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 relates to RM Co. Ltd.

	(₹)
Total Assets employed	*10,00,000*
Direct Cost	*5,50,000*
Other Operating Cost	*90,000*

Goods are sold to the customers at 150% of direct costs.

50% of the assets being financed by borrowed capital at an interest cost of 8% per annum.

Tax rate is 30%.

You are required to calculate :

(i) Net profit margin

(ii) Return on Assets

(iii) Asset turnover

(iv) Return on owners' equity ***(5 Marks)***

(b) CK Ltd. is planning to buy a new machine. Details of which are as follows:

Cost of the Machine at the commencement	*₹ 2,50,000*
Economic Life of the Machine	*8 year*
Residual Value	*Nil*
Annual Production Capacity of the Machine	*1,00,000 units*
Estimated Selling Price per unit	*₹ 6*
Estimated Variable Cost per unit	*₹ 3*

Estimated Annual Fixed Cost	*₹1,00,000*
(Excluding depreciation)	
Advertisement Expenses in 1st year in addition of annual fixed cost	*₹20,000*
Maintenance Expenses in 5th year in addition of annual fixed cost	*₹30,000*
Cost of Capital	*12%*

Ignore Tax.

Analyse the above mentioned proposal using the Net Present Value Method and advice.

P.V. factor @ 12% are as under:

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
PV Factor	*0.893*	*0.797*	*0.712*	*0.636*	*0.567*	*0.507*	*0.452*	*0.404*

(5 Marks)

(c) *The following figures are extracted from the annual report of RJ Ltd.:*

Net Profit	*₹50 Lakhs*
Outstanding 13% preference shares	*₹200 Lakhs*
No. of Equity Shares	*6 Lakhs*
Return on Investment	*25%*
Cost of Capital (K_e)	*15%*

You are required to compute the approximate dividend pay-out ratio by keeping the share price at ₹40 by using Walter's Model. ***(5 Marks)***

(d) *TT Ltd. issued 20,000, 10% convertible debenture of ₹100 each with a maturity period of 5 years. At maturity the debenture holders will have the option to convert debentures into equity shares of the company in ratio of 1:5 (5 shares for each debenture). The current market price of the equity share is ₹20 each and historically the growth rate of the share is 4% per annum. Assuming tax rate is 25%. Compute the cost of 10% convertible debenture using Approximation Method and Internal Rate of Return Method.*

PV Factor are as under:

Year	*1*	*2*	*3*	*4*	*5*
PV Factor @ 10%	*0.909*	*0.826*	*0.751*	*0.683*	*0.621*
PV Factor @ 15%	*0.870*	*0.756*	*0.658*	*0.572*	*0.497*

(5 Marks)

Answer

(a) Computation of net profit:

Particulars	(₹)
Sales (150% of ₹ 5,50,000)	8,25,000
Direct Costs	5,50,000
Gross profit	2,75,000
Other Operating Costs	90,000
Operating profit (EBIT)	1,85,000
Interest changes (8% of ₹ 5,00,000)	40,000
Profit before taxes (EBT)	1,45,000
Taxes (@ 30%)	43,500
Net profit after taxes (EAT)	**1,01,500**

(i) Net profit margin (After tax) = $\frac{\text{Profit after taxes}}{\text{Sales}} = \frac{₹\ 1,01,500}{₹\ 8,25,000}$ = **0.12303 or 12.303%**

Net profit margin (Before tax)= $\frac{\text{Profit before taxes}}{\text{Sales}} = \frac{₹\ 1,45,000}{₹\ 8,25,000}$ = **0.17576 or 17.576%**

(ii) Return on assets = $\frac{\text{EBIT (1 -T)}}{\text{Total Assets}} = \frac{₹\ 1,85,000\ (1 - 0.3)}{₹\ 10,00,000}$ = **0.1295 or 12.95%**

(iii) Asset turnover = $\frac{\text{Sales}}{\text{Assets}} = \frac{₹\ 8,25,000}{₹\ 10,00,000}$ = **0.825 times**

(iv) Return on owner's equity= $\frac{\text{Profit after taxes}}{\text{Owners equity}} = \frac{₹\ 1,01,500}{50\% \times ₹\ 10,00,000}$ = **0.203 or 20.3%**

(b) Calculation of Net Cash flows

Contribution = (₹ 6 – ₹ 3) × 1,00,000 units = **₹ 3,00,000**

Fixed costs (excluding depreciation) = ₹ 1,00,000

Year	Capital (₹)	Contribution (₹)	Fixed costs (₹)	Advertisement/ Maintenance expenses (₹)	Net cash flow (₹)
0	(2,50,000)				(2,50,000)
1		3,00,000	(1,00,000)	(20,000)	1,80,000
2		3,00,000	(1,00,000)		2,00,000
3		3,00,000	(1,00,000)		2,00,000

4		3,00,000	(1,00,000)		2,00,000
5		3,00,000	(1,00,000)	(30,000)	1,70,000
6		3,00,000	(1,00,000)		2,00,000
7		3,00,000	(1,00,000)		2,00,000
8		3,00,000	(1,00,000)		2,00,000

Calculation of Net Present Value

Year	Net cash flow (₹)	12% discount factor	Present value (₹)
0	(2,50,000)	1.000	(2,50,000)
1	1,80,000	0.893	1,60,740
2	2,00,000	0.797	1,59,400
3	2,00,000	0.712	1,42,400
4	2,00,000	0.636	1,27,200
5	1,70,000	0.567	96,390
6	2,00,000	0.507	1,01,400
7	2,00,000	0.452	90,400
8	2,00,000	0.404	80,800
			7,08,730

Advise: CK Ltd. should buy the new machine, as the net present value of the proposal is positive i.e ₹ 7,08,730.

