

MOCK TEST PAPER –1
INTERMEDIATE: GROUP – II
PAPER – 8: FINANCIAL MANAGEMENT & ECONOMICS FOR FINANCE
PAPER 8A : FINANCIAL MANAGEMENT

Suggested Answers/ Hints

1. (a) (i) Calculation of Cost of Capital for each source of capital:

(a) Cost of Equity share capital:

$$K_e = \frac{D_0(1+g)}{\text{Market Price per share}(P_0)} + g = \frac{25\% \times ₹100(1+0.05)}{₹200} + 0.05$$

$$= \frac{₹26.25}{₹200} + 0.05 = 0.18125 \text{ or } 18.125\%$$

(b) Cost of Preference share capital (K_p) = 9%

(c) Cost of Debentures (K_d) = $r(1-t)$
 = 11% (1 - 0.3) = 7.7%

(ii) Weighted Average Cost of Capital

Source	Amount (₹)	Weights (a)	After tax Cost of Capital (%) (b)	WACC (%) (c) = (a) × (b)
Equity share	24,00,000	0.60	18.125	10.875
9% Preference share	4,00,000	0.10	9.000	0.900
11% Debentures	12,00,000	0.30	7.700	2.310
	40,00,000	1.00		14.085

(b) Computation of Operating Leverage (OL)

Selling Price = ₹ 21 per unit

Variable Cost = ₹ 13.50 per unit

Fixed Cost = BEP × (Selling price – Variable cost) = 30,000 × (21 – 13.50) = 30,000 × 7.5 = 2,25,000

Particulars	For 37,500 units (₹)	For 45,000 units (₹)
Sales (@ ₹ 21 /unit)	7,87,500	9,45,000
Less: Variable Cost (@ 13.50 /unit)	5,06,250	6,07,500
Contribution	2,81,250	3,37,500
Less: Fixed Cost	2,25,000	2,25,000
Earnings before Interest and tax (EBIT)	56,250	1,12,500
Operating Leverage $\left(\frac{\text{Contribution}}{\text{EBIT}}\right)$	$\left(\frac{2,81,250}{56,250}\right)$	$\left(\frac{3,37,500}{1,12,500}\right)$

Operating Leverage	5 times	3 times
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(c) Ratios for the year 2020-21

(i) Inventory turnover ratio

$$= \frac{\text{COGS}}{\text{Average Inventory}} = \frac{\text{₹ } 7,38,500}{\frac{\text{₹ } (87,500 + 70,000)}{2}} = 9.4$$

(ii) Financial leverage

$$= \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{₹ } 33,250}{\text{₹ } 22,750} = 1.46$$

(iii) ROCE

$$= \frac{\text{EBIT} (1-t)}{\text{Average Capital Employed}} = \frac{\text{₹ } 33,250 (1-0.3)}{\text{₹ } \left(\frac{2,10,000 + 1,92,500}{2} \right)} = \frac{\text{₹ } 23,275}{\text{₹ } 2,01,250} \times 100 = 11.56 \%$$

(d) (i) As per **Gordon's Model**, Price per share is computed using the formula:

$$P_0 = \frac{E_1(1-b)}{K_e - br}$$

Where,

P_0 = Price per share

E_1 = Earnings per share

b = Retention ratio; ($1 - b$ = Pay-out ratio)

K_e = Cost of capital

r = IRR

br = Growth rate (g)

Applying the above formula, price per share

$$P_0 = \frac{30 \times 0.3^*}{0.15 - 0.70 \times 0.2} = \frac{9}{0.01} = \text{₹ } 900$$

$$*\text{Dividend pay-out ratio} = \frac{\text{₹ } 9}{\text{₹ } 30} = 0.3 \text{ or } 30\%$$

(ii) As per **Walter's Model**, Price per share is computed using the formula:

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

Where,

P = Market Price of the share

E = Earnings per share

D = Dividend per share

K_e = Cost of equity/ rate of capitalization/ discount rate

r = Internal rate of return/ return on investment

Applying the above formula, price per share

$$P = \frac{9 + \frac{0.20}{0.15}(30 - 9)}{0.15} = \frac{37}{0.15} = ₹ 246.67$$

2. Calculation of year-wise Cash Inflow

(₹ in crores)

