MOCK TEST PAPER

FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

Maximum Marks: 100 **Time Allowed: 3 Hours**

Topic cover in exam

Financial Management

Types of Financing, Cost of Capital, Financing Decisions - Capital Structure, Financing Decisions – Leverages, Dividend Decisions

Economics for Finance

Public Finance - Unit I: Fiscal Functions: An Overview, Unit II: Market Failure, Unit III: Government Interventions to Correct Market Failure, Unit IV: Fiscal Policy

International Trade - Unit II: The Instruments of Trade Policy, Unit III: Trade Negotiations

SECTION – A: FINANCIAL MANAGEMENT (60 Marks)

Answer all questions

Answer 1.

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.

Therefore,

$$K_e = \frac{₹20(1+0.075)}{₹1,460} + 7.5\%$$

$$= 0.0147 + 0.075$$

$$= 0.0897$$

Or, $K_e = 8.97\%$

ii. With rate of return on retained earnings (r) 10% and retention ratio (b) 60%, new growth rate will be as follows:

$g = br$ i.e.

$= 0.10 \times 0.60$

$= 0.06$

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 earnings (r) is same.

With previous Growth Rate of 7.5% and r =10%, the retention ratio comes out to be:

$0.075 = b_1 \times 0.10$

$b_1 = 0.75$ and payout ratio = 0.25

With 0.25 payout ratio the EPS will be as follows:

₹20/0.25 =₹80

With new 0.40 (1 – 0.60) payout ratio, the new dividend will be

$D_1 = ₹ 80 \times 0.40$

$= ₹ 32$

Accordingly, new K_e will be

$$K_e = \frac{32}{1,460} + 6.0\%$$

or, $K_e = 8.19\%$

Answer 2.

a. i. Cost of Equity Capital (K_e):

$$K_e = \frac{\text{Expected dividend per share}(D_1)}{\text{Market price per share}(P_0)} + \text{Growth rate}(g)$$

$$= \frac{₹2 \times 1.06}{₹25} + 0.06$$

$$= 0.1448 \text{ or } 14.48\%$$

ii. Cost of Debenture (K_d):

Using Present Value method or YTM)

Identification of relevant cash flows

Year	Cash flows
0	Current market price (P_0) = ₹ 96
1 to 12	Interest net of tax [I(1-t)] = 10% of ₹ 100 (1 – 0.5) = ₹ 5
12	Redemption value (RV) = ₹ 100 (1.12) = ₹ 112

Calculation of Net Present Values (NPV) at two discount rates

Year	Cash flows	Discount factor @ 5%(L)	Present Value	Discount factor @ 10% (H)	Present Value
0	(96)	1.000	(96.00)	1.000	(96.00)
1 to 12	5	8.863	44.32	6.814	34.07
12	112	0.557	62.38	0.319	35.73
NPV			+10.7		-26.2

Calculation of IRR

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

$$= 5\% + \frac{10.7}{10.7 - (-26.2)}(10\% - 5\%)$$

$$= 5\% + \frac{53.6}{36.9}$$

$$= 6.45\%$$

Therefore, K_d = 6.45%

b. The capital investment can be financed in two ways i.e.

i. By issuing equity shares only worth ₹ 9 crore or

ii. By raising capital through taking a term loan of ₹ 6 crores and ₹ 3 crores through issuing equity shares (as the company has to comply with the 2 : 1 Debt Equity ratio insisted by financing agencies).

In first option interest will be Zero and in second option the interest will be ₹ 72,00,000

Point of Indifference between the above two alternatives =

$$\frac{EBIT_1 \times (1-t)}{No.\,of\ equity\ shares\,(N_1)} = \frac{(EBIT_2 - Interest) \times (1-t)}{No.\,of\ equity\ shares\,(N_2)}$$

$$\text{Or,}\quad \frac{EBIT\,(1-0.30)}{90,00,000\ shares} = \frac{(EBIT - ₹\,72,00,000)x\,(1-0.30)}{30,00,000\ shares}$$

Or, 0.7 EBIT = 2.1 EBIT – ₹ 1,51,20,000

EBIT = ₹ 1,08,00,000

EBIT at point of Indifference will be ₹ 1.08 crore.

(The face value of the equity shares is assumed as ₹ 10 per share. However, indifference point will be same irrespective of face value per share).

Answer 3.

i. Amount of debt to be employed by firm as per traditional approach

Calculation of Equity, W_d and W_e

Total Capital (₹)	Debt (₹)	W_d	Equity value (₹)	W_e
(a)	(b)	(b)/(a)	(c) = (a) - (b)	(c)/(a)
50,00,000	0	-	50,00,000	1.0
50,00,000	5,00,000	0.1	45,00,000	0.9
50,00,000	10,00,000	0.2	40,00,000	0.8
50,00,000	15,00,000	0.3	35,00,000	0.7
50,00,000	20,00,000	0.4	30,00,000	0.6
50,00,000	25,00,000	0.5	25,00,000	0.5
50,00,000	30,00,000	0.6	20,00,000	0.4

Statement of Weighted Average Cost of Capital (WACC)

K_e	W_e	K_d	W_d	$K_e W_e$	$K_d W_d$	K_o
(1)	(2)	(3)	(4)	(5) = (1) x (2)	(6) = (3) x (4)	(7) = (5) + (6)
0.100	1.0	-	-	0.100	-	0.100
0.105	0.9	0.060	0.1	0.095	0.006	0.101
0.110	0.8	0.060	0.2	0.088	0.012	0.100
0.113	0.7	0.062	0.3	0.079	0.019	0.098
0.124	0.6	0.070	0.4	0.074	0.028	0.102
0.135	0.5	0.075	0.5	0.068	0.038	0.106
0.160	0.4	0.080	0.6	0.064	0.048	0.112

So, amount of Debt to be employed = ₹ 15,00,000 as WACC is minimum at this level of debt i.e. 9.8%.

