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INTERMEDIATE M'19 EXAM

SUBJECT- F.M.

Test Code – PIN 5044

BRANCH - () (Date :)

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ANSWER-1

ANSWER-A

Statement Showing Evaluation of Two Machines

Particulars	Machine A	Machine B
Purchase Cost (Rs.) : (i)	8,00,000	6,00,000
Life of Machines (in years)	3	2
Running Cost of Machine per year (Rs.) : (ii)	1,30,000	2,50,000
Cumulative PVF for 1-3 years @ 10% : (iii)	2.4868	-
Cumulative PVF for 1-2 years @ 10% : (iv)	-	1.7355
Present Value of Running Cost of Machines (Rs.): (v) = [(ii) x (iii)]	3,23,284	4,33,875
Cash Outflow of Machines (Rs.) : (vi) = (i) + (v)	11,23,284	10,33,875
Equivalent Present Value of Annual Cash Outflow [(vi)/(iii)]	4,51,698.57 Or 4,51,699	5,95,721.69 Or 5,95,722

Recommendation: APZ Limited should consider buying Machine A since its equivalent Cash outflow is less than Machine B.

(5 MARKS)

ANSWER-B

MNOP Ltd Balance Sheet

Liabilities	*Rs.*	*Assets*	*Rs.*
Equity share capital	1,00,000	Fixed assets	60,000
Current debt	24,000	Cash (balancing figure)	60,000
Long term debt	36,000	Inventory	40,000
	1,60,000		1,60,000

Working Notes

1. Total debt = 0.60 x Equity share capital = 0.60 ´ Rs. 1,00,000 = Rs. 60,000
   Further, Current debt to total debt = 0.40. So, current debt = 0.40 × Rs.60,000 = Rs.24,000, Long term debt = Rs.60,000 - Rs.24,000= Rs. 36,000
2. Fixed assets = 0.60 × Equity share Capital = 0.60 × Rs. 1,00,000 = Rs. 60,000
3. Total assets to turnover = 2 Times : Inventory turnover = 8 Times
   Hence, Inventory /Total assets = 2/8=1/4, Total assets = Rs. 1,60,000 Therefore Inventory = Rs. 1,60,000/4 = Rs. 40,000

(5 MARKS)

ANSWER-C

Annual Benefit of accepting the Discount

$$\frac{Rs.1.5}{Rs.100 - Rs.1.50} \times \frac{365\ days}{40 - 10\ days} = 18.53\%$$

Annual Cost = Opportunity Cost of foregoing interest on investment = 15%

If average invoice amount is Rs. 10,00,000

	If discount is	
	Accepted (Rs.)	**Not Accepted (Rs.)**
Payment to Supplier (Rs.)	9,85000	10,00,000
Return on investment of Rs.9,85,000 for 30 days {Rs.9,85,000 × (30/365) × 15%}		(12,144)
	9,85,000	9,87,856

Thus, from above table it can be seen that it is cheaper to accept the discount.

(5 MARKS)

ANSWER-D

Computation of degree of Operating leverage, Financial leverage and Combined leverage of two companies

	Company A	Company B
Output units per annum	60,000	15,000
	(Rs.)	**(Rs.)**
Selling price / unit	30	250
Sales revenue	18,00,000	37,50,000
	(60,000 units x Rs. 30)	(15,000 units x Rs. 250)
Less: Variable costs	6,00,000	11,25,000
	(60,000 units x Rs. 10)	(15,000 units x Rs. 75)
Contribution (C)	12,00,000	26,25,000
	7,00,000	14,00,000
Less: Fixed costs	5,00,000	12,25,000
	48,000	78,000
EBIT (Earnings before Interest and tax) Less: Interest @ 12% on debentures PBT	4,52,000	11,47,000

Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}}$ 2.4 (Rs. 12,00,000/ 5,00,000) 2.14 (Rs. 26,25,000 / Rs. 12,25,000)

Financial Leverage = $\frac{\text{EBIT}}{\text{PBT}}$ 1.11 (Rs. 5,00,000/ Rs. 4,52,000) 1.07 (Rs. 12,25,000 / Rs. 11,47,000)

Combined Leverage = DOL x DFL 2.66 (2.4x 1.11) 2.29 (2.14x 1.07)

(5 MARKS)

ANSWER-2

Computation of Amount of Working Capital required on a Cash Cost basis

Working Notes:

1. Raw material inventory: The cost of materials for the whole year is 60% of the Sales value.

   Hence it is 54,000 units x Rs. 200 x $\frac{60}{100}$ = Rs. 64,80,000 . The monthly consumption of raw material would be Rs. 5,40,000. Raw material requirements would be for two months; hence raw materials in stock would be Rs. 10,80,000.