Year	Sales	VC (60% of Sales Value)	FC	Dep.	Profit	Tax (@30%)	PAT	Dep.	Cash inflow
1	17.28	10.368	3.6	4.375	(1.063)	-	(1.0630)	4.375	3.312
2	25.92	15.552	3.6	4.375	2.393	0.3990*	1.9940	4.375	6.369
3	62.4	37.44	3.6	4.375	16.985	5.0955	11.8895	4.375	16.2645
4-5	64.8	38.88	3.6	4.825#	17.495	5.2485	12.2465	4.825	17.0715
6-8	43.2	25.92	3.6	4.825	8.855	2.6565	6.1985	4.825	11.0235

* (30% of 2.393 - 30% of 1.063) = 0.7179 - 0.3189 = 0.3990

4.375 + (2.50 - .25)/5 = 4.825

Calculation of Cash Outflow at the beginning

Particulars	₹
Cost of New Equipment	35,00,00,000
Add: Working Capital	4,00,00,000
Outflow	39,00,00,000

Calculation of NPV

Year	Cash inflows (₹)	PV factor	NPV (₹)
1	3,31,20,000	.893	2,95,76,160
2	6,36,90,000	.797	5,07,60,930
3	16,26,45,000 - 2,50,00,000 = 13,76,45,000	.712	9,80,03,240
4	17,07,15,000	.636	10,85,74,740
5	17,07,15,000	.567	9,67,95,405
6	11,02,35,000	.507	5,58,89,145
7	11,02,35,000	.452	4,98,26,220
8	11,02,35,000 + 4,00,00,000 + 25,00,000 = 15,27,35,000	.404	6,17,04,940
	Present Value of Inflow		55,11,30,780
	Less: Out flow		39,00,00,000
	Net Present Value		16,11,30,780

Advise: Since the project has a positive NPV, it may be accepted.

3. Statement Showing Evaluation of Credit Policies

(₹ in lakhs)

Particulars	Current position (1 month)	Option I (1.5 months)	Option II (2 months)	Option III (3 months)
Sales Revenue	40,00,000	42,00,000	44,00,000	50,00,000

Contribution @ 40%	16,00,000	16,80,000	17,60,000	20,00,000
Increase in contribution over current level (A)	–	80,000	1,60,000	4,00,000
Debtors = ($\frac{\text{Average Collection period} \times \text{Credit Sale}}{12}$)	$\frac{1 \times 40,00,000}{12}$ = 3,33,333.33	$\frac{1.5 \times 42,00,000}{12}$ = 5,25,000	$\frac{2 \times 44,00,000}{12}$ = 7,33,333.33	$\frac{3 \times 50,00,000}{12}$ = 12,50,000
Increase in debtors over current level	–	1,91,666.67	4,00,000.00	9,16,666.67
Cost of funds for additional amount of debtors @ 20% (B)	–	38,333.33	80,000.00	1,83,333.33
Credit administrative cost	24,000	26,000	30,000	60,000
Increase in credit administration cost over present level (C)	–	2,000	6,000	36,000
Bad debts	80,000	1,05,000	1,32,000	2,50,000
Increase in bad debts over current levels (D)	–	25,000	52,000	1,70,000
Net gain/loss A – (B + C + D)	–	14,666.67	22,000.00	10,666.67

Advise: It is suggested that the company GT Ltd. should implement Option II with a net gain of ₹ 22,000 which has a credit period of 2 months.

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

	Particulars	Amount (₹)
A	Selling price per unit	100
B	Variable cost per unit	50
C	Contribution per unit (A - B)	50
D	Number of units sold per year	1.25 Crores
E	Total Contribution (C × D)	₹ 62.50 Crores
F	Fixed cost per year	₹ 12.50 Crores
G	Net cash inflow per year (E - F)	₹ 50 Crores

Calculation of Net Present Value (NPV) of the Project

Year	Year Cash Flow (₹ in Cr.)	PV factor @ 6%	Present Value (PV) (₹ in Cr.)
0	(100.00)	1.000	(100.00)
1	50.00	0.943	47.15
2	50.00	0.890	44.50
3	50.00	0.840	42.00
Net Present Value			33.65

Here, NPV represent the most likely outcomes and not the actual outcomes. The actual outcome can be lower or higher than the expected outcome.