(c)

Particulars	₹ in lakhs
Net Profit	50
Less: Preference dividend (₹ 200,00,000 x 13%)	26
Earning for equity shareholders	24
Therefore, earning per share = ₹ 24 lakh /6 lakh shares = **₹ 4**	

Let, the dividend per share be D to get share price of ₹ 40

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

$$₹\ 40 = \frac{D + \frac{0.25}{0.15}(₹\ 4 - D)}{0.15}$$

$$6 = \frac{0.15D + 1 - 0.25D}{0.15}$$

$$0.1D = 1 - 0.9$$

$$D = ₹\ 1$$

$$\text{D/P ratio} = \frac{DPS}{EPS} \times 100 = \frac{₹\ 1}{₹\ 4} \times 100 = \mathbf{25\%}$$

So, the required dividend pay-out ratio will be = 25%

(d) Determination of Redemption value:

Higher of-

(i) The cash value of debentures = ₹100

(ii) Value of equity shares = 5 shares × ₹ 20 $(1+0.04)^5$

= 5 shares × ₹ 24.333

= **₹121.665 rounded to ₹121.67**

₹121.67 will be taken as redemption value as it is higher than the cash option and attractive to the investors.

Calculation of Cost of 10% Convertible debenture

(i) Using Approximation Method:

$$K_d = \frac{I(1-t) + \frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}} = \frac{10(1-0.25) + \frac{(121.67-100)}{5}}{\frac{(121.67+100)}{2}} = \frac{7.5+4.334}{110.835}$$

= **10.676%**

(ii) Using Internal Rate of Return Method

Year	Cash flows (₹)	Discount factor @ 10%	Present Value	Discount factor @ 15%	Present Value (₹)
0	100	1.000	(100.00)	1.000	(100.00)
1 to 5	7.5	3.790	28.425	3.353	25.148
5	121.67	0.621	75.557	0.497	60.470
NPV			**+3.982**		**-14.382**

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H}(H-L) = 10\% + \frac{3.982}{3.982-(-14.382)}(15\%-10\%)$$

= **0.11084 or 11.084% (approx.)**

Question 2

PK Ltd., a manufacturing company, provides the following information:

	(₹)
Sales	*1,08,00,000*
Raw Material Consumed	*27,00,000*
Labour Paid	*21,60,000*
Manufacturing Overhead (Including Depreciation for the year ₹ 3,60,000)	*32,40,000*
Administrative & Selling Overhead	*10,80,000*

Additional Information:

(a) Receivables are allowed 3 months' credit.

(b) Raw Material Supplier extends 3 months' credit.

(c) Lag in payment of Labour is 1 month.

(d) Manufacturing Overhead are paid one month in arrear.

(e) Administrative & Selling Overhead is paid 1 month advance.

(f) Inventory holding period of Raw Material & Finished Goods are of 3 months.

(g) Work-in-Progress is Nil.

(h) PK Ltd. sells goods at Cost plus 33⅓%.

(i) Cash Balance ₹ 3,00,000.

(j) Safety Margin 10%.

You are required to compute the Working Capital Requirements of PK Ltd. on Cash Cost basis.

(10 Marks)

Answer

Statement showing the requirements of Working Capital (Cash Cost basis)

Particulars	**(₹)**	**(₹)**
A. Current Assets:		
Inventory:		
Stock of Raw material (₹ 27,00,000 × 3/12)	6,75,000	
Stock of Finished goods (₹ 77,40,000 × 3/12)	19,35,000	
Receivables (₹ 88,20,000 × 3/12)	22,05,000	
Administrative and Selling Overhead (₹ 10,80,000 × 1/12)	90,000	
Cash in Hand	3,00,000	

Gross Working Capital	52,05,000	**52,05,000**
B. Current Liabilities:		
Payables for Raw materials* (₹ 27,00,000 × 3/12)	6,75,000	
Outstanding Expenses:		
Wages Expenses (₹ 21,60,000 × 1/12)	1,80,000	
Manufacturing Overhead (₹ 28,80,000 × 1/12)	2,40,000	
Total Current Liabilities	10,95,000	10,95,000
Net Working Capital (A-B)		**41,10,000**
Add: Safety margin @ 10%		4,11,000
Total Working Capital requirements		**45,21,000**

Working Notes:

(i)

(A)	**Computation of Annual Cash Cost of Production**	**(₹)**
	Raw Material consumed	27,00,000
	Wages (Labour paid)	21,60,000
	Manufacturing overhead (₹ 32,40,000 - ₹ 3,60,000)	28,80,000
	Total cash cost of production	77,40,000
(B)	**Computation of Annual Cash Cost of Sales**	**(₹)**
	Cash cost of production as in (A) above	77,40,000
	Administrative & Selling overhead	10,80,000
	Total cash cost of sales	88,20,000

*Purchase of Raw material can also be calculated by adjusting Closing Stock and Opening Stock (assumed nil). In that case Purchase will be Raw material consumed +Closing Stock-Opening Stock i.e ₹27,00,000 + ₹6,75,000 - Nil = ₹33,75,000. Accordingly, Total Working Capital requirements (₹ 43,35,375) can be calculated.

Question 3

J Ltd. is considering three financing plans. The-key information is as follows:

(a) Total investment to be raised ₹ 4,00,000.

(b) Plans showing the Financing Proportion:

Plans	*Equity*	*Debt*	*Preference Shares*
X	*100%*	*-*	*-*
Y	*50%*	*50%*	*-*
Z	*50%*	*-*	*50%*

(c) Cost of Debt 10%

Cost of preference shares 10%

(d) Tax Rate 50%

(e) Equity shares of the face value of ₹10 each will be issued at a premium of ₹10 per share.

(f) Expected EBIT is ₹1,00,000.

You are required to compute the following for each plan :

(i) Earnings per share (EPS)

(ii) Financial break even point

(iii) Indifference Point between the plans and indicate if any of the plans dominate. ***(10 Marks)***

Answer

(i) Computation of Earnings per Share (EPS)

Plans	**X (₹)**	**Y (₹)**	**Z (₹)**
Earnings before interest & tax (EBIT)	1,00,000	1,00,000	1,00,000
Less: Interest charges (10% of ₹ 2,00,000)	--	(20,000)	--
Earnings before tax (EBT)	1,00,000	80,000	1,00,000
Less: Tax @ 50%	(50,000)	(40,000)	(50,000)
Earnings after tax (EAT)	50,000	40,000	50,000
Less: Preference share dividend (10% of ₹2,00,000)	--	--	(20,000)
Earnings available for equity shareholders (A)	50,000	40,000	30,000
No. of equity shares (B) Plan X = ₹ 4,00,000/ ₹ 20 Plan Y = ₹ 2,00,000 / ₹ 20 Plan Z = ₹ 2,00,000 / ₹ 20	20,000	10,000	10,000
E.P.S (A ÷ B)	**2.5**	**4**	**3**

(ii) Computation of Financial Break-even Points

Financial Break-even point = Interest + Preference dividend/(1 - tax rate)

Proposal 'X' = **0**

Proposal 'Y' = **₹ 20,000** (Interest charges)

Proposal 'Z' = Earnings required for payment of preference share dividend = ₹ 20,000 ÷ (1- 0.5 Tax Rate) = **₹ 40,000**

(iii) Computation of Indifference Point between the plans

Combination of Proposals

(a) Indifference point where EBIT of proposal "X" and proposal 'Y' is equal

$$\frac{(EBIT)(1-0.5)}{20,000 \text{ shares}} = \frac{(EBIT - ₹\ 20,000)(1-0.5)}{10,000 \text{ shares}}$$

0.5 EBIT = EBIT – ₹ 20,000

EBIT = **₹ 40,000**

(b) Indifference point where EBIT of proposal 'X' and proposal 'Z' is equal:

$$\frac{(EBIT)(1-0.5)}{20,000 \text{ shares}} = \frac{EBIT(1-0.5) - ₹\ 20,000}{10,000 \text{ shares}}$$

0.5 EBIT = EBIT- ₹ 40,000

0.5 EBIT = ₹ 40,000

$$EBIT = \frac{₹40,000}{0.5} = ₹\ 80,000$$

(c) Indifference point where EBIT of proposal 'Y' and proposal 'Z' are equal

$$\frac{(EBIT - ₹\ 20,000)(1-0.5)}{10,000 \text{ shares}} = \frac{EBIT(1-0.5) - ₹\ 20,000}{10,000 \text{ shares}}$$

0.5 EBIT – ₹ 10,000 = 0.5 EBIT – ₹ 20,000

There is no indifference point between proposal 'Y' and proposal 'Z'

Analysis: It can be seen that financial proposal 'Y' dominates proposal 'Z', since the financial break-even-point of the former is only ₹ 20,000 but in case of latter, it is ₹ 40,000. EPS of plan 'Y' is also higher.

Question 4

A Ltd. is considering two mutually exclusive projects X and Y.

You have been given below the Net Cash flow probability distribution of each project:

Project-X		*Project-Y*	
Net Cash Flow (₹)	*Probability*	*Net Cash Flow (₹)*	*Probability*
50,000	*0.30*	*1,30,000*	*0.20*
60,000	*0.30*	*1,10,000*	*0.30*
70,000	*0.40*	*90,000*	*0.50*

(i) Compute the following :

(a) Expected Net Cash Flow of each project.

(b) Variance of each project.

(c) Standard Deviation of each project.

(d) Coefficient of Variation of each project.

(ii) Identify which project do you recommend ? Give reason. ***(10 Marks)***

Answer

(i) (a) Calculation of Expected Net Cash Flow (ENCF) of Project X and Project Y

Project X			Project Y		
Net Cash Flow (₹)	Probability	Expected Net Cash Flow (₹)	Net Cash Flow (₹)	Probability	Expected Net Cash Flow (₹)
50,000	0.30	15,000	1,30,000	0.20	26,000
60,000	0.30	18,000	1,10,000	0.30	33,000
70,000	0.40	28,000	90,000	0.50	45,000
ENCF		**61,000**			**1,04,000**

(b) Variance of Projects

Project X

Variance (σ^2) = $(50,000 – 61,000)^2 \times (0.3) + (60,000 - 61,000)^2 \times (0.3) + (70,000 – 61,000)^2 \times (0.4)$

= 3,63,00,000 + 3,00,000 + 3,24,00,000 **= 6,90,00,000**

Project Y

Variance(σ^2) = $(1,30,000 – 1,04,000)^2 \times (0.2) + (1,10,000 – 1,04,000)^2 \times (0.3) + (90,000 – 1,04,000)^2 \times (0.5)$

= 13,52,00,000 + 1,08,00,000 + 9,80,00,000 **= 24,40,00,000**

(c) Standard Deviation of Projects

Project X

Standard Deviation (σ) = $\sqrt{\text{Variance}(\sigma^2)} = \sqrt{6,90,00,000}$ **= 8,306.624**

Project Y

Standard Deviation (σ) = $\sqrt{\text{Variance}(\sigma^2)} = \sqrt{24,40,00,000}$ **= 15,620.499**

(d) Coefficient of Variation of Projects

Projects	Coefficient of variation $\left(\frac{\text{Standard Deviation}}{\text{Expected Net Cash Flow}}\right)$	Risk	Expected Net Cash Flow
X	$\frac{8,306.24}{61,000}$ **= 0.136 or 13.60%**	Less	Less
Y	$\frac{15,620.499}{1,04,000}$ **= 0.150 or 15.00%**	More	More

(ii) In project X risk per rupee of cash flow is 0.136 (approx.) while in project Y it is 0.15 (approx.). Therefore, Project X is better than Project Y.

Question 5

The following data is available for Stone Ltd. :

	(₹)
Sales	*5,00,000*
(-) Variable cost @ 40%	*2,00,000*
Contribution	*3,00,000*
(-) Fixed cost	*2,00,000*
EBIT	*1,00,000*
(-) Interest	*25,000*
Profit before tax	*75,000*

Using the concept of leverage, find out

(i) The percentage change in taxable income if EBIT increases by 10%.

(ii) The percentage change in EBIT if sales increases by 10%.

(iii) The percentage change in taxable income if sales increases by 10%.

