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FOR CA INTERMEDIATE EXAM PREPARATION

CA Intermediate 2022 Suggested Answers · Paper 8 Financial Management and Economics for Finance (Old Scheme)

EXAM
CA Intermediate

YEAR
2022

TYPE
Suggested Answers

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

DATE
May 2022

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) *Following information and ratios are given for W Limited for the year ended 31st March, 2022:*

Equity Share Capital of ₹ 10 each	*₹ 10 lakhs*
Reserves & Surplus to Shareholders' Fund	*0.50*
Sales / Shareholders' Fund	*1.50*
Current Ratio	*2.50*
Debtors Turnover Ratio	*6.00*
Stock Velocity	*2 Months*
Gross Profit Ratio	*20%*
Net Working Capital Turnover Ratio	*2.50*

You are required to calculate:

(i) Shareholders' Fund

(ii) Stock

(iii) Debtors

(iv) Current liabilities

(v) Cash Balance. ***(5 Marks)***

(b) *Balance sheet of X Ltd for the year ended 31st March,2022 is given below:*

(₹ in lakhs)

Liabilities	***Amount***	***Assets***	***Amount***
Equity Shares ₹ 10 each	*200*	*Fixed Assets*	*500*
Retained earnings	*200*	*Raw materials*	*150*
11% Debentures	*300*	*W.I.P*	*100*
Public deposits (Short-Term)	*100*	*Finished goods*	*50*

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Trade Creditors	*80*	*Debtors*	*125*
Bills Payable	*100*	*Cash/Bank*	*55*
	980		***980***

Calculate the amount of maximum permissible bank finance under three methods as per Tandon Committee lending norms.

The total core current assets are assumed to be ₹ 30 lakhs. ***(5 Marks)***

(c) *A company requires 36,000 units of a product per year at cost of ₹ 100 per unit. Ordering cost per order is ₹ 250 and the carrying cost is 4.5% per year of the inventory cost. Normal lead time is 25 days and safety stock is NIL.*

Assume 360 working days in a year.

(i) Calculate the Reorder Inventory Level.

(ii) Calculate the Economic Order Quantity (EOQ).

(iii) If the supplier offers 1% quantity discount for purchase in lots of 9,000 units or more, should the company accept the proposal? ***(5 Marks)***

(d) *P Ltd. is considering a project with the following details:*

Initial Project Cost	*₹ 1,00,000*			
Annual Cash Inflow (₹)	*1*	*2*	*3*	*4*
	30,000	*40,000*	*50,000*	*60,000*
Project Life (Years)	*4*			
Cost of Capital	*10%*			

(i) MEASURE the sensitivity of the project to change in initial project cost and Annual cash inflows (considering each factor at a time) such that NPV become zero.

(ii) IDENTIFY which of the two factors; the project is most sensitive to affect the acceptability of the project?

Year	*1*	*2*	*3*	*4*	*5*
$PVIF_{0.10, t}$	*0.909*	*0.826*	*0.751*	*0.683*	*0.621*

(5 Marks)

Answer

(a) (i) Calculation of Shareholders' Fund:

$$\frac{\text{Reserve \& Surplus}}{\text{Shareholders' Funds}} = 0.5$$

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$$\frac{\text{Reserve \& Surplus}}{\text{Equity Share Capital + Reserve \& Surplus}} = 0.5$$

$$\frac{\text{Reserve \& Surplus}}{10,00,000 + \text{Reserve \& Surplus}} = 0.5$$

Reserve & Surplus = 5,00,000 + 0.5 Reserve & Surplus

0.5 Reserve & Surplus = 5,00,000

Reserve & Surplus = 10,00,000

Shareholders' funds = 10,00,000 +10,00,000

Shareholders' funds = ₹ 20,00,000

(ii) Calculation of Value of Stock:

$$\frac{\text{Sales}}{\text{Shareholders' Funds}} = 1.5$$

Sales = 1.5 × 20,00,000

Sales = 30,00,000

Gross Profit = 30,00,000 × 20% = 6,00,000

Cost of Goods Sold = 30,00,000 – 6,00,000

= ₹ 24,00,000

Stock velocity = 2 months

$$\frac{\text{Average Stock}}{\text{Cost of Goods Sold}} \times 12 = 2$$

$$\frac{\text{Average Stock}}{24,00,000} \times 12 = 2$$

$$\text{Average Stock} = 24,00,000 \times \frac{2}{12}$$

Average stock = ₹ 4,00,000

(iii) Calculation of Debtors:

Debtors Turnover Ratio = 6

$$\therefore \frac{\text{Sales}}{\text{Average Debtor}} = 6$$

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$$\therefore \frac{30,00,000}{\text{Average Debtor}} = 6$$

Average Debtors = ₹ 5,00,000

(iv) Calculation of Current Liabilities:

Net Working Capital Turnover ratio = 2.5

$$\frac{\text{Sales}}{\text{Current Assets} - \text{Current Liabilites}} = 2.5$$

$$\frac{30,00,000}{\text{Current Assets} - \text{Current Liabilites}} = 2.5$$

Current Assets – Current Liabilities = 12,00,000 ..... (1)

Current Ratio = 2.5

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = 2.5$$

Current Assets = 2.5 Current Liabilities .....(2)

From (1) & (2),

2.5 Current Liabilities – Current Liabilities = 12,00,000

1.5 Current Liabilities = 12,00,000

Current Liabilities = ₹ 8,00,000

(v) Calculation of Cash Balance:

Current Assets = 2.5 Current Liabilities

Current Assets = 2.5 (8,00,000)	= 20,00,000
(-) Debtors	(5,00,000)
(-) Stock	(4,00,000)
Cash Balance	**₹ 11,00,000**

(b) Current Assets = 150 + 100 + 50 + 125 + 55 = ₹ 480 Lakhs

Current Liabilities = 100 + 80 + 100 = ₹ 280 Lakhs

Maximum Permissible Banks Finance under Tandon Committee Norms:

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Method I

Maximum Permissible Bank Finance = 75% of (Current Assets – Current Liabilities)