2. Debtors: Total Cash Cost of Sales = 97,20,000 x $\frac{1.5}{12} = Rs. 1215000$

3. Work-in-process: (Each unit of production is expected to be in process for one month).

		Rs.
(a)	Raw materials in work-in-process (being one month's raw material requirements)	5,40,000
(b)	Labour costs in work-in-process (It is stated that it accrues evenly during the month. Thus, on the first day of each month it would be zero and on the last day of month the work-in-process would include one month's labour costs. On an average therefore, it would be equivalent to ½ of the month's labour costs)	45,000
(c)	Overheads (For ½ month as explained above) Total work-in-process	90,000 6,75,000

4. Finished goods inventory:

	(1 month's cost of production)	
	Raw materials	5,40,000
	Labour	90,000
	Overheads	1,80,000
		8,10,000

1. Creditors: Suppliers allow a one month's credit period. Hence, the average amount of creditors would be Rs. 5,40,000 being one month's purchase of raw materials.

2. Direct Wages payable: The direct wages for the whole year is 54,000 units X

Rs. 200 x 10% = 10,80,000. The monthly direct wages would be 90,000 (10,80,000 ÷12). Hence, wages payable would be Rs. 90,000.

(7 MARKS)

Statement of Working Capital Required

	Rs.	Rs.
Current Assets		
Raw materials inventory (Refer to working note 1)	10,80,000	
Debtors (Refer to working note 2)	12,15,000	
Working–in-process (Refer to working note 3)	6,75,000	
Finished goods inventory (Refer to working note 4)	8,10,000	
Cash	2,52,000	40,32,000
Current Liabilities		
Creditors (Refer to working note 5)	5,40,000	
Direct wages payable (Refer to working note 6)	90,000	6,30,000
Estimated working capital requirements (before safety margin		
of 15%)		34,02,000
Add: Safety margin of 15%		5,10,300
Estimated Working Capital Requirements		39,12,300

(3 MARKS)

ANSWER-3

(i) **Computation of Weighted Average Cost of Capital based on existing capital structure**

Source of Capital	Existing Capital structure (Rs.)	Weights (a)	After tax cost of capital (%) (b)	WACC (%) (a) x (b)
Equity share capital (W.N.1)	40,00,000	0.500	15.00	7.500
11.5% Preference share capital (W.N.2)	10,00,000	0.125	11.50	1.437
10% Debentures (W.N.3)	30,00,000	0.375	6.50	2.438
	80,00,000	1.000		11.375

Working Notes (W.N.):

1. **Cost of equity capital:**

$$K_e = \frac{\text{Expected Dividend}(D_1)}{\text{Current Market Price per share}(P_0)} + \text{Growth (g)}$$

$$= \frac{Rs.2}{Rs.20} + 0.05 = 0.15 \text{ or } 15\%$$

2. **Cost of preference share capital:**

$$\frac{\textit{Annual preference share dividend}}{\text{Net proceeds in the issue of preference shares}}$$

$$= \frac{115000}{1000000} = 0.115 \text{ or } 11.5\%$$

3. **Cost of 10% Debentures***:*

$$\frac{I(1-t)}{NP} = \frac{\text{Rs.3,00,000}(1-0.35)}{Rs.30,00,000} = 0.065 \text{ or } 6.5\%$$

(5 MARKS)

(ii) **Computation of Weighted Average Cost of Capital based on new capital structure**

Source of Capital	New Capital structure (Rs.)	Weights (b)	After tax cost of capital (%) (a)	WACC (%) (a) x (b)
Equity share capital	40,00,000	0.40	20.00	8.00
(W.N. 4) Preference share (W.N. 2) 10% Debentures (W.N. 3)	10,00,000	0.10	11.50	1.15
	30,00,000	0.30	6.50	1.95
12% Debentures (W.N.5)	20,00,000	0.20	7.80	1.56
	1,00,00,000	1.00		12.66

