

MOCK TEST PAPER – II
INTERMEDIATE (NEW): GROUP – II
PAPER – 8: FINANCIAL MANAGEMENT & ECONOMICS FOR FINANCE

PAPER 8A: FINANCIAL MANAGEMENT

SUGGESTED ANSWERS/HINTS

1. (a) Kee Ltd. (pure Equity) i.e. unlevered company:

$$\begin{aligned} \text{EAT} &= \text{EBT} (1 - t) \\ &= \text{EBIT} (1 - 0.3) = \text{Rs. } 5,00,000 \times 0.7 = \text{Rs. } 3,50,000 \\ &\text{(Here, EBIT = EBT as there is no debt)} \end{aligned}$$

$$\begin{aligned} \text{Value of unlevered company Kee Ltd.} &= \frac{\text{EAT}}{\text{Equity capitalization rate}} \\ &= \frac{\text{Rs. } 3,50,000}{25\%} = \text{Rs. } 14,00,000 \end{aligned}$$

Lee Ltd. (Equity and Debt) i.e. levered company:

$$\begin{aligned} \text{Value of levered company} &= \text{Value of Equity} + \text{Value of Debt} \\ &= \text{Rs. } 14,00,000 + (\text{Rs. } 20,00,000 \times 0.3) \\ &= \text{Rs. } 20,00,000 \end{aligned}$$

(b) Workings:

1. Earnings per share (E) $= \frac{\text{PAT}}{\text{No. of shares}} = \frac{\text{Rs. } 3.7 \text{ crores}}{2.5 \text{ crore shares}} = \text{Rs. } 1.48$
2. Return on Investment (r) $= \frac{\text{PAT}}{\text{Net worth}} \times 100 = \frac{\text{Rs. } 3.7 \text{ crores}}{\text{Rs. } (25 + 15) \text{ crores}} \times 100 = 9.25\%$
3. Dividend per share (D) $= \frac{\text{Dividend paid}}{\text{No. of shares}} = \frac{\text{Rs. } 3 \text{ crores}}{2.5 \text{ crore shares}} = \text{Rs. } 1.2$
Dividend payout ratio $= \frac{\text{Dividend}}{\text{PAT}} \times 100 = \frac{\text{Rs. } 3 \text{ crores}}{\text{Rs. } 3.7 \text{ crores}} \times 100 = 81.08\%$
4. Current Market Price (P_0) $= \text{P/E Ratio} \times E = 26.7 \times \text{Rs. } 1.48 = \text{Rs. } 39.52$
5. Growth rate (g) $= b \times r = (1 - 0.8108) \times 0.0925 = 1.75\%$
6. Cost of Capital (K_e) $= \frac{D(1+g)}{P_0} + g = \frac{\text{Rs. } 1.2 (1 + 0.0175)}{\text{Rs. } 39.52} + 0.0175 = 4.84\%$

(i) The value of the share as per Walter's model:

$$P = \frac{D + \frac{r}{K_e} (E - D)}{K_e} = \frac{1.2 + \frac{0.0925}{0.0484} (1.48 - 1.2)}{0.0484} = \text{Rs. } 35.85$$

The firm has a dividend payout of 81.08% (i.e., Rs. 3 crores) out of Profit after tax of Rs. 3.7 crores with value of the share at Rs. 35.85. The rate of return on investment (r)

is 9.25% and it is more than the K_e of 4.84%, therefore, by distributing 81.08% of earnings, the firm is not following an optimal dividend policy.