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

$$\text{Value of a firm} = \frac{\text{Net Operating Income (NOI)}}{K_0}$$

$$₹\ 50,00,000 = \frac{₹\ 5,00,000}{K_o}$$

$$K_o = \frac{₹\ 5,00,000}{₹\ 50,00,000} = 10\%$$

Statement of Equity Capitalization rate (k_e) under MM approach

Debt (₹)	Equity (₹)	Debt/Equity	K_o	K_d	$K_o - K_d$	$K_e = K_o + (K_o - K_d)\frac{\text{Debt}}{\text{Equity}}$
(1)	(2)	(3) = (1)/(2)	(4)	(5)	(6) = (4) -(5)	(7) = (4) + (6) x (3)
0	50,00,000	0	0.10	-	0.100	0.100
5,00,000	45,00,000	0.11	0.10	0.060	0.040	0.104
10,00,000	40,00,000	0.25	0.10	0.060	0.040	0.110
15,00,000	35,00,000	0.43	0.10	0.062	0.038	0.116
20,00,000	30,00,000	0.67	0.10	0.070	0.030	0.120
25,00,000	25,00,000	1.00	0.10	0.075	0.025	0.125
30,00,000	20,00,000	1.50	0.10	0.080	0.020	0.130

Answer 4.

Statement showing Profitability of Alternative Schemes for Financing

(₹ in '00,000)

Particulars	Existing	Alternative Schemes		
		(i)	(ii)	(iii)
Equity Share capital (existing)	10	10	10	10
New issues	-	10	5	-
	10	**20**	**15**	**10**
7% debentures	10	10	10	10
6% debentures	-	-	5	10
	20	**30**	**30**	**30**
Debenture interest (7%)	0.7	0.7	0.7	0.7
Debenture interest (6%)	-	-	0.3	0.6
	0.7	**0.7**	**1.0**	**1.3**
Output (units in lakh)	1	1.5	1.5	1.5
Contribution per. unit (₹) (Selling price - Variable Cost)	**20**	**22**	**22**	**22**
Contribution (₹ lakh)	**20**	**33**	**33**	**33**
Less: Fixed cost	10	15	15	15
EBIT	**10**	**18**	**18**	**18**
Less: Interest (as calculated above)	0.7	0.7	1.0	1.3
EBT	**9.3**	**17.3**	**17**	**16.7**
Less: Tax (40%)	3.72	6.92	6.8	6.68
EAT	**5.58**	**10.38**	**10.20**	**10.02**
Operating Leverage (Contribution /EBIT)	**2.00**	**1.83**	**1.83**	**1.83**
Financial Leverage (EBIT/EBT)	**1.08**	**1.04**	**1.06**	**1.08**
Combined Leverage (Contribution/EBT)	**2.15**	**1.91**	**1.94**	**1.98**
EPS (EAT/No. of shares) (₹)	**5.58**	**5.19**	**6.80**	**10.02**
Risk	**-**	**Lowest**	**Lower than option (3)**	**Highest**
Return	**-**	**Lowest**	**Lower than option (3)**	**Highest**

From the above figures, we can see that the Operating Leverage is same in all alternatives though Financial Leverage differs. Alternative (iii) uses the maximum amount of debt and result into the highest degree of financial leverage, followed by alternative (ii). Accordingly, risk of

the company will be maximum in these options. Corresponding to this scheme, however, maximum EPS (i.e., ₹ 10.02 per share) will be also in option (iii).

So, if Navya Ltd. is ready to take a high degree of risk, then alternative (iii) is strongly recommended. In case of opting for less risk, alternative (ii) is the next best option with a reduced EPS of ₹ 6.80 per share. In case of alternative (i), EPS is even lower than the existing option, hence not recommended.

Answer 5.

a. Operating Leverage (OL) $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{EBIT + Fixed Cost}}{\text{EBIT}}$

$$= \frac{₹\ 31,50,000 + ₹\ 1,57,500}{₹\ 31,50,000}$$

$$= 1.05$$

Financial Leverage (FL) $= \frac{\text{EBIT}}{\text{EBT}}$

$$= \frac{₹\ 31,50,000}{₹\ 14,00,000}$$

$$= 2.25$$

Combined Leverage (CL) $= 1.05 \times 2.25$

$$= 2.3625$$

Percentage Change in Earnings per share

$$\text{DCL} = \frac{\%\text{ change in EPS}}{\%\text{ change in Sales}}$$

$$2.3625 = \frac{\%\text{change in EPS}}{10\%}$$

$\therefore$ % change in EPS = 23.625%.

Hence, if sale is increased by 10%, EPS will be increased by 23.625%.

b. Price per share according to Gordