(i) Output will increase by one-third; Sales quantity will increase by 50% by incurring additional advertisement expenses of Rs.1,45,200.

Assume that opening stock is first sold before using the current year's output.

(ii) Material prices will increase by 5%.

(iii) Wage rate will increase by 5% while overall direct labour efficiency will decrease by 4%.

(iv) The variable overheads will be at the same unit rates as last year.

(v) Fixed production overheads will increase by 25%.

(vi) Assume that production and sales units were achieved as per budget last year and will be achieved as per estimate this year also.

(vii)The company will revise its selling price in 2016-17 to Rs.125 per unit. This same selling price will hold for the units sold from the opening stock also.

You are required to prepare a statement showing cost of sales and sales and profit giving effect to the above for the financial year 2016-17. 10

(b) The following items appear in the records of Care Ltd. Compute the amount you would consider under material cost as per CAS-6.

Import Duty	20,000
Insurance	15,000
Labour on self-manufactured primary packing containers	20,000
Factory overheads on self-manufactured packing containers	25,000
Trade discount on purchase of raw material (Purchase was recorded excluding the discount)	45,000
CENVAT credit refundable	20,000
Subsidy received from the Govt. for using pollution-free material	8,000
Subsidy received for generating wind energy	12,000
Purchase Price	8,00,000

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Answers:

(a) Statement of Cost of Sales, Sales and Profit as under:

	2015-16			2016-17		
	Unit	**Per unit**	**Amount (Rs.)**	**Unit**	**Per Unit**	**Amount (Rs.)**
Direct Material	15,000	23	3,45,000	20,000	24.15*	4,83,000
Direct Wages	15,000	26	3,90,000		28.4375**	5,68,750
Prime Cost		**49**	**7,35,000**		**52.5875**	**10,51,750**
Add: Production OH						
75% Variable		12	1,80,000		12	2,40,000
25% Fixed		4	60,000		5	75,000
Factory/Work Cost		**65**	**9,75,000**		**68.3375**	**13,66,750**
Add: Administration OH						
25% Variable		2	30,000		2	40,000
75% Fixed		6	90,000			90,000
Cost of production		**73**	**10,95,000**		**74.8375**	**14,96,750**
Add: Opening stock						
Less: Closing stock				5,000	73	3,65,000
	5,000	73	3,65,000	10,000	74.8375	7,48,375
Cost of goods sold	**10,000**		**7,30,000**	**15,000**	**74.225**	**11,13,375**
Add: Selling & Distribution OH						
50% Variable		8@	80,000		8	1,20,000
50% Fixed		8	80,000			80,000
Adv. Exp						1,45,200
Total Cost			**8,90,000**			**14,58,575**
Sales (125/u×15,000)					**125**	**18,75,000**
Profit						**4,16,425**

* Direct Material Rs. 23.00 × 1.05 =Rs.24.15

** Direct Labour (Rs.26.00 × 1.05)/ 0.96 (1.00-0.04) =Rs.27.30/.96 =Rs.28.4375

@ Rs. 80,000/ 10,000 =Rs.8.00 (Variable)

(b) Computation of Material Cost as per CAS-6

Particulars	**Amount (Rs.)**
Purchase price of material (exclusive trade discount)	8,00,000
Trade Discount (already excluded)	
Import duty	20,000
Insurance	15,000
Labour on self-manufactured primary packing containers	20,000
Factory overheads on self-manufactured packing containers	25,000
Sub Total	**8,80,000**
Less:	
Cenvat credit refundable	20,000
Subsidy received from the Govt. for using pollution-free material	8,000
Subsidy for generating wind energy (Does not form part of Material cost as subsidy does not relate to Raw Material)	
Net Material Value under CAS-6	**8,52,000**

3. (a) XYZ Ltd. has three production departments, X Y and Z and two service departments, S_1 and S_2. The following figures are available for a certain production period:

Items of Overheads	Amount (Rs.)
Indirect Wages	16,000
Indirect Materials	12,000
Depreciation - Machinery	30,000
Depreciation - Building	10,000
Rent, Rates and Taxes	10,000
Electric Power for Lighting	1,000
Electric Power for Machinery	15,000
General Expenses	15,000

	Total	X	Y	Z	S_1	S_2
Direct Material (Rs.)	60,000	20,000	10,000	20,000	6,000	4,000
Direct Wages (Rs.)	40,000	15,000	15,000	5,000	3,000	2,000
Floor Area (Sft)	50,000	15,000	10,000	10,000	5,000	10,000
Value of Machinery (Rs.)	3,00,000	80,000	1,00,000	60,000	30,000	30,000
Horse Power (HP) of Machinery	150	60	50	30	5	5
Number of lights points	50	15	10	10	10	5
Labour Hours	15,000	5,000	5,000	2,000	1,000	2,000

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Prepare a statement showing the distribution of overheads among the production and service departments on the most equitable basis.