- (ii) Under Walter's model, when return on investment is more than cost of capital ($r > K_e$), the market share price will be maximum if 100% retention policy is followed. So, the optimal payout ratio would be to pay zero dividend and in such a situation, the market price would be:

$$P = \frac{0 + \frac{0.0925}{0.0484} (1.48 - 0)}{0.0484} = \text{Rs. } 58.44$$

- (iii) The P/E ratio at which dividend payout will have no effect on share price is at which the K_e would be equal to the rate of return (r) of the firm i.e. 9.25%.

$$\begin{aligned} \text{So, } K_e &= \frac{D(1+g)}{P_0} + g \\ 0.0925 &= \frac{\text{Rs. } 1.2(1 + 0.0175)}{P_0} + 0.0175 \end{aligned}$$

$$\therefore P_0 = \text{Rs. } 16.28$$

If P_0 is Rs. 16.28, then, P/E Ratio will be:

$$= \frac{P_0}{E} = \frac{\text{Rs. } 16.28}{\text{Rs. } 1.48} = 11 \text{ times}$$

Therefore, at the P/E ratio of 11, the dividend payout will have no effect on share price.

(c) **Balance Sheet**

Liabilities	(Rs.)	Assets	(Rs.)
Current debt	30,000	Cash (balancing figure)	1,20,000
Long term debt	<u>70,000</u>	Inventory	<u>60,000</u>
Total Debt	1,00,000	Total Current Assets	1,80,000
Owner's Equity	<u>2,00,000</u>	Fixed Assets	<u>1,20,000</u>
Total liabilities	<u>3,00,000</u>	Total Assets	<u>3,00,000</u>

Workings:

- Total debt = 0.50 × Owner's Equity = 0.50 × Rs. 2,00,000 = Rs. 1,00,000
Further, Current debt to Total debt = 0.30
So, Current debt = 0.30 × Rs. 1,00,000 = Rs. 30,000
Long term debt = Rs. 1,00,000 - Rs. 30,000 = Rs. 70,000
- Fixed assets = 0.60 × Owner's Equity = 0.60 × Rs. 2,00,000 = Rs. 1,20,000
- Total Liabilities = Total Debt + Owner's Equity
= Rs. 1,00,000 + Rs. 2,00,000 = Rs. 3,00,000
Total Assets = Total Liabilities = Rs. 3,00,000
Total assets to turnover = 2 Times; Inventory turnover = 10 Times
Hence, Inventory / Total assets = 2/10 = 1/5,
Therefore Inventory = Rs. 3,00,000/5 = Rs. 60,000

- (d) (i) According to Dividend Discount Model approach the firm's expected or required return on equity is computed as follows:

$$K_e = \frac{D_1}{P_0} + g$$

Where,

K_e = Cost of equity share capital

D_1 = Expected dividend at the end of year 1

P_0 = Current market price of the share.

g = Expected growth rate of dividend.

$$\text{Therefore, } K_e = \frac{5.04}{219} + 0.1125 = 13.55\%$$

- (ii) With rate of return on retained earnings (r) of 15% and retention ratio (b) of 60%, new growth rate will be as follows:

$$g = br = 0.60 \times 0.15 = 0.09 \text{ or } 9\%$$

Accordingly, dividend will also get changed and to calculate this, first we shall calculate previous retention ratio (b_1) and then EPS assuming that rate of return on retained earning (r) is same.

With previous Growth Rate of 11.25% and $r = 15\%$, the retention ratio comes out to be:

$$0.1125 = b_1 \times 0.15$$

$$b_1 = 0.75 \text{ and payout ratio} = 0.25$$

With 0.25 payout ratio, the EPS will be as follows:

$$\text{EPS} = \frac{5.04}{0.25} = \text{Rs. } 20.16$$

With new payout ratio of 40% ($1 - 0.60$) the new dividend will be:

$$D_1 = \text{Rs. } 20.16 \times 0.40 = \text{Rs. } 8.064$$

Accordingly new K_e will be:

$$K_e = \frac{8.064}{219} + 0.09 = 12.68\%$$

2. (a) (i) Calculation of Yearly Cash Inflow

In worst case: High costs and Low price (Selling price) and volume (Sales units) are taken.

In best case: Low costs and High price (Selling price) and volume (Sales units) are taken.

