PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

PART A: FINANCIAL MANAGEMENT

QUESTIONS

Ratio Analysis

1. The following information of ASD Ltd. relate to the year ended 31st March, 2022:

Net profit	8% of sales
Raw materials consumed	20% of Cost of Goods Sold
Direct wages	10% of Cost of Goods Sold
Stock of raw materials	3 months' usage
Stock of finished goods	6% of Cost of Goods Sold
Gross Profit	15% of Sales
Debt collection period	2 Months
(All sales are on credit)	
Current ratio	2 : 1
Fixed assets to Current assets	13 : 11
Fixed assets to sales	1 : 3
Long-term loans to Current liabilities	2 : 1
Capital to Reserves and Surplus	1 : 4

You are required to PREPARE-

(a) Profit & Loss Statement of ASD Limited for the year ended 31st March, 2022 in the following format.

Particulars	(₹)	Particulars	(₹)
To Direct Materials consumed	?	By Sales	?
To Direct Wages	?		
To Works (Overhead)	?		
To Gross Profit c/d	?		
	?		?
To Selling and Distribution Expenses	?	By Gross Profit b/d	?
To Net Profit	?		
	?		?

(b) Balance Sheet as on 31st March, 2022 in the following format.

Liabilities	(₹)	Assets	(₹)
Share Capital	?	Fixed Assets	1,30,00,000
Reserves and Surplus	?	Current Assets:	
Long term loans	?	Stock of Raw Material	?
Current liabilities	?	Stock of Finished Goods	?
		Debtors	?
		Cash	?
	?		?

Cost of Capital

2. Bounce Ltd. evaluates all its capital projects using discounting rate of 15%. Its capital structure consists of equity share capital, retained earnings, bank term loan and debentures redeemable at par.

Rate of interest on bank term loan is 1.5 times that of debenture. Remaining tenure of debenture and bank loan is 3 years and 5 years respectively. Book value of equity share capital, retained earnings and bank loan is ₹ 10,00,000, ₹ 15,00,000 and ₹ 10,00,000 respectively. Debentures which are having book value of ₹ 15,00,000 are currently trading at ₹ 97 per debenture. The ongoing P/E multiple for the shares of the company stands at 5. You are required to CALCULATE the rate of interest on bank loan and debentures if tax rate applicable is 25%.

Capital Structure

3. ABC Limited provides you the following information:

	(₹)
Profit (EBIT)	2,80,000
Less: Intt. on Debt @10%	40,000
EBT	2,40,000
Less: Income Tax @ 50%	1,20,000
	1,20,000
No. of Equity Shares (₹ 10 each)	30,000
Earnings per share (EPS)	4
Price / EPS (P/E) Ratio	10
Ruling Market price per share	40

The company has undistributed reserves of ₹ 7,00,000 and needs ₹ 4,00,000 further for expansion. This investment is expected to earn the same rate as funds already invested. You are informed that a debt equity (debt/ debt +equity) ratio higher than 32% will push the P/E ratio down to 8 and raise the interest rate on additional borrowings (debentures) to 12%. You are required to ASCERTAIN the probable price of the share.

(i) If the additional funds are raised as debt; and

(ii) If the amount is raised by issuing equity shares at ruling market price of ₹ 40 per share.

Leverage

4. Debu Ltd. currently has an equity share capital of ₹ 1,30,00,000 consisting of 13,00,000 Equity shares. The company is going through a major expansion plan requiring to raise funds to the tune of ₹ 78,00,000. To finance the expansion the management has following plans:

Plan-I : Issue 7,80,000 Equity shares of ₹ 10 each.

Plan-II : Issue 5,20,000 Equity shares of ₹ 10 each and the balance through long-term borrowing at 12% interest p.a.

Plan-III : Issue 3,90,000 Equity shares of ₹ 10 each and 39,000, 9% Debentures of ₹ 100 each.

Plan-IV : Issue 3,90,000 Equity shares of ₹ 10 each and the balance through 6% preference shares.

EBIT of the company is expected to be ₹ 52,00,000 p.a.

Considering corporate tax rate @ 40%, you are required to-

(i) CALCULATE EPS in each of the above plans.

(ii) ASCERTAIN financial leverage in each plan and comment.

Investment Decisions

5. K. K. M. M Hospital is considering purchasing an MRI machine. Presently, the hospital is outsourcing the work received relating to MRI machine and is earning commission of ₹ 6,60,000 per annum (net of tax). The following details are given regarding the machine:

	(₹)
Cost of MRI machine	90,00,000
Operating cost per annum (excluding Depreciation)	14,00,000
Expected revenue per annum	45,00,000
Salvage value of the machine (after 5 years)	10,00,000
Expected life of the machine	5 years

Assuming tax rate @ 40%, whether it would be profitable for the hospital to purchase the machine?

Give your RECOMMENDATION under:

(i) Net Present Value Method, and

(ii) Profitability Index Method.

PV factors at 10% are given below:

Year	1	2	3	4	5
PV factor	0.909	0.826	0.751	0.683	0.620

Risk Analysis in Capital Budgeting

6. Consider the below mentioned table for the risk premium and the coefficient of variation

Co-efficient of Variation	Risk Premium
0	0
0 to 0.25	2%
0.25 to 0.50	3%
0.50 to 0.75	4%
0.75 to 1	6%

A company is evaluating two projects with an initial investment of ₹ 1,50,000 for each project with cash inflows from them occurring at the end of 5th Year which depends on possible scenarios prevailing during the investment period. The details of the same are as follows:

Scenario	Project X		Project Y	
	Cash Flow (₹)	Probability	Cash Flow (₹)	Probability
Superb	5,00,000	0.20	4,00,000	0.30
Better	3,00,000	0.30	3,50,000	0.20
Moderate	1,50,000	0.15	2,50,000	0.20
Bad	50,000	0.20	75,000	0.20
Worse	10,000	0.15	5,000	0.10

If the ongoing government bond yield is 6%, identify WHICH project to be undertaken.

Dividend Decision

7. Ordinary shares of a listed company are currently trading at ₹ 10 per share with two lakh shares outstanding. The company anticipates that its earnings for next year will be ₹ 5,00,000. Existing cost of capital for equity shares is 15%. The company has certain investment proposals under discussion which will cause an additional 26,089 ordinary shares to be issued if no dividend is paid or an additional 47,619 ordinary shares to be issued if dividend is paid.

   Applying the MM hypothesis on dividend decisions, CALCULATE the amount of investment and dividend that is under consideration by the company.

Management of Cash

8. A company was incorporated w.e.f. 1st April, 2021. Its authorised capital was ₹ 1,00,00,000 divided into 10 lakh equity shares of ₹ 10 each. It intends to raise capital by issuing equity shares of ₹ 50,00,000 (fully paid) on 1st April. Besides this, a loan of ₹ 6,50,000 @ 12% per annum will be obtained from a financial institution on 1st April and further borrowings will be made at same rate of interest on the first day of the month in which borrowing is required. All borrowings will be repaid along with interest on the expiry of one year. The company will make payment for the following assets in April.

Particulars	(₹)
Plant and Machinery	10,00,000
Land and Building	20,00,000
Furniture	5,00,000
Motor Vehicles	5,00,000
Stock of Raw Materials	5,00,000

The following further details are available:

(1) Projected Sales (April-September):

	(₹)
April	15,00,000
May	17,50,000
June	17,50,000
July	20,00,000
August	20,00,000
September	22,50,000

(2) Gross profit margin will be 25% on sales.

(3) The company will make credit sales only and these will be collected in the second month following sales.

(4) Creditors will be paid in the first month following credit purchases. There will be credit purchases only.

(5) The company will keep minimum stock of raw materials of ₹ 5,00,000.

(6) Depreciation will be charged @ 10% per annum on cost on all fixed assets.

(7) Payment of miscellaneous expenses of ₹ 50,000 will be made in April.

(8) Wages and salaries will be ₹ 1,00,000 each month and will be paid on the first day of the next month.

(9) Administrative expenses of ₹ 50,000 per month will be paid in the month of their incurrence.

(10) No minimum cash balance is required.

You are required to PREPARE the monthly cash budget (April-September), the projected Income Statement for the 6 months period and the projected Balance Sheet as on 30th September, 2021.

Management of Working Capital

9. Trading and Profit and Loss Account of Beat Ltd. for the year ended 31st March, 2022 is given below:

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
To Opening Stock:			By Sales (Credit)		1,60,00,000
- Raw Materials	14,40,000		By Closing Stock:		
- Work-in- progress	4,80,000		- Raw Materials	16,00,000	
- Finished Goods	20,80,000	40,00,000	- Work-in-progress	8,00,000	
To Purchases (credit)		88,00,000	- Finished Goods	24,00,000	48,00,000
To Wages		24,00,000			
To Production Exp.		16,00,000			
To Gross Profit c/d		40,00,000			
		2,08,00,000			2,08,00,000
To Administration Exp.		14,00,000	By Gross Profit b/d		40,00,000
To Selling Exp.		6,00,000			
To Net Profit		20,00,000			
		40,00,000			40,00,000

The opening and closing payables for raw materials were ₹ 16,00,000 and ₹ 19,20,000 respectively whereas the opening and closing balances of receivables were ₹ 12,00,000 and ₹ 16,00,000 respectively.

You are required to ASCERTAIN the working capital requirement by operating cycle method.

Miscellaneous

10. (a) Under financial lease, lessee bears the risk of obsolescence; while under operating lease, lessor bears the risk of obsolescence. In view of this, you are required to COMPARE the financial lease and operating lease.

(b) BRIEF OUT salient features of Samurai Bond.

SUGGESTED ANSWERS

1. Working Notes:

(i) Calculation of Sales

$$\frac{\text{Fixed Assets}}{\text{Sales}} = \frac{1}{3}$$

$$\therefore \frac{1,30,00,000}{\text{Sales}} = \frac{1}{3} \Rightarrow \text{Sales} = ₹\ 3,90,00,000$$

(ii) Calculation of Current Assets

$$\frac{\text{Fixed Assets}}{\text{Current Assets}} = \frac{13}{11}$$

$$\therefore \frac{1,30,00,000}{\text{Current Assets}} = \frac{13}{11} \Rightarrow \text{Current Assets} = ₹\ 1,10,00,000$$

(iii) Calculation of Raw Material Consumption and Direct Wages

	₹
Sales	3,90,00,000
Less: Gross Profit (15 % of Sales)	58,50,000
Cost of Goods sold	3,31,50,000

Raw Material Consumption (20% of Cost of Goods Sold) ₹ 66,30,000

Direct Wages (10% of Cost of Goods Sold) ₹ 33,15,000

(iv) Calculation of Stock of Raw Materials (= 3 months usage)

$$= 66,30,000 \times \frac{3}{12} = ₹\ 16,57,500$$

(v) Calculation of Stock of Finished Goods (= 6% of Cost of Goods Sold)

$= 3,31,50,000 \times \frac{6}{100} = ₹\ 19,89,000$

(vi) Calculation of Current Liabilities

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = 2$$

$$\frac{1,10,00,000}{\text{Current Liabilities}} = 2 \Rightarrow \text{Current Liabilities} = ₹\ 55,00,000$$

(vii) Calculation of Debtors

$$\text{Average collection period} = \frac{\text{Debtors}}{\text{Credit Sales}} \times 12 \text{ months}$$

$$\frac{\text{Debtors}}{3,90,00,000} \times 12 = 2 \Rightarrow \text{Debtors} = ₹\ 65,00,000$$

(viii) Calculation of Long-term Loan

$$\frac{\text{Long term Loan}}{\text{Current Liabilities}} = \frac{2}{1}$$

$$\frac{\text{Long term loan}}{55,00,000} = \frac{2}{1} \Rightarrow \text{Long term loan} = ₹\ 1,10,00,000$$

