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CA Intermediate 2023 Suggested Answers · Paper 8 Financial Management and Economics for Finance (Old Scheme)

EXAM
CA Intermediate

YEAR
2023

TYPE
Suggested Answers

SUBJECT
Paper 8 Financial Management and Economics for Finance (Old Scheme)

DATE
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PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

SECTION A: FINANCIAL MANAGEMENT

*Question No. **1** is compulsory.*

*Attempt any **four** questions out of the remaining **five** questions.*

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

Question 1

(a) *You are available with following information of Brave Ltd:*

Debtor's velocity	*3 months*
Stock velocity	*6 months*
Creditor's velocity	*2 months*
Gross profit ratio	*20%*

The gross profit for the year ended 31st March,2023 was ₹ 10,00,000. Stock for the same period was ₹ 40,000 more than what it was at the beginning of the year. Bills receivable were ₹ 1,20,000.

Form the above information you are required to calculate:

(i) *Sales*

(ii) *Sundry debtors*

(iii) *Closing stock* ***(5 Marks)***

(b) *The following details of Shiva Ltd. for the year ended 31st March,2023 are given below:*

Operating Leverage	*1.4*
Combined Leverage	*2.8*
Fixed Cost (Excluding Interest)	*₹ 2.04 lakhs*
Sales	*₹ 30 lakhs*
12% Debentures of ₹ 10 each	*₹ 21.25 lakhs*
Equity Share Capital of ₹ 10 each	*₹ 17.00 lakhs*
Income Tax Rate	*30%*

Required:

(i) *Calculate P/V ratio and Earning Per Share (EPS)*

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(ii) *If the company belongs to an industry, whose assets turnover is 1.5, does it have a high or low assets turnover?*

(iii) *Financial Leverage* ***(5 Marks)***

(c) (i) *EPS of a company is ₹ 60 and Dividend payout ratio is 60%. Multiplier is 5. Determine price per share as per Graham & Dodd model.* ***(2 Marks)***

(ii) *Last year's dividend is ₹ 6.34, adjustment factor is 45%, target payout ratio is 60% and current year's EPS is ₹ 12. Compute current year's dividend using Linter's model.* ***(3 Marks)***

(d) *X Ltd. has furnished following cost sheet of per unit cost;*

Raw material cost	*₹ 150*
Direct labour cost	*₹ 40*
Overhead cost	*₹ 60*
Total Cost	*₹ 250*
Profit	*₹ 50*
Selling Price	*₹ 300*

The company keeps raw material in stock on an average for 2 months; work in progress on an average for 3 months and finished goods in stock on an average 1 month. The credit allowed by suppliers is 1.5 months and company allows 2 months credit to its debtors. The lag in payment of wages is 1 month and lag in payment of overhead expenses is 1.5 months. The company sells 25% of the output against cash and maintain cash in hand at bank put together at ₹ 1,50,000. Production is carried on evenly throughout the year and wages and overheads also similarly. Work in progress stock is 75% complete in all respects. Prepare statement showing estimate of working capital requirements to finance an activity level of 15,000 units of production. ***(5 Marks)***

Answer

(a) (i) Determination of Sales:

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

$$\text{Or, } \frac{20}{100} = \frac{₹\,10,00,000}{\text{Sales}}$$

$$\text{Or, Sales} = \frac{10,00,00,000}{20} = ₹\ 50,00,000$$

Cost of Goods Sold = Sales – Gross Profit

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= ₹ 50,00,000 - ₹ 10,00,000 = ₹ 40,00,000

(ii) Determination of Sundry Debtors:

Debtors' velocity is 3 months or Debtors' collection period is 3 months,

So, Debtors' turnover ratio $= \frac{12 \text{ months}}{3 \text{ months}} = 4$

Debtors' turnover ratio $= \frac{\text{Credit Sales}}{\text{Average Accounts Receivable}}$

$= \frac{₹\ 50,00,000}{\text{Bills Receivable} + \text{Sundry Debtors}} = 4$

Or, Sundry Debtors + Bills receivable = ₹ 12,50,000

Sundry Debtors = ₹ 12,50,000 – ₹ 1,20,000 = ₹ 11,30,000

(iii) Determination of Closing Stock

Stock velocity is 6 months so Stock Turnover Ratio=2

Stock Turnover Ratio = $\frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{₹\ 40,00,000}{\text{Average Stock}} = 2$

So, Average Stock = ₹ 20,00,000

Now Average Stock = $\frac{\text{Opening Stock} + \text{Closing Stock}}{2}$

Or $\frac{\text{Opening Stock} + (\text{Opening Stock} + ₹\ 40,000)}{2} = ₹\ 20,00,000$

Or, Opening Stock + ₹ 20,000 = ₹ 20,00,000

Or, Opening Stock = ₹ 19,80,000

So, Closing Stock = ₹ 19,80,000 + ₹ 40,000 = ₹ 20,20,000

(b) (i) P/V Ratio and Earning per share (EPS)

Operating leverage $= \frac{\text{Contribution (C)}}{\text{Contribution - Fixed Cost (FC)}}$

1.4 $= \frac{C}{C - 2,04,000}$

Or, C = 1.4 (C – 2,04,000)

Or, C = 1.4 C – 2,85,600

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Or, Contribution = ₹ 7,14,000

$$\text{Now, P/V ratio} = \frac{\text{Contribution (C)}}{\text{Sales (S)}} \times 100 = \frac{7,14,000}{30,00,000} \times 100 = 23.8\%$$

Therefore, P/V Ratio = 23.80%

EBT = Contribution – Fixed Cost – Interest

= ₹ 7,14,000 – ₹ 2,04,000 – (12% × ₹ 21,25,000)

= ₹ 5,10,000 – ₹ 2,55,000

= ₹ 2,55,000

PAT = EBT(1-T) = ₹ 2,55,000(1-0.3) = ₹ 1,78,500

$$\text{EPS} = \frac{\text{Profit after tax}}{\text{No. of equity shares}}$$

$$\text{EPS} = \frac{₹\,1,78,500}{1,70,000\,\text{shares}} = ₹\,1.05$$

(ii) Assets turnover

$$\text{Assets turnover} = \frac{\text{Sales}}{\text{Total Assets}^*} = \frac{₹\,30,00,000}{₹\,17,00,000 + ₹\,21,25,000} = 0.7843$$

0.7843 < 1.5 means lower than industry turnover.