(b) How should the following items be treated as per CAS 7?

(i) Unavoidable idle time

(ii) Normal idle time

(iii) Abnormal idle time. **5**

Answers:

(a) Departmental Overhead Distribution Summary

Particular	Basis of apportionment	Total (Rs.)	Production Depts.				
			X (Rs.)	Y (Rs.)	Z (Rs.)	S_1 (Rs.)	S_2 (Rs.)
Indirect Wages	Direct Wages	16,000	6,000	6,000	2,000	1,200	800
Indirect Material	Direct material	12,000	4,000	2,000	4,000	1,200	800
Depreciation on Machinery	Value of Machine	30,000	8,000	10,000	6,000	3,000	3,000
Depreciation on Buildings	Floor Area	10,000	3,000	2,000	2,000	1,000	2,000
Rent, Rates & Taxes	Floor Area	10,000	3,000	2,000	2,000	1,000	2,000
Electric Power for lighting	No. of light Points	1,000	300	200	200	200	100
Electric Power for machinery	H. P. of machinery	15,000	6,000	5,000	3,000	500	500
General Expenses	Labour Hours	15,000	5,000	5,000	2,000	1,000	2,000
Total		1,09,000	35,300	32,200	21,200	9,100	11,200

(b) As per CAS-7, Idle Time cost shall be assigned directly to the cost object or treated as overheads depending on the economic feasibility and specific circumstances causing such idle time.

Treatments of different categories of idle time are as follows:-

(i) Unavoidable Idle Time would be booked for insignificant periods, in Cost Accounts, this is allowed to remain merged in the Production Order or Standing Order Number on which the worker was otherwise employed.

(ii) Normal Idle Time is booked to Factory or Works Overhead. For the purpose of effective control, each type of idle time, i.e. idle time classified according to the causes is allocated to a separate Standing Order Number.

(iii) Abnormal Idle Time would usually be heavy in amount involving longer periods and would mostly be beyond the control of the management. Payment for such idle time is not included in Cost and is adjusted through the Costing Profit and Loss Account or included in Profit & Loss Account, when the accounts are integrated.

4. (a) The following information is given:

Standard time allowed = 1 hour for 1 unit.

Actual time taken by a worker = 32 hours for 40 units

Standard Wage rate: Rs. 20 per unit or Rs. 20 per hour

Calculate the earnings of the worker under –

(i) Taylor's Differential Piece Rate System

(ii) Merrick Differential Piece Rate System

(iii) Gantt Task Bonus Plan (High piece rate = Rs.35/unit)

(iv) Halsey Premium Plan

(v) Rowan Plan **10**

(b) From the following information, compute the value of direct expenses per 100 bottles according to Cost Accounting Standards:

K Ltd. is a company making special ointments for pain relief. The following data is given:

(i) In order that the ointment does not get sticky on patients' fingers, there is an additive with attractive fragrance, which is mixed with the medicine towards the end of the process before it is sent for packing. The company pays @ Rs. 5,000 per packet for the paste supplied by a contractor. This quantity is sufficient for 50 bottles of ointment. K Ltd. further pays a royalty of Rs. 25 per bottle that uses this paste.

(ii) The special sealing of the bottles is done with manual intervention and the worker is paid at the rate of Rs. 5 per bottle specially sealed.

(iii) The manufacture of the ointment has to ensure precise quantity of various inputs. Computer aided manufacture is used. The software development charges relating to such production is Re. 0.40 per bottle.

(iv) The Government pays an incentive of Rs.22 per bottle produced. **5**

Answers:

(a) Standard hours= 40; Actual Hours taken= 32; ∴ Savings= 8 Hours.