(b) Sensitivity Analysis considering 5 % Adverse Variance in following variable

	Particulars	Base	Selling Price per Unit Reduced to ₹ 95	Variable Cost Per Unit increased to ₹ 52.50	Fixed Cost increased to ₹ 13.125 crores per year
		(₹)	(₹)	(₹)	(₹)
A	Selling price per unit	100	95	100	100
B	Variable cost per unit	50	50	52.50	50
C	Contribution per unit (A - B)	50	45	47.50	50
		(₹ in Cr.)	(₹ in Cr.)	(₹ in Cr.)	(₹ in Cr.)
D	Number of units sold per year (units in Crores)	1.25	1.25	1.25	1.25
E	Total Contribution (C × D)	62.50	56.25	59.375	62.50
F	Fixed cost per year	12.50	12.50	12.50	13.125
G	Net Cash Inflow per year (E - F)	50.00	43.75	46.875	49.375
H	PV of Net cash Inflow per year (G × 2.673)	133.65	116.94	125.30	131.98
I	Initial capital cost	100.00	100	100	100
J	NPV (H - I)	33.65	16.94	25.30	31.98
	Difference in NPV	-	(16.71)	(8.35)	(1.67)
	Percentage Change in NPV	-	(49.66%)	(24.81%)	(4.96%)

The above table shows that by changing one variable at a time by 5% (adverse) while keeping the others constant, the impact in percentage terms on the NPV of the project is maximum in selling price by 49.66%.

(c) For 49.66% change in NPV, Selling Price per Unit needs to be reduced by 5%

Thus, for 100% change in NPV (such that NPV becomes zero), **sensitivity to change in Selling price would be** $= \frac{5}{49.66} \times 100 = 10.07\%$

5. (a) As per MM approach, cost of the capital (K_0) remains constant, and cost of equity increases linearly with debt.

$$\text{Value of a Firm} = \frac{\text{NOI}}{K_0}$$

$$\therefore 1,20,00,000 = \frac{21,60,000}{k_0}$$

$$\therefore K_0 = \frac{21,60,000}{1,20,00,000} = 18\%$$

Under MM approach, $k_e = k_0 + \frac{D}{E}(k_0 - k_d)$

Statement of equity capitalization under MM approach

Debt Value (₹)	Equity Value (₹)	Debt/Equity	K_d (%)	K_0 (%)	$K_0 - k_d$ (%)	$K_e = K_0 + (K_0 - K_d) (D/E)$ (%)
-	1,20,00,000	0.0000	NA	18.00	18.00	18.00
10,00,000	1,10,00,000	0.0909	7.00	18.00	11.00	19.00
20,00,000	1,00,00,000	0.2000	7.00	18.00	11.00	20.20
30,00,000	90,00,000	0.3333	7.50	18.00	10.50	21.50
40,00,000	80,00,000	0.5000	7.50	18.00	10.50	23.25
50,00,000	70,00,000	0.7143	8.00	18.00	10.00	25.14
60,00,000	60,00,000	1.0000	8.50	18.00	9.50	27.50
70,00,000	50,00,000	1.4000	9.00	18.00	9.00	30.60
80,00,000	40,00,000	2.0000	10.00	18.00	8.00	34.00

- (b) **Remedies for Over-Capitalisation:** Following steps may be adopted to avoid the negative consequences of over-capitalisation-

- (i) Company should go for thorough reorganization.
- (ii) Buyback of shares.
- (iii) Reduction in claims of debenture-holders and creditors.
- (iv) Value of shares may also be reduced. This will result in sufficient funds for the company to carry out replacement of assets.

6. (a) **A finance executive of an organisation plays an important role in the company's goals, policies, and financial success. His responsibilities include:**

- (i) **Financial analysis and planning:** Determining the proper amount of funds to employ in the firm, i.e. designating the size of the firm and its rate of growth.
- (ii) **Investment decisions:** The efficient allocation of funds to specific assets.

(iii) **Financing and capital structure decisions:** Raising funds on favourable terms as possible i.e. determining the composition of liabilities.

(iv) **Management of financial resources** (such as working capital).

(v) **Risk management:** Protecting assets.

(b) **Venture Capital Financing:** The venture capital financing refers to financing of new high risky venture promoted by qualified entrepreneurs who lack experience and funds to give shape to their ideas. In broad sense, under venture capital financing, venture capitalist make investment to purchase equity or debt securities from inexperienced entrepreneurs who undertake highly risky ventures with potential to succeed in future.

Some of the characteristics of Venture Capital financing are:

- ◆ It is basically an equity finance in new companies.
- ◆ It can be viewed as a long-term investment in growth-oriented small/medium firms.
- ◆ Apart from providing funds, the investor also provides support in form of sales strategy, business networking and management expertise, enabling the growth of the entrepreneur.