*Total Asset = Equity share capital + 12% Debentures

(iii) Financial leverage

Combined Leverage = Operating Leverage (OL) × Financial Leverage (FL)

2.8 = 1.4 × FL

Or, FL = 2

Financial Leverage = 2

(c) (i) Price per share (P) = $m\left(D + \frac{E}{3}\right)$

Where,

m = Multiplier

D = Dividend

E = EPS

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$$P = 5\left(60 \times 0.6 + \frac{60}{3}\right)$$

$$P = 5(36 + 20) = ₹\ 280$$

(ii) $D_1 = D_o + [(EPS \times Target\ payout) - D_o] \times Adjustment\ factor$

$D_1 = 6.34 + [(12 \times 60\%) - 6.34] \times 0.45$

$D_1 = 6.34 + 0.387 = ₹\ 6.727$

(d) Statement showing Estimate of Working Capital Needs

(Receivables (Debtors) are calculated based on Cost of goods sold)

		(₹)	(₹)
A.	**Current Assets**		
(i)	Inventories:		
	Raw material (2 months) $\left(\frac{15,000\ units \times ₹150}{12\ months} \times 2\ months\right)$	3,75,000	
	WIP Inventory (3 months) $\left(\frac{15,000\ units \times ₹250}{12\ months} \times 3\ months\right) \times 0.75$	7,03,125	
	Finished goods inventory (1 months) $\left(\frac{15,000\ units \times ₹250}{12\ months} \times 1 months\right)$	3,12,500	13,90,625
(ii)	Receivables (Debtors) (2 months) $\left(\frac{15,000\ units \times ₹250}{12\ months} \times 2\ months\right)$ x 0.75		4,68,750
(iii)	Cash and bank balance		1,50,000
	Total Current Assets		20,09,375
B.	**Current Liabilities:**		
(i)	Payables (Creditors) for materials (1.5 months) $\left(\frac{15,000\ units \times ₹150}{12\ months} \times 1.5\ months\right)$		2,81,250
(ii)	Outstanding wages (1 months)		50,000

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	$\left(\frac{15,000\text{ units}\times₹40}{12\text{ months}}\times 1\text{ months}\right)$		
(iii)	Outstanding overheads (1.5 months) $\left(\frac{15,000\text{ units}\times₹60}{12\text{ months}}\times 1.5\text{ months}\right)$		1,12,500
	Total Current Liabilities		4,43,750
	Net Working Capital Needs (A – B)		15,65,625

Alternative Solution

Statement showing Estimate of Working Capital Needs

(Receivables (Debtors) are calculated based on Selling price)

		(₹)	(₹)
A.	**Current Assets**		
(i)	Inventories:		
	Raw material (2 months) $\left(\frac{15,000\text{ units}\times₹150}{12\text{ months}}\times 2\text{ months}\right)$	3,75,000	
	WIP Inventory (3 months) $\left(\frac{15,000\text{ units}\times₹250}{12\text{ months}}\times 3\text{ months}\right)\times 0.75$	7,03,125	
	Finished goods inventory (1 months) $\left(\frac{15,000\text{ units}\times₹250}{12\text{ months}}\times 1\text{ months}\right)$	3,12,500	13,90,625
(ii)	Receivables (Debtors) (2 months) $\left(\frac{15,000\text{ units}\times₹300}{12\text{ months}}\times 2\text{ months}\right)$ x 0.75		5,62,500
(iii)	Cash and bank balance		1,50,000
	Total Current Assets		21,03,125
B.	**Current Liabilities:**		
(i)	Payables (Creditors) for materials (1.5 months) $\left(\frac{15,000\text{ units}\times₹150}{12\text{ months}}\times 1.5\text{ months}\right)$		2,81,250

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(ii)	Outstanding wages (1 months) $\left(\frac{15,000\text{ units}\times₹40}{12\text{ months}}\times 1\text{ months}\right)$		50,000
(iii)	Outstanding overheads (1.5 months) $\left(\frac{15,000\text{ units}\times₹60}{12\text{ months}}\times 1.5\text{ months}\right)$		1,12,500
	Total Current Liabilities		4,43,750
	Net Working Capital Needs (A – B)		16,59,375

Question 2

The data of K Textiles Lid, are given as follows:

Particulars	***Amount (₹)***
Profit Before Interest and Tax	*50,00,000*
Less: Interest on debentures @ 10%	*10,00,000*
Profit before tax	*40,00,000*
Less: Income tax @ 50%	*20,00,000*
Profit after tax	*20,00,000*
No. of equity shares (₹ 10 each)	*10,00,000*
EPS	*2*
PE Ratio	*10*
Market price per share	*20*

The Company is planning to start a new project needs to be having a total capital outlay of ₹ 40,00,000. You are informed that a debt equity ratio [D/D+E] higher than 36% pushes the Ke (cost of equity) up to 12.5%, means reducing the PE ratio to 8 and rises the interest rate on additional amount borrowed to 12%. Retained earnings of the company is ₹ 1.4 crores.

Find out the probable price of share if:

- *The additional funds are raised as a loan*
- *The amount is raised by issuing equity shares.* ***(10 Marks)***

Answer

In this question, EBIT after proposed extension is not given. Therefore, we can assume that existing return on capital employed will be maintained.

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Working notes:

1. $\text{Return on Capital Employed} = \frac{\text{EBIT}}{\text{Capital Employed}} = \frac{₹\,50,00,000}{₹\,3,40,00,000} = 14.70\%$

   Capital Employed = Debt + Equity

   = ₹ 1,00,00,000 + (₹ 1,00,00,000 + ₹ 1,40,00,000)

   = ₹ 3,40,00,000

2. Proposed EBIT = Proposed Capital Employed x Return on capital employed

   = (₹ 3,40,00,000 + ₹ 40,00,000) x 14.70% = ₹ 55,86,000

3. $\text{Debt Equity Ratio} = \frac{\text{Debt}}{\text{Debt} + \text{Equity}}$

   Option1: Loan option

   Debt = ₹ 1,00,00,000 + ₹ 40,00,000 = ₹ 1,40,00,000

   Equity = ₹ 2,40,00,000

   $\text{Debt Equity ratio} = \frac{1.4 \text{ cr.}}{1.4 \text{ cr.} + 2.40 \text{ cr.}} = 36.84\%$

   Debt equity ratio has crossed the limit of 36%, hence, PE ratio in this case will be 8 times and additional borrowing will be at the rate of 12%.

   Option2: Equity option

   Debt = ₹ 1,00,00,000

   Equity = ₹ 2,40,00,000 + ₹ 40,00,000 = ₹ 2,80,00,000

   $\text{Debt Equity ratio} = \frac{1 \text{ cr.}}{1 \text{ cr.} + 2.8 \text{ cr.}} = 26.32\%$

   Debt equity ratio has not crossed the limit of 36% hence PE ratio in this case will remain at 10 times.

4. Number of equity shares to be issued in case of equity option @ ₹ 20 per share

   = ₹ 40,00,000 / ₹ 20 = 2,00,000

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Calculation of EPS and MPS under two financial options

Particulars	Financial Options	
	Option I 12% additional loan of 40,00,000	Option II 10,00,000 equity shares @ ₹ 10 and 2,00,000 equity shares @ ₹ 20
	(₹)	(₹)
Profit before interest and Tax (PBIT)	55,86,000	55,86,000
Less: Interest on old debentures @ 10%	10,00,000	10,00,000
Less: Interest on additional loan (new) @ 12% on ₹ 40,00,000	4,80,000	Nil
Profit before tax	41,06,000	45,86,000
Less: Taxes @ 50%	20,53,000	22,93,000
Earnings for equity shareholders (EAT/Profit after tax)	20,53,000	22,93,000
Number of Equity Shares	10,00,000	12,00,000
Earnings per Share (EPS)	2.05	1.91
Price/ Earnings ratio	8	10
Market price per share (MPS)	16.42	19.11

Question 3

ABC Ltd. is considering to purchase a machine which is priced at ₹ 5,00,000. The estimated life of machine is 5 years and has an expected salvage value of ₹ 45,000 at the end of 5 years. It is expected to generate revenues of ₹ 1,50,000 per annum for five years. The annual operating cost of the machine is ₹ 28,125, Corporate Tax Rate is 20% and the cost of capital is 10%.

You are required to analyse whether it would be profitable for the company to purchase the machine by using;

(i) Payback period Method

(ii) Net Present value method

(iii) Profitability Index Method ***(10 Marks)***

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Answer

Computation of Annual Cash Flows

Particular	(₹)
Revenue	1,50,000
Less: Operating Cost	(28,125)
Less: Depreciation $\frac{(5,00,000 - 45,000)}{5}$	(91,000)
Profit before Tax	30,875
Less: Tax	(6,175)
Profit after Tax	24,700
Add: Depreciation	91,000
Annual Cash Inflows	1,15,700

(i) Computation of Payback Period

Year	Cash Flows	Cumulative Present Value
1	1,15,700	1,15,700
2	1,15,700	2,31,400
3	1,15,700	3,47,100
4	1,15,700	4,62,800
5 (Including Salvage)	1,60,700	6,23,500

Amount to be recovered in 5th year cash flow = ₹ 5,00,000 – ₹ 4,62,800 = ₹ 37,200

Payback period = 4 years + $\frac{37,200}{1,60,700}$ = 4.23 years

Since the payback period is less than the life of machinery, the company may purchase the machine.

(ii) Computation of Net Present Value

Year	Cash Flows	PVF @10%	Present Value
0	(5,00,000)	1.000	(5,00,000)
1 - 5	1,15,700	3.791	4,38,594
5	45,000	0.621	27,941
Net Present Value			(33,465)

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Since the net present value (NPV) is negative, the company should not purchase the machine.

(iii) Computation of Profitability Index (PI)

$$\text{Profitability Index (PI)} = \frac{\text{Sum of present value of net cash inflow}}{\text{Initial cash outflow}}$$

$$= \frac{₹4,38,594 + ₹27,941}{₹5,00,000} = 0.93$$

Since the profitability index is less than 1, the company should not purchase the machine.

Question 4

Z Ltd. wishes to raise additional fund of ₹ 25,00,000 for meeting its investment plan. It has ₹ 5,25,000 in the form of retained earnings available for investment purposes. Further details are as following:

Combination of debt and equity	*2:3*
Cost of debt	
Upto ₹ 2,50,000	*8% (before tax)*
Above ₹ 2,50,000 and to upto ₹ 5,00,000	*10% (before tax)*
Beyond ₹ 5,00,000	*12% (after tax)*
Earning of company	*₹ 50,00,000*
Retention Ratio	*40%*
Expected growth of dividend	*15%*
Market price per share	*₹ 500*
Number of outstanding equity shares	*1,00,000*
Tax Rate	*30%*

You are required to calculate:

i. Cost of debt

ii. Cost of retained earnings and cost of equity

iii. Weighted average cost of capital ***(10 Marks)***

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Answer

Equity	60% of ₹ 25,00,000	= ₹ 15,00,000
Debt	40% of ₹ 25,00,000	= ₹ 10,00,000

The capital structure after raising additional finance:

		(₹)
Shareholders' funds		
Equity Capital	(₹ 15,00,000 – ₹ 5,25,000)	9,75,000
Retained earnings		5,25,000
Debt (Interest at 8% p.a.)		2,50,000
(Interest at 10% p.a.)	(₹ 5,00,000 – ₹ 2,50,000)	2,50,000
(Interest at 12% p.a.)	(₹ 10,00,000 – ₹ 5,00,000)	5,00,000
Total Funds		25,00,000

(i) Determination of post-tax average cost of additional debt:

$K_d = I (1 – t)$

Where,

I = Interest Rate

t = tax-rate

On ₹ 2,50,000 = 8% (1 – 0.3) = 5.6% or 0.056

On ₹ 2,50,000 = 10% (1 – 0.3) = 7% or 0.07

On ₹ 5,00,000 = 12% or 0.12

Average Cost of Debt

$$= \frac{(₹\,2,50,000 \times 0.056) + (₹\,2,50,000 \times 0.07) + (₹\,5,00,000 \times 0.12)}{₹\,10,00,000} \times 100 = 9.15\%$$

(ii) Determination of cost of retained earnings and cost of equity by applying Dividend growth model:

$$K_e \text{ or } K_r = \frac{D_1}{P_0} + g = \frac{D_0(1+g)}{P_0} + g$$

Where,

D_0 = Dividend paid = 60% of EPS = 60% × ₹ 50 = ₹ 30

g = Growth rate = 15%

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P_0 = Current market price per share = ₹ 500

So, K_e **or** K_r = $\frac{₹\,30\,(1+0.15)}{₹\,500} + 0.15 = 0.069 + 0.15 = 21.9\%$

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

Particulars	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity (including retained earnings)	15,00,000	0.60	21.9%	13.14
Debt	10,00,000	0.40	9.15%	3.66
WACC	25,00,000			**16.80**

Alternative Presentation

Particulars (1)	(₹) (2)	Cost of funds (3)	Product (2) x (3)
Equity (including retained earnings)	15,00,000	21.9%	3,28,500
Debt	10,00,000	9.15%	91,500
Total	25,00,000		4,20,000

WACC = (Product / Total book value) x 100 = (4,20,000 / 25,00,000) x 100 = **16.8%**

Alternative Solution for 4(ii) and 4(iii)

If we assume expected growth rate of Dividend as 5%.

(i) Determination of cost of retained earnings and cost of equity by applying Dividend growth model:

$$K_e \text{ or } K_r = \frac{D_1}{P_0} + g = \frac{D_0(1+g)}{P_0} + g$$

Where,

D_0 = Dividend paid = 60% of EPS = 60% × ₹ 50 = ₹ 30

g = Growth rate = 5%

P_0 = Current market price per share = ₹ 500

So, K_e **or** K_r = $\frac{₹\,30\,(1+0.05)}{₹\,500} + 0.05 = 0.063 + 0.05 = 11.3\%$

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(ii) Computation of overall weighted average after tax cost of additional finance:

Particulars	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity (including retained earnings)	15,00,000	0.60	11.3%	6.78
Debt	10,00,000	0.40	9.15%	3.66
WACC	25,00,000			**10.44**

Alternative Presentation

Particulars (1)	(₹) (2)	Cost of funds (3)	(2) x (3)
Equity (including retained earnings)	15,00,000	11.3%	1,69,500
Debt	10,00,000	9.15%	91,500
Total	25,00,000		2,61,000

WACC = (Product / Total book value) x 100 = (2,61,000 / 25,00,000) x 100 = **10.44%**

Question 5

(a) BSB Ltd. is considering its new project with the following details:

Sr. No.	*Particulars*	*Amount*
1	*Initial capital cost*	*5,00,00,000*
2	*Annual unit sales*	*6,00,000*
3	*Selling price per unit (in ₹)*	*120*
4	*Variable cost per unit (in ₹)*	*80*
5	*Fixed cost per year*	*36,00,000*
6	*Discount Rate*	*10%*

Required:

a. To advise the company whether to invest in the new project or not based on the NPV concept.

b. Compute the impact on the project's NPV considering a 1% adverse variance in each variable. Which variable is having minimum effect?

Consider Life of the project as 3 years.

Year	*1*	*2*	*3*
PVF @ 10%	*0.909*	*0.826*	*0.751*
PVF @ 11%	*0.901*	*0.812*	*0.731*

(5 Marks)

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(b) INFO Ltd is a listed company having share capital of ₹ 2400 Crores of ₹ 5 each.

During the year 2022-23

Dividend distributed	*1000%*
Expected Annual growth rate in dividend	*14%*
Expected rate of return on its equity capital	*18%*

Required:

(a) Calculate price of share applying Gordon's growth Model.

(b) What will be the price of share if the Annual growth rate in dividend is only 10%?

(c) According to Gordon's growth Model, if Internal Rate of Return is 25%, then what should be the optimum dividend payout ratio in case of growing stage of company? Comment. ***(5 Marks)***

Answer

(a) 1. Calculation of Net Cash Inflow per year

	Particulars	Amount (₹)
A	Selling price per unit	120
B	Variable cost per unit	80
C	Contribution per unit (A - B)	40
D	Number of units sold per year	6 lakhs
E	Total Contribution (C × D)	₹ 240 lakhs
F	Fixed cost per year	₹ 36 lakhs
G	Net cash inflow per year (E - F)	₹ 204 lakhs

Calculation of Net Present Value (NPV) of the Project

Year	Year Cash Flow (₹ in lakhs)	PV factor @ 10%	Present Value (PV) (₹ in lakhs)
0	(500.00)	1.000	(500.00)
1	204	0.909	185.44
2	204	0.826	168.50
3	204	0.751	153.20
Net Present Value			7.14

Since the NPV of the project is positive, the company should invest in the new project.