= 75% of (480 - 280)

= **₹ 150 Lakhs**

Method II

Maximum Permissible Bank Finance = 75% of Current Assets – Current Liabilities

= 75 % of 480 – 280

= **₹ 80 Lakhs**

Method III

Maximum Permissible Bank Finance = 75% of (Current Assets – Core Current Assets) – Current Liabilities

= 75 % of (480 - 30) – 280

= **₹ 57.5 Lakhs**

(c) Annual Consumption = 36,000 (A)

Ordering Cost = ₹ 250 per order (O)

Carrying Cost = $\frac{4.5}{100} \times 100$

= ₹ 4.5 (C)

Lead Time = 25 days

(i) Reorder Level = Lead Time × Daily Consumption

$= 25 \times \frac{36,000}{360}$

= **2,500 units**

(ii) Economic Order Quantity (EOQ) $= \sqrt{\frac{2AO}{C}}$

$= \sqrt{\frac{2 \times 36,000 \times 250}{4.5}}$

= **2,000 units**

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(iii) Evaluation of Profitability of Quantity Discount Offer:

(a) When EOQ is ordered

		(₹)
Purchase Cost	(36,000 units × ₹ 100)	36,00,000
Ordering Cost	[(36,000 units/2,000 units) × ₹ 250]	4,500
Carrying Cost	(2,000 units × ½ × ₹ 4.5)	4,500
Total Cost		**36,09,000**

(b) When Quantity Discount is accepted

		(₹)
Purchase Cost	(36,000 units × ₹ 99*)	35,64,000
Ordering Cost	[(36,000 units/9,000 units) × ₹ 250]	1,000
Carrying Cost	(9,000 units × ½ × ₹ 99 x 4.5%)	20,048
Total Cost		**35,85,048**

*Unit Cost = ₹100

Less: Quantity Discount @ 1% = ₹ 1

Purchase Cost = ₹ 99

Advise – The total cost of inventory is lower if Quantity Discount is accepted. Hence, the company is advised to accept the proposal.

(d) Computation of Net Present Value (NPV):

Year	PVF @ 10%	Original Cash Flows (₹)	PV (₹)	PV (₹)
0	1	(1,00,000)		(1,00,000)
1	0.909	30,000	27,270	
2	0.826	40,000	33,040	
3	0.751	50,000	37,550	
4	0.683	60,000	40,980	1,38,840
NPV				**38,840**

Determination of the most Sensitive factor:

(i) Sensitivity Analysis w.r.t. Initial Project cost (such that NPV becomes zero):

NPV of the project would be zero when the initial project cost is increased by ₹ 38,840.

$\therefore$ Percentage change in Initial project cost = $\frac{₹\ 38,840}{₹\ 1,00,000} \times 100$ = **38.84%**

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(ii) Sensitivity Analysis w.r.t. Annual Cash inflows (such that NPV becomes zero):

NPV of the project would be zero when the Annual cash inflows is decreased by ₹ 38,840.

$\therefore$ Percentage change in the Annual cash inflows = $\frac{₹\ 38,840}{₹\ 1,38,840} \times 100$ = **27.97%**

Conclusion: Annual cash inflows factor is the most sensitive as only a change beyond 27.97% in savings makes the project unacceptable.

Question 2

Details of a company for the year ended 31st March, 2022 are given below:

Sales	*₹ 86 lakhs*
Profit Volume (P/V) Ratio	*35%*
Fixed Cost excluding interest expenses	*₹ 10 lakhs*
10% Debt	*₹ 55 lakhs*
Equity Share Capital of ₹ 10 each	*₹ 75 lakhs*
Income Tax Rate	*40%*

Required:

(i) Determine company's Return on Capital Employed (Pre-tax) and EPS.

(ii) Does the company have a favourable financial leverage?

(iii) Calculate operating and combined leverages of the company.

(iv) Calculate percentage change in EBIT, if sales increases by 10%.

(v) At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero? ***(10 Marks)***

Answer

Income Statement

Particulars	**Amount (₹)**
Sales	86,00,000
Less: Variable cost (65% of 86,00,000)	55,90,000
Contribution (35% of 86,00,000)	30,10,000
Less: Fixed costs	10,00,000
Earnings before interest and tax (EBIT)	20,10,000
Less: Interest on debt (@ 10% on ₹ 55 lakhs)	5,50,000

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Earnings before tax (EBT)	14,60,000
Tax (40%)	5,84,000
PAT	8,76,000

(i) **ROCE (Pre-tax) =** $\frac{\text{EBIT}}{\text{Capital employed}} \times 100 = \frac{\text{EBIT}}{\text{Equity + Debt}} \times 100$

$$\frac{₹\ 20,10,000}{₹\ (75,00,000+55,00,000)} \times 100 = \textbf{15.46\%}$$

EPS (PAT/No. of equity shares) **1.168 or ₹ 1.17**

(ii) ROCE is 15.46% and Interest on debt is 10%. Hence, it has a **favourable financial leverage.**

(iii) Calculation of Operating, Financial and Combined leverages:

Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}} = \frac{₹\ 30,10,000}{₹\ 20,10,000}$ **=1.497 (approx.)**

Financial Leverage = $\frac{\text{EBIT}}{\text{EBIT}} = \frac{₹\ 20,10,000}{₹\ 14,60,000}$ = 1.377 (approx.)

Combined Leverage = $\frac{\text{Contribution}}{\text{EBT}} = \frac{₹\ 30,10,000}{₹\ 14,60,000}$ = 2.062 (approx.)

Or, = Operating Leverage × Financial Leverage = 1.497 × 1.377 **= 2.06 (approx.)**

(iv) Operating leverage is 1.497. So, if sales are increased by 10%.

EBIT will be increased by 1.497 × 10% i.e. 14.97% (approx.)

(v) Since the combined Leverage is 2.062, sales have to drop by 100/2.062 i.e. 48.50% to bring EBT to Zero.