Working Notes (W.N.):

4. Cost of equity capital:

$$K_e = \frac{\text{Expected Dividend}(D_1)}{\text{Current Market Price per share}\ (P_0)} + \text{Growth(g)}$$

$$= \frac{Rs.2.40}{Rs.16} + 5\% = 20\%$$

5. Cost of 12% Debentures

$$K_d = \frac{Rs.2,40,000\ (1-0.35)}{Rs.20,00,000} = 0.078 \text{ or } 7.8\%$$

(5 MARKS)

ANSWER-4

(i) Cost of Project **(2.5 MARKS)**

At 15% internal rate of return (IRR), the sum of total cash inflows = cost of the project i.e initial cash outlay

Annual cost savings = Rs. 96,000

Useful life = 5 years

Considering the discount factor table @ 15%, cumulative present value of cash inflows for 5 years is 3.353

Hence, Total Cash inflows for 5 years for the Project is 96,000 x 3.353 = Rs. 3,21,888

Hence, Cost of the Project = Rs. 3,21,888

(ii) Payback Period **(2 MARKS)**

Payback period = $\frac{\text{Cost of the Project}}{\text{Annual Cost Savings}} = \frac{\text{Rs.3,21,888}}{96,000}$

Payback Period = 3.353 years

(iii) Net Present Value (NPV) **(2 MARKS)**

NPV = Sum of Present Values of Cash inflows – Cost of the Project

= Rs. 3,37,982.40 – 3,21,888 = Rs. 16,094.40

Net Present Value = Rs. 16,094.40

(iv) Cost of Capital

Profitability index = $\frac{\text{Sum of Discounted Cash inflows}}{\text{Cost of the Project}}$

1.05 = $\frac{\text{Sum of Discounted Cash Inflows}}{3,21,888}$

∴ Sum of Discounted Cash inflows = Rs. 3,37,982.40

Since, Annual Cost Saving = Rs. 96,000

Hence, cumulative discount factor for 5 years = $\frac{Rs.3,37,982.40}{96,000}$

From the discount factor table, at discount rate of 13%, the cumulative discount factor for 5 years is 3.52

Hence, Cost of Capital = 13%

(3.5 MARKS)

ANSWER-5

Note: Discount Rate to be used = After Tax Cost of Debt = 14% x (1 - 0.4) = 8.40%

1. Cost of the Asset

Particulars	**Value**
(a) Equivalent Annual Installment for Loan (given)	Rs.1,78,858
(b) Annuity Factor at 14% for Installments (Payable at the beginning of the year) = PVF for Year 0 + AF Year 1 to 4 = 1.0000 + 2.9137	3.9137
(c) Loan Amount = Cost of the Asset (assuming entire cost is funded by debt) = a x b	Rs.6,99,997

(1.5 MARKS)

2. Present Value of Cash Outflow under Leasing Option

Particulars	Value
Annual Lease Rental (25% of Cost Rs. 6,99,997)	1,74,999
Less: Tax Savings on the above at 40%	(69,999)
Net Annual Lease Rental	1,05,000
Annuity Factor at 8.4% for 5 Years (Year End payment) = PVIFA (8.4%, 5 years)	3.9509
Present Value under Lease Option = Rs. 1,05,000 x 3.9509	4,14,844

(2 MARKS)

3. Computation of Principal & Interest Payments [Loan Option]

End of Year	Principal Outstanding Before Repayment	Annual Installment	Interest@ 14% on OB	Principal Repaid	Principal Outstanding at the End
(1)	(2)	(3)	(4)	(5) = (3) — (4),	(6) = (2) —(5)
0	6,99,997	1,78,858	-	1,78,858	5,21,139
1	5,21,139	1,78,858	72,960	1,05,898	4,15,241
2	4,15,241	1,78,858	58,134	1,20,724	2,94,517
3	2,94,517 1	1,78,858	41,233	1,37,625	1,56,892
4	1,56,892	1,78,858	21,966	1,56,892	-
		1,78,858	**1,94,293**	**6,99,997**	