	Worst Case	Base	Best Case
Sales (units) (A)	4,500	5,000	5,500
	(Rs.)	(Rs.)	(Rs.)
Selling Price p.u.	175	200	225
Less: Variable cost p.u.	150	125	100
Contribution p.u. (B)	25	75	125
Total Contribution (A x B)	1,12,500	3,75,000	6,87,500
Less: Fixed Cost	1,00,000	75,000	50,000
EBT	12,500	3,00,000	6,37,500
Less: Tax @ 25%	3,125	75,000	1,59,375

EAT	9,375	2,25,000	4,78,125
Add: Depreciation	35,000	35,000	35,000
Cash Inflow	44,375	2,60,000	5,13,125

(ii) Calculation of NPV in different scenarios

	Worst Case	Base	Best Case
Initial outlay (A) (Rs.)	7,50,000	7,50,000	7,50,000
Cash Inflow (c) (Rs.)	44,375	2,60,000	5,13,125
Cumulative PVF @ 15% (d)	3.353	3.353	3.353
PV of Cash Inflow (B = c x d) (Rs.)	1,48,789.38	8,71,780	17,20,508.13
NPV (B - A) (Rs.)	(6,01,210.62)	1,21,780	9,70,508.13

(b) Here,

Redemption Value (RV) = Rs. 1,50,000

Net Proceeds (NP) = Rs. 3,750

Interest = 0

Life of bond = 25 years

There is huge difference between RV and NP therefore in place of approximation method we should use trial & error method.

$$FV = PV \times (1 + r)^n$$

$$1,50,000 = 3,750 \times (1 + r)^{25}$$

$$40 = (1 + r)^{25}$$

$$\text{Trial 1: } r = 15\%, (1.15)^{25} = 32.919$$

$$\text{Trial 2: } r = 16\%, (1.16)^{25} = 40.874$$

Here:

$$L = 15\%; H = 16\%$$

$$NPV_L = 32.919 - 40 = -7.081$$

$$NPV_H = 40.874 - 40 = +0.874$$

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H} (H - L)$$

$$= 15\% + \frac{-7.081}{-7.081 - (0.874)} \times (16\% - 15\%) = 15.89\%$$

3. Statement showing evaluation of Credit Policies

(Amount in lakhs)

	Particulars	Present (Rs.)	Proposed Policy (Rs.)	
			Option I	Option II
A	Expected Profit:			
	(a) Credit Sales	180	220	280
	(b) Total Cost other than Bad Debts:			
	Variable Costs (60%)	108	132	168

	(c) Bad Debts	6	18	38
	(d) Expected Profit [(a)-(b)-(c)]	66	70	74
B	Opportunity Cost of Investment in Debtors (Refer workings)	6.75	10.31	17.5
C	Net Benefits [A - B]	59.25	59.69	56.5

Recommendation: The Proposed Policy I should be adopted since the net benefits under this policy is higher than those under other policies.

Workings:

Calculation of Opportunity Cost of Investment in Debtors

$$\text{Opportunity Cost} = \text{Total Cost} \times \frac{\text{Collection Period}^*}{12} \times \frac{\text{Rate of Return}}{100}$$

*Collection period (in months) = 12/Debtors turnover ratio

$$\text{Present Policy} = \text{Rs. } 108 \times \frac{12/4}{12} \times \frac{25}{100} = \text{Rs. } 6.75 \text{ lakhs}$$

$$\text{Proposed Policy I} = \text{Rs. } 132 \times \frac{12/3.2}{12} \times \frac{25}{100} = \text{Rs. } 10.31 \text{ lakhs}$$

$$\text{Proposed Policy II} = \text{Rs. } 168 \times \frac{12/2.4}{12} \times \frac{25}{100} = \text{Rs. } 17.5 \text{ lakhs}$$

4. Calculation of NPV

	(Rs.)	(Rs.)
Cost of Manual System (Rs. 15,000 x 350)		52,50,000
Less: Cost of Mechanised System:		
Operating Cost	20,00,000	
Depreciation (Rs. 40,00,000 x 0.15)	6,00,000	26,00,000
Saving per annum		26,50,000
Less: Tax (50%)		13,25,000
Saving after tax		13,25,000
Add: Depreciation		6,00,000
Cash flow per annum		19,25,000
Cumulative PV Factor for 7 years @ 10%		4.867
Present value of cash flow for 7 years		93,68,975
Less: Cost of the Machine		40,00,000
NPV		53,68,975

The mechanized cleaning system should be purchased since NPV is positive by Rs. 53,68,975.