Accordingly, New Sales = ₹ 86,00,000 × (1 - 0.4850)

= ₹ 86,00,000 × 0.515

= ₹ 44,29,000 (approx.)

Hence, at ₹ 44,29,000 sales level, EBT of the firm will be equal to Zero.

Question 3

Alpha Limited is a manufacturer of computers. It wants to introduce artificial intelligence while making computers. The estimated annual saving from introduction of the artificial intelligence (AI) is as follows:

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- *reduction of five employees with annual salaries of ₹ 3,00,000 each*
- *reduction of ₹ 3,00,000 in production delays caused by inventory problem*
- *reduction in lost sales ₹ 2,50,000 and*
- *Gain due to timely billing ₹ 2,00,000*

The purchase price of the system for installation of artificial intelligence is ₹ 20,00,000 and installation cost is ₹ 1,00,000. 80% of the purchase price will be paid in the year of purchase and remaining will be paid in next year.

The estimated life of the system is 5 years and it will be depreciated on a straight-line basis.

However, the operation of the new system requires two computer specialists with annual salaries of ₹ 5,00,000 per person.

In addition to above, annual maintenance and operating cost for five years are as below:

*(**Amount in ₹**)*

Year	*1*	*2*	*3*	*4*	*5*
Maintenance & Operating Cost	*2,00,000*	*1,80,000*	*1,60,000*	*1,40,000*	*1,20,000*

Maintenance and operating cost are payable in advance.

The company's tax rate is 30% and its required rate of return is 15%.

Year	*1*	*2*	*3*	*4*	*5*
PVIF $_{0.10, t}$	*0.909*	*0.826*	*0.751*	*0.683*	*0.621*
PVIF $_{0.12, t}$	*0.893*	*0.797*	*0.712*	*0.636*	*0.567*
PVIF $_{0.15, t}$	*0.870*	*0.756*	*0.658*	*0.572*	*0.497*

Evaluate the project by using Net Present Value and Profitability Index. ***(10 Marks)***

Answer

Computation of Annual Cash Flow after Tax						
Particulars	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Savings in Salaries		15,00,000	15,00,000	15,00,000	15,00,000	15,00,000
Reduction in Production Delays		3,00,000	3,00,000	3,00,000	3,00,000	3,00,000
Reduction in Lost Sales		2,50,000	2,50,000	2,50,000	2,50,000	2,50,000
Gain due to Timely Billing		2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
Salary to Computer Specialist		(10,00,000)	(10,00,000)	(10,00,000)	(10,00,000)	(10,00,000)

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Maintenance and Operating Cost (payable in advance)		(2,00,000)	(1,80,000)	(1,60,000)	(1,40,000)	(1,20,000)
Depreciation (21 lakhs/5)		(4,20,000)	(4,20,000)	(4,20,000)	(4,20,000)	(4,20,000)
Gain Before Tax		6,30,000	6,50,000	6,70,000	6,90,000	7,10,000
Less: Tax (30%)		1,89,000	1,95,000	2,01,000	2,07,000	2,13,000
Gain After Tax		4,41,000	4,55,000	4,69,000	4,83,000	4,97,000
Add: Depreciation		4,20,000	4,20,000	4,20,000	4,20,000	4,20,000
Add: Maintenance and Operating Cost (payable in advance)		2,00,000	1,80,000	1,60,000	1,40,000	1,20,000
Less: Maintenance and Operating Cost (payable in advance)	(2,00,000)	(1,80,000)	(1,60,000)	(1,40,000)	(1,20,000)	-
Net CFAT	(2,00,000)	8,81,000	8,95,000	9,09,000	9,23,000	10,37,000

Note: Annual cash flows can also be calculated Considering tax shield on depreciation & maintenance and operating cost. There will be no change in the final cash flows after tax.

Computation of NPV				
Particulars	**Year**	**Cash Flows (₹)**	**PVF**	**PV (₹)**
Initial Investment (80% of 20 Lacs)	0	16,00,000	1	16,00,000
Installation Expenses	0	1,00,000	1	1,00,000
Instalment of Purchase Price	1	4,00,000	0.870	3,48,000
PV of Outflows (A)				**20,48,000**
CFAT	0	(2,00,000)	1	(2,00,000)
CFAT	1	8,81,000	0.870	7,66,470
CFAT	2	8,95,000	0.756	6,76,620
CFAT	3	9,09,000	0.658	5,98,122
CFAT	4	9,23,000	0.572	5,27,956
CFAT	5	10,37,000	0.497	5,15,389
PV of Inflows (B)				28,84,557
NPV (B-A)				**8,36,557**
Profitability Index (B/A)				**1.408 or 1.41**

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Evaluation: Since the NPV is positive (i.e. ₹ 8,36,557) and Profitability Index is also greater than 1 (i.e. 1.41), Alpha Ltd. may introduce artificial intelligence (AI) while making computers.

Question 4

The particulars relating to Raj Ltd. for the year ended 31st March, 2022 are given as follows:

Output (units at normal capacity)	*1,00,000*
Selling price per unit	*₹ 40*
Variable cost per unit	*₹ 20*
Fixed cost	*₹ 10,00,000*

The capital structure of the company as on 31st March, 2022 is as follows:

Particulars	***Amount in ₹***
Equity share capital (1,00,000 shares of ₹ 10 each)	*10,00,000*
Reserves and surplus	*5,00,000*
Current liabilities	*5,00,000*
Total	***20,00,000***

Raj Ltd. has decided to undertake an expansion project to use the market potential that will involve ₹ 20 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 15%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion program are planned:

		(Amount in ₹)
Alternative	***Debt***	***Equity Shares***
1	*5,00,000*	*Balance*
2	*10,00,000*	*Balance*
3	*14,00,000*	*Balance*

Current market price per share is ₹ 200.

