FDG-H

Roll. No. ……..

Total No. of Question-6 **Maximum Marks : 60**

Test Paper with Solutions

Financial Management

CA-Intermediate (May 2023)

Examination

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Section - A

Question No. **1** is compulsory.

Candidates are also required to answer any Four questions from the remaining Five questions.
Working notes should form part of the respective answers.

1. (a) Following information are given for a company :

Earnings per share	₹10
P/E ratio	12.5
Rate of return on investment	12%
Market price per share as per Walter's model	₹130

You are required to calculate :

(i) Dividend payout ratio.

(ii) Market price of share at optimum dividend payout ratio.

(iii) P/E ratio, at which the dividend policy will have no effect on the price of share.

(iv) Market price of share at this P/E ratio.

(v) Market price of share using Dividend growth model. **(5 Marks)**

Sol. (1) **(a)**

(i) Calculation of Dividend Payout Ratio

As per Walter's model

$$P = \frac{D + \frac{r}{Ke}(E - D)}{Ke}$$

$$130 = \frac{D + \frac{0.12}{0.08}(10 - D)}{0.08}$$

$\therefore D = 9.20$

$$\therefore Dividend\ \ Payout\ \ ratio = \frac{9.2}{10} \times 100 = 92\%$$

(ii) Since r > Ke, optimum dividend payout ratio should be 100%

Therefore MPS at 100% Div Payout ratio is :

$$P = \frac{D + \frac{r}{Ke}(E - D)}{Ke} = \frac{0 + \frac{0.12}{0.08}(10 - 0)}{0.08} = ₹187.50$$

(iii) Dividend Policy shall have no effect on the price of share when Ke will be equal to r

$$\therefore P/Er = \frac{1}{Ke} = \frac{1}{0.12} = 8.33$$

(iv) MPS at this P / E ratio

$$P = \frac{D + \frac{r}{Ke}(E - D)}{Ke} = \frac{9.2 + \frac{0.12}{0.12}(10 - 9.2)}{0.12} = ₹83.33$$

(v) MPS using Dividend Growth Model

$$\therefore Ke = \frac{D}{P} + g \quad Or\ \ P = \frac{E(1-b)}{Ke - br}$$

$$\therefore Po = \frac{D}{Ke - g} = \frac{9.2}{0.08 - (0.12 \times 0.08)} = \frac{9.2}{0.08 - 0.0096} = ₹130.68$$

Here g = roi x retention ratio

1. **(b)** A company has current sale of ₹ 12 lakhs per year. The profit-volume ratio is 20% and post-tax of investment in receivables is 15%. The current credit terms are 1/10, net 50 days and average collection period is 40 days. 50% of customers in terms of sales revenue are availing cash discount and bad debt is 2% of sales.

In order to increase sales, the company want to liberalize its existing credit terms to 2/10, net 35 days. Due to which, expected sales will increase to ₹ 15 lakhs. Percentage of default in sales will remain same.

Average collection period will decrease by 10 days. 80% of customers in terms of sales evenue are expected to avail cash discount under this proposed policy.

Tax rate is 30%.

ADVISE, should the company change its credit terms. (Assume 360 days in a year.)

(5 Marks)

Sol. 1 (b)

Evaluation of Credit Policy		₹
(A) Contribution on Incremental sales	3,00,000 x 20%	60,000
(B) Incremental Bad Debts	3,00,000 x 2%	6,000
(C) Saving of Interest		
Cost of Debtors		
Before 12L x 80% x 40/360 =	1,06,667	
After 15L x 80% x 30/360 =	1,00,000	
Decrease in COD	6,667	
Saving of Interest @ 21.43%*		1,429

*Here before tax interest rate = 15 / 0.70 = 21.43%

(D) Cost of Cash Discount		
Before 12L x 50% x 1%	= 6,000	
After 15L x 80% x 2%	= 24,000	18,000
Net Benefit Before Tax	(A – B + C – D)	37,429
	– Tax @ 30%	11,229
	Net Benefit After Tax	26,200

The company should change its credit terms as it gives a net profit after tax of ₹26200