(ix) Calculation of Cash Balance

		₹
Current assets		1,10,00,000
Less: Debtors	65,00,000	
Raw materials stock	16,57,500	
Finished goods stock	19,89,000	1,01,46,500
Cash balance		8,53,500

(x) Calculation of Net worth

Fixed Assets		1,30,00,000
Current Assets		1,10,00,000
Total Assets		2,40,00,000
Less: Long term Loan	1,10,00,000	
Current Liabilities	55,00,000	1,65,00,000
Net worth		75,00,000

Net worth = Share capital + Reserves = ₹ 75,00,000

$$\frac{\text{Capital}}{\text{Reserves and Surplus}} = \frac{1}{4} \Rightarrow \text{Share Capital} = ₹\ 75,00,000 \times \frac{1}{5} = ₹\ 15,00,000$$

$$\text{Reserves and Surplus} = ₹\ 75,00,000 \times \frac{4}{5} = ₹\ 60,00,000$$

Profit and Loss Statement of ASD Ltd.
for the year ended 31st March, 2022

Particulars	(₹)	Particulars	(₹)
To Direct Materials consumed	66,30,000	By Sales	3,90,00,000
To Direct Wages	33,15,000		
To Works (Overhead) (Bal. fig.)	2,32,05,000		
To Gross Profit c/d (15% of Sales)	58,50,000		
	3,90,00,000		3,90,00,000
To Selling and Distribution Expenses (Bal. fig.)	27,30,000	By Gross Profit b/d	58,50,000
To Net Profit (8% of Sales)	31,20,000		
	58,50,000		**58,50,000**

Balance Sheet of ASD Ltd.
as at 31st March, 2022

Liabilities	(₹)	Assets	(₹)
Share Capital	15,00,000	Fixed Assets	1,30,00,000
Reserves and Surplus	60,00,000	Current Assets:	
Long term loans	1,10,00,000	Stock of Raw Material	16,57,500
Current liabilities	55,00,000	Stock of Finished Goods	19,89,000
		Debtors	65,00,000
		Cash	8,53,500
	2,40,00,000		**2,40,00,000**

2. Let the rate of Interest on debenture be x

$\therefore$ Rate of Interest on loan = 1.5x

$$\therefore K_d \text{ on debentures} = \frac{\text{Int}\,(1-t)+\frac{RV-NP}{n}}{\frac{RV+NP}{2}}$$

$$= \frac{100x(1-0.25)+\frac{100-97}{3}}{\frac{100+97}{2}}$$

$$= \frac{75x+1}{98.5}$$

$\therefore$ K_d on bank loan = 1.5x (1 – 0.25) = 1.125x

$$K_e = \frac{EPS}{MPS} = \frac{1}{MPS/EPS} = \frac{1}{P/E} = \frac{1}{5} = 0.2$$

$K_Y = K_e = 0.2$

Computation of WACC

Capital	Amount (₹)	Weights	Cost	Product
Equity	10,00,000	0.2	0.2	0.04
Reserves	15,00,000	0.3	0.2	0.06
Debentures	15,00,000	0.3	(75x+1)/98.5	(22.5x + 0.3)/98.5
Bank Loan	10,00,000	0.2	1.125x	0.225x
	50,00,000	1		$0.1 + 0.225x + \frac{22.5x+0.3}{98.5}$

WACC = 15%

$\therefore$ $0.1 + 0.225x + \frac{22.5x}{98.5} + \frac{0.3}{98.5} = 0.15$

$\therefore$ 9.85+22.1625x+22.5x+0.3 = (0.15) (98.5)

$\therefore$ 44.6625x = 14.775 – 9.85 – 0.3

$\therefore$ 44.6625x = 4.625

$\therefore$ $x = \frac{4.625}{44.6625}$

$\therefore$ x = 10.36 %

$\therefore$ Rate of interest on debenture = x = 10.36%

Rate of interest on Bank loan = 1.5x = (1.5) (10.36%) = 15.54%.

3. Ascertainment of probable price of shares

Particulars	Plan (i) (If ₹ 4,00,000 is raised as debt) (₹)	Plan (ii) (If ₹ 4,00,000 is raised by issuing equity shares) (₹)
Earnings Before Interest (EBIT)	3,60,000	3,60,000
20% on (14,00,000 + 4,00,000)		
Less: Interest on old debentures @ 10% on 4,00,000	40,000	40,000
	3,20,000	3,20,000
Less: Interest on New debt @ 12% on ₹ 4,00,000	48,000	-
Earnings Before Tax (After interest)	2,72,000	3,20,000
Less: Tax @ 50%	1,36,000	1,60,000
Earnings for equity shareholders (EAIT)	1,36,000	1,60,000
Number of Equity Shares (in numbers)	30,000	40,000
Earnings per Share (EPS)	4.53	4.00
Price/ Earnings Ratio	8	10
Probable Price Per Share	36.24	40
	(8 x 4.53)	(10 x 4)

Working Notes:

		(₹)
1.	Calculation of Present Rate of Earnings	
	Equity Share capital (30,000 x ₹ 10)	3,00,000
	10% Debentures $\left(40,000 \times \frac{100}{10}\right)$	4,00,000
	Reserves (given)	7,00,000
		14,00,000
	Earnings before interest and tax (EBIT) given	2,80,000
	Rate of Present Earnings = $\left(\frac{2,80,000}{14,00,000} \times 100\right)$	20%
2.	Number of Equity Shares to be issued in Plan $\left(\frac{4,00,000}{40}\right)$	10,000

Thus, after the issue total number of shares	30,000 + 10,000 = 40,000
3. Debt/Equity Ratio if ₹ 4,00,000 is raised as debt:	$\left(\frac{8,00,000}{18,00,000}\times 100\right)$ = 44.44%

As the debt equity ratio is more than 32% the P/E ratio shall be 8 in plan (i)

4.