Slab wise interest rate for fund borrowed is as follows:

Fund limit	***Applicable interest rate***
Up-to ₹ 5,00,000	*10%*
Over ₹ 5,00,000 and up-to ₹ 10,00,000	*15%*
Over ₹ 10,00,000	*20%*

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Find out which of the above-mentioned alternatives would you recommend for Raj Ltd. with reference to the EPS, assuming a corporate tax rate is 40%? ***(10 Marks)***

Answer

Alternative 1 = Raising Debt of ₹ 5 lakh + Equity of ₹ 15 lakh

Alternative 2 = Raising Debt of ₹ 10 lakh + Equity of ₹ 10 lakh

Alternative 3 = Raising Debt of ₹ 14 lakh + Equity of ₹ 6 lakh

Calculation of Earnings per share (EPS)

Particulars	FINANCIAL ALTERNATIVES		
	Alternative 1	Alternative 2	Alternative 3
	(₹)	(₹)	(₹)
Expected EBIT [W. N. (a)]	19,50,000	19,50,000	19,50,000
Less: Interest [W. N. (b)]	(50,000)	(1,25,000)	(2,05,000)
Earnings before taxes (EBT)	**19,00,000**	**18,25,000**	**17,45,000**
Less: Taxes @ 40%	7,60,000	7,30,000	6,98,000
Earnings after taxes (EAT)	**11,40,000**	**10,95,000**	**10,47,000**
Number of shares [W. N. (d)]	1,07,500	1,05,000	1,03,000
Earnings per share (EPS)	**10.60**	**10.43**	**10.17**

Conclusion: Alternative 1 (i.e. Raising Debt of ₹ 5 lakh and Equity of ₹ 15 lakh) is recommended which maximises the earnings per share.

Working Notes (W.N.):

(a) Calculation of Earnings before Interest and Tax (EBIT)

Particulars		
Output (1,00,000 + 50%)	(A)	1,50,000
Selling price per unit		₹ 40
Less: Variable cost per unit (₹ 20 – 15%)		₹ 17
Contribution per unit	(B)	₹ 23
Total contribution	**(A x B)**	**₹ 34,50,000**
Less: Fixed Cost (₹ 10,00,000 + ₹ 5,00,000)		₹ 15,00,000
EBIT		**₹ 19,50,000**

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(b) Calculation of interest on Debt

Alternative		(₹)	Total (₹)
1	(₹ 5,00,000 x 10%)		50,000
2	(₹ 5,00,000 x 10%)	50,000	
	(₹ 5,00,000 x 15%)	75,000	1,25,000
3	(₹ 5,00,000 x 10%)	50,000	
	(₹ 5,00,000 x 15%)	75,000	
	(₹ 4,00,000 x 20%)	80,000	2,05,000

(c) Number of equity shares to be issued

$$\text{Alternative 1} = \frac{₹\ (20,00,000 - 5,00,000)}{₹\ 200\ \text{(Market price of share)}} = \frac{₹\ 15,00,000}{₹\ 200} = 7,500\ \text{shares}$$

$$\text{Alternative 2} = \frac{₹\ (20,00,000 - 10,00,000)}{₹\ 200\ \text{(Market price of share)}} = \frac{₹\ 10,00,000}{₹\ 200} = 5,000\ \text{shares}$$

$$\text{Alternative 3} = \frac{₹\ (20,00,000 - 14,00,000)}{₹\ 200\ \text{(Market price of share)}} = \frac{₹\ 6,00,000}{₹\ 200} = 3,000\ \text{shares}$$

(d) Calculation of total equity shares after expansion program

	Alternative 1	Alternative 2	Alternative 3
Existing no. of shares	1,00,000	1,00,000	1,00,000
Add: issued under expansion program	7,500	5,000	3,000
Total no. of equity shares	**1,07,500**	**1,05,000**	**1,03,000**

Question 5

A company issues:

- *15% convertible debentures of ₹ 100 each at par with a maturity period of 6 years. On maturity, each debenture will be converted into 2 equity shares of the company. The risk-free rate of return is 10%, market risk premium is 18% and beta of the company is 1.25. The company has paid dividend of ₹ 12.76 per share. Five year ago, it paid dividend of ₹ 10 per share. Flotation cost is 5% of issue amount.*
- *5% preference shares of ₹ 100 each at premium of 10%. These shares are redeemable after 10 years at par. Flotation cost is 6% of issue amount.*

Assuming corporate tax rate is 40%.

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(i) Calculate the cost of convertible debentures using the approximation method.

(ii) Use YTM method to calculate cost of preference shares.

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
PVIF $_{0.03, t}$	*0.971*	*0.943*	*0.915*	*0.888*	*0.863*	*0.837*	*0.813*	*0.789*	*0.766*	*0.744*
PVIF $_{0.05, t}$	*0.952*	*0.907*	*0.864*	*0.823*	*0.784*	*0.746*	*0.711*	*0.677*	*0.645*	*0.614*
PVIFA $_{0.03, t}$	*0.971*	*1.913*	*2.829*	*3.717*	*4.580*	*5.417*	*6.230*	*7.020*	*7.786*	*8.530*
PVIFA $_{0.05, t}$	*0.952*	*1.859*	*2.723*	*3.546*	*4.329*	*5.076*	*5.786*	*6.463*	*7.108*	*7.722*

Interest rate	*1%*	*2%*	*3%*	*4%*	*5%*	*6%*	*7%*	*8%*	*9%*
FVIF $_{i, 5}$	*1.051*	*1.104*	*1.159*	*1.217*	*1.276*	*1.338*	*1.403*	*1.469*	*1.539*
FVIF $_{i, 6}$	*1.062*	*1.126*	*1.194*	*1.265*	*1.340*	*1.419*	*1.501*	*1.587*	*1.677*
FVIF $_{i, 7}$	*1.072*	*1.149*	*1.230*	*1.316*	*1.407*	*1.504*	*1.606*	*1.714*	*1.828*

(10 Marks)

Answer

(i) Calculation of Cost of Convertible Debentures:

Given that,

R_F = 10%

$R_m - R_f$ = 18%

B = 1.25

D_0 = 12.76

D_{-5} = 10

Flotation Cost = 5%

Using CAPM,

$K_e = R_f + \beta (R_m - R_f)$

= 10%+1.25 (18%)

= **32.50%**

Calculation of growth rate in dividend

$12.76 = 10 (1+g)^5$

$1.276 = (1+g)^5$

$(1+5\%)^5 = 1.276$ ..... from FV Table

g = **5%**

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Price of share after 6 years $= \frac{D_7}{k_e - g} = \frac{12.76(1.05)^7}{0.325 - 0.05}$

$P_6 = \frac{12.76 \times 1.407}{0.275}$

$P_6 = 65.28$

Redemption Value of Debenture (RV) = 65.28 × 2 = **130.56** (RV)

NP = 95

n = 6

$K_d = \frac{\text{INT (1-t)} + \frac{(RV - NP)}{n}}{\frac{(RV - NP)}{2}} \times 100$

$= \frac{15\,(1-0.4) + \frac{(130.56 - 95)}{6}}{\frac{(130.56 + 95)}{2}} \times 100$

$= \frac{9 + 5.93}{112.78} \times 100$

K_d = 13.24%

(ii) Calculation of Cost of Preference Shares:

Net Proceeds = 100 (1.1) - 6% of 100 (1.1)

= 110 - 6.60

= 103.40

Redemption Value = 100

Year	Cash Flows (₹)	PVF @ 3%	PV (₹)	PVF @ 5%	PV (₹)
0	103.40	1	103.40	1	103.40
1-10	-5	8.530	-42.65	7.722	-38.61
10	-100	0.744	-74.40	0.614	-61.40
			-13.65		**3.39**

$K_p = 3\% + \frac{5\% - 3\%}{[3.39 - (-13.65)]} \times 13.65$

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$$= 3\% + \frac{2\%}{17.04} \times 13.65$$

K_p = 4.6021%

Question 6

(a) Identify the limitations of Internal Rate of Return. ***(4 Marks)***

(b) Briefly explain the assumptions of Walter's Model. ***(4 Marks)***

(c) State advantages of "Wealth Maximization" goals in Financial Management ***(2 Marks)***

OR

Distinguish between American Depository Receipts and Global Depository Receipts.

(2 Marks)

Answer

(a) Limitations of Internal Rate of Return (IRR)

- The calculation **process is tedious** if there is more than one cash outflow interspersed between the cash inflows; there can be multiple IRR, the interpretation of which is difficult.
- The IRR approach **creates a peculiar situation** if we compare two projects with different inflow/outflow patterns.
- It is assumed that under this method all the future cash inflows of a proposal are reinvested at a rate equal to the IRR. **It ignores a firm's ability to re-invest** in portfolio of different rates.
- If mutually exclusive projects are considered as investment options which have considerably different cash outlays. A project with a larger fund commitment but lower IRR contributes more in terms of absolute NPV and increases the shareholders' wealth. In such situation **decisions based only on IRR criterion may not be correct**.

(b) Assumptions of Walter's Model

- All investment proposals of the firm are to be financed **through retained earnings** only.
- **'r'** rate of return & **'K_e'** cost of **capital are constant.**
- **Perfect capital markets**: The firm operates in a market in which all investors are rational and information is freely available to all.
- **No taxes or no tax discrimination** between dividend income and capital appreciation (capital gain). It means there is no difference in taxation of dividend

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income or capital gain. This assumption is necessary for the universal applicability of the theory, since, the tax rates may be different in different countries.

- **No floatation or transaction cost**: Similarly, these costs may differ country to country or market to market.
- The firm has **perpetual life.**

(c) Advantages of "Wealth Maximization" goals in Financial Management

(i) Emphasizes the long-term gains.

(ii) Recognises risk or uncertainty.

(iii) Recognises the timing of returns.

(iv) Considers shareholders' return.

OR

Distinguish Between American Depository Receipts and Global Depository Receipts:

	American Depository Receipts	Global Depository Receipts
Meaning	It is a negotiable instrument which is issued by US bank, which represent the nazon-US Company stock that is being traded in US stock Exchange	It is a negotiable instrument which is issued by the international depository bank that represent the foreign company's stock trading world-wide.
Issued where	In the US domestic capital market.	European capital market.
Listed in	In the American Stock Exchange	In the Non-US Stock Exchange
Relevance	Foreign companies are able to trade in the US Stock Market.	Foreign companies can trade in any country's stock market other than that of the US.

Alternatively:

American Depository Receipts (ADRs): These are securities offered by **non-US companies who want to list on any of the US exchange**. Each ADR represents a certain number of a company's regular shares. ADRs allow US investors to buy shares of these companies without the costs of investing directly in a foreign stock exchange.

Global Depository Receipts (GDRs): These are negotiable certificates held in the bank of one country representing a **specific number of shares of a stock traded on the exchange of another country.** These financial instruments are used by companies to raise capital in either dollars or Euros. These are mainly traded in European countries and particularly in London.

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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, are given as under:

	₹ in Crores
Sales	*3,500*
Intermediate consumption	*400*
Closing Stock	*300*
Opening Stock	*200*
Net indirect tax	*600*
Mixed income	*200*
Consumption of fixed capital	*400*
Compensation of employees	*400*

Compute:

(i) GVA_{MP}

(ii) NDP_{MP}

(iii) Operating Surplus ***(3 Marks)***

(b) State the features of Foreign Portfolio Investment. ***(3 Marks)***

(c) Comment on the role of Government intervention for equitable distribution. ***(2 Marks)***

(d) Describe the precautionary motive for money. ***(2 Marks)***

Answer

(a) (i) GVA_{MP} = Sales + Change in stock - Intermediate Consumption

= 3,500 + (300 – 200) – 400

= ₹ 3,200 Crores

(ii) NDP_{MP} = GDP_{MP} – Consumption of Fixed capital

= 3,200 – 400 [here $GDP_{MP} = GVA_{MP}$]

= ₹ 2,800 Crores

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(iii) $NDP_{FC} = NDP_{MP}$ – Net Indirect Taxes

= 2800 – 600 = ₹ 2,200 Crores

NDP_{FC} = Compensation of employees + Operating surplus + Mixed Income

2,200 = 400 + Operating Surplus + 200

Operating Surplus = 2,200 – 600 **= ₹ 1600 Crores**

(b) Features of Foreign Portfolio Investment:

- Investment is only in financial assets
- Only short-term interest and generally remain invested for short periods
- Relatively easy to withdraw
- Not accompanied by technology transfer
- No direct impact on employment of labour and wages
- No abiding interest in management and control
- Securities are held purely as a financial investment and no significant degree of influence on the management of the enterprise
- Speculative in nature.