(2 MARKS)

(b) Tax Savings on Depreciation

Particulars	Value
Cost of the Asset	6,99,997
Less: Salvage Value (assuming it is considered for tax purposes)	(24,998)
Depreciable Value	6,74,999
Depreciation per Annum (Rs. 6,74,999 ÷ 5)	Rs. 1,35,000
Tax Savings at 40% thereon	Rs. 54,000

(1.5 MARKS)

4. Computation Present Value of Cash Flows (Loan Option)

End of Year	Interest Paid	Principal Repaid	After Tax Interest Payment	Tax Savings on Depreciation	Total Cash Flow for the year	PVF at 5%	Discounted Cash Flow
(1)	(2)	(3)	(4) = (2) x 0.50	(5)	(6) = (3) + (4) — (5)	(7)	(8) = (6) x (7)
0	-	1,78,858	-	-	1,78,858	1.0000	1,778,858
1	72,960	1,05,898	43,776	(54,000)	95,674	0.9225	88,259
2	58,134	1,20,724	34,880	(54,000)	1,01,604	0.8510	86,465
3	41,233	1,37,625	24,740	(54,000)	1/08,365	0.7851	85,077
4	21,966	1,56,892	13,180	(54,000)	1,16,072	0.7242	84,059
5	-	-	-	(54,000)	(54,000)	0.6681	(36,077)
PV of Outflows							4,86,641
Less: PV of Inflows = Salvage Value at Year 5					24,998	0.6681	(16,701)
PV of Net Outflows under Loan Option							4,69,940

Note: It is assumed that Tax Savings on Depreciation arises at the end of the year. Alternatively it may be assumed that such savings arise at the time of cash flows itself, i.e. beginning of the year, due to prevalence of advance tax.

Conclusion: Since Present Value of Cash Flows under lease Option is lower than borrow and buy, by Rs. 4,69,940 Less Rs. 4,14,844 = Rs. 55,096, the Company should prefer Leasing.

(3 MARKS)

ANSWER-6

1. Market Price per Share [Different Payout Ratio and Growth Rate]

	Particulars	ATL	UTA	EWC
(a)	Earnings per Share [EPS]	Rs. 110	Rs. 25	Rs. 150
(b)	Pay Out Ratio	20%	40%	10%
(c)	Required Rate of Return i.e. (K_e)	15%	18%	20%
(d)	Future Growth Rate expected in Dividend	5%	10%	10%
(e)	Dividend per Share [EPS x Payout Ratio][Year 0][(a) x (b)]	(Rs. 110 x 20%) = Rs. 22	(Rs. 25 x 40%) = Rs. 10	(Rs. 150 x 10%) = Rs. 15

(f)	DPS [Year 1] [(e) + (d)]	(Rs. 22 + 5%) = Rs. 23.10	(Rs. 10 + 10%) = Rs. 11	(Rs. 15 + 10%) = Rs. 16.50
(g)	Market Price per Share = $\frac{D_1}{K_e - g}$	$\frac{Rs.23.10}{15\% - 5\%} = Rs.231$	$\frac{Rs.11}{18\%-10\%} = Rs.137.50$	$\frac{Rs.16.5}{20\%-10\%} = Rs.165$

(5 MARKS)

2. Market Price per Share [Uniform Payout Ratio and Growth Rate]

Particulars	**ATL**	**UTA**	**EWC**
(a) Earnings per Share [EPS]	Rs.110	Rs.25	Rs. 150
(b) Pay Out Ratio	30%	30%	30%
(c) Required Rate of Return / Cost of Equity (K_e)	15%	18%	20%
(d) Future Growth Rate expected in Dividend	10%	10%	10%
(e) Dividend per Share [EPS x Payout Ratio] r(a) x (b)]	(Rs. 110 X 30%) = Rs. 33	(Rs. 25 X 30%) = Rs. 7.50	(Rs. 150 x 30%) = Rs. 45
(f) DPS [Year 1] [(e) + (d)]	36.3	8.25	49.5
(g) Market Price per Share = $\frac{D_1}{K_e - g}$	$\frac{Rs.36.3}{15\%-10\%} = Rs.726$	$\frac{Rs.8.25}{18\%-10\%} = Rs.103.125$	$\frac{Rs.49.5}{20\%-10\%} = Rs.495$