(c) **Inter Corporate Deposits:** The companies can borrow funds for a short period, say 6 months, from other companies which have surplus liquidity. The rate of interest on inter corporate deposits varies depending upon the amount involved and the time period.

Certificate of Deposit (CD): The certificate of deposit is a document of title similar to a time deposit receipt issued by a bank except that there is no prescribed interest rate on such funds.

The main advantage of CD is that banker is not required to encash the deposit before maturity period and the investor is assured of liquidity because he can sell the CD in secondary market.

Or

Features of Plain Vanilla Bond:

- The issuer would pay the principal amount along with the interest rate.
- This type of bond would not have any options.
- This bond can be issued in the form of discounted bond or can be issued in the form of coupon bearing bond.

PAPER 8B: ECONOMICS FOR FINANCE

SUGGESTED ANSWER

1. (a) National Accounts Statistics (NAS) in India are compiled by National Accounts Division in the Central Statistics Office, Ministry of Statistics and Programme Implementation (MOSPI). Annual as well as quarterly estimates are published. This publication is the key source-material for all macroeconomic data of the country. As per the mandate of the Fiscal Responsibility and Budget Management Act 2003, the Ministry of Finance uses the GDP numbers (at current prices) to determine the fiscal targets.

(b) The classical economists maintained that the economy is self-regulating and is always capable of automatically achieving equilibrium at the 'natural level' of real GDP or output, which is the level of real GDP that is obtained when the economy's resources are fully employed. While circumstances arise from time to time that cause the economy to fall below or to exceed the natural level of real GDP, wage and price flexibility will bring the economy back to the natural level of real GDP. If an excess in the labour force (unemployment) or products exist, the wage or price of these will adjust to absorb the excess. According to them, there will be no involuntary unemployment.

Keynes argued that markets would not automatically lead to full-employment equilibrium and the resulting natural level of real GDP. The economy could settle in equilibrium at any level of unemployment. Keynesians believe that prices and wages are not so flexible; they are sticky, especially downward. The stickiness of prices and wages in the downward direction prevents the economy's resources from being fully employed and thereby prevents the economy from returning to the natural level of real GDP.

(c) **By Income Method**

NNP_{FC} or National Income = Compensation of employees + Operating surplus + Mixed Income of self-employed + NFIA

$$= 1000 + 1700 + 900 + 50$$

$$= 3650 \text{ Cr}$$

By Expenditure Method

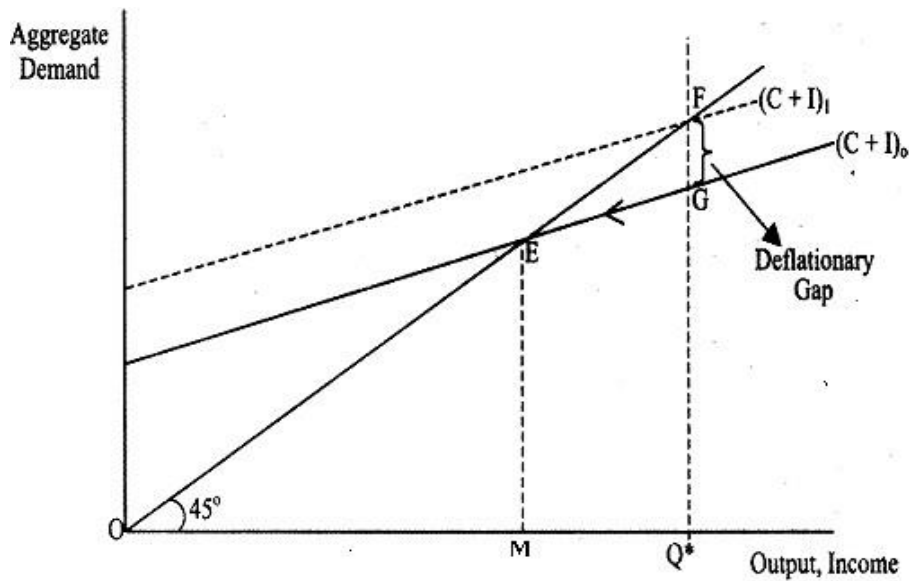
GDP_{MP} = Private Final Consumption Expenditure + Government Final consumption expenditure + Gross domestic Capital formation (Net domestic capital formation + depreciation) + Net Export