Sources of Capital	Plan I	Plan II	Plan III	Plan IV
Present Equity Shares	13,00,000	13,00,000	13,00,000	13,00,000
New Issue	7,80,000	5,20,000	3,90,000	3,90,000
Equity share capital (₹)	2,08,00,000	1,82,00,000	1,69,00,000	1,69,00,000
No. of Equity shares	20,80,000	18,20,000	16,90,000	16,90,000
12% Long term loan (₹)	–	26,00,000	–	–
9% Debentures (₹)	–	–	39,00,000	–
6% Preference Shares (₹)	–	–	–	39,00,000

Computation of EPS and Financial Leverage

Sources of Capital	Plan I	Plan II	Plan III	Plan IV
EBIT (₹)	52,00,000	52,00,000	52,00,000	52,00,000
Less: Interest on 12% Loan (₹)	–	3,12,000	–	–
Less: Interest on 9% debentures (₹)	–	–	3,51,000	–
EBT (₹)	52,00,000	48,88,000	48,49,000	52,00,000
Less: Tax@ 40%	20,80,000	19,55,200	19,39,600	20,80,000
EAT (₹)	31,20,000	29,32,800	29,09,400	31,20,000
Less: Preference Dividends (₹)	–	–	–	2,34,000
(a) Net Earnings available for equity shares (₹)	31,20,000	29,32,800	29,09,400	28,86,000
(b) No. of equity shares	20,80,000	18,20,000	16,90,000	16,90,000
(c) EPS (a ÷ b) (₹)	1.50	1.61	1.72	1.71

Financial leverage $\left(\frac{EBIT}{EBT}\right)$	1.00	1.06	1.07	1.08*

* Financial Leverage in the case of Preference dividend = $\left(\frac{EBIT}{(EBIT - Interest) - \left(\frac{Dp}{(1-t)}\right)}\right)$

$= \left(\frac{52,00,000}{(52,00,000 - 0) - \left(\frac{2,34,000}{(1-.40)}\right)}\right) = \left(\frac{52,00,000}{48,10,000}\right) = 1.08$

5. Determination of Cash inflows

Elements	**(₹)**
Sales Revenue	45,00,000
Less: Operating Cost	14,00,000
	31,00,000
Less: Depreciation (90,00,000 – 10,00,000)/5	16,00,000
Net Income	15,00,000
Tax @ 40%	6,00,000
Earnings after Tax (EAT)	9,00,000
Add: Depreciation	16,00,000
Cash inflow after tax per annum	25,00,000
Less: Loss of Commission Income	6,60,000
Net Cash inflow after tax per annum	18,40,000
In 5th Year:	
New Cash inflow after tax	18,40,000
Add: Salvage Value of Machine	10,00,000
Net Cash inflow in year 5	28,40,000

Calculation of Net Present Value (NPV)

Year	**CFAT**	**PV Factor @10%**	**Present Value of Cash inflows**
1 to 4	18,40,000	3.169	58,30,960
5	28,40,000	0.620	17,60,800
			75,91,760
Less: Cash Outflows			90,00,000
NPV			(14,08,240)

Profitability Index= $\frac{\text{Sum of discounted cash inflows}}{\text{Present value of cash outflows}} = \frac{75,91,760}{90,00,000}$ = 0.844

Advise: Since the net present value is negative and profitability index is also less than 1, therefore, the hospital should not purchase the MRI machine.

6. Calculation of Expected Cash Flow, Standard Deviation & Co-efficient of variation

(a) Project X

Probability (P)	Cash Flows (x)	P.x	P.x²
0.20	5,00,000	1,00,000	50,00,00,00,000
0.30	3,00,000	90,000	27,00,00,00,000
0.15	1,50,000	22,500	3,37,50,00,000
0.20	50,000	10,000	50,00,00,000
0.15	10,000	1,500	1,50,00,000
		2,24,000	80,89,00,00,000

Expected Cash flow = $\sum$ P.x = 2,24,000 = $\bar{X}$

Standard Deviation = $\sqrt{\sum P.x^2 - (\sum P.x)^2}$

$= \sqrt{80,89,00,00,000 - (2,24,000)^2}$

$= \sqrt{30,71,40,00,000}$

σ_x = 1,75,254

Co-efficient of variation = $\frac{\sigma_x}{\bar{X}}$

$= \frac{1,75,254}{2,24,000}$

COV_x = 0.7824

(b) Project Y

Probability (P)	Cash Flows (y)	P.y	P.y²
0.3	4,00,000	1,20,000	48,00,00,00,000
0.2	3,50,000	70,000	24,50,00,00,000
0.2	2,50,000	50,000	12,50,00,00,000
0.2	75,000	15,000	1,12,50,00,000

0.1	5,000	500	25,00,000
		2,55,500	86,12,75,00,000

Expected Cash flow = $\sum P.y = \bar{y}$ = 2,55,500

Standard Deviation = $\sqrt{\sum P.y^2 - (\sum P.y)^2}$

= $\sqrt{86,12,75,00,000 - (2,55,500)^2}$

σ_y = 1,44,386

Co-efficient of variation = $\frac{\sigma_y}{\bar{Y}}$

= $\frac{1,44,386}{2,55,500}$

COV_Y = 0.5651

B. Calculation of Risk Adjusted Discount Rate

Project	COV	Risk Premium	RADR
X	0.7824	6%	6% + 6% = 12%
Y	0.5651	4%	6% + 4% = 10%

C. Calculation of NPV

Year	Project X			Project Y		
	Cash Flows	PVF @ 12%	PV	Cash Flows	PVF @ 10%	PV
0	(1,50,000)	1	(1,50,000)	(1,50,000)	1	(1,50,000)
5	2,24,000	0.5674	1,27,098	2,55,500	0.6209	1,58,640
NPV			(22,902)			8,640

∵ NPV of project Y is higher, Project Y should be selected.