(c) Role of Government Intervention for Equitable Distribution: A major function of the present-day governments therefore involves changing the pattern of distribution of income, wealth, and opportunities from what the market would put forward to a more socially optimal and egalitarian one. Governments can redistribute either through the expenditure side or through the revenue side of the budget. On the expenditure side, governments may provide free or subsidized education, healthcare, housing, food, and basic goods etc. to deserving people. On the revenue side, redistribution is done through progressive taxation.

Inequality and the resulting loss of social welfare is sought to be tackled by government through an appropriately framed tax and transfer policy. This involves progressive taxation combined with provision of subsidy to low- income households. Proceeds from progressive taxes may be used to finance public services, especially those such as public housing, which particularly benefit low-income households. Few examples are supply of essential food grains at highly subsidized prices to BPL households, free or subsidised education, healthcare, housing, rations, and basic goods etc. to the deserving people.

(d) Precautionary Motive for Money: Many unforeseen and unpredictable contingencies involving money payments occur in our day-to-day life. Individuals as well as businesses keep a portion of their income to finance such unanticipated expenditures. The amount of money demanded under the precautionary motive depends on the size of income,

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prevailing economic as well as political conditions and personal characteristics of the individual such as optimism/ pessimism, farsightedness etc. Keynes regarded the precautionary balances just as balances under transactions motive as income elastic and by itself not very sensitive to rate of interest.

The sum of the transaction and precautionary demand, and the speculative demand, is the total demand for money. An increase in income increases the transaction and precautionary demand for money and a rise in the rate of interest decreases the demand for speculative demand money.

Question 8

(a) (i) Differentiate between Non-Discretionary and discretionary Fiscal policy. ***(3 Marks)***

(ii) Write a brief note on Countervailing Duties. ***(2 Marks)***

(b) (i) Explain the 'Circular Flow of Income'. ***(3 Marks)***

(ii) What will be the total money credit created by the commercial banking system for an initial deposit of ₹ 500 if the required reserve ratio is 0.04, 0.06 and 0.10 percent respectively. Compute credit multiplier. ***(2 Marks)***

Answer

(a) (i) Distinction between Non-Discretionary and Discretionary Fiscal Policy

S. No.	Non-Discretionary Fiscal Policy	Discretionary Fiscal Policy
1	These are called automatic Stabilizers. Changes tend to occur automatically without any explicit action by the Government.	These are deliberate policy action by the Government to change the level of expenditure and taxes in order to influence the level of National output employment and prices.
2	Personal income tax, corporate income taxes and transfer payments by Government constitute the major examples.	Specific export subsidies and concessions are examples.
3	Nondiscretionary fiscal policy is that set of policies that are built into the system to stabilize the economy when growth is either too fast or too slow.	Discretionary fiscal policy consists of actions taken at the time of a problem to alter the economy of the moment. Thus, the aim can be anti-cyclical (decrease) or pro cyclical (increase).
4	Non-Discretionary Fiscal Policy ensures self-correcting fiscal response.	Discretionary policy usually implies implementation lags and is not automatically reversed when economic conditions change.

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Alternatively:

Discretionary fiscal policy refers to deliberate policy actions on the part of the government to change the levels of expenditure and taxes to influence the level of national output, employment, and prices. Non-discretionary fiscal policy or automatic stabilizers are part of the structure of the economy and are 'built-in' fiscal mechanisms that operate automatically to reduce the expansions and contractions of the business cycle. Changes in fiscal policy do not always require explicit action by government. In most economies, changes in the level of taxation and level of government spending tend to occur automatically. These are dependent on and are determined by the level of aggregate production and income, such that the instability caused by business cycle is automatically dampened without any need for discretionary policy action.

However, automatic stabilizers that depend on the level of economic activity alone would not be sufficient to correct instabilities. The government needs to resort to discretionary fiscal policies. Discretionary fiscal policy for stabilization refers to deliberate policy actions on the part of government to change the levels of expenditure, taxes to influence the level of national output, employment, and prices. Governments influence the economy by changing the level and types of taxes, the extent and composition of spending, and the quantity and form of borrowing.

(ii) Countervailing Duties

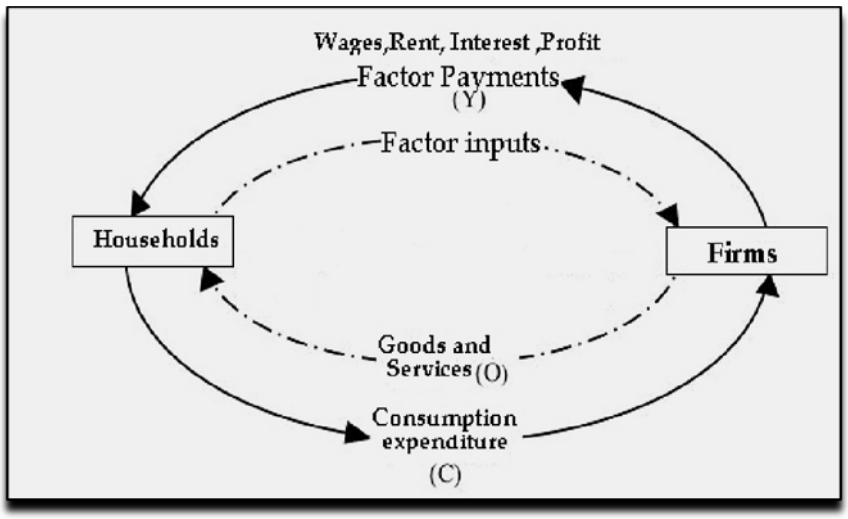
Countervailing duties are tariffs that aim to offset the artificially low prices charged by exporters who enjoy export subsidies and tax concessions offered by the governments in their home country. If a foreign country does not have a comparative advantage in a particular good and a government subsidy allows the foreign firm to be an exporter of the product, then the subsidy generates a distortion from the free-trade allocation of resources. In such cases, CVD is charged in an importing country to negate the advantage that exporters get from subsidies to ensure fair and market-oriented pricing of imported products and thereby protecting domestic industries and firms.