$$= 1500 + 1200 + (600 + 200) + 30$$

$$= 3530 \text{ Cr}$$

2. (a) Gross Investment is that part of country's total expenditure which is not consumed but added to the nation's fixed tangible assets and stocks. It consists of the acquisition of fixed assets and the accumulation of stocks. The stock accumulation is in the form of changes in stock of raw materials, fuels, finished goods and semi-finished goods awaiting completion. Thus, gross investment includes final expenditure on machinery and equipment and own account production of machinery and equipment, expenditure on construction, expenditure on changes in inventories, and expenditure on the acquisition of valuables such as, jewellery and works of art.

(b) If the aggregate demand is for an amount of output less than the full employment level of output, then we say there is deficient demand. Deflationary gap is thus a measure of the extent of deficiency of aggregate demand, and it causes the economy's income, output, and employment to decline, thus pushing the economy to under-employment equilibrium.



(Deficient Demand - Deflationary Gap)

(c) $M3 = M1 + \text{Time deposit with banking system}$

= Currency with the Public + Demand deposit with Banks + Other deposit with banks + Time deposit with banking system

= 15000+ 12000+ 70000+10000

= 107000 crores

(d) The presence of monopoly power affects the efficiency of markets in different degrees leading to under-production and higher prices than would exist under conditions of competition. These distort the choices available to consumers and reduce their welfare.

3. (a) According to Keynes, people hold money (M) in cash for three motives:

- (i) Transactions motive,
- (ii) Precautionary motive, and
- (iii) Speculative motive.

The transaction motive for holding cash is directly related to the level of income and relates to 'the need for cash for the current transactions for personal and business exchange.

The amount of money demanded under the precautionary motive is to meet unforeseen and unpredictable contingencies involving money payments and depends on the size of the income, prevailing economic as well as political conditions and personal characteristics of the individual such as optimism/ pessimism, farsightedness etc.

The speculative motive reflects people's desire to hold cash in order to be equipped to exploit any attractive investment opportunity requiring cash expenditure. The speculative demand for money and interest are inversely related.

(b) Escalated Tariff structure refers to the system wherein the nominal tariff rates on imports of manufactured goods are higher than the nominal tariff rates on intermediate inputs and raw materials, i.e., the tariff on a product increase as that product moves through the value-added chain. For example, a four percent tariff on iron ore or iron ingots and twelve percent tariff on steel pipes. This type of tariff is discriminatory as it protects manufacturing industries in importing

countries and dampens the attempts of developing manufacturing industries of exporting countries. This has special relevance to trade between developed countries and developing countries. Developing countries are thus forced to continue to be suppliers of raw materials without much value addition.

- (c) If the central bank of a country wants to stimulate economic activity it does so by infusing liquidity into the system. Let us take the example of open market operations (OMO) by central banks. Purchase of government securities injects high powered money (monetary base) into the system. Assuming that banks do not hold excess reserves and people do not hold more currency than before, and also that there is demand for loans from businesses, the credit creation process by the banking system in the country will create money to the tune of

$$\Delta \text{Money Supply} = 1/R \times \Delta \text{Reserve}$$

The effect of an open market sale is very similar to that of open market purchase, but in the opposite direction. In other words, an open market purchase by central bank will reduce the reserves and thereby reduce the money supply.

- (d) Adam Smith is often described as a bold advocate of free markets and minimal governmental activity. However, Smith saw an important resource allocation role for government when he underlined the role of government in national defence, maintenance of justice and the rule of law, establishment and maintenance of highly beneficial public institutions and public works which the market may fail to produce on account of lack of sufficient profits. Since the 1930s, more specifically as a consequence of the great depression, the state's role in the economy has been distinctly gaining in importance, and therefore, the traditional functions of the state as described above, have been supplemented with what is referred to as economic functions (also called fiscal functions or public finance function). While there are differences among different countries in respect of the nature and extent of government intervention in economies, all of them agree on one point that the governments are expected to play a major role in the economy. This comes out of the belief that government intervention will invariably influence the performance of the economy in a positive way.
4. (a) The SLR is also 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. The SLR requirement also facilitates a captive market for government securities.
- (b) Foreign portfolio investment (FPI) is not concerned with either manufacture of goods or with provision of services. Such investors also do not have any intention of exercising voting power or controlling or managing the affairs of the company in whose securities they invest. The sole intention of a foreign portfolio investor is to earn a remunerative return through investment in foreign securities and is primarily concerned about the safety of their capital, the likelihood of appreciation in its value, and the return generated. Logically, portfolio capital moves to a recipient country which has revealed its potential for higher returns and profitability.
- (c) Price ceilings prevent a price from rising above a certain level. When a price ceiling is set below the equilibrium price, quantity demanded will exceed quantity supplied, and excess demand or shortages will result. For example: maximum prices of food grains and essential items are set by government during times of scarcity. A price ceiling which is set below the prevailing market clearing price will generate excess demand over supply.