(5 MARKS)

ANSWER-7

Ascertainment of probable price of shares of Akash limited

Particulars	Plan-I	Plan-II
	If Rs. 4,00,000 is raised as debt (Rs.)	If Rs. 4,00,000 is raised by issuing equity shares (Rs.)
Earnings Before Interest and Tax (EBIT) {20% of new capital i.e. 20% of (Rs.14,00,000 + Rs.4,00,000)} (Refer working note1)	3,60,000	3,60,000
Less: Interest on old debentures (10% of Rs.4,00,000)	(40,000)	(40,000)
Less: Interest on new debt (12% of Rs.4,00,000)	(48,000)	—
Earnings Before Tax (EBT)	2,72,000	3,20,000
Less: Tax @ 50%	(1,36,000)	1,60,000
Earnings for equity shareholders (EAT)	1,36,000	1,60,000
No. of Equity Shares (refer working note 2)	30,000	40,000
Earnings per Share (EPS)	Rs. 4.53	Rs. 4.00
Price/ Earnings (P/E) Ratio (refer working note 3)	8	10
Probable Price Per Share (PE Ratio × EPS)	Rs. 36.24	Rs. 40

(4 MARKS)

Working Notes: **(3*2= 6 MARKS)**

1. Calculation of existing Return of Capital Employed (ROCE):

	Rs.
Equity Share Capital (30,000 shares x Rs.10)	3,00,000
10% Debentures $\left(\text{Rs.}40{,}000\text{x}\frac{100}{10}\right)$	4,00,000
Reserves and surplus	7,00,000

Total Capital Employed	14,00,000
Earnings before interest and tax (EBIT) (given)	2,80,000
ROCE = $\frac{Rs.2,80,000}{Rs.14,00,000} x100$	20%

2. Number of Equity Shares to be issued in Plan-II:

$= \frac{Rs.4,00,000}{Rs.40} = 10,000 \text{ shares}$

Thus, after the issue total number of shares = 30,000+ 10,000 = 40,000 shares

3. Debt/Equity Ratio if Rs. 4,00,000 is raised as debt:

$= \frac{Rs.8,00,000}{Rs.18,00,000} x\ 100 = 44.44\%$

As the debt equity ratio is more than 40% the P/E ratio will be brought down to 8 in Plan-I.

ANSWER-8

i) The net present values of the Projects A and B at cost of capital are as below:

Years	Project-A (Rs Lakh]	PVF at 17%	Present value of cash inflow	Project-B (Rs lakh]	PVF at 17%	Present value of cash inflow
0	-250	1	-250	-250	1	-250
1	60	0.8547	51.3	100	0.8696	87.0
2	70	0.7305	51.1	120	0.7561	90.7
3	80	0.6244	49.9	100	0.6575	65.8
4	120	0.5337	64.0	20	0.5718	11.4
5	120	0.4561	54.7	40	0.4972	19.9
NPV			271.1			24.8

Based on NPV rule the firm must undertake Project A having higher NPV. **(5 MARKS)**

ii) Using certainty equivalent (CE) approach we may find the equivalent cash flows that are certain by using the certainty equivalent factor for each year, and then discounting these certain cash flows at risk free rate.

Years	Project-A (Rs Lakh]	CE factor	Adjusted Cash flow	PVF at 6%	Present value of cash inflow	Project-B (Rs lakh]	Adjusted Cash flow	Present value of cash inflow
0	-250	1	-250	1	-250	-250	-250	-250
1	60	0.9	54	0.9434	50.9	100	90	84.9
2	70	0.8	56	0.8900	49.8	120	96	85.4
3	80	0.7	56	0.8396	47.0	100	70	58.8
4	120	0.6	72	0.7921	57.0	20	12	9.5
5	120	0.5	60	0.7473	44.8	40	20	14.9
NPV					0.3			3.6

Based on the certain cash flows as modified by the certainty equivalent factor Project B is preferable since it has positive NPV while Project A has negative NPV.