Also verify the results in each of the above case. ***(10 Marks)***

Answer

(i) Degree of Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}} = \frac{₹\ 1,00,000}{₹\ 75,000}$ = **1.333 times**

So, If EBIT increases by 10% then Taxable Income (EBT) will be increased by 1.333 × 10 = **13.33% (approx.)**

Verification

Particulars	Amount (₹)
New EBIT after 10% increase (₹ 1,00,000 + 10%)	1,10,000
Less: Interest	25,000
Earnings before Tax after change (EBT)	85,000

Increase in Earnings before Tax = ₹ 85,000 - ₹ 75,000 = ₹ 10,000

So, percentage change in Taxable Income (EBT) = $\frac{₹\ 10,000}{₹\ 75,000} \times 100$ = **13.333%, hence verified**

(ii) Degree of Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}} = \frac{₹\ 3,00,000}{₹\ 1,00,000}$ = **3 times**

So, if sale is increased by 10% then EBIT will be increased by 3 × 10 = **30%**

Verification

Particulars	Amount (₹)
New Sales after 10% increase (₹ 5,00,000 + 10%)	5,50,000
Less: Variable cost (40% of ₹ 5,50,000)	2,20,000
Contribution	3,30,000
Less: Fixed costs	2,00,000
Earnings before interest and tax after change (EBIT)	1,30,000

Increase in Earnings before interest and tax (EBIT) = ₹ 1,30,000 - ₹ 1,00,000 = ₹ 30,000

So, percentage change in EBIT = $\frac{₹\ 30,000}{₹\ 1,00,000} \times 100$ = **30%, hence verified.**

(iii) Degree of Combined Leverage = $\frac{\text{Contribution}}{\text{EBT}} = \frac{₹\ 3,00,000}{₹\ 75,000}$ = **4 times**

So, if sale is increased by 10% then Taxable Income (EBT) will be increased by 4 × 10 = **40%**

Verification

Particulars	Amount (₹)
New Sales after 10% increase (₹ 5,00,000 + 10%)	5,50,000
Less: Variable cost (40% of ₹ 5,50,000)	2,20,000
Contribution	3,30,000

Less: Fixed costs	2,00,000
Earnings before interest and tax (EBIT)	1,30,000
Less: Interest	25,000
Earnings before tax after change (EBT)	1,05,000

Increase in Earnings before tax (EBT) = ₹ 1,05,000 - ₹ 75,000 = ₹ 30,000

So, percentage change in Taxable Income (EBT) = $\frac{₹\ 30,000}{₹\ 75,000} \times 100$ = **40%, hence verified**

Question 6

(a) List out the role of Chief Financial Officer in today's World. ***(4 Marks)***

(b) Explain in brief the methods of Venture Capital Financing. ***(4 Marks)***

(c) Distinguish between Unsystematic Risk & Systematic Risk. ***(2 Marks)***

OR

What is Risk Adjusted Discount Rate ? ***(2 Marks)***

Answer

(a) Role of Chief Financial Officer (CFO) in Today's World: Today, the role of chief financial officer, or CFO, is no longer confined to accounting, financial reporting and risk management. It's about being a strategic business partner of the chief executive officer, or CEO. Some of the role of a CFO in today's world are as follows-

- Budgeting
- Forecasting
- Managing M&As
- Profitability analysis (for example, by customer or product)
- Pricing analysis
- Decisions about outsourcing
- Overseeing the IT function.
- Overseeing the HR function.
- Strategic planning (sometimes overseeing this function).
- Regulatory compliance.
- Risk management

(b) Methods of Venture Capital Financing: Some common methods of venture capital financing are as follows-

(i) Equity financing: The venture capital undertakings generally require funds for a longer period but may not be able to provide returns to the investors during the initial stages. Therefore, the venture capital finance is generally provided by way of equity share capital. The equity contribution of venture capital firm does not exceed 49% of the total equity capital of venture capital undertakings so that the effective control and ownership remains with the entrepreneur.

(ii) Conditional loan: A conditional loan is repayable in the form of a royalty after the venture is able to generate sales. No interest is paid on such loans. In India venture capital financiers charge royalty ranging between 2 and 15 per cent; actual rate depends on other factors of the venture such as gestation period, cash flow patterns, risk and other factors of the enterprise. Some Venture capital financiers give a choice to the enterprise of paying a high rate of interest (which could be well above 20 per cent) instead of royalty on sales once it becomes commercially sound.

(iii) Income note: It is a hybrid security which combines the features of both conventional loan and conditional loan. The entrepreneur has to pay both interest and royalty on sales but at substantially low rates. IDBI's VCF provides funding equal to 80 – 87.50% of the projects cost for commercial application of indigenous technology.

(iv) Participating debenture: Such security carries charges in three phases — in the start-up phase no interest is charged, next stage a low rate of interest is charged up to a particular level of operation, after that, a high rate of interest is required to be paid.

(c) (i) Unsystematic Risk: This is also called company specific risk as the risk is related with the company's performance. This type of risk can be reduced or eliminated by diversification of the securities portfolio. This is also known as diversifiable risk.

(ii) Systematic Risk: It is the macro-economic or market specific risk under which a company operates. This type of risk cannot be eliminated by the diversification hence, it is non-diversifiable. The examples are inflation, Government policy, interest rate etc.

OR

Risk Adjusted Discount Rate: A risk adjusted discount rate is a sum of risk-free rate and risk premium. The Risk Premium depends on the perception of risk by the investor of a particular investment and risk aversion of the Investor.

So, Risks adjusted discount rate = Risk free rate+ Risk premium.

SECTION – B: ECONOMICS FOR FINANCE

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

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

Question 7

(a) Compute the amount of depreciation from the following data

(₹ in Crores)

GDP at Market Price (GDP_{Mp})	*8,76,532*
Net factor income from abroad	*(-) 232*
Aggregate amount of Indirect Taxes	*564*
Subsidies	*30*
National Income (NNP_{Fc})	*8,46,576*

(3 Marks)

(b) Discuss the guiding principle of WTO in relation to trade without discrimination. ***(2 Marks)***

(c) "Money performs many functions in an economy". Explain those functions briefly.

(3 Marks)

(d) Describe the characteristics of 'Public Goods'. ***(2 Marks)***

Answer

(a) The amount of depreciation

$GDP_{MP} = NNP_{FC}$ - NFIA + NIT + Depreciation

8,76,532 = 8,46,576 – (-232) + (564-30) + Depreciation

8,76,532= 8,46,576 +232 +534 +Depreciation

8,76,532 = 8,47,342 + Depreciation

8,76,532 – 8,47,342 = 29,190 = Depreciation

Depreciation = 29,190 Crores.

(b) The guiding principle of WTO in relation to trade without discrimination

The two principles on non-discrimination namely, Most-favoured-Nation (MFN) and the National Treatment Principle (NTP) relate to the rules of trade among member - nations. These are designed to secure fair conditions of trade.