5. (i) Operating Leverage

	Situation 1	Situation 2	Situation 3
	(Rs.)	(Rs.)	(Rs.)
Sales (S)			
2,400 units @ Rs. 30 per unit	72,000	72,000	72,000
Less: Variable Cost (VC) @ Rs. 20 per unit	48,000	48,000	48,000
Contribution (C)	24,000	24,000	24,000
Less: Fixed Cost (FC)	3,000	6,000	9,000
EBIT	21,000	18,000	15,000
Operating Leverage = $\frac{C}{EBIT}$	$\frac{Rs. 24,000}{Rs. 21,000}$ = 1.14	$\frac{Rs. 24,000}{Rs. 18,000}$ = 1.33	$\frac{Rs. 24,000}{Rs. 15,000}$ = 1.60

Financial Leverage

	Financial Plan	
	A (Rs.)	B (Rs.)
Situation 1		
EBIT	21,000	21,000
Less: Interest on debt (Rs. 15,000 x 12%); (Rs. 7,500 x 12%)	1,800	900
EBT	19,200	20,100
Financial Leverage = $\frac{EBIT}{EBT}$	$\frac{Rs. 21,000}{Rs. 19,200} = 1.09$	$\frac{Rs. 21,000}{Rs. 20,100} = 1.04$
Situation 2		
EBIT	18,000	18,000
Less: Interest on debt	1,800	900
EBT	16,200	17,100
Financial Leverage = $\frac{EBIT}{EBT}$	$\frac{Rs. 18,000}{Rs. 16,200} = 1.11$	$\frac{Rs. 18,000}{Rs. 17,100} = 1.05$
Situation 3		
EBIT	15,000	15,000
Less: Interest on debt	1,800	900
EBT	13,200	14,100
Financial Leverage = $\frac{EBIT}{EBT}$	$\frac{Rs. 15,000}{Rs. 13,200} = 1.14$	$\frac{Rs. 15,000}{Rs. 14,100} = 1.06$

(ii) **Combined Leverages**

$$CL = OL \times FL$$

	Financial Plan	
	A (Rs.)	B (Rs.)
(a) Situation 1	$1.14 \times 1.09 = 1.24$	$1.14 \times 1.04 = 1.19$
(b) Situation 2	$1.33 \times 1.11 = 1.48$	$1.33 \times 1.05 = 1.40$
(c) Situation 3	$1.60 \times 1.14 = 1.82$	$1.60 \times 1.06 = 1.70$

The above calculations suggest that the highest value is in Situation 3 financed by Financial Plan A and the lowest value is in the Situation 1 financed by Financial Plan B.

6. (a) A **Commercial Paper** is an unsecured money market instrument issued in the form of a promissory note. The Reserve Bank of India introduced the commercial paper scheme in the year 1989 with a view to enabling highly rated corporate borrowers to diversify their sources of short-term borrowings and to provide an additional instrument to investors. Subsequently, in addition to the Corporate, Primary Dealers and All India Financial Institutions have also been allowed to issue Commercial Papers. Commercial papers are issued in denominations of Rs. 5 lakhs or multiples thereof and the interest rate is generally linked to the yield on the one-year government bond.
- (b) **Agency problem** between the managers and shareholders can be addressed if the interests of the managers are aligned to the interests of the share-holders. It is easier said than done. However, following efforts have been made to address these issues:
- Managerial compensation is linked to profit of the company to some extent and also with the long term objectives of the company.
 - Employee is also designed to address the issue with the underlying assumption that maximisation of the stock price is the objective of the investors.
 - Effecting monitoring can be done.
- (c) **Debt Securitisation** is a process in which illiquid assets are pooled into marketable securities that can be sold to investors. The process leads to the creation of financial instruments that represent ownership interest in, or are secured by a segregated income producing asset or pool of assets. These assets are generally secured by personal or real property such as automobiles, real estate, or equipment loans but in some cases are unsecured.