	Taylor's Differential Piece Rate System	Merrick Differential Piece rate System	Gantt Task Bonus Plan	Halsey Premium Plan	Rowan Plan	Total
Earnings in Rs.	120% × 40 × 20 =960	120% × 40 × 20 =960	40 × 35 = 1,400	(32 × 20) + (0.5 × 8 × 20) = 640 + 80 = 720	(32 × 20) + [(8/40) × (32 × 20) = 640 +128 = 768	

Computation of Value of Direct Expenses per 100 Bottles as per CAS:

Sr. No.	Item	Direct Expense	Direct Expenses per 100 Bottles
(i)	Cost of special additive paste	**No**	
	Royalty Payment	**Yes ; Rs. 25/ per bottle**	**Rs. 2,500**
(ii)	Sealing of bottle	**No**	
(iii)	Software Development Charges	**Yes ; Re. 0.40 per bottle**	**Rs. 40**
Less:	Government Incentive	**Yes ; Rs. 22 per bottle(to be netted)**	**-Rs. 2,200**
	Total		**Rs.340**

5. (a) A company requires 1,00,000 units of an item annually. The cost per unit is Rs.10. Ordering cost is Rs. 500 per order and inventory carrying cost is 50% per unit per annum.

(i) Find the Economic Order Quantity (EOQ).

(ii) The supplier offers a discount of 3% for order quantity 4500-5999 and 3.5% for order quantity 6000 and above. Work out a statement comparing the total inventory management costs for the EOQ, 4500 and 6000 units of order and comment on your findings. Advise the company on how much to order. 10

(b) Write a short note on: (i) Profit Centre (ii) Responsibility Centre. How do they differ? 5

Answers:

(i) Calculation of Economic Order Quantity:

EOQ = $\sqrt{2AO/C}$,

Where A =Amount , O = Ordering Cost and C =Carrying Cost

$\therefore$ EOQ = $\sqrt{\frac{2 \times 1,00,000 \times 500}{10 \times 0.5}}$ = $\sqrt{10,00,00,000/5}$

$\sqrt{2,00,00,000}$ = 4,472.14 say 4,472 Units

	Order Quantity- 4,472	4,500	6,000
	Rs.	Rs.	Rs.
Purchase Cost: 1,00,000 × 10 = 1,00,000 × 9.70 = 1,00,000 × 9.65 =	10,00,000		
		9,70,000	
			9,65,000
Ordering Cost @Rs. 500 per order 1,00,000 /4,472 =22.36 =23 Orders 1,00,000/4,500 = 22.22 =23 Orders 1,00,000/6,000= 16.67 =17 Orders	11,500		
		11,500	
			8,500
Carrying Cost = 50% × Price × q/2 0.5 × 10 × 4,472/2 = 0.5 × 9.70 × 4,500/2 = 0.5 × 9.65 × 6,000/2 =	11,180		
		10,913	
			14,475
Total Inventory Management Cost	10,22,680	9,92,413	9,87,975

Comparison as above shows that at 6,000 order quantity, the total inventory cost is the least.
At a purchase price of Rs. 9.65, carrying cost per unit will be Rs. 4.825, which is slightly lower than Rs. 5.00 taken for EOQ. [10]

Alternative Solution (Students may compute Ordering Cost with decimal points:)

Calculation of Economic Order Quantity:

EOQ = $\sqrt{2AO/C}$,

Where A =Amount , O = Ordering Cost and C =Carrying Cost

∴ EOQ = $\sqrt{\frac{2\times1,00,000\times500}{10\times0.5}}$ = $\sqrt{10,00,00,000/5}$

$\sqrt{2,00,00,000}$ = 4,472.14 say 4,472 Units

	Order Quantity- 4,472	4,500	6,000
	Rs.	Rs.	Rs.
Purchase Cost: 1,00,000 × 10 = 1,00,000 × 9.70 = 1,00,000 × 9.65 =	10,00,000		
		9,70,000	
			9,65,000
Ordering Cost @Rs. 500 per order 1,00,000 /4,472 =22.36 Orders 1,00,000/4,500 = 22.22 Orders 1,00,000/6,000= 16.67 Orders			
	11,181		
		11,111	
			8,333
Carrying Cost = 50% × Price × q/2 0.5 × 10 × 4,472/2 = 0.5 × 9.70 × 4,500/2 = 0.5 × 9.65 × 6,000/2 =			
	11,180		
		10,913	
			14,475
Total Inventory Management Cost	10,22,361	9,92,024	9,87,808

Comparison as above shows that at 6,000 order quantity, the total inventory cost is the least.
At a purchase price of Rs. 9.65, carrying cost per unit will be Rs. 4.825, which is slightly lower than Rs. 5.00 taken for EOQ.