(a) **Most-favoured-Nation (MFN)** principle holds that the member countries cannot normally discriminate among their trading partners. Each member treats all the other members equally as "most-favoured" trading partners. If a country grants a special advantage, favour, privilege or immunity to one (such as lowering of customs duty or opening up of market), it has to unconditionally extend the same treatment to all the other WTO members.

(b) **The National Treatment Principle (NTP)** mandates that when goods are imported, the imported goods and the locally produced goods and services should be treated equally in respect of internal taxes and internal laws. A member 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.

(c) **Functions of Money:** Money performs the following important functions in an economy.

1. **Money is a convenient medium of exchange or it is an instrument** that facilitates easy exchange of goods and services. By acting as an intermediary, money increases the ease of trade and reduces the inefficiency and transaction costs involved in a barter exchange.
   - Money also facilitates separation of transactions both in time and place and this in turn enables us to economize on time and efforts involved in transactions.
2. **Money is a unit of account and acts as a yardstick people use to post prices and record debts**. All economic values are measured and recorded in terms of money.
   - Money helps in expressing the value of each good or service in terms of price making it convenient to trade all commodities in exchange for a single commodity.
   - Money makes it possible to measure the prices of all commodities in terms of a single unit.
   - A common unit of account facilitates a system of orderly pricing which is crucial for rational economic choices.
   - Goods and services which are otherwise not comparable are made comparable through expressing the worth of each in terms of money.
3. **Money serves as a unit or standard of deferred payment i.e. money facilitates recording of deferred promises to pay**.
   - Money is the unit in terms of which future payments are contracted or stated. It simplifies credit transactions.

- By acting as a standard of deferred payments, money helps in capital formation and growth of financial and capital markets which are essential for the growth of the economy.

4. **Money acts as a temporary store of value and enables people to transfer purchasing power from the present to the future**. Money also functions as a permanent store of value. Unlike other assets which have limitations such as storage costs, lack of liquidity and possibility of depreciation in value, money has perfect liquidity and commands reversibility as its value in payment equals its value in receipt.

(d) Characteristics of Public Goods

- Public goods are products (goods or services) whose consumption is essentially collective in nature. When consumed by one person, it can be consumed in equal amounts by the rest of the persons in the society.
- Public goods are non-rival in consumption; consumption of a public good by one individual does not reduce the quality or quantity available for all other individuals.
- Public goods are non-excludable. If the good is provided, consumers cannot (at least at less than prohibitive cost) be excluded from the benefits of consumption.
- Public goods are characterized by indivisibility. Each individual may consume all of the good i.e. the total amount consumed is the same for each individual. For example, a lighthouse
- Public goods are generally more vulnerable to issues such as externalities, inadequate property rights, and free rider problems.
- The property rights of public goods with extensive indivisibility and nonexclusive properties cannot be determined with certainty.
- A unique feature of public goods is that they do not conform to the settings of market exchange.
- As a consequence of their peculiar characteristics, public goods do not provide market incentives. Since producers cannot charge a positive price for public goods or make profits from them, they are not motivated to produce a socially-optimal level of output. As such, though public goods are extremely valuable for the well-being of the society, left to the market, either they will not be produced at all or will be grossly under produced.

Question 8

(a) You are given the following information of an economy:

Consumption Function	:	*C = 200 + 0.60 Yd*
Government Spending	:	*G = 150*

Investment Spending	:	*I = 240*
Tax	:	*Tx = 10+0.20Y*
Transfer Payment	:	*Tr =50*
Exports	:	*X = 30+0.2Y*
Imports	:	*M = 400*

Where Y and Yd are National Income and Personal Disposable Income respectively. All figures are in ₹

Find:

(i) The equilibrium level of National Income.

(ii) Net Exports at equilibrium level.

(iii) Consumption at equilibrium level. ***(5 Marks)***

(b) (i) Discuss the "Fiscal Policy Measures" which are useful for reduction in inequalities of income and wealth. ***(3 Marks)***

(ii) What is the impact of the following on credit multiplier and money supply, if Commercial Banks keep:

(1) Less Reserve?

(2) Excess Reserve? ***(2 Marks)***

Answer

(a) (i) The equilibrium level of national income

Yd = Y + Tr –Tax

= Y + 50 - 10 - 0.2Y

Yd = 40+0.8 Y

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

Y = 200+ 0.60 (40+0.8Y) +240 +150 + (30 + 0.2 Y - 400)

Y = 200 + 24 +.48 Y +240 +150 + 30 + 0.2 Y – 400

Y = 244 + 0.68 Y

Y- 0.68 Y = 244

0.32 Y = 244

Y = 244 /0.32 = 762.5

(ii) Net exports at equilibrium level

Net Exports = Exports – Imports or (X-M)

= 30 + 0.2 Y- 400

= 30 + 0.2 (762.5) - 400]

= 30 + 152.5 - 400 = - 217.5

Net Exports = - 217.5 Crores

Imports are greater than exports. Therefore, 'net exports' are negative.

(iii) Consumption at equilibrium level

C = 200 + 0.60 (40+0.8 Y)

= 200 + 24 + 0. 48 (762.5)

=200 + 24 + 366 = 590

Consumption at equilibrium level of income = 590 Crores

(b) (i) The Fiscal Policy Measures which are useful for reduction in inequalities of income and wealth.

Fiscal policy is a powerful instrument available for governments to influence income redistribution and for reducing inequality of income and wealth to bring about equity and social justice.

Government revenues and expenditure have traditionally been regarded as important instruments for carrying out desired redistribution of income.

Following are examples of a few such measures:

- **Progressive direct tax system:** A progressive system of direct taxes ensures that those who have greater ability to pay contribute more towards defraying the expenses of government and that the tax burden is distributed fairly among the population.
- **Indirect taxes which are differential**: The indirect taxes may be designed in such a way that the commodities which are primarily consumed by the richer income groups, such as luxuries, are taxed heavily and the commodities the expenditure on which form a larger proportion of the income of the lower income group, such as necessities, are taxed light.
- **A carefully planned policy of public expenditure helps in redistributing income from the rich to the poorer sections of the society**. This is done

through spending programmes targeted on welfare measures for the disadvantaged, such as:

(i) poverty alleviation programmes.

(ii) free or subsidized medical care, education, housing, essential commodities etc. to improve the quality of living of the poor.

(iii) infrastructure provision on a selective basis.