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2. Sensitivity Analysis considering 1 % Adverse Variance in each variable

	Particulars	Base	Initial capital cost increased to ₹ 505 lakhs	Selling Price per Unit Reduced to ₹ 118.8	Variable Cost Per Unit increased to ₹ 80.80	Fixed Cost per year increased to ₹ 36.36 lakhs	Units sold per year reduced to 5.94 lakhs
		(₹)	(₹)	(₹)	(₹)	(₹)	(₹)
A	Selling price per unit	120	120	118.8	120	120	120
B	Variable cost per unit	80	80	80	80.8	80	80
C	Contribution per unit (A - B)	40	40	38.8	39.2	40	40
		(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)
D	Number of units sold per year (units in lakhs)	6	6	6	6	6	5.94
E	Total Contribution (C × D)	240	240	232.8	235.2	240	237.6
F	Fixed cost per year	36	36	36	36	36.36	36
G	Net Cash Inflow per year (E - F)	204	204	196.8	199.2	203.64	201.6
H	PV of Net cash Inflow per year (G × 2.486)	507.14	507.14	489.24	495.21	506.25	501.18
I	Initial capital cost	500	505	500	500	500	500
J	NPV (H - I)	7.14	2.14	-10.76	-4.79	6.25	1.18
K	Percentage Change in NPV	-	-69.99%	-250.55%	-167.03%	-12.53%	-83.52%

The above table shows that by changing one variable at a time by 1% (adverse) while keeping the others constant, the impact in percentage terms on the NPV of the project can be calculated. Thus, it can be seen that the change in fixed cost has the minimum effect on the NPV by 12.53%.

(b) (a) In the present situation, the current MPS is as follows:

$$P = \frac{D_0(1+g)}{K_e - g}$$

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Where

P = Market price per share

D0 = current year dividend

g = growth rate of dividends

Ke = cost of equity capital/ expected rate of return

$$P = \frac{50(1+0.14)}{0.18-0.14} = ₹\ 1425$$

(b) The impact of changes in growth rate to 10% on MPS will be as follows:

$$P = \frac{50(1+0.10)}{0.18-0.10} = ₹\ 687.5$$

(c) If Internal rate of return, r = 25% and Ke = 18%

As per Gordon's model, when r > Ke, optimum dividend payout ratio is 'Zero'. When IRR is greater than cost of capital, the price per share increases and dividend pay-out decreases.

Question 6

(a) Write the main features of Bulldog Bond. ***(4 Marks)***

(b) What do you understand by Spontaneous Sources of finance and explain its sources of finance? ***(4 Marks)***

(c) What are the causes of over-capitalization? ***(2 Marks)***

OR

What are disadvantages of Profit Maximization? ***(2 Marks)***

Answer

(a) Features of Bulldog Bond

- It is denominated in Bulldog Pound Sterling/Great Britain Pound (GBP)
- Issued in London
- Issuer Non- UK Company
- Regulations: Great Britain
- Purpose: Access of capital available in UK market
- Issue proceeds can be used to fund UK operation
- Issue proceeds can be used to fund a company's local opportunities

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(b) Spontaneous sources of finance are those which naturally arise in the course of business operations. Trade credit, credit from employees, credit from suppliers of services, etc. are some of the examples which may be quoted in this respect.

Spontaneous Sources of Finance

(i) Trade Credit: Trade credit is a spontaneous source of finance which is normally extended to the purchaser organization by the sellers or services providers. It contributes to about one-third of the total short-term requirements.

(ii) Bills Payable: In the case of "Bills Payable" the purchaser will have to give a written promise to pay the amount of the bill/invoice either on demand or at a fixed future date to the seller or the bearer of the note.

(iii) Accrued Expenses: The accrued expenses refer to the services availed by the firm, but the payment for which has yet to be made. It is a built in and an automatic source of finance as most of the services like wages, salaries, taxes, duties etc., are paid at the end of the period.

(c) Over-capitalisation arises due to following reasons:

(i) Raising more money through issue of shares or debentures than company can employ profitably.

(ii) Borrowing huge amount at higher rate than rate at which company can earn.

(iii) Excessive payment for the acquisition of fictitious assets such as goodwill etc.

(iv) Improper provision for depreciation, replacement of assets and distribution of dividends at a higher rate.

(v) Wrong estimation of earnings and capitalization

OR

(c) Disadvantages of Profit Maximisation objective of financial management.

(i) Emphasizes the short-term gains

(ii) Ignores risk or uncertainty

(iii) Ignores the timing of returns

(iv) Requires immediate resources.

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SECTION – B: ECONOMICS FOR FINANCE

*Question No. **7** is compulsory.*

*Answer any **three** from the rest.*

Question 7

(a) Following information relating to a particular financial year is given below:

Particulars	***Amount (₹in Crore)***
Gross Domestic Product at Market Price (GDP_{MP})	*3,500*
Gross National Product at Market Price (GNP_{MP})	*3,200*
Gross Domestic Product at Factor Cost (GDP_{FC})	*3,000*
Net National Product at Market Price (NNP_{MP})	*2,800*
Indirect Tax	*700*

You are required to calculate:

(i) Net Factor Income from Abroad (NFIA).

(ii) Consumption of fixed capital.

(iii) Amount of subsidies. ***(3 Marks)***

(b) Discuss with example direct quote and indirect quote. ***(2 Marks)***

(c) Explain the three aspects of fiscal function in an economy. ***(3 Marks)***

(d) Compute NMI and NM2 from the following data relating to 31 March 2023:

Particulars	*₹ in Crores*
Currency with the public	*1,000*
Demand deposits with the banking system	*2,235*
Other deposits with the RBI	*1,139*
Short term time deposits of residents	*276*

(2 Marks)

Answer

(a) $GNP_{MP} = GDP_{MP}$ + Net Factor Income from Abroad

(i) Net Factor Income from Abroad = GNP_{MP} — GDP_{MP}

= ₹ 3200 – ₹ 3500 = **₹ (—300) Crores**

(ii) Consumption of fixed Capital = GNP_{MP} — NNP_{MP}

= 3200 – 2800 = **₹ 400 Crores**

(iii) Amount of Subsidies = (GDP_{FC}) — GDP_{MP} + Indirect Taxes

= 3000 — 3500 +700 = **₹ 200 Crores**

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(b) Direct quote & Indirect quote: A direct quote **is the number of units of a local currency exchangeable for one unit of a foreign currency**. The price of 1 dollar may be quoted in terms of how much rupees it takes to buy one dollar. For example, ₹76/US$ means that an amount of ₹ 76 is needed to buy one US dollar or ₹ 76 will be received while selling one US dollar.