Ans. To Q. No. 5(b):

Profit Centre:

Profit centre is a segment of a business that is responsible for all the activities involved in the production and sales of products, systems and services. Thus, a profit centre encompasses both costs that it incurs and revenue that it generates. Profit centres are created to delegate responsibility to individuals and measure their performance. In the concept of responsibility accounting, profit centres are sometimes also responsible for the investment made for the centre. The profit is related to the invested capital. Such a profit centre may also be termed as investment centre.

Responsibility Centre:

A responsibility centre in cost accounting denotes a segment of a business organization for the activities of which responsibility is assigned to a specific person. Thus, a factory may be split into a number of centres and a supervisor is assigned with the responsibility of each centre. All costs relating to centre are collected and the Manager responsible for such a cost centre is judged by reference to the activity levels achieved in relation to costs. Even an individual machine may be treated as responsibility centre for cost control and cost reduction.

They differ in the following aspects:

i) Profit Centre relates to a business segment responsible for costs and revenue. It may be extended to be responsible even for the investment made for the centre.

ii) Responsibility centre relates to activity levels achieved in relation to costs. It is meant for cost control and cost reduction.

SECTION – C

Answer *any two* questions from question numbers 6, 7 and 8.
Each question carries 15 marks

6. (a) The following information is given to you as on 31-03-2016 for a company:

Current Ratio	**2.5**
Liquid Ratio	**1.5**
Fixed Assets (net)	**1,80,000**
Working Capital	**60,000**
Reserves and Surplus	**40,000**
Bank Overdraft (Short term)	**10,000**
Assume that there is no long term loan or fictitious assets.	

Make a statement of proprietary fund and match it with fixed assets and as many details of current assets net of current liabilities. 8

(b) A company plans to sell 48000 units next year. The following information is given:

Raw Materials = Rs.100(per unit)

Manufacturing expense = Rs.30(per unit)

Selling cost = Rs.20(per unit)

Selling Price = **Rs.180 (per unit)**

Average Cash balance = **Rs.1,20,000**

The duration at various stages is expected to be as follows:
Raw materials stage 2 months
Work in progress 1 month (Row Materials 100% complete; Manufacturing 25% complete)
Finished goods 1 month
Debtors 1 month
Assume uniform sales of 4000 units per month.
Estimate the gross working capital requirement taking
(i) Debtors at Cost;
(ii) Debtors at Sales Value. **7**

Answers:

Ans. To Q. No. 6(a):

Current Assets/ Current Liabilities = 2.5 ; Current Assets – Current Liabilities = Rs. 60,000
∴ 1.5 Current liabilities = Rs.60,000
∴ Current liabilities = Rs.60,000/1.5 = Rs.40,000
Current Assets = Rs. 60,000 + Current Liabilities or, Rs.(60,000 + 40,000) =Rs.1,00,000
Bank Overdraft is not excluded from Current Liabilities as it is stated to be "short term"
Liquid Ratio (Quick Ratio) = (Current Assets – Stock) / Current Liabilities = 1.5 or,
Rs. 1,00,000 – Stock = Rs. 1.5 × 40,000 (= Rs. 60,000)
∴ Stock = Rs. 40,000
Current Assets Rs. 1,00,000 – Stock Rs. 40,000 =Debtors and Cash Rs. 60,000
Share Capital = Rs. 2,00,000

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Share Capital	2,00,000	Fixed Assets	1,80,000
Reserves	40,000	**Current Assets:**	
		Stock	40,000
Current Liabilities	40,000	Cash and Debtors	60,000
Total	2,80,000	Total	2,80,000

Ans. To Q. No. 6(b):