Or

The use of long-term fixed interest-bearing debt and preference share capital along with equity share capital is called financial leverage or trading on equity. The use of long-term debt increases the earnings per share if the firm yields a return higher than the cost of debt. The earnings per share also increase with the use of preference share capital but due to the fact that interest is allowed to be deducted while computing tax, the leverage impact of debt is much more. However, leverage can operate adversely also if the rate of interest on long-term loan is more than the expected rate of earnings of the firm. Therefore, it needs caution to plan the capital structure of a firm.

PAPER 8B: ECONOMICS FOR FINANCE

ANSWERS / HINTS

7. (a) There are innumerable challenges in the computation of National Income in India. These challenges are more complex in underdeveloped and developing countries. Some of the challenges are given below:

- (a) Inadequacy of data and lack of reliability of available data.
- (b) Presence of non- monetised sector.
- (c) Production for self-consumption
- (d) Absence of recording of data due to illiteracy and Ignorance.
- (e) Lack of Proper occupational classification and
- (f) Accurate estimation of consumption of fixed capital.

(b) By Income Method:

$$\begin{aligned}\text{NNP}_{\text{FC}} = \text{National Income} &= \text{Compensation of Employees} + \text{Operating Surplus (rent + interest + profit)} + \text{Mixed Income of self-employed} + \text{Net Factor Income from abroad} \\ &= 2000 + (400 + 300 + 600) + 1000 + 50 \\ &= 4350\text{Cr}\end{aligned}$$

By Expenditure Method:

$$\begin{aligned}\text{GDP}_{\text{mp}} &= \text{Private Final Consumption Expenditure} + \text{Government Final Consumption Expenditure} \\ &\quad + \text{Gross Domestic Capital Formation (Net domestic Capital Formation + Net Export)} \\ &= 700 + 800 + 500 + 80 \\ &= 2080 \text{ cr}\end{aligned}$$

$$\begin{aligned}\text{NNP}_{\text{FC}} \text{ or National Income} &= \text{GDP}_{\text{mp}} - \text{depreciation} + \text{NFIA} - \text{Net Indirect Taxes} \\ &= 2080 - 200 + 50 - 40 \\ &= 1890 \text{ Cr}\end{aligned}$$

- (c) A free rider is a person who benefits from something without expending effort or paying for it. In other words, free riders are those who utilizes goods without paying for their use. Since private goods are excludable, free riding mostly occurs in the case of public goods. The free-rider problem leads to under provisions of a good or service and thus causes market failure. As such if the free-rider problem cannot be solved, the following two outcomes are possible:

- (i) No public good will be provided in private markets.
- (ii) Private markets will seriously under produce public goods even though these goods provide valuable service to the society.

8. (a) Personal Income = National Income – Undistributed Profit- Net interest payments made by households – Corporate Tax + Transfer payments to the households from firms and Government
- $$\begin{aligned}&= 5000 - 200 - 400 - 600 + 500 \\ &= 4300 \text{ Cr}\end{aligned}$$

$$\begin{aligned}\text{Personal Disposable Income} &= \text{Personal Income} - \text{Personal Income Taxes} - \text{Non-Tax Payments} \\ &= 4300 - 1200 - 800 \\ &= 2300 \text{ cr}\end{aligned}$$

- (b) Subsidy is a form of market intervention by government. It involves the government directly paying part of the cost to the producers (consumers) in order to promote the production (consumption) of goods and services. The aim of subsidy is to intervene with market equilibrium to reduce the costs and thereby the market prices of goods and services and encourage increased production and consumption. Major subsidies in India are fertilizer subsidy, food subsidy, interest subsidy etc.
- (c) The Speculative motive reflects people's desire to hold cash in order to be equipped to exploit any attractive investment opportunity requiring cash expenditure. According to Keynes, people demand to hold money balances to take advantage of the future changes in the rate of interest, which is same as future change in bond prices. The market value of bonds and the market rate of interest are inversely related.