In a direct quotation, the foreign currency is the base currency, and the domestic currency is the counter currency.

An indirect quote is the number of units of a foreign currency exchangeable for one unit of local currency;

for example: $ 0.0151 per rupee.

A quotation in direct form can easily be converted into a quotation in indirect form and vice-versa. This is done by taking the reciprocal of the given rate.

In a indirect quotation, the domestic currency is the base currency, and the foreign currency is the counter currency.

The direct form of quotation is also called European Currency Quotation whereas indirect form is known as American Currency Quotation.

(c) Three aspects of Fiscal Function: For conceptual purposes, the functions of the government are to be separated into three, namely, **resource allocation, (efficiency), income redistribution (fairness) and macroeconomic stabilization.**

The allocation and distribution functions are primarily microeconomic functions, while stabilization is a macroeconomic function.

The allocation function aims to correct the resources of inefficiency in the economic system, while the distribution role ensures that the distribution of wealth and income is fair.

Monetary and fiscal policies, the problems of macroeconomic stability, **maintenance of high levels of employment and price stability etc.** fall under the **stabilization** function.

(d) Computation NM1 & NM2:

NM1 = Currency with the public + Demand deposits with the banking system + 'Other' deposits with the RBI.

= ₹ 1000 + ₹ 2235 + ₹ 1139 = **₹ 4374 Crores**

NM2 = NM1 + Short-term time deposits of residents (including and up to contractual maturity of one year).

= ₹ 4374 + ₹ 276 = **₹ 4650 Crores**

Question 8

(a) (i) "Tariffs are price related instruments of trade policy that governments use to restrict imports and/or encourage exports." Explain. ***(3 Marks)***

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(ii) Calculate Sales from the following data:

Particulars	*₹in Lakhs*
Closing stock	*500*
Opening stock	*200*
Subsidies	*180*
Intermediate consumption	*1,500*
Consumption of fixed capital	*350*
Net value added at factor cost	*2000*

(2 Marks)

(b) (i) 1. The balanced budget multiplier is always equal to 1'. Give your comments.

Assume that MPC is equal to 0.8, answer the following:

2. What is the value of spending multiplier?

3. What is the value of tax multiplier? ***(3 Marks)***

(ii) How does the Reserve Bank of India control liquidity through Open Market Operations (OMO)? ***(2 Marks)***

Answer

(a) (i) **Tariffs:** Tariffs are aimed at **altering the relative prices of goods and services imported**, so as to contract the domestic demand and thus regulate the volume of their imports.

Tariffs leave the world market price of the goods unaffected; while raising their prices in the domestic market.

The main goals of tariffs are to raise revenue for the government, and more importantly to protect the domestic import-competing industries.

By making imported goods more expensive, tariffs discourage domestic consumers from consuming imported foreign goods.

Domestic consumers suffer a loss in consumer surplus because they must now pay a higher price for the good and also because compared to free trade quantity, they now consume lesser quantity of the good.

Tariff barriers create obstacle to trade, decrease the Volume of imports and exports and hence that of International Trade.

(ii) Calculation of Sales value:

Net Value Added at factor cost = Sales + Change in stocks - Intermediate consumption - Depreciation – NIT (Indirect taxes – subsidies)

₹ 2000 = Sales + ₹ 300 – ₹ 1500 – ₹ 350 – (— ₹ 180)

Sales = ₹ 2000 – ₹ 300 + ₹ 1500 + ₹ 350 – ₹ 180 = **₹ 3370 lakhs**

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(b) (i) 1. The government budget is said to be in balance when $\Delta G = \Delta T$. The balanced budget multiplier is always equal to 1. The balanced budget multiplier is obtained **by adding up the government spending multiplier (fiscal multiplier) and the tax multiplier.**

Balanced Budget multiplier = $(\Delta Y / \Delta G) + (\Delta Y / \Delta T) = [1 / (1-b)] + [-b / (1-b)] = 1$

2. MPC = 0.8; MPS = (1-0.8) = 0.2.

Spending Multiplier = 1 / 1-b = 1 / 1-0.8 = 1/ 0.2 = **5**

3. **Tax multiplier** = - b / 1 - b

= - 0.8 / 1- 0.8 = (- 0.8 / 0.2) = **- 4**

(ii) Open Market operations: Open Market Operations (OMO) is a general term used for market operations conducted by the Reserve Bank of India by way of sale/purchase of Government securities to/from the market with an objective to adjust the rupee liquidity conditions in the market on a durable basis.

When the RBI feels that there is excess liquidity in the market, it resorts to sale of securities thereby sucking out the rupee liquidity. Similarly, when the liquidity conditions are tight, the RBI will buy securities from the market, thereby releasing liquidity into the market.

Question 9

(a) (i) "Cash Reserve Ratio (CRR) has to be maintained by banks as cash with the RBI, while Statutory Liquidity Ratio (SLR) requires holding assets by the bank itself." Do you agree with this statement? Explain. ***(3 Marks)***

(ii) The table below shows Nominal GDP and Real GDP of the country in 2 financial years.

	Amount (₹ in Crores)	
Financial Years (FY)	***Nominal GDP***	***Real GDP***
2020-21	*1550*	*1190*
2021-22	*1700*	*1240*

Calculate Inflation rate (upto two decimal) in FY 2021-2022. ***(2 Marks)***

(b) (i) List the problems involved in administrating an efficient pollution tax. ***(3 Marks)***

(ii) Briefly discuss the National Treatment Principle (NTP) as one of the major guiding principles of WTO. ***(2 Marks)***

Answer

(a) (i) Cash Reserve Ratio (CRR) & Statutory Liquidity Ratio (SLR)

Yes, I **agree** with the Statement.

- CRR is an essential monetary policy tool used for controlling the money supply in the economy.

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- The Cash Reserve Ratio (CRR) is the **percentage of total deposits a bank must have in cash to operate risk free**. **The Reserve bank of India decides the amount** and is kept with the RBI for financial security.
- The **bank cannot use this amount for lending and investment** purposes and does not get any interest from the RBI. CRR applies to scheduled commercial banks, while the regional rural banks and NBFCs are excluded.
- Statutory liquidity Ratio or SLR is **the minimum percentage of deposits that a commercial bank has to maintain in the form of liquid cash, gold, or other securities**. It is basically the **reserve requirement that banks are expected to keep** before offering credit to customers. **The SLR is fixed by the RBI** and is a form of control over the credit growth in India.

(ii) Calculation of inflation rate

GDP Deflator = (Nominal GDP / Real GDP) x 100

GDP Deflator for 2020-21(Year 1) = ₹1550 / ₹1190 × 100 = **130.25 %**

GDP Deflator for 2021-22 (Year 2) = ₹1700 / ₹1240 × 100 = **137.10 %**

$$\text{Inflation rate in Year 2 (2021-2022)} = \frac{\text{GDP deflator in year 2 - GDT deflator in year 1}}{\text{GDP deflator in year 1}} \times 100$$

= (137.10 – 130.25) / 130.25 × 100

Inflation rate in FY 2021-2022 = 6.85 / 130.25 ×100 = 5.26 %

(b) (i) Problems in administering an efficient pollution tax are listed below.

- Pollution taxes are difficult to determine and administer because it is **difficult to discover the right level of taxation** that would ensure that the private cost-plus taxes will exactly equate with the social cost.
- If the **demand** for the good **is inelastic**, the tax may only have an **insignificant effect in reducing demand**.
- The method of taxing the polluters has many limitations because it involves the use of **complex and costly administrative procedures for monitoring the polluters.**
- This method does **not provide any genuine solutions to the problem**. It only establishes an incentive system for use of methods which are less polluting.
- Pollution taxes also **have potential negative consequences on employment and investments** because high pollution taxes in one country may encourage producers to shift their production facilities to those countries with lower taxes.

(ii) National Treatment Principle (NTP): The National Treatment Principle (NTP) is complementary to the MFN (Most Favored Nation) principle. GATT Article III requires that **with respect to internal taxes, internal laws, etc. applied to imports,**

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treatment not less favorable than that which is accorded to like domestic products and must be accorded to all other members.

In other words, a country should not discriminate between its own and foreign products, services, or nationals. For instance, once imported apples reach Indian market, they cannot be discriminated against and should be treated at par in respect of marketing opportunities, product visibility or any other aspect with locally produced apples.

Question 10

(a) (i) The table shows the number of labour hours required to produce Shirt and Trouser in two Countries X and Y.

Country	*1 unit of Shirt*	*1unit of Trouser*
X	*3.5 Hours*	*5 Hours*
Y	*4 Hours*	*8 Hours*

In the absence of trade:

1. Compute the Opportunity cost in respect of both commodities in both countries.

2. Which country has comparative advantage in producing Shirts?

3. Which country has comparative advantage in producing Trousers? ***(3 Marks)***

(ii) Explain the Transactions Motive for holding cash. ***(2 Marks)***

(b) (i) Calculate NNP_{FC} by expenditure method with the help of the following information:

Items	*₹in Crores*
Private final consumption expenditure	*12*
Net Import	*19*
Public final consumption expenditure	*06*
Gross Domestic Fixed Capital Formation	*360*
Depreciation	*35*
Subsidy	*120*
Income Paid to Abroad	*17*
Change in Stock	*40*
Net Acquisition of Valuables	*15*

(3 Marks)

(ii) Discuss briefly the concept of Common Access Resources. ***(2 Marks)***

Answer

(a) (i) Opportunity Cost

1. Country X

Opportunity Cost of Shirt = 3.5 / 5 = **0.7 trousers**

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Opportunity Cost for Trousers = 5 / 3.5 = **1.43 Shirts**

Country Y

Opportunity Cost of Shirt = 4 / 8 = **0.5 trousers**

Opportunity Cost of Trousers = 8 / 4 = **2 Shirts**

2. For Producing Shirts

Country Y has lower opportunity Cost for producing shirts (0.5 < 0.7) therefore.

Country Y has comparative advantage.

3. For Producing Trousers

Country X has lower opportunity Cost for producing trousers (1.43 < 2) therefore.

Country X has Comparative Advantage.

(ii) Transaction motive for holding Cash: The transactions motive for holding cash relates to 'the need for cash for current transactions for personal and business exchange.'

The need for holding money arises because there is lack of synchronization between receipts and expenditures.

The transaction motive is further classified into income motive and business motive, both of which stressed on the requirement of individuals and businesses respectively **to bridge the time gap between receipt of income and planned expenditures.**

(b) (i) Calculation of National Income by Expenditure method:

GDP_{MP} = Public final consumption Expenditure + Private final consumption expenditure + Gross domestic capital formation (Gross domestic fixed capital formation + change in stock + Net acquisition of valuables) + Net export

(Note: As net import is 19, hence, net export is -19)

= 6 +12 + [360 + 40 +15] +(- 19) = 6+12+415-19 = **₹ 414 Crores**

NNP_{FC} = GDP_{MP} – Depreciation + Net factor income from abroad (Income from abroad – Income paid to abroad) – Net Indirect tax (Indirect tax – subsidies)

= 414 – 35 + [0 – 17] – [0-120] = 414 – 35 – 17 + 120 = **₹ 482 Crores**.