(iv) various social security schemes under which people are entitled to old-age pensions, unemployment relief, sickness allowance etc.

(v) subsidized production of products of mass consumption.

(vi) public production and/ or grant of subsidies to ensure sufficient supply of essential goods, and

(vii) strengthening of human capital for enhancing employability etc.

(ii) (1) The impact on credit multiplier and money supply, if commercial banks keep less reserves: The Credit Multiplier describes the amount of additional money created by commercial banks through the process of lending the available money it has in excess of the central bank's reserve requirements. Thus the credit multiplier is inextricably tied to the bank's reserve requirement.

Credit Multiplier = 1 /Required Reserve Ratio

If reserve ratio is 20%, then credit multiplier = 1/0.20 = 5. **If banks need to keep only less reserve, then the credit multiplier would be high and therefore money supply would be higher**. If the reserve ratio is only10%, then the credit multiplier is 1/0.10 =10.

(2) The impact on credit multiplier and money supply, if commercial banks keep excess reserve

'Excess reserves' refers to the positive difference between total reserves (TR) and required reserves (RR). The money that is kept as 'excess reserves' of the commercial banks do not lead to any additional loans, and therefore, these excess reserves do not lead to creation of credit. **When banks keep excess reserves, the credit multiplier would be low and it impact on money supply would be less.**

Question 9

(a) (i) 'The Heckscher Ohlin theory of Foreign Trade' can be stated in the form of two theorems. Explain those briefly. ***(3 Marks)***

(ii) 'Lemons Problem' is an important source of market failure. How? ***(2 Marks)***

(b) (i) Compute M3 from the following data :

Component	*₹ in Crores*
Currency with the public	*2,25,432.6*
Demand Deposits with Banks	*3,40,242.4*
Time Deposits with Banks	*2,80,736.8*
Post office savings Deposits (Excluding National Saving Certificates)	*446.7*
Other Deposits with RBI (Including Government Deposits)	*392.7*
Post Office National Saving Certificates	*83.7*
Government Deposits with RBI·	*102.5*

(3 Marks)

(ii) Clarify the concept of 'Average Propensity to Save' with the help of formula and example. ***(2 Marks)***

Answer

(a) (i) **The 'Heckscher-Ohlin theory of foreign trade** 'can be stated in the form of two theorems namely,

a) Heckscher-Ohlin Trade Theorem and

b) Factor-Price Equalization Theorem.

The Heckscher-Ohlin Trade Theorem establishes that a country's exports depend on the endowment of resources it has i.e. whether the country is capital-abundant or labour-abundant. If a country is a capital abundant one, it will produce and export capital-intensive goods relatively more cheaply than other countries. Likewise, a labour-abundant country will produce and export labour-intensive goods relatively more cheaply than another country.

Countries tend to specialize in the export of a commodity whose production requires intensive use of its abundant resources and imports a commodity whose production requires intensive use of its scarce resources. The cause of difference in the relative prices of goods is the difference the amount of factor endowments, like capital and labour, between two countries.

The 'Factor-Price Equalization' Theorem postulates that if the prices of the output of goods are equalised between countries engaged in free trade, then the price of the input factors will also be equalised between countries. In other words,

international trade eliminates the factor price differentials and tends to equalize the absolute and relative returns to homogenous factors of production and their prices. Thus, the wages of homogeneous labour and returns to homogeneous capital will be the same in all those nations which engage in trading.

(ii) 'Lemons problem 'an important source of market failure

The 'lemons problem' arises due to asymmetric information between the buyers and sellers. The problem exists in many markets, but it was popularized by the used car market in which cars are classified as good from those defined as "lemons" (poor quality vehicles).

The owner of a car knows much more about its quality than anyone else. While placing it for sale, he may not disclose all that he knows about the mechanical defects of the vehicle. Based on the probability that the car on sale is a 'lemon', the buyers' willingness to pay for any particular car will be based on the 'average quality' of used cars. Not knowing the honesty of the seller means, the price offered for the vehicle is likely to be less to account for this risk. If buyers were aware as to which car is good, they would pay the price they feel reasonable for a good car.

Since the price offered in the used car market is lower than the acceptable one, sellers of good cars will not be inclined to sell. The market becomes flooded with 'lemons' and eventually the market may offer nothing but 'lemons'. The good-quality cars disappear because they are kept by their owners or sold only to friends. The result is: the proportion of good products that is actually offered falls further and there will be market distortion with lower prices and lower average quality of cars. Low-quality cars can drive high-quality cars out of the market. Eventually, this process may lead to a complete breakdown of the market.

(b) (i) Computation of M3

M3 = Currency with the public + Demand deposits with the banks + Time deposits with the banks + 'Other' deposits with the RBI

M3 = 2,25,432.6 + 3,40,242.4 + 2,80,736.8 + (392.7 – 102.5) = 8,46,702

M3 = ₹ 8,46,702 Crores

(ii) The concept of Average propensity to save

Average Propensity to Save (APS) is the ratio of total saving to total income. Alternatively, it is that part of total income which is saved.

$$APS = \frac{\text{Total Saving}}{\text{Total Income}} = \frac{S}{Y}$$

For example, if saving is ₹ 20 Crores at national income of ₹ 100 Crores, then:

APS = S/Y =20/ 100 = 0.20, i.e. 20% of the income is saved. The estimation of APS is illustrated with the help of the following table:

Income (₹ Crores)	Saving (₹ Crores)	APS = S/Y	APS
0	- 40	-	-
100	-20	(-20/100)	- 0.20
200	0	(0/200)	0
300	20	(20/300)	0.067
400	40	(40/400)	0.10

Question 10

(a) (i) Explain the various types of externalities. ***(3 Marks)***

(ii) Which method is used in India for measurement of National Income? Also, state the method which is considered the most suitable for measurement of National Income of the developed economies. ***(2 Marks)***

(b) (i) Following exchange rate quotations are available for different periods:

(1) The spot exchange rate changes from ₹ 65 per $ to ₹ 68 per $.

(2) The spot exchange rate changes from $ 0.0125 per rupee to $ 0.01625 per rupee.

Answer:

(A) Identify the nature of rate quotations in (1) and (2) above.

(B) Identify the base currency and counter currency in (1) and (2) above.

(C) What are possible consequences on exports and imports of (1) and (2) above.