7. P_0 = ₹ 10 n = 2,00,000, E = ₹ 5,00,000

K_e = 15%, Δn = 26,089, I = ?

$P_0 = \frac{P_1}{1+K_e}$

$$10 = \frac{P_1}{1.15}$$

$\therefore P_1 = 11.5$

$$\Delta n = \frac{I - E + nD_1}{P_1}$$

$$26{,}089 = \frac{I - 5{,}00{,}000}{11.5}$$

$I = 8{,}00{,}024$

Now,

P_0 = ₹ 10, n = ₹ 2,00,000,

E = ₹ 5,00,000, I = 8,00,024,

K_e = 15%, Δn 47,619, D_1 = ?

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

$$10 = \frac{P_1 + D_1}{1.15}$$

$P_1 + D_1 = 11.5$

$\therefore P_1 = 11.5 - D_1$ 1

$\because \Delta n = \frac{I - E + nD_1}{P_1}$

$$47{,}619 = \frac{8{,}00{,}024 - 5{,}00{,}000 + 2{,}00{,}000D_1}{P_1}$$

$47{,}619\ P_1 = 2{,}00{,}000\ D_1 + 3{,}00{,}024$

From 1,

$47619\ (11.5 - D_1) = 2{,}00{,}000\ D_1 + 3{,}00{,}024$

$5{,}47{,}618.5 - 47{,}619D_1 = 2{,}00{,}000D_1 + 3{,}00{,}024$

$\therefore\ 2{,}47{,}594.5 = 2{,}00{,}000D_1 + 47{,}619\ D_1$

$\therefore$ 2,47,594.5 = 2,47,619 D_1

$\therefore D_1 = \frac{2,47,594.5}{2,47,619} = 0.99 \approx ₹ 1$

$\therefore P_1 = 11.5 - D_1$

$P_1 = 11.5 - 1$

$P_1 = 10.5$

$\because n.P_0 = \frac{(n+\Delta n)P_1 - I + E}{1+K_e}$

$= \frac{(2,00,000+47,619)(10.5)-8,00,024+5,00,000}{1.15}$

$n.P_0 = ₹19,99,979 \approx ₹20,00,000$

Using direct calculation,

$n.P_0 = 2,00,000 \times 10 = ₹ 20,00,000$

8. Monthly Cash Budget (April-September) (₹)

	April	May	June	July	August	September
Opening cash balance	-	10,50,000	-	1,37,500	5,25,000	7,25,000
A. Cash inflows						
Equity shares	50,00,000	-	-	-	-	-
Loans (Refer to working note 1)	6,50,000	1,25,000	-	-	-	-
Receipt from debtors	-	-	15,00,000	17,50,000	17,50,000	20,00,000
Total (A)	56,50,000	11,75,000	15,00,000	18,87,500	22,75,000	27,25,000
B. Cash Outflows						
Plant and Machinery	10,00,000	-	-	-	-	-
Land and Building	20,00,000	-	-	-	-	-
Furniture	5,00,000	-	-	-	-	-
Motor Vehicles	5,00,000	-	-	-	-	-
Stock of raw materials (Minimum stock)	5,00,000	-	-	-	-	-

Miscellaneous expenses	50,000	-	-	-	-	-
Payment to creditors for credit purchases (Refer to working note 2)	-	10,25,000	12,12,500	12,12,500	14,00,000	14,00,000
Wages and salaries	-	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
Admn. expenses	50,000	50,000	50,000	50,000	50,000	50,000
Total :(B)	46,00,000	11,75,000	13,62,500	13,62,500	15,50,000	15,50,000
Closing balance (A)-(B)	10,50,000	-	1,37,500	5,25,000	7,25,000	11,75,000

Budgeted Income Statement for six-month period ending 30th September

Particulars	(₹)	Particulars	(₹)
To Purchases	83,37,500	By Sales	1,12,50,000
To Wages and Salaries	6,00,000	By Closing stock	5,00,000
To Gross profit c/d	28,12,500		
	1,17,50,000		**1,17,50,000**
To Admn. expenses	3,00,000	By Gross profit b/d	28,12,500
To Depreciation (10% on ₹ 40 lakhs for six months)	2,00,000		
To Accrued interest on loan (Refer to working note 3)	45,250		
To Miscellaneous expenses	50,000		
To Net profit c/d	22,17,250		
	28,12,500		**28,12,500**

Projected Balance Sheet as on 30th September, 2021

Liabilities		Amount (₹)	Assets			Amount (₹)
Share Capital:			Fixed Assets:			
Authorised capital			Land and Building	20,00,000		
			Less: Depreciation	1,00,000	19,00,000	
10,00,000 equity shares of ₹ 10 each		1,00,00,000	Plant and Machinery	10,00,000		
			Less: Depreciation	50,000	9,50,000	

Issued, subscribed and paid up capital			Furniture	5,00,000		
			Less: Depreciation	25,000	4,75,000	
5,00,000 equity shares of ₹ 10 each		50,00,000	Motor Vehicles	5,00,000		
			Less: Depreciation	25,000	4,75,000	38,00,000
			Current Assets:			
Reserve and Surplus:			Stock		5,00,000	
			Sundry debtors		42,50,000	
Profit and Loss		22,17,250	Cash		11,75,000	59,25,000
Long-term loans		7,75,000				
Current liabilities and provisions:						
Sundry creditors	15,87,500					
Accrued interest	45,250					
Outstanding expenses	1,00,000	17,32,750				
		97,75,000				97,75,000

Working Notes:

Subsequent Borrowings Needed **(₹)**

	April	May	June	July	August	September
A. Cash Inflow						
Equity shares	50,00,000					
Loans	6,50,000					
Receipt from debtors	-	-	15,00,000	17,50,000	17,50,000	20,00,000
Total (A)	56,50,000	-	15,00,000	17,50,000	17,50,000	20,00,000
B. Cash Outflow						
Purchase of fixed assets	40,00,000					
Stock	5,00,000					
Miscellaneous expenses	50,000					
Payment to creditors	-	10,25,000	12,12,500	12,12,500	14,00,000	14,00,000
Wages and salaries	-	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
Administrative expenses	50,000	50,000	50,000	50,000	50,000	50,000