(ii) Common Access Resources

- Common access resources (or) common pool resources are a **special class of impure public goods which are non-excludable** as people cannot be excluded from using them.
- These are **rival in nature and their consumption lessens the benefits available for others.**

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- This **rival nature** of common resources is what **distinguishes them from pure public goods**, which exhibits both non-excludability and non-rivalry in consumption.
- They are generally **available at free of charge** and are thus **susceptible to the threat of overuse and depletion**.

Examples of common access resources are fisheries, forests, common pastures, rivers, sea, backwaters biodiversity etc.

Question 11

(a) (i) "Dumping is an international price discrimination favouring buyers of exports against which the domestic government levies a protectionist tariff." Analyse and explain the statement. ***(3 Marks)***

(ii) Compute credit multiplier if the required reserve ratio is 12% and 15% for every 1,50,000 deposited in the banking system. What will be the total credit money created by the banking system in each case? ***(2 Marks)***

(b) (i) What are the main components of equilibrium income in a four- sector model?

(3 Marks)

(ii) Define the term market failure and name the four reasons for a market failure situation. ***(2 Marks)***

OR

Briefly state the different modes of Foreign Direct Investment (FDI). ***(2 Marks)***

Answer

(a) (i) Dumping: Dumping is an international price discrimination favoring buyer of exports, but in fact, the exporters deliberately forego money in order to harm the domestic producers of the importing country.

An anti-dumping duty is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.

Dumping is unfair and constitutes a **threat to domestic producers** and therefore when dumping is found, anti-dumping measures may be initiated as a safeguard instrument by imposing additional import duties/tariffs so as to offset the foreign firm's unfair price advantage. This is justified only if the domestic industry is seriously injured by import competition, and protection is in the national interest.

Dumping may also be resorted to as a predatory pricing practice to drive out established domestic producers from the market and to establish monopoly position.

(ii) Computation of Credit Multiplier

Credit Multiplier is the reciprocal of required reserved ratio.

Credit Multiplier = 1 / Required Reserved Ratio (RRR)

Credit multiplier for RRR of 12% = 1 / 0.12 = 8.33

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Credit multiplier for RRR of 15% = 1 / 0.15 = 6.66

Credit money creation for RRR of 12% = ₹ 1,50,000 × 1 / 0.12 = ₹ 12,50,000 or ₹ 12,49,500

Credit money creation for RRR of 15% = ₹ 1,50,000 × 1 / 0.15 = ₹ 10,00,000 or ₹ 10,00,500

(b) (i) **Four-sector model:** The four-sector model includes all four macroeconomic sectors, the household sector, the business sector, the government sector, and the foreign sector.

The foreign sector includes households, businesses, and governments that reside in other countries.

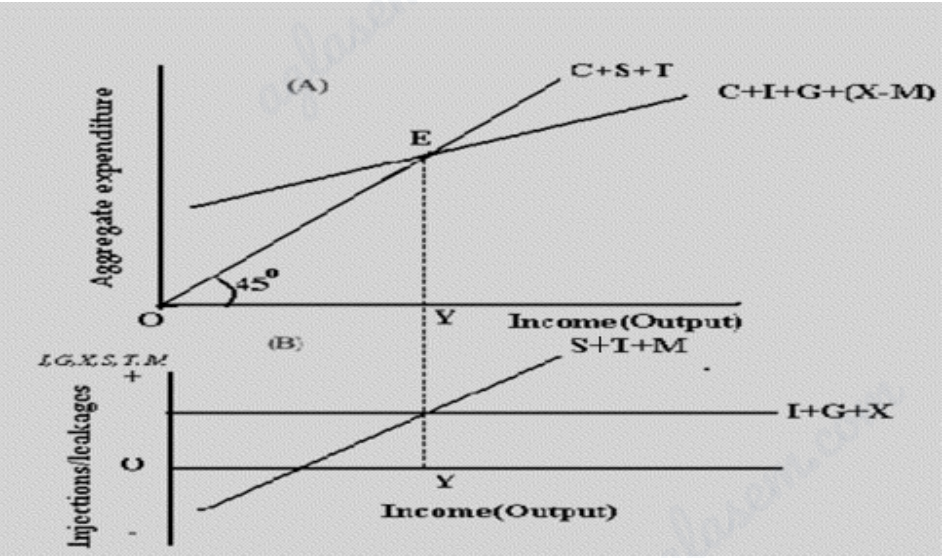
The below given flowchart shows the circular flow in a four-sector economy.

In equilibrium, we have

$$Y = C + I + G + (X-M)$$

Where Income(Y) indicates the aggregate demand or the total planned expenditure of consumers (C), Investors (I), governments (G) and Foreigner (net exports = exports (X) – imports (M))

Determination of Equilibrium Income: Four Sector Model



Equilibrium is **identified as the intersection between the C + I + G + (X - M) line and the 45-degree line.** The equilibrium income is Y. From panel B, we find that the leakages(S+T+M) are equal to injections (I+G+X) only at equilibrium level of income.

Equilibrium level of national income is determined at the level at which the **aggregate demand is equal to aggregate supply.**

(ii) **Market failure:** Market failure is a situation in which the **free market leads to misallocation of society's scarce resources** in the sense that **there is either**

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overproduction or underproduction of particular goods and services leading to a less than optimal outcome.

There are four major reasons for market failure. They are:

- Market power
- Externalities
- Public goods
- Incomplete information

The reason for market failure lies in the fact that though perfectly competitive markets work efficiently, most often the prerequisites of competition are unlikely to be present in an economy. Market failures are situations in which a particular market, left to itself, is inefficient.

OR

MODES OF FOREIGN DIRECT INVESTMENT

- Opening of a subsidiary or associate company in a foreign country,
- Equity injection into an overseas company,
- Acquiring a controlling interest in an existing foreign company,
- Mergers and acquisitions(M&A)
- Joint venture with a foreign company.
- Green field investment.
- Brownfield investments

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