A price ceiling will only impact the market if the ceiling is set below the free-market equilibrium price. This is because a price ceiling above the equilibrium price will lead to the product being sold at the equilibrium price. If the ceiling is less than the equilibrium price, the immediate result will be a supply shortage.

(d) Pump priming involves a one-shot injection of government expenditure into a depressed economy with the aim of boosting business confidence and encouraging larger private investment. It is a temporary fiscal stimulus in order to set off the multiplier process. The argument is that with a temporary injection of purchasing power into the economy through a rise in government spending financed by borrowing rather than taxes, it is possible for government to bring about permanent recovery from a slump. Pump priming was widely used by governments in the post-war era in order to maintain full employment; however, it became discredited later when it failed to halt rising unemployment and was held responsible for inflation.

5. (a) A public good (also referred to as a collective consumption good or a social good) is defined as one which all individuals enjoy in common in the sense that each individual's consumption of such a good leads to no subtraction from any other individual's consumption of that good.

National defence has all characteristics of a public good. It yields utility to people; its consumption is essentially nonrival, non-excludable and collective in nature and is characterized by indivisibility. National defence is available for all individuals whether they pay taxes or not and it is impossible to exclude anyone within the country from consuming and benefiting from it. No direct payment by the consumer is involved in the case of defence. Once it is provided, the additional resource cost of another person consuming it is zero. Defence also has the unique feature of public good i.e. it does not conform to the settings of market exchange. Though defence is extremely valuable for the well being of the society, left to market, it will not be produced at all or will be under produced.

(b) This instrument for monetary management was introduced in 2004 following a MoU between the Reserve Bank of India (RBI) and the Government of India (GoI) with the primary aim of aiding the sterilization operations of the RBI. (Sterilization is the process by which the monetary authority sterilizes the effects of significant foreign capital inflows on domestic liquidity by off-loading parts of the stock of government securities held by it). Surplus liquidity of a more enduring nature arising from large capital inflows is absorbed through sale of short-dated government securities and treasury bills. Under this scheme, the Government of India borrows from the RBI (such borrowing being additional to its normal borrowing requirements) and issues treasury-bills/dated securities for absorbing excess liquidity from the market arising from large capital inflows.

(c) When GDP is estimated on the basis of current year's market prices, it is called 'nominal GDP' or 'GDP at current prices. For example, GDP of year 2020-21 may be measured using prices of 2020-21. Nominal GDP changes from year to year for two reasons. First, the amount of goods and services produced changes, and second, market prices change. Changes in GDP due to changes in prices fail to correctly explain the performance of the economy in producing goods and services.

Real GDP is calculated in such a way that the goods and services produced in a particular year are evaluated at some constant set of prices or constant prices. In other words, it is calculated using the prices of a selected 'base year'. For example, if 2011-12 is selected as the base year, then real GDP for 2020-21 will be calculated by taking the quantities of all goods and services produced in 2020-21 and multiplying them by their 2011-12 prices.

(d) $Y = Y - \text{Tax} + \text{Transfer Payments}$
 $= Y - 0.2y + 100$

$$\begin{aligned} &= 0.8Y + 100 \\ C &= 40 + 0.75Y_d \\ &= 40 + 0.75(0.8Y + 100) \\ &= 40 + 0.6Y + 75 \\ &= 115 + 0.6Y \end{aligned}$$

Now

$$\begin{aligned} Y &= C + I + G \\ Y &= 115 + 0.6Y + 60 + 75 \\ Y - 0.6Y &= 250 \\ 0.4Y &= 250 \\ Y &= 250/0.4 = 625 \text{ cr} \end{aligned}$$

Or

Trading Bloc has a group of countries that have a free trade agreement between themselves and may apply a common external tariff to other countries. Example: Arab League (AL), European Free Trade Association (EFTA).