Alternative Manner of Solution

	Particulars		**Present Policy (1/10 Net 50)**	**Proposed Policy (2/10 Net 35)**
A	Avg. Collection Period	(Days)	40	30
B	Credit Sales		12,00,000	15,00,000
C	Variable Cost @ 80% of Sales		9,60,000	12,00,000
D	Bad Debts @ 2% of Sales		24,000	30,000
E	Cash Discount			
	→ Present : (12,00,000 x 50% x 1%)		6,000	–
	→ Proposed : (15,00,000 x 80% x 2%)		–	24,000
F	Profit Before Tax	(B – C – D – E)	2,10,000	2,46,000
G	Profit After Tax	(PBT x 70%)	1,47,000	1,72,200
H	Investment in Receivable			
	$\frac{\text{Variable Cost x ACP}}{360}$		1,06,667	1,00,000
I	Opportunity Cost @ 15%	(Post-tax)	16,000	15,000
J	Net Benefit	(G – I)	1,31,000	1,57,200

The company should change its credit terms as it gives a net incremental profit after tax of ₹26200

1. (c) A company wants to invest in a project. This requires an initial investment of ₹ 4,50,000. Salvage value after estimated useful life of 5 years is ₹ 50,000. Other details of project are as follows :

	Worst case	Most likely	Best case
Contribution (₹)	3,30,000	5,40,000	6,31,250
Fixed cost (excluding deprecation) (₹)	75,000	1,50,000	2,00,000

Tax rate is 40%. Expected cost of capital of project is 12%. Ignore tax on capital gain.

(i) Calculate NPV in each scenario.

(ii) The company is certain about most likely result in first two years, but uncertain about remaining period. In such a situation, calculate NPV expecting worst case scenario during next two years and best case scenario in the remaining period.

Years	1	2	3	4	5
$\mathbf{PVIF_{0.12,t}}$	0.893	0.797	0.712	0.636	0.567
$\mathbf{PVIF_{0.12,t}}$	0.893	1.690	2.402	3.038	3.605

(5 Marks)

Sol. 1. (c) (i)

Calculation of Net Present Value

Particulars	Worst Case	Most Likely	Best Likely
Contribution	330,000	540,000	631,250
Less : Fixed Cost	75,000	150,000	200,000
PBDT	255,000	390,000	431,250
Less : Tax @ 40%	102,000	156,000	172,500
C.F.A.T	153,000	234,000	258,750
Add : Tax benefit on Dep.	32,000	32,000	32,000
Net CFAT	185,000	266,000	290,750
Sum. PVF @ 12%	3.605	3.605	3.605
Present Value of CFAT	666,925	958,930	1,048,154
Present Value of Salvage 50,000 x 0.567	28,350	28,350	28,350
PVIF	695,275	987,280	1,076,504
Less : PVOF	450,000	450,000	450,000
NPV	245,275	537,280	626,504

(ii) **Calculation of Net Present Value**

Year	CFAT	PVF @ 12%	PV of CFAT
1	266,000	0.893	237,538
2	266,000	0.797	212,002
3	185,000	0.712	131,720
4	185,000	0.636	117,660
5	290,750	0.567	164,855
5	50,000	0.567	28,350
		PVIF	892,125
		Less : PVOF	450,000
		NPV	442,125

1. (d) Following information is given for X Ltd.:

Total contribution (₹)	4,25,000
Operating leverage	3,125
15% Preference shares (₹ 100 each)	1,000
Number of equity shares	2,500
Tax rate	50%

Calculate EPS of X Ltd., if 40% decrease in sales will result EPS to zero.

(5 Marks)

Sol.

Calculation of EPS

Particulars	Amount
Contribution	425,000
Less : Fixed Cost	289,000
EBIT	136,000
Less : Interest	-64,000
EBT	200,000
Less : Tax @ 50%	100,000
EAT	100,000
Less : Dp	15,000
EAS	85,000
\ No. of ES	2,500
EPS	34

There seems some mistake in this question. However we have solved it as per the information given in it.

$$OL = \frac{C}{EBIT}$$

$$3.125 = \frac{425000}{EBIT}$$

$$\therefore EBIT = 136000$$

$$DCL = \frac{\%\ change\ in\ EPS}{\%Change\ in\ Sales}$$

$$= \frac{100}{40} = 2.5t$$

$$\because DCL = \frac{C}{EBIT - I - \frac{DP}{(1-t)}}$$

$$\therefore 2.5 = \frac{425000}{136000 - I - 30000}$$

$$I = -64000$$

2. Following information and ratios are given in respect of AQUA Ltd. for the year ended 31st March, 2023:

Current ratio	4.0
Acid test ratio	2.5
Inventory turnover ratio (based on sales)	6
Average collection period (days)	70
Earnings per share	₹3.5
Current liabilities	₹3,10,000
Total assets turnover ratio (based on sales)	0.96
Cash ratio	0.43
Proprietary ratio	0.48
Total equity dividend	₹1,75,000
Equity dividend coverage ratio	1.60

Assume 360 days in a year.

You are required to complete Balance Sheet as on 31st March, 2023.

Balance Sheet as on 31st March, 2023

Liabilities	**₹**	**Assets**	**₹**
Equity share capital (₹ 10 per share)	xxx	Fixed Assets	xxx
Reserves & Surplus	xxx	Inventory	xxx
Long-term debt	xxx	Debtors	xxx
Current liabilities	3,10,000	Loans & Advances	xxx
		Cash & bank	xxx
Total	xxx	Total	xxx

(10 Marks)

Sol.

AQUA Limited Balance Sheet as on 31.03.2023			
Liabilities	**Amount**	**Assets**	**Amount**
Equity Share Capital	800,000	Fixed Assets	1,666,250
Reserve & Surplus	595,000	Inventory	465,000
Long Term Debt	1,201,250	Debtors	542,500
Current Liabilities	310,000	Loans & Advances	99,200
		Cash & Bank	133,300
	2,906,250		**2,906,250**

C.L. = ₹310000

$\because$ CR = 4

$\because$ CA = 1240000

$$\text{Acid Test R} = \frac{\text{CA} - \text{Stock}}{\text{CL}}$$

$$2.5 = \frac{1240000 - \text{Stock}}{310000}$$

$\therefore$ Stock = 465000

$$\text{Inventory Turnover Ratio} = \frac{\text{Sales}}{\text{Stock}}$$

$\therefore$ $\text{Sales} = 465000 \times 6 = 27{,}90{,}000$

Debtors = Net Credit Sales x ACP / 360
Debtors = 27,90,000 x 70 / 360 = 5,42,500

Total Assets Turnover Ratio = Sales / Total Assets
Total Assets = 27,90,000 / 0.96 = 29,06,250

Equity Dividend Coverage Ratio = EAS / Equity Dividend
EAS = 1,75,000 x 1.6 = 2,80,000

EPS = EAS / Number of Equity Shares
Number of Equity Shares = 2,80,000 / 3.5 = 80,000

Equity Share Capital = 80,000 x 10 = 8,00,000

Proprietary ratio = Proprietors fund / Total Assets

Proprietors Fund = 29,06,250 x 0.48	= 13,95,000
Less : Equity Share Capital	= 8,00,000
Reserves and Surplus	= 5,95,000

Cash Ratio = Cash Reservoir / C. L.
Cash Balance is = 3,10,000 x 0.43 = 1,33,300

3. The following information pertains to CIZA Ltd. :

Capital Structure :	₹
Equity share capital (₹ 10 each)	8,00,000
Retained earnings	20,00,000
9% Preference share capital (₹100 each)	12,00,000
12% Long-term loan	10,00,000
Interest coverage ratio	8
Income tax rate	30%
Price – earnings ratio	25

The company is proposed to take up an expansion plan, which requires an additional investment of ₹ 34,50,000. Due to this proposed expansion, earnings before interest and taxes of the company will increase by ₹ 6,15,000 per annum. The additional fund can be raised in following manner :

- By issue of equity shares at present market price, or
- By borrowing 16% Long-term loans from bank.

You are informed that Debt-equity ratio (Debt / Shareholders' fund) in the range of 50% to 80% will bring down the price-earnings ratio to 22 whereas; Debt-equity over 80% will bring down the price-earrings ratio to 18.

Required :

Advise which option is most suitable to raise additional capital so that the Market Price per Share (MPS) is maximised.