When we go from the Individual speculative demand for money to the aggregate speculative demand for money, the discontinuity of the Individual wealth- holder's demand curve for the speculative cash balances disappears and we obtain a continuous downward sloping demand function showing the inverse relationship between the current rate of interest and the speculative demand for money as shown in the figure below:

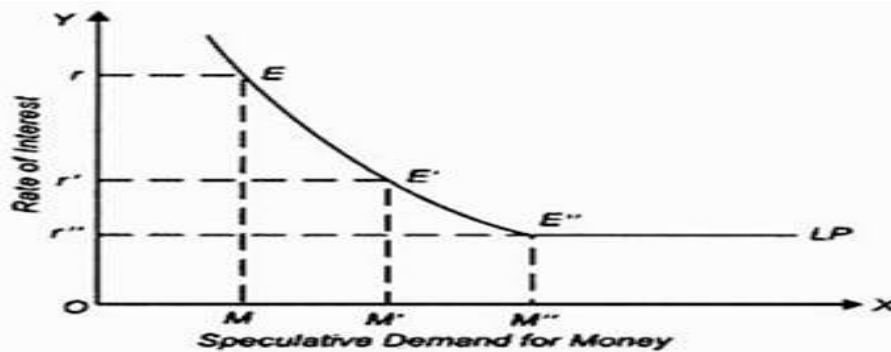


Fig. 15.2. Liquidity Preference Curve and Liquidity Trap.

According to Keynes, the higher the rates of interest, lower the speculative demand for money, and lower the rate of interest, higher the speculative demand for money.

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

$$\begin{aligned}\text{Balanced budget multiplier} &= \Delta Y \div \Delta G + \Delta Y \div \Delta T \\ &= 1 \div 1 - b + -b \div 1 - b \\ &= 1 - b \div 1 - b = 1\end{aligned}$$

9. (a) Externalities cause market inefficiencies because they hinder the ability of market prices to convey accurate information about how much to produce and how much to buy. Such externalities are not reflected in market prices, they can be a source of economic inefficiency. When negative production externalities exist, social costs exceed private cost. If producers do not take into account the externalities, there will be over – production and market failure and unwarranted social

consequences. The Government can play a role in reducing negative externalities by taxing goods when their production generates spill over cost. The Government can also intervene in regulating negative externalities like pollution.

- (b) Fiscal Policy can be used as a tool for economic growth and desired distribution of income. This can be done through spending programmes targeted at disadvantage strata of the society some examples are like poverty alleviation programme, free or subsidized amenities to improve the quality of living of poor, strengthening of human capital, education, research, and development which will provide momentum for long term growth. A progressive tax structure carefully planned public expenditure policy can help in redistribution of income from rich to the poor sections of the population.

- (c) Major differences between FDI and Foreign Portfolio Investment are as follows

Foreign Direct Investment	Foreign Portfolio Investment
Investment involves creation of physical assets	Investment is only in financial assets.
Has a long-term interest and therefore invested for long	Only short-term interest and generally remain invested in short periods.
Relatively difficult to withdraw	Relatively easy to withdraw
Not inclined to be speculative	Speculative in nature
Often accompanied by technology transfer	Not accompanied by technology transfer.
Direct impact on employment of labour and wages.	No direct impact on employment of labour and wages.
Enduring interest in management and control	No abiding interest in management and Control.

- (d) New Trade Policy (NTT) is an economic theory and that was developed in the 1970's as a way to understand International Trade patterns. NTT helps in understanding why developed and big countries trade partners are when they are trading similar goods and services. These Countries constitutes more than 50 % of the world trade. This is particularly true in key economic sectors such as electronics, IT, food and automotive. Those countries with the advantages will dominate the market and takes the form of monopolistic competition. According to NTT, two key concepts give advantage to countries that import goods to compete with products from home country namely economies of scale and network effects.