Total	46,00,000	11,75,000	13,62,500	13,62,500	15,50,000	15,50,000
Surplus/ (Deficit)	10,50,000	(11,75,000)	1,37,500	3,87,500	2,00,000	4,50,000
Cumulative balance	10,50,000	(1,25,000)	12,500	4,00,000	6,00,000	10,50,000

1. There is shortage of cash in May of ₹ 1,25,000 which will be met by borrowings in May.

2. Payment to Creditors

   Purchases = Cost of goods sold - Wages and salaries

   Purchases for April = (75% of 15,00,000) - ₹ 1,00,000 = ₹ 10,25,000

   (**Note:** Since gross margin is 25% of sales, cost of manufacture i.e. materials plus wages and salaries should be 75% of sales)

   Hence, Purchases = Cost of manufacture minus wages and salaries of ₹ 1,00,000)

   The creditors are paid in the first month following purchases.

   Therefore, payment in May is ₹ 10,25,000

   The same procedure will be followed for other months.

April	(75% of 15,00,000) - ₹ 1,00,000 =	₹ 10,25,000
May	(75% of 17,50,000) - ₹ 1,00,000 =	₹ 12,12,500
June	(75% of 17,50,000) - ₹ 1,00,000 =	₹ 12,12,500
July	(75% of 20,00,000) - ₹ 1,00,000 =	₹ 14,00,000
August	(75% of 20,00,000) - ₹ 1,00,000 =	₹ 14,00,000
September	(75% of 22,50,000) - ₹ 1,00,000 =	₹ 15,87,500
Minimum Stock		₹ 5,00,000
Total Purchases		₹ 83,37,500

3. Accrued Interest on Loan

12% interest on ₹ 6,50,000 for 6 months	39,000
Add: 12% interest on ₹ 1,25,000 for 5 months	6,250
	45,250

9. Computation of Operating Cycle

(1) Raw Material Storage Period (R)

$$\text{Raw Material Storage Period (R)} = \frac{\text{Average Stock of Raw Material}}{\text{Daily Average Consumption of Raw material}}$$

$$= \frac{(14,40,000 + 16,00,000) / 2}{86,40,000 / 365} = 64.21 \text{ Days}$$

Raw Material Consumed = Opening Stock + Purchases – Closing Stock

= ₹ 14,40,000+₹ 88,00,000–₹ 16,00,000 = ₹ 86,40,000

(2) Conversion/Work-in-Process Period (W)

$$\text{Conversion/Processing Period} = \frac{\text{Average Stock of WIP}}{\text{Daily Average Production cost}}$$

$$= \frac{(4,80,000 + 8,00,000) / 2}{1,23,20,000 / 365} = 18.96 \text{ days}$$

Production Cost:	₹
Opening Stock of WIP	4,80,000
Add: Raw Material Consumed	86,40,000
Add: Wages	24,00,000
Add: Production Expenses	16,00,000
	1,31,20,000
Less: Closing Stock of WIP	8,00,000
Production Cost	1,23,20,000

(3) Finished Goods Storage Period (F)

$$\text{Finished Goods Storage Period} = \frac{\text{Average Stock of Finished Goods}}{\text{Daily Average Cost of Good Sold}}$$

$$= \frac{(20,80,000 + 24,00,000) / 2}{1,20,00,000 / 365} = 68.13 \text{ Days}$$

Cost of Goods Sold	₹
Opening Stock of Finished Goods	20,80,000
Add: Production Cost	1,23,20,000
	1,44,00,000

Less: Closing Stock of Finished Goods	(24,00,000)
	1,20,00,000

(4) Receivables Collection Period (D)

$$\text{Receivables Collection Period} = \frac{\text{Average Receivables}}{\text{Daily average credit sales}}$$

$$= \frac{(12,00,000 + 16,00,000) / 2}{1,60,00,000 / 365} = 31.94 \text{ Days}$$

(5) Payables Payment Period (C)

$$\text{Payables Payment Period} = \frac{\text{Average Payables}}{\text{Daily average credit purchase}}$$

$$= \frac{(16,00,000 + 19,20,000) / 2}{88,00,000 / 365} = 73 \text{ Days}$$

(6) Duration of Operating Cycle (O)

O = R + W + F + D – C

= 64.21 + 18.96 + 68.13 + 31.94 – 73

= 110.24 days

Computation of Working Capital

(i) Number of Operating Cycles per Year

= 365/Duration Operating Cycle = 365/110.24 = 3.311

(ii) Total Operating Expenses

	₹
Total Cost of Goods sold	1,20,00,000
Add: Administration Expenses	14,00,000
Add: Selling Expenses	6,00,000
	1,40,00,000

(iii) Working Capital Required

$$\text{Working Capital Required} = \frac{\text{Total Operating Expenses}}{\text{Number of Operating Cycles per year}}$$

$$= \frac{1,40,00,000}{3.311} = ₹\ 42,28,329.81$$

10. (a) Comparison between Financial Lease and Operating Lease

	Financial Lease	Operating Lease
1.	The risk and reward incident to ownership are passed on to the lessee. The lessor only remains the legal owner of the asset.	The lessee is only provided the use of the asset for a certain time. Risk incident to ownership belong wholly to the lessor.
2.	The lessee bears the risk of obsolescence.	The lessor bears the risk of obsolescence.
3.	The lessor is interested in his rentals and not in the asset. He must get his principal back along with interest. Therefore, the lease is non-cancellable by either party.	As the lessor does not have difficulty in leasing the same asset to other willing lessee, the lease is kept cancelable by the lessor.
4.	The lessor enters into the transaction only as financier. He does not bear the cost of repairs, maintenance or operations.	Usually, the lessor bears cost of repairs, maintenance or operations.
5.	The lease is usually full payout, that is, the single lease repays the cost of the asset together with the interest.	The lease is usually non-payout, since the lessor expects to lease the same asset over and over again to several users.