(b) (i) Circular Flow of Income

Circular flow of income is a process where the national income and expenditure of an economy flow in a circular manner continuously through time. Savings, expenditures, exports, and imports are various components of circular flow of income which are (shown in the figure) in the form of currents and cross currents in such a manner that national income equals national expenditure.

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Circular Flow in Two Sector Economy



The circular broken lines with arrows show factor and product flows and present 'real flows' and the continuous line with arrows show 'money flows' which are generated by real flows. These two circular flows - real flows and money flows - are in opposite directions and the value of real flows equal the money flows because the factor payments are equal to household incomes. There are no injections into or leakages from the system. Since the whole of household income is spent on goods and services produced by firms, household expenditures equal the total receipts of firms which equal the value of output.

Alternatively:

Circular Flow of Income refers to the continuous circulation of production, income generation and expenditure involving different sectors of the economy. There are three different inter linked phases in a circular flow of income namely, production, distribution and disposition as follows:

(i) In the production phase, firms produce goods and services with the help of factor services.

(ii) In the income or distribution phase, the flow of factor incomes in the form of rent, wages, interest and profits from firms to the household occurs.

(iii) In the expenditure or disposition phase, the income received by different factors of production is spent on consumption of goods and services and investment goods.

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(ii) Credit multiplier = $\frac{1}{\text{Required Reserve Ratio}}$

Credit multiplier when RRR is 0.04 = **25**

Credit multiplier when RRR is 0.06 = **16.67**

Credit multiplier when RRR is 0.10 = **10**

Credit Creation = Initial Deposit x Credit Multiplier

Credit creation = $500 \times \frac{1}{0.04}$ = **12,500**

Credit creation = $500 \times \frac{1}{0.06}$ = **8,333.33**

Credit Creation = $500 \times \frac{1}{0.10}$ = **5,000**

Question 9

(a) (i) Explain 'Global Public goods' with examples. ***(3 Marks)***

(ii) What is aggregate Demand Function? ***(3 Marks)***

(b) (i) Calculate the volume of Transaction:

Price = 105

Velocity of money = 4.2

Money supply 4500 billion

What will be the outcome if volume of transaction increases to 240? ***(3 Marks)***

(ii) What do you mean by 'Bound Tariff'? Explain. ***(2 Marks)***

Answer

(a) (i) Global Public Goods

Global public goods are those public goods with benefits/costs that potentially extend to everyone in the world. These goods have widespread impact on different countries and regions, population groups and generations throughout the entire globe.

Examples of Global Public Goods may be:

- Final public goods which are 'outcomes' such as ozone layer preservation or prevention of climate change and bio-diversity.

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- Intermediate public goods, which contribute to the provision of final public goods e.g., international health regulations for communicable diseases including HIV/AIDS, tuberculosis, malaria and avian influenza.
- International trade, international financial architecture and global knowledge for development.

The World Bank identifies five areas of global public goods which it seeks to address: namely, the environmental commons, communicable diseases, international trade, international financial architecture, and global knowledge for development. The distinctive characteristic of global public goods is that there is no mechanism (either market or government) to ensure an efficient outcome.

(ii) Aggregate Demand Function

Aggregate demand (AD) is what economists call total planned expenditure. In a simple two-sector economy, the ex-ante aggregate demand (AD) for final goods or aggregate expenditure consists of only two components:

(i) Ex ante aggregate demand for consumer goods (C), and

(ii) Ex ante aggregate demand for investment goods (I).

Thus, AD = C + I (i)

Of the two components, consumption expenditure accounts for the highest proportion of the GDP. In a simple economy, the variable **I is** assumed to be determined exogenously and constant in the short run. Therefore, the short-run aggregate demand function can be written as:

AD = C + $\bar{I}$ (ii)

Where $\bar{I}$ = constant investment.

From the equation (ii), we can infer that, in the short- run, AD depends largely on the aggregate consumption expenditure.

(b) (i) Calculation of Volume of Transaction

MV = PT

4500 × 4.2 = 105 × T

T = (4500 x 4.2) / 105 = **180**

Now if volume of transaction increase to 240 then-

4500 × v = 105 × 240

V = $\frac{105 \times 240}{4,500}$ = **5.6**

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(ii) Bound Tariff

The bound tariff rate is specific to individual products and represents the maximum level of import duty that can be levied on a product imported by that member. Under this, a WTO member binds itself with a legal commitment not to raise tariff rate above a certain level. By binding a tariff rate, often during negotiations, the members agree to limit their right to set tariff levels beyond a certain level. A member is always free to impose a tariff that is lower than the bound level. Once bound, a tariff rate becomes permanent, and a member can only increase its level after negotiating with its trading partners and compensating them for possible losses of trade. A bound tariff ensures transparency and predictability.

Question 10

(a) (i) What are the common objectives of fiscal policy? ***(3 Marks)***

(ii) State the nature of the monetary policy for the following actions taken by the RBI of the country:

(A) Reduction in the cash reserve ratio.

(B) Selling of securities in the open market.

(C) Increase of repo rate by 50 base point.

(D) Increase in the supply of currency and coins. ***(2 Marks)***

(b) (i) Calculate Multiplier and Marginal Propensity to Consume (MPC) with the help of following information:

Particulars	*2020-21 (₹ in Crore)*	*2021-22 (₹ in Crore)*
Investment	*1600*	*2000*
National Income	*5000*	*6600*

(2 Marks)

(ii) Explain 'Sanitary and Phytosanitary (SPS) Measures'. ***(2 Marks)***

Answer

(a) (i) Common Objectives of Fiscal Policy

Fiscal policy is in the nature of a demand-side policy. An economy which is producing at full-employment level does not require government action in the form of fiscal policy.