Statement of Gross Working Capital

Item	Workings	Amount (Rs.)
Current Assets		
Raw Materials	4000 × 2 × 100	8,00,000
WIP:		
Materials	4000 × 100 × 100% × 1 month	4,00,000
Manufacturing Expenses	4000 × 30 × 25% × 1 month	30,000
Finished Goods	4000 × 130 × 1 month	5,20,000
Debtors (at cost)	4000 × 150 × 1 month	6,00,000
Cash		1,20,000
Total Gross WC Requirement		24,70,000

If Debtors are at Sales, add profit of Rs.30 per unit. Debtors will be 30 × 4,000 = Rs.1,20,000

more than the above figure. i.e. 7,20,000
Then, Gross WC= 25,90,000

Alternative Presentation:

	RM	WIP	FG	Debtors	Total	Working	Amount Rs.
RM	2m	1m	1m	1m	5m	5 × 100 × 4000	20,00,000
Mfg. expenses		.25	1	1	2.25m	2.25 × 30 × 4000	2,70,000
Selling exp				1	1	1×20 ×4000	80,000
Profit				1	1	1×30 ×4000	1,20,000
Cash							1,20,000
Total Gross WC(Debtors at sales)							25,90,000
Less : Profit Gross WC (Debtors at Cost)							1,20,000 24,70,000

7. (a) MN Ltd. wishes to evaluate two mutually exclusive proposals to acquire a machine. Machines M and N are being considered, each costing Rs. 2,00,000 and having an estimated life of 5 years and 4 years respectively. Both have nil salvage value. The anticipated cash inflows after adjustment of taxes for M and N are given below:

End of Year	Machine M	Machine N
1	70,000	1,00,000
2	60,000	90.000
3	60,000	80,000
4	50,000	40,000
5	90,000	Nil

Find the accounting rate of return and net present value for both the machines and advise MN Ltd. which machine should be bought. The required rate of return is 10% p.a.

Present Value factor for 10%

End of Year	1	2	3	4	5
	.909	.826	.751	.683	.621

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(b) ABC Ltd. has the following book value capital structure as on 31st March, 2016:

Particulars	Amount Rs.
Equity share capital	40,00,000
11.5% Preference shares	10,00,000
10% Debentures	30,00,000
	80,00,000

The equity share of the company sells for Rs. 20. It is expected that next year the company will pay a dividend of Rs. 2 per equity share, which is expected to grow at 5% p.a. forever. Assume a 35% corporate tax rate.

Using book value weight:

(i) Compute weighted average cost of capital (WACC) of the company based on the existing capital structure.

(ii) Compute the new WACC, if the company raises an additional Rs. 20 lakhs debt by issuing 12% debentures, at par Rs. 100 which would result in increasing the expected equity dividend to Rs. 2.40 and leave the growth rate unchanged, but the price of equity share will fall to Rs. 16 per share.

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Answers:

(a) Ranking of Proposals

Year	Cash Inflow		P.V. Factor	Total P.V.	
	M (Rs.)	N (Rs.)	(10% pa)	M (Rs.)	N (Rs.)
1	70,000	1,00,000	0.909	63,630	90,900
2	60,000	90,000	0.826	49,560	74,340
3	60,000	80,000	0.751	45,060	60,080
4	50,000	40,000	0.683	34,150	27,320
5	90,000	-	0.621	55,890	-
				2,48,290	2,52,640
Less: Cash Outflow				2,00,000	2,00,000
Net P. V.				48,290	52,640

Average Rate of Return:

$$\frac{\text{AverageProfit}}{\text{AverageInvestment}} \times 100$$

Note: [For evaluation of ARR the average investment has been taken at half of the initial cost for all the two machines]

M = 70,000 + 60,000 + 60,000 + 50,000 + 90,000 = 3,30,000 ÷ 5 = Rs.66,000

N= 1,00,000 + 90,000 + 80,000 + 40,000 = 3,10,000 ÷ 4 = Rs.77,500

$$\text{M ARR} = \frac{\text{AVProfit}}{\text{AVInvestment}} \times 100$$

= Average Cash-in-flow-Depreciation

$$= \frac{66,000-40,000}{1,00,000} \times 100 = 26\%$$

$$\text{N} = \frac{77,500-50,000}{1,00,000} \times 100 = 27.5\%$$

Rank: Machine 'N' to be selected under both the methods.