(3 Marks)

(ii) "The deposit multiplier and the money multiplier though closely related are not identical". Explain briefly. ***(2 Marks)***

Answer

(a) (i) The various types of Externalities

An externality is a cost or benefit of an economic activity experienced by an unrelated third party who did not choose to incur that cost or benefit. These costs and benefits are not reflected in market prices.

Externalities can be positive or negative. Negative externalities occur when the action of one party imposes costs on another party. Positive externalities occur when the action of one party confers benefits on another party.

The four possible types of externalities are:

(a) Negative production externalities

(b) Positive production externalities

(c) Negative consumption externalities,

(d) Positive consumption externalities

(a) Negative Production Externalities

A negative production externality initiated in production which imposes an external cost on others may be received by another in consumption or production. As an example, a negative production externality occurs when a factory discharges untreated waste water into a nearby river and pollutes the water.

- This negative externality is said to be received in consumption when it causes health hazards for people who use the water for drinking and bathing.
- This negative externality is said to be received in production when pollution in the river affects fish output and loss of fish resources resulting in less catch for fishermen.

(b) Positive production externalities

A positive production externality initiated in production that confers external benefits on others may be received in production or in consumption. For example, positive production externality occurs when a firm offers training to its employees for increasing their skills. Training generates positive benefits on the productive efficiency of other firms when they hire such workers as they change their jobs.

- A positive production externality is received in consumption when an individual raises an attractive garden and the persons walking by enjoy the garden.

(c) Negative consumption externalities

Negative consumption externalities initiated in consumption confer external costs on others that may be received in production or in consumption. For example, smoking cigarettes by one person in public place causes passive smoking by others. These external costs affect consumption of others by causing consumption of poor-quality air or by creating litter and diminishing the

aesthetic value of the place. Another example is playing the radio loudly obstructing another person from enjoying a concert.

- The case of excessive consumption of alcohol causing impairment in efficiency for work and production are instances of negative consumption externalities affecting production.

(d) Positive consumption externalities

A positive consumption externality occurs when an individual's consumption increases the well-being of others but the individual is not compensated by those others. For example, if people get immunized against contagious diseases, they would confer a social benefit on others as well by preventing others from getting infected.

- Consumption of the services of a health club by the employees of a firm would result in an external benefit to the firm in the form of increased efficiency and productivity.

(ii) The method used in India for measurement of National Income

In India, the Central Statistics Office under the Ministry of Statistics and Programme Implementation is responsible for macro-economic data gathering and statistical record keeping.

Since reliable statistical data are not available, it is not possible to estimate India's national income wholly by one method. Therefore, a combination of output method and income method is used. The value-added method is used largely in the commodity producing sectors like agriculture and manufacturing. Thus, in agricultural sector, net value added is estimated by the production method, in small scale sector net value added is estimated by the income method and in the construction sector net value added is estimated by the expenditure method also.

The method which is considered suitable for measurement of National Income of developed economies:

Income method may be most suitable for developed economies where data in respect of factor income are readily available. With the growing facility in the use of the commodity flow method of estimating expenditures, an increasing proportion of the national income is being estimated by expenditure method.

(b) (i) (A) The nature of rate quotations in (1) and (2)

In an exchange rate, two currencies are involved. There are two ways to express nominal exchange rate between two currencies (here US $ and Indian Rupee) namely direct quote and indirect quote.

The nature of rate quotation in [(1) ₹ 65/per $] is direct quote, (also called European Currency Quotation). The exchange rate is quoted in terms of the

number of units of a local currency exchangeable for one unit of a foreign currency. For example, 65/US$ means that an amount of 65 is needed to buy one US dollar or 65 will be received while selling one US dollar.

An indirect quote is presented in [(2) $ 0.0125 per Rupee] of the question. In an indirect quote, (also known as American Currency Quotation), the exchange rate is quoted in terms of the number of units of a foreign currency exchangeable for one unit of local currency; for example: $ 0.0125 per rupee. In an indirect quote, domestic currency is the commodity which is being bought and sold.

(B) The base currency and counter currency in (1) and (2)

An exchange rate has two currency components; a 'base currency' and a 'counter currency'. The currency in the numerator always states 'how much of that currency is required for one unit of the base currency'.

- In a direct quotation [in (1) ₹ 65/per $], the foreign currency is the base currency and the domestic currency is the counter currency. So in the given question, US dollar is the base currency and Indian Rupee is the counter currency.
- In an indirect quotation, [in (2) $ 0.0125 per Rupee], the domestic currency is the base currency and the foreign currency is the counter currency. So in the given question, Indian Rupee is the base currency and US dollar is the counter currency.

(C) The possible consequences on exports and imports of (1) and (2)

When the spot exchange rate changes from ₹ 65/per $ to ₹ 68/ per $, it indicates that a person has to exchange a greater amount of Indian Rupees (68) to get the same 1 unit of US dollar. The rupee has become less valuable with respect to the U.S. dollar or Indian Rupee has depreciated in its value. Simultaneously, the dollar has appreciated.

Consequence on exports and imports of (1)

Other things remaining the same, when a country's currency depreciates, foreigners find that its exports are cheaper and the quantity demanded of its export goods will increase. For example a foreigner who spends ten dollars on buying Indian goods will, get goods worth ₹ 680 /- instead of ₹ 650/- prior to depreciation.

On the other hand, the domestic residents find that imports from abroad are more expensive. A resident of India, who wants to import goods worth $1 will have to pay ₹ 68/- instead of ₹ 65/- prior to depreciation. Imports will be discouraged as importers will have to pay more rupees per dollar for importing products.

In short, depreciation of domestic currency lowers the relative price of a country's exports and raises the relative price of its imports.

Consequence on exports and imports of (2)

In this case, Rupee has appreciated and dollar has depreciated. Earlier, $ 1.25 would fetch export goods worth ₹ 100/- from India; but after the change $16.25 would be necessary to buy the same amount of goods.

Other things remaining the same, when a country's currency appreciates, it raises the relative price of its exports and lowers the relative price of its imports. In other words, foreigners find their imports from that country (exports from India in the above case) costlier. Therefore quantity demanded of export goods would decrease.

On the other hand, the domestic residents find that imports from abroad are cheaper. Therefore, we may expect an increase in the quantity of imports.