The most common objectives of fiscal policy are:

- achievement and maintenance of full employment,
- maintenance of price stability,

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- acceleration of the rate of economic growth and development, and
- equitable distribution of income and wealth.

(ii) Nature of Monetary Policy

		Nature of Monetary Policy
A	Reduction in cash reserves ratio.	Expansionary
B	Selling of securities in the open market.	Contractionary
C	Increase of repo rate by 50 base point.	Contractionary
D	Increase in the supply of currency and coins.	Expansionary

(b) (i) Calculation of Marginal Propensity to Consume (MPC)

Increase in investment

$\Delta I = 2,000 - 1,600 = ₹ 400$ Crore

Increase in National Income

$= \Delta Y = 6,600 - 5,000$

$= ₹ 1,600$ Crore

Multiplier $k = \frac{\Delta y}{\Delta I} = \frac{1,600}{400} = \mathbf{4}$

We know that $k = \frac{1}{1-MPC}$

$$4 = \frac{1}{1-MPC}$$

$4(1-MPC) = 1$

$4-4MPC = 1$

$3 = 4MPC$

$MPC = \frac{3}{4} = 0.75$

MPC = 0.75

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(ii) Sanitary and Phytosanitary (SPS) Measures

SPS measures are applied to protect human, animal or plant life from risks arising from additives, pests, contaminants, toxins or disease-causing organisms and to protect biodiversity.

These include ban or prohibition of import of certain goods, all measures governing quality and hygienic requirements, production processes, and associated compliance assessments. For example, prohibition of import of poultry from countries affected by avian flu, meat and poultry processing standards to reduce pathogens, residue limits for pesticides in foods etc.

Question 11

(a) (i) The monetary authority of an economy has provided the following data:

Particulars	*₹ in Crore*
Notes in Circulation	*2,42,09,645*
Rupee Coin in Circulation	*3,25,572*
Small Coins in Circulation	*7,434*
Post Office Saving Bank Deposits	*14,17,868*
Cash in Hand with banks	*9,75,635*
Deposit Money of the Public	*1,77,61,992*
Demand Deposited with banks	*1,73,76,925*
Other Deposits with Reserve Bank	*3,85,074*
Total Post Office Deposits	*1,48,966*
Time Deposits with Banks	*17,86,969*

You are required to calculate (i) M1; and (ii) M2. ***(3 Marks)***

(ii) Identify the market outcomes for each of the following situations:

(A) Playing of loud music at night resulting in inability to sleep.

(B) Wearing of mask during covid-19 pandemic. ***(2 Marks)***

(b) (i) Following information, relating to an economy of a country, for the current year are as under:

Particulars	***(In Crores ₹)***
GDP MP	*6550*
Gross Investment (Including Business fixed investment, Residential construction investment, Public & Inventory investment)	*1000*

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Government Purchases of goods and services	*1500*
Exports	*400*
Imports	*350*
GNPMP	*6600*
Indirect Taxes	*200*
Depreciation	*200*

Find out:

(A) Private Final Consumption Expenditure

(B) Net Factor Income from Abroad

(C) NNP_{FC} or National Income ***(3 Marks)***

(ii) Explain briefly two key concepts of 'New Trade Theory' that gives advantages to countries that import goods to compete with the home country. ***(2 Marks)***

OR

Explain 'Embargos'. ***(2 Marks)***

Answer

(a) (i) Calculation of M1 and M2

M1 = (Notes in Circulation + Rupee coin in circulation + small coins in circulation – cash in hands with banks) + demand deposit with bank + other deposit with RBI

= 2,42,09,645 + 3,25,572 +7,434 - 9,75,635 +1,73,76,925+3,85,074

= ₹ 4,13,29,015 Crores

M2 = M1+ Post Office Savings Bank Deposits

= 4,13,29,015 +14,17,868

= ₹ 4,27,46,883 Crores

(ii) Situations and Market outcomes:

(A) Playing of loud music at night resulting in inability to sleep

Market Outcome: Negative Consumption externality, over production.

(B) Wearing of mask during COVID-19 pandemic

Market Outcome: Positive consumption externality as it prevents others from getting infected.

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(b) (i) (A) Private Final Consumption Expenditure:

GDP_{MP} = Private Final Consumption expenditure + Government final consumption expenditure + Gross domestic Capital formation + Net Export

6,550 = Private Final Consumption expenditure + 1,500+1,000+50

Private Final Consumption expenditure = 6550-2550 = **₹ 4000 crores**

(B) Net Factor Income from Abroad:

= GNP_{MP} – GDP_{MP}

= 6,600 – 6,550

= ₹ 50 crores

(C) NNP_{FC} or National Income:

= GDP_{MP} – depreciation + NFIA – NIT

= 6,550 – 200+50-200

= ₹ 6,200 crores

(b) (ii) New Trade Theory (NTT): According to NTT, two key concepts that gives advantages to countries that import goods to compete with products from the home country are:

Economies of Scale: As a firm produces more of a product, its cost per unit keeps going down. So, if the firm serves domestic as well as foreign market instead of just one, then it can reap the benefit of large scale of production consequently the profits are likely to be higher.

Network effects: It refer to the way one person's value for a good or service is affected by the value of that good or service to others. The value of the product or service is enhanced as the number of individuals using it increases. This is also referred to as the 'bandwagon effect'. Consumers like more choices, but they also want products and services with high utility, and the network effect increases utility obtained from these products over others. A good example will be Mobile App such as What's App and software like Microsoft Windows.

OR

Embargos:

An embargo is a total ban imposed by government on import or export of some or all commodities to particular country or regions for a specified or indefinite period. This may be done due to political reasons or for other reasons such as health, religious sentiments. This is the most extreme form of trade barrier.

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