(5 MARKS)

ANSWER-9

ANSWER-A

"The profit maximisation is not an operationally feasible criterion." This statement is true because Profit maximisation can be a **short-term objective for any organisation** and **cannot be its sole objective**. Profit maximization fails to **serve as an operational criterion** for **maximizing the owner's economic welfare**. It fails to provide an operationally feasible measure for ranking alternative courses of action in terms of their economic efficiency. It suffers from the following limitations: **(1 MARK)**

(i) **Vague term:** The definition of the term profit is ambiguous. Does it mean short term or long term profit? Does it refer to profit before or after tax? Total profit or profit per share?

(ii) **Timing of Return:** The profit maximization objective does not make distinction between returns received in different time periods. It gives no consideration to the time value of money, and values benefits received today and benefits received after a period as the same.

(iii) It **ignores the risk factor**.

(iv) The term **maximization is also vague**.

(4*1 = 4 MARKS)

ANSWER-B

Three Principles Relating to Selection of Marketable Securities

The three principles relating to selection of marketable securities are:

(i) **Safety:** Return and risk go hand-in-hand. As the objective in this investment is **ensuring liquidity, minimum risk** is the criterion of selection.

(ii) **Maturity:** Matching of maturity and forecasted cash needs is essential. Prices of long- term securities fluctuate more with changes in interest rates and are, therefore, riskier.

(iii) **Marketability:** It refers to the **convenience, speed and cost** at which a security can be converted into cash. If the security can be sold quickly without loss of time and price, it is highly liquid or marketable.

(3*1 = 3 MARKS)

ANSWER-C

Features of Deep Discount Bonds: Deep discount bonds are a **form of zero-interest bonds.** These bonds are **sold at discounted value** and on maturity; face value is paid to the investors. In such bonds, there is **no interest payout during the lock- in period.** The investors can sell the bonds in stock market and realise the difference between face value and market price as capital gain.

IDBI was the first to issue deep discount bonds in India in January 1993. The bond of a face value of Rs. 1 lakh was sold for Rs. 2700 with a maturity period of 25 years.

(2 MARKS)

ANSWER-10

Particulars	**Rs.**
Total Sales	Rs. 200 lakhs
Credit Sales (80%)	Rs. 160 lakhs
Receivables for 40 days	Rs. 80 lakhs
Receivables for 120 days	Rs. 80 lakhs
Average collection period [(40 x 0.5) + (120 x 0.5)]	80 days
Average level of Receivables (Rs. 1,60,00,000 x 80/360)	Rs.35,55,556
Factoring Commission (Rs. 35,55,556 x 2/100)	Rs.71,111
Factoring Reserve (Rs. 35,55,556 x 10/100)	Rs. 3,55,556
Amount available for advance {Rs. 35,55,556 - (3,55,556 + 71,111)}	Rs.31,28,889
Factor will deduct his interest 18% : Interest = $\frac{\text{Rs.}31,28,889 \text{ x } 18 \text{ x } 80}{100 \text{ x } 360}$	Rs. 1,25,156
Advance to be paid (Rs. 31,28,889 - Rs. 1,25,156)	Rs.30,03,733

(5 MARKS)

(i) Statement Showing Evaluation of Factoring Proposal

		Rs.
A.	**Annual Cost of Factoring to the Firm:**	
	Factoring commission (Rs. 71,111 x 360/80)	3,20,000
	Interest charges (Rs. 1,25,156 x 360/80)	5,63,200
	Total	8,83,200
B.	**Firm's Savings on taking Factoring Service:**	**Rs.**
	Cost of credit administration saved	2,40,000
	Bad Debts (Rs. 160,00,000 x 1/100) avoided	1,60,000
	Total	4,00,000
C.	**Net Cost to the firm (A - B) (Rs. 8,83,200 - Rs. 4,00,000)**	4,83,200

Effective cost of factoring = $\frac{\text{Rs.4,83,200}}{\text{Rs.30,03,733}}$ x100 = 16.09* %

* If cost of factoring is calculated on the basis of total amount available for advance, then, it will be

$$= \frac{\text{Rs.4,83,200}}{\text{Rs.31,28,889}} \times 100 = 15.44\%$$

(ii) If Bank finance for working capital is available at 14%, firm will not avail factoring service as 14 % is less than 16.08% (or 15.44%)

(5 MARKS)