(ii) The Deposit Multiplier and the Money Multiplier

The money multiplier denotes by 'how much the money supply will change for a given change in high-powered money'. The deposit multiplier describes the amount of additional money created by commercial bank through the process of lending the available money it has in excess of the central bank's reserve requirements. Though closely related they are not identical because:

(a) Generally banks do not lend out all of their available money, but instead maintain reserves at a level above the minimum required reserve. In other words, banks keep excess reserves.

(b) The public prefers to hold some cash and therefore, some of the increase in loans will not be deposited at the commercial banks, but will be kept cash. This means, that when new reserves enter the banking system they will not be multiplied entirely by the deposit multiplier into new demand deposits. Some money will leave the banking system in the form of cash. Therefore, the money supply will be raised by less than the demand deposits.

If some portion of the increase in high-powered money finds its way into currency, this portion does not undergo multiple deposit expansion. The size of the money multiplier is reduced when funds are held as cash rather than as demand deposits.

Question 11

(a) (i) What is the meant by 'Statutory Liquidity Ratio'? ·In which forms this ratio is maintained? ***(3 Marks)***

(ii) Explain the concept of soft peg and hard peg exchange rate policies. ***(2 Marks)***

(b) (i) In which sectors Foreign Investment is prohibited in India? ***(3 Marks)***

(ii) Explain the market outcome of price ceiling through diagram. ***(2 Marks)***

OR

What is meant by 'Countervailing Duties'? ***(2 Marks)***

Answer

(a) (i) The Statutory Liquidity Ratio.

The Statutory Liquidity Ratio (SLR) is the ratio of a bank's liquid assets to its net demand and time liabilities (NDTL). The SLR is a powerful tool for controlling liquidity in the domestic market by means of manipulating bank credit.

Changes in the SLR chiefly influence the availability of resources in the banking system for lending. A rise in the SLR which is resorted to during periods of high liquidity, tends to lock up a rising fraction of a bank's assets in the form of eligible instruments, and this reduces the credit creation capacity of banks. A reduction in the SLR during periods of economic downturn has the opposite effect.

As per the Banking Regulations Act 1949, all scheduled commercial banks in India are required to maintain a stipulated percentage of their total Demand and Time Liabilities (DTL) / Net DTL (NDTL) in one of the following forms:

(i) Cash

(ii) Gold, or

(iii) Investments in un-encumbered Instruments that include:

(a) Treasury-bills of the Government of India.

(b) Dated securities including those issued by the Government of India from time to time under the market borrowings programme and the Market Stabilization Scheme (MSS).

(c) State Development Loans (SDLs) issued by State Governments under their market borrowings programme.

(d) Other instruments as notified by the RBI. These include mainly the securities issued by PSE_s.

The SLR requires holding of assets in one of the above three categories by the bank itself.

(ii) The concept of soft peg and hard peg exchange rate policies

A currency peg is a policy in which a national government sets a specific fixed exchange rate for its currency with a foreign currency or basket of currencies. Pegging a currency stabilizes the exchange rate between countries.

A soft peg refers to an exchange rate policy under which the exchange rate is generally determined by the market, but in case the exchange rate tends to move speedily in one direction, the central bank will intervene in the market.

With a hard peg exchange rate policy, the central bank sets a fixed and unchanging value for the exchange rate. Both soft peg and hard peg policy require that the central bank intervenes in the foreign exchange market.

(b) (i) Sectors in which foreign investment is prohibited in India

In India, foreign investment is prohibited in the following sectors:

(i) Lottery business including Government / private lottery, online lotteries, etc.

(ii) Gambling and betting including casinos etc.

(iii) Chit funds

(iv) Nidhi company

(v) Trading in Transferable Development Rights (TDRs)

(vi) Real Estate Business or Construction of Farm Houses

(vii) Manufacturing of cigars, cheroots, cigarillos and cigarettes, of tobacco or of tobacco substitutes

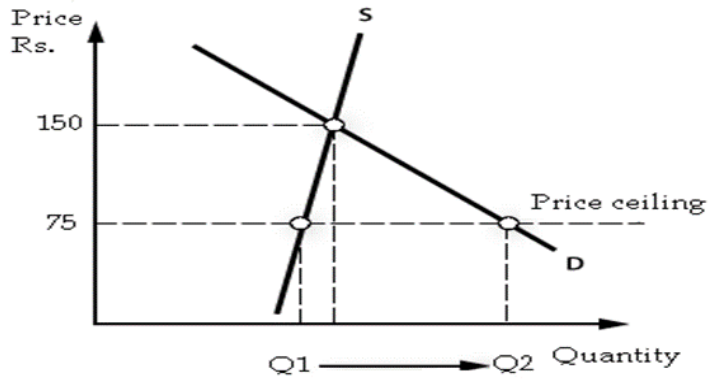
(viii) Activities / sectors not open to private sector investment e.g. atomic energy and railway operations (other than permitted activities).

Foreign technology collaboration in any form including licensing for franchise, trademark, brand name, management contract is also prohibited for lottery business and gambling and betting activities.

(ii) The market outcome of price ceiling through diagram

When prices of certain essential commodities rise excessively, government may resort to controls in the form of price ceilings (also called maximum price) for making a resource or commodity available to all at reasonable prices. For example: maximum prices of food grains and essential items are set by government during times of scarcity. The market outcome of price ceiling can be explained with the help of the following diagram.

Market Outcome of Price Ceiling



The intersection of demand and supply curves set the market price of the commodity in question at ₹ 150. Since the market determined equilibrium price is considered high considering the welfare of people, the government intervenes in the market and a price ceiling is set at ₹ 75/ which is below the prevailing market clearing price. At price ₹ 75/, the quantity demanded is Q2 and the quantity supplied is only Q1. In other words, there is excess demand equal to Q1-Q2. Thus the market outcome a price ceiling which is below the market-determined price leads to generation of excess demand over supply.

OR

(ii) Countervailing Duties

Countervailing duties are tariffs imposed by an importing country with the aim of off-setting 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 product and a government subsidy allows the foreign firm to artificially reduce the export price and 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 by an importing country to negate such advantage that exporters get from subsidies. This is done to ensure fair and market-oriented pricing of imported products and thereby protecting domestic industries and firms.