(b) WACC based on existing capital structure:

(i) Cost of equity capital = 2/20 + 0.05 = 0.15 or 15%

(ii) Cost of preference share capital = 11.5/100 = 0.115 or 11.5%

(iii) Cost of debentures = 10% (1- 0.35) = 6.5%

WACC (based on book values):

Source of Capital	Book Values Rs.	Weight	Post-tax Cost	Weighted Cost %
Equity Share Capital	40,00,000	0.500	15	7.50
Preference Share Capital	10,00,000	0.125	11.5	1.44 or 1.4375
10% Debentures	30,00,000	0.375	6.50	2.44 or 2.4375
Total	80,00,000	1.000		11.38 or 11.375

WACC (based revised capital structure)

(i) Cost of equity capital = 2.40/16 + 0.05 = 0.20 or 20%

(ii) Cost of preference share capital =11.5/100 =0.115 or 11.5%

(iii) Cost of 10% debentures = 10% (1-0.35) =6.5%

(iv) Cost of 12% debentures = 12% (1-0.35) = 7.8%

WACC (based on book values, after raising additional finance by issue of 12% debentures):

Source of Capital	Book Values Rs.	Weight	Post-tax Cost	Weighted Cost %
Equity Share Capital	40,00,000	0.400	20	8.00
Preference Share Capital	10,00,000	0.100	11.5	1.15
10% Debentures	30,00,000	0.300	6.50	1.95
12% Debentures	20,00,000	0.200	7.80	1.56
Total	1,00,00,000	1.000		12.66

8. (a) Calculate the degree of Operating Leverage, degree of Financial Leverage and the degree of Combined Leverage for the following firms and also interpret the result obtained:

	Firm X	Firm Y	Firm Z
(i) Output (units)	**80000**	**22500**	**1,50,000**
(ii) Variable Cost per unit (Rs.)	**1.50**	**1.10**	**1.20**
(ii) Fixed Cost (Rs.)	**10,000**	**20,000**	**8,000**
(iv)Interest on Loan Fund (Rs.)	**6,000**	**10,000**	**-**
(v) Selling price per unit (Rs.)	**2.50**	**5.00**	**1.50**

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(b) What is a Global Depository Receipt (GDR)? List three of its characteristics. 2+3=5

Ans. To Q. No. 8(a):

Calculation of Degree of Operating Leverage, Financial Leverage and Combined Leverage:

	FIRM X	FIRM Y	FIRM Z
Output (Units)	80,000	22,500	1,50,000
Selling Price per Unit (Rs.)	2.50	5.00	1.50
Less: Variable Cost per Unit (Rs.)	1.50	1.10	1.20
Contribution per Unit (Rs.)	1.00	3.90	0.30
Total Contribution (Rs.)	80,000	87,750	45,000
Less: Fixed Cost (Rs.)	10,000	20,000	8,000
EBIT (Rs.)	70,000	67,750	37,000
Less: Interest (Rs.)	6,000	10,000	-
PBT or EBT (Rs.)	64,000	57,750	37,000
Degree of Operating Leverage = Contribution/ EBIT	80,000/70,000= 1.143	87,750/67,750= 1.295	45,000/37,000 = 1.216
Degree of Financial Leverage = EBIT/PBT Or EBT	70,000/64,000 = 1.094	67,750/57,750 = 1.173	37,000/37,000 = 1.00
Degree of Combined Leverage= Contribution /PBT or EBT	**80,000/64,000 = 1.250**	**87,750/57,750 = 1.519**	**45,000/37,000 = 1.216**
Or			
Degree of Combined Leverage = (D.O.L.) × (D.F.L.)	**1.143 × 1.094 = 1.250**	**1.295 × 1.173 = 1.519**	**1.216 × 1.00 = 1.216**

Interpretation: Firm Z is less risky because it has low fixed cost and no interest and consequently low combined leverage

Ans. To Q No. 8(b):

Global Depository Receipt: (GDR)

A Depository Receipt means any instrument in the form of a depository receipt or certificate created by the Overseas Bank outside India and issued to the non-resident investors against the issue of ordinary shares.

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 Institutional Buyers(QIB).

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

Characteristics: (Any three Points)

i) The shares underlying the GDR do not carry voting rights

ii) The instruments are freely traded in the international market

iii) The investors can earn fixed income by way of dividend

iv) GDRs can be converted into the underlying shares, depository/ custodian Banks reducing the issue.