(10 Marks)

Sol. **Evaluation of Financial Options: Calculation of MPS**

Particulars	**Existing**	**a**	**b**
EBIT	960,000	1,575,000	1,575,000
Less : Interest			
existing	120,000	120,000	120,000
new	-	-	552,000
EBT	840,000	1,455,000	903,000
Less : Tax	252,000	436,500	270,900
EAT	588,000	1,018,500	632,100
Less : Dp	108,000	108,000	108,000
EAS	480,000	910,500	524,100
÷ No	80,000	103,000	80,000
EPS	6.00	8.84	6.55
x P/E	25	25	18
MPS	150.00	221.00	117.92

Option A of issuing Equity Share is the most suitable option having maximum MPS.

Working Note :

1. Interest Coverage Ratio = EBIT / Interest

$\therefore$ Existing EBIT $= 120000 \times 8 = 960000$

2. New No. of Equity Shares to be issued

$$= \frac{\text{Amt required}}{\text{MPS}} = \frac{3450000}{150} = 23000$$

3.

Debt / Equity Ratio	Plan	
	a	b
Debt		
Existing	1,000,000	1,000,000
New	-	3,450,000
Equity		
Existing	4,000,000	4,000,000
New	3,450,000	-
D/E ratio =	1,000,000 / 7,450,000	4,450,000 / 4,000,000
(in percentage)	13.42	111.25

4. Capital structure of D Ltd. as on 315 March, 2023 is given below :

Particulars	₹
Equity share capital (₹ 10 each)	30,00,000
8% Preference share capital (₹100 each)	10,00,000
12% Debentures (₹100 each)	10,00,000

- Current market price of equity share is ₹ 80 per share. The company has paid dividend of ₹ 14.07 per share. Seven years ago, it paid dividend of ₹ 10 per share. Expected dividend is ₹ 16 per share.
- 8% Preference shares are redeemable at 6% premium after five years. Current market price per preference share is ₹ 104.
- 12% debentures are redeemable at 20% premium after 10 years. Flotation cost is ₹ 5 per debenture.
- The company is in 40% tax bracket.
- In order to finance an expansion plan, the company intends to borrow 15% Long-term loan of ₹ 30,00,000 from bank. This financial decision is expected to increase dividend on equity share from ₹16 per share to ₹ 18 per share. However, the market price of equity share is expected to decline from ₹80 to ₹ 72 per share, because investors' required rate of return is based on current market conditions.

Required :

(i) Determine the existing Weighted Average Cost of Capital (WACC) taking book value weights.

(ii) Compute Weighted Average Cost of Capital (WACC) after the expansion plan taking book value weights.

Interest Rate	1%	2%	3%	4%	5%	6%	7%
$FVIF_{1,5}$	1.051	1.104	1.159	1.217	1.276	1.338	1.403
$FVIF_{1,6}$	1.062	1.126	1.194	1.265	1.340	1.419	1.501
$FVIF_{1,7}$	1.072	1.149	1.230	1.316	1.407	1.504	1.606

(10 Marks)

Sol. (i)

Calculation of Existing Weighted Average Cost Of Capital

Sources	Amt	Kx	Wx	Kx Wx
ESC	30 L	25.00%	0.6	15
8% PSC	10 L	8.00%	0.2	1.6
12% Debt	10 L	9.02%	0.2	1.8
	50 L		1	18.4

$$WACC = \frac{\text{Sum Kx Wx}}{\text{Sum Wx}} = \frac{18.4}{1} = 18.4\%$$

Working Note :

1. $$Ke = \left(\frac{D1}{Po} + g\right) \times 100 = \left(\frac{16}{80} + \bullet 05\right) \times 100 = 25\%$$

$$\because D7 = Do(1+g)^7$$

$$\therefore (1+g)^7 = \frac{14.07}{10} = 1.407$$

From the given table of FVIF, g = 5%

2. $$Kp = \frac{D + \left(\frac{RV - NP}{n}\right)}{\frac{RV + NP}{2}} \times 100$$

$$= \frac{8 + \frac{106 - 104}{2}}{\frac{106 + 104}{2}} \times 100 = \frac{8.40}{105} \times 100 = 8\%$$

3. $$Kd = \frac{I(1-t) + \frac{RV - NP}{n}}{RV + NP} \times 100$$

$$= \frac{7.2 + 2.5}{107.5} \times 100 = 9.02\%$$

(ii) Calculation of Revised Weighted Average Cost Of Capital (After Expansion)