(b) Salient features of Samurai Bonds

- Samurai bonds are denominated in Japanese Yen JPY
- Issued in Tokyo
- Issuer Non- Japanese Company
- Regulations: Japanese
- Purpose: Access of capital available in Japanese market
- Issue proceeds can be used to fund Japanese operation
- Issue proceeds can be used to fund a company's local opportunities.
- It can also be used to hedge foreign exchange risk.

SECTION B: ECONOMICS FOR FINANCE

QUESTIONS

1. (a) What is the Value-added Method in the National Income Accounting?

   (b) In a three-sector model what role does the government play?

   (c) Calculate Net National Product at Market Price

Items	₹ in Thousand Cr.
Compensation in employees	800
Profit	300
Rent	200
Mixed income of self employed	600
Net Factor income from abroad	25
Interest	60
Import	40
Export	15
Consumption of fixed Capital	30
Net Indirect taxes	20
Net current transfer to abroad	10

2. (a) What are the Challenges in compilation of in National Income Accounting?

   (b) Does government intervention always result in correcting market failure?

   (c) (i) Calculate Narrow Money (M1) from the following data.

Currency with Public	₹ 10000 Cr
Demand deposit with banking system	₹ 500000Cr
Other deposits with RBI	₹ 200000Cr
Time deposits with banking system	₹ 250000 Cr
Saving Deposits of Post office Saving banks	₹ 300000 Cr

   (ii) What will be the value of average propensity to save when

   (i) C = 500 at Y = 2000

   (ii) S = 650 at Y 1500

3. (a) What do you understand by Arbitrage?

   (b) What are the factors that causes leakages in the multiplier?

(c) How changes in high powered money and currency ratio influence the money supply in an economy?

(d) What type of Policy is preferable during the time of recession?

4. (a) Distinguish between the Cambridge and classical version of quantity theory of money?

(b) What is meant by crowding out?

(c) How does appreciation and depreciation of currency affect real economy?

(d) How do trade Policy influence international trade?

5. (a) What is the Characteristic of Private Goods?

(b) Domestic Industries and Consumers are affected by Import Quota, Comment.

(c) What determine the size of money multiplier?

(d) In the theory of International Trade what is meant by factor endowment?

Or

Define Narrow Money?

ANSWERS

1. (a) The value-added method measures the contribution of each producing enterprise in the domestic territory of the country in an accounting year and entails consolidation of production of each industry less intermediate purchases from all other industries. This method of measurement shows the unduplicated contribution by each industry to the total output.

The values of the following items are also included:

(i) Own account production of fixed assets by government, enterprises, and households.

(ii) Imputed value of production of goods for self- consumption, and

(iii) Imputed rent of owner-occupied houses.

(iv) Change in stock (inventory

(b) The three-sector Keynesian model is commonly constructed assuming that government purchases are autonomous. The equilibrium national income is determined at a point where both aggregate demand and aggregate supply are equal, that is,

AD = Y = AS

C + I+ G =Y= C + S+ T

The autonomous expenditure components namely, investment and government spending do not directly depend on income and are exogenous variables determined by factors outside the model.

The government influences the level of income through taxes, transfer payments, government purchases and government borrowing.

(c) NDP_{FC} = Compensation of employees + Mixed Income of self employed + Rent + Interest + Profit

= 800+600+200+60+300

= ₹ 19,600 Cr.

National Income (NNP_{FC}) = NDP_{FC} + NFIA (Factor Income from abroad – factor income to abroad)

= 1960 (-25-10)

= ₹ 1915 Cr.

NNP_{MP} = NNP_{FC} + Net Indirect taxes

NNP_{MP} = 1915 + 20

= ₹ 1935 Cr.

2. (a) The Challenges in compiling in National Income Accounting is as under:

(a) production for self-consumption,

(b) absence of recording of incomes due to illiteracy and ignorance,

(c) lack of proper occupational classification, and

(d) accurate estimation of consumption of fixed capital

(e) Inadequacy of data and lack of reliability of available data,

(f) presence of non-monetized sector

(b) We cannot be sure whether the government interventions would be effective or whether it would make the functioning of the economy less efficient. Government failures where government intervention in the economy to correct a market failure creates inefficiency and leads to a misallocation of scarce resources occur very often. Government failure occurs when:

- intervention is ineffective causing wastage of resources expended for the intervention
- intervention produces fresh and more serious problems

There are costs and benefits associated with any Government intervention in a market, and it is important that policy makers consider all of the costs and benefits of a policy intervention.

(c) **(i)** M1 = Currency with public + Demand deposits with banking system + Other Deposits with the RBI

= 10000+ 500000 + 200000

= ₹ 710,000 Cr

(ii) (i) APS = S/Y, S = Y-C = 2000-500 = 1500, Therefore, APS = S/Y = 1500/2000 = 0.75

(ii) When S = 650 and Y = 1500, APS = S/Y = 650/1500 = 0.433

3. **(a)** Arbitrage refers to the practice of making risk-less profits by intelligently exploiting price differences of an asset at different dealing locations. There is potential for arbitrage in the forex market if exchange rates are not consistent between currencies. When price differences occur in different markets, participants purchase foreign exchange in a low-priced market for resale in a high-priced market and makes profit in this process. Due to the operation of price mechanism, the price is driven up in the low-priced market and pushed down in the high-priced market. This activity will continue until the prices in the two markets are equalized, or until they differ only by the amount of transaction costs involved in the operation. Since forex markets are efficient, any profit spread on a given currency is quickly arbitraged away

(b) Multiplier refers to the phenomenon whereby a change in an injection of expenditure will lead to a proportionately larger change (or multiple changes) in the equilibrium level of national income. The investment multiplier explains how many times the equilibrium aggregate income increases as a result of an increase in autonomous investment.