10. (a) M_1 = Currency notes and coins with the people + demand deposit with banking system (Current and saving deposits accounts) + other deposits with the RBI

$$= 5000 + 4000 + 3000$$

$$= 12000 \text{ cr}$$

$$M_3 = M_1 + \text{time deposits with the banking system}$$

$$= 12000 + 1000$$

$$= 13000 \text{ cr}$$

- (b) The Quantity theory of money was propounded by Irving Fisher. According to him there is strong relationship between money and price level and the quantity of money is the main determinant of the price level or value of money.

Fisher version also termed as 'Equation of Exchange' is formally stated as follows:

$$MV = PT$$

M= the total amount of money in circulation

V = transactions velocity of circulation

P = average price level

T = Total number of transactions

Subsequently Fisher extended the equation of exchange to include demand bank deposit (M') and Velocity (V') in the total supply of money.

The Expanded Form of the equation becomes:

$$MV + M'V' = PT$$

Where M' = the total quantity of credit money

V' = velocity of circulation of credit money.

- (c) Government Spending would sometimes substitute private spending and when this happens the impact of government spending on aggregate demand would be smaller than what it would be and therefore fiscal policy may become ineffective. The crowding out view is that a rapid growth of government spending leads to a transfer of scarce productive resources from the private sector to the public sector where productivity might be lower. An increase in the size of government spending during recessions will crowd out private spending in an economy and lead to reduction in the economy's ability to self-correct from the recession and possibly also reduces the economy's prospects of long run economic growth.
- (d) Trade barriers create obstacles to trade, reduces the prospect of market access, make imported goods more expensive, increase consumption of domestic goods, protect domestic Industries, and increase government revenues.

Technical barriers to trade are Standards and Technical Regulations that define the specific characteristics that a product should have such as its size, shape, design, labelling/marketing/packaging functionality or performance and production methods, excluding measures covered by the SPS agreement. The resolution of trade barriers will definitely be helpful in functioning of trade. There are different forum and trade agreements between countries for the resolution of the obstacle.

11. (a) Aggregate demand in three sector model of closed economy consists of three components namely, household consumption (C), desired business investment demand (I) and the government sector's demand for goods and services (G). Thus, in equilibrium

$$Y = C + I + G$$

Since there is no foreign sector, GDP and national income are equal. As prices are assumed to be fixed, all variables and all changes are in real terms. The Three -sector Keynesian model is commonly constructed assuming that government purchases are autonomous. This is not a realistic assumption, but it will simplify the analysis.

$$AD = C + I + G$$

$$AS = C + S + T$$

Thus, equilibrium is determined at a point where both aggregate demand and aggregate supply are equal.

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

- (b) Free riders are those who utilise goods without paying for their use. Since private goods are excludable, free riding mostly occurs in the case of public goods. The free rider problem leads to under provision of a good or services and thus causes market failure. The problem occurs because of the failure of Individual to reveal their real or true preferences for the public good through their willingness to pay. Because of the free-rider problem, there is no meaningful demand curve for public goods. If Individuals make no offer to pay for public goods, there is market failure in the case of these goods and the profit- maximising firms will not produce them.
- (c) Monetary Policy is intended to influence macro-economic variables such as aggregate demand, quantity of money, interest rate to influence overall economic performance. There are five different mechanism through which monetary policy influences the price level and the national income:
- (a) the interest rate channel
 - (b) the exchange rate channel
 - (c) the quantum channel (e.g., relating to money supply and credit)
 - (d) the asset price channel via equity and real estate prices and
 - (e) the expectation channel

Changes in monetary policy may have impact on people's expectations about inflation and therefore on aggregate demand. This in turn affects employment and output in the economy.

- (d) An exchange rate regime is the system by which a country manages its currency with respect to foreign currencies. There are two major types of exchange rate regimes namely floating exchange rate regime and fixed exchange rate regime.

A floating exchange rate allows a government to pursue its own independent monetary policy and there is no need for market intervention or maintenance of reserves. However, volatile exchange rates generate a lot of uncertainties with regard to international transaction.