Sources	Amt	Kx	Wx	KxWx
ESC	30 L	30.00%	0.375	11.3
8% PSC	10 L	8.00%	0.125	1.0
12% Debt	10 L	9.02%	0.125	1.1
15% LTL	30 L	9.00%	0.375	3.4
	80 L		1	16.8

$$\text{WACC} = \frac{\text{Sum Kx Wx}}{\text{Sum Wx}} = \frac{16.8}{1} = 16.8\%$$

Working Notes :

1 $\text{Ke} = \left(\frac{18}{72} + .05\right) \times 100 = 30\%$

2 **KI =** I (1 – t) = 15 (0.60) = 9%

5. Four years ago, Z Ltd. had purchased a machine of ₹ 4,80,000 having estimated useful life of 8 years with zero salvage value. Depreciation is charged using SLM method over the useful life. The company want to replace this machine with a new machine. Details of new machine are as below :

- Cost of new machine is ₹ 12,00,000. Vendor of this machine is agreed to take old machine at a value of ₹ 2,40,000. Cost of dismantling and removal of old machine will be ₹ 40,000. 80% of net purchase price will be paid on spot and remaining will be paid at the end of one year.
- Depreciation will be charged @ 20% p.a. under WDV method.
- Estimated useful life of new machine is four years and it has salvage value of ₹ 1,00,000 at the end of year four.
- Incremental annual sales revenue is ₹ 12,25,000.
- Contribution margin is 50%.
- Incremental indirect cost (excluding depreciation) is ₹ 1,18,750 per year.
- Additional working capital of ₹2,50,000 is required at the beginning of year one and ₹3,00,000 at the beginning of year three. Working capital at the end of year four will be nil.
- Tax rate is 30%.
- Ignore tax on capital gain.

Z Ltd. will not make any additional investment, if it yields less than 12%.

Advice, whether existing machine should be replaced or not.

Year	1	2	3	4	5
$PVIF_{0.12,t}$	0.893	0.797	0.712	0.636	0.567

(10 Marks)

Sol.

Evaluation of Replacement Decision
Calculation of NPV

W.N. 1	**PVOF**		
	Cost of New Machine	1,200,000	
	Less : Trade off value		
	of old machine	200,000	
	(net of dismantle cost)		
	Net Price	1,000,000	
	Down payment @ 80%		800,000
	P.V. of remaining amount		
	200000 * 0.893		178,600
	Additional Working capital		
	At 1st Year beg.		250,000
	PV at 3rd Year beg.	300000 * 0.797	239,100
		PVOF	**1,467,700**

W.N. 2	**Incremental PBDT**		
	Incremental Sales	1225000	
	Incremental Contribution @ 50%		612500
	Less : Incre. Indirect cost		118750
	Incremental PBDT		**493750**

W.N. 3 **Incremental Depreciation**

Year	New Machine	Old Machine	Incre. Dep.
1	240,000	60,000	180,000
2	192,000	60,000	132,000
3	153,600	60,000	93,600
4	122,880	60,000	62,880

Calculation of Net Present Value

Year	Incre. PBDT	Incre. Dep.	Incre. PBT	Tax	Incre. PAT	CFAT	PVF @ 12%	PV of CFAT
1	493,750	180,000	313,750	94,125	219,625	399,625	0.893	356,865
2	493,750	132,000	361,750	108,525	253,225	385,225	0.797	307,024
3	493,750	93,600	400,150	120,045	280,105	373,705	0.712	266,078
4	493,750	62,880	430,870	129,261	301,609	364,489	0.636	231,815
4	100,000					100,000	0.636	63,600
	(Salvage value)							
							PVIF	1,225,382
							Less : PVOF	1,467,700
								-
							NPV	(242,318)

Since it gives negative NPV of Rs. 2,42,318, the machine should not be replaced.

Note : As per information given in question, recovery of working capital is assumed to be zero.

6. **(a)** List out the conditions, framed by SEBI, which a company needs to fulfill in order to issue of bonus shares.

(4 Marks)

(b) "Permanent working capital and fluctuating (temporary) working capital, both are necessary to facilitate production and sales through the operating cycle." — Describe.

(4 Marks)

(c) Briefly explain concept of "Trading on Equity" in financial leverage analysis.

(2 Marks)

OR

Discuss features of Secured Premium Notes.

(2 Marks)

Sol. **Theory : Can be referred in ICAI study material**.