- progressive rates of taxation which result in no appreciable increase in consumption despite increase in income
- high liquidity preference and idle saving or holding of cash balances and an equivalent fall in marginal propensity to consume
- increased demand for consumer goods being met out of the existing stocks or through imports
- additional income spent on purchasing existing wealth or purchase of government securities and shares from shareholders or bond holders
- undistributed profits of corporations
- part of increment in income used for payment of debts
- case of full employment additional investment will only lead to inflation,
- scarcity of goods and services despite having high MPC

(c) The excess reserves (ER) which are funds that a bank keeps back beyond what is required by regulation form a very important determinant of money supply. The additional units of high-powered money that goes into 'excess reserves' of the commercial banks do not lead to any additional loans, and therefore, these excess reserves do not lead to creation of money. Therefore, if the central bank injects money into the banking system and these are held as excess reserves by the banking system, there will be no effect on deposits or currency and hence no effect on money supply.

(d) A recession is said to occur when overall economic activity declines, or in other words, when the economy 'contracts. A recession sets in with a period of declining real income, as measured by real GDP simultaneously with a situation of rising unemployment. If an economy experiences a fall in aggregate demand during a recession, it is said to be in a demand-deficient recession. Due to decline in real GDP, the aggregate demand falls and therefore, lesser quantity of goods and services will be produced. To combat such a slump in overall economic activity, the government can resort to expansionary fiscal policies.

4. (a) The demand for money was primarily determined by the need to conduct transactions which will have a positive relationship to the money value of aggregate expenditure. Since the latter is equal to money national income, the Cambridge money demand function is stated as:

Where **Md = k PY**

M_d = is the demand for money balances,

Y = real national income

P = average price level of currently produced goods and services

PY = nominal income

K = proportion of nominal income (PY) that people want to hold as cash balances

The term 'k' in the above equation is called 'Cambridge k' is a parameter reflecting economic structure and monetary habits, namely the ratio of total transactions to income and the ratio of desired money balances to total transactions. The equation above explains that the demand for money (M) equals k proportion of the total money income.

Fisher's version, also termed as 'equation of exchange' or 'transaction approach' is formally stated as follows

MV = PT

Where,

M = the total amount of money in circulation (on an average) in an economy

V = transactions velocity of circulation i.e. the average number of times across all

transactions a unit of money (say Rupee) is spent in purchasing goods and services

P = average price level (P = MV/T)

T = the total number of transactions.

(b) The crowding out view is that a rapid growth of government spending leads to a transfer of scarce productive resources from the private sector to the public sector where productivity might be lower. An increase in the size of government spending during recessions will 'crowd-out' private spending in an economy and lead to reduction in an economy's ability to self-correct from the recession, and possibly also reduce the economy's prospects of long-run economic growth.

(c) Currency appreciation raises the price of exports, decrease exports; increase imports, adversely affect the competitiveness of domestic industry, cause larger deficits, and worsens the trade balance.

A depreciation of domestic currency primarily increases the price of foreign goods relative to goods produced in the home country and diverts spending from foreign goods to domestic goods.

When a country's currency depreciates, production for exports and of import substitutes become more profitable. Therefore, factors of production will be induced to move into the tradable goods sectors and out of the non- tradable goods sectors. The reverse will be true when the currency appreciates. These types of resource movements involve economic wastes.

(d) Trade policy encompasses all instruments that governments may use to promote or restrict imports and exports. Trade policy also includes the approach taken by countries in trade negotiations. While participating in the multilateral trading system and/or while negotiating bilateral trade agreements, countries assume obligations that shape their national trade policies. The instruments of trade policy that countries typically use to restrict imports and/ or to encourage exports can be broadly classified into price- related measures such as tariffs and non- price measures or non-tariff measures (NTMs).

5. (a) Most of the goods produced and consumed in an economy are private goods. A few examples are food items, clothing, movie ticket, television, cars, houses etc.

- Private goods refer to those goods that yield utility to people. Since they are scarce anyone who wants to consume them must purchase them.
- Owners of private goods can exercise private property rights and can prevent others from using the good or consuming their benefits.
- Consumption of private goods is 'rivalrous' that is the purchase and consumption of a private good by one individual prevents another individual from consuming it.

- Private goods are 'excludable' i.e., it is possible to exclude or prevent consumers who have not paid for them from consuming them or having access to them
- Private goods do not have the free-rider problem. This means that private goods will be available to only those persons who are willing to pay for them.

(b) With a quota, the government, of course, receives no revenue. The profits received by the holders of such import licenses are known as 'quota rents. While tariffs directly interfere with prices that can be charged for an imported good in the domestic market, import quota interferes with the market prices indirectly. Obviously, an import quota always raises the domestic price of the imported good. The license holders are able to buy imports and resell them at a higher price in the domestic market and they will be able to earn a 'rent' on their operations over and above the profit they would have made in a free market.

(c) The money multiplier is the reciprocal of the reserve ratio. Deposits, unlike currency held by people, keep only a fraction of the high-powered money in reserves and the rest is lent out and culminate in money creation. If R is the reserve ratio in a country for all commercial banks, then each unit of (say Rupee) money reserves generate 1/R money.

Therefore, for any value of R, the Money Multiplier is $1/\underline{R}$

For example, if R = 10%, the value of money multiplier will be 10. If the reserve ratio is only 5 %, then money multiplier is 20. Thus, the higher the reserve ratio, the less of each deposit banks loan out, and the smaller the money multiplier.

(d) In a general sense of the term, 'factor endowment' refers to the overall availability of usable resources including both natural and man-made means of production. Nevertheless, in the exposition of the modern theory, only the two most important factors—labour and capital—are taken into account. The Heckscher-Ohlin theory of trade states that comparative advantage in cost of production is explained exclusively by the differences in factor endowments of the nations.

Or

M1(narrow money) is defined as the sum of currency held by the public demand deposits of the banks and other deposits with the RBI. Banks include commercial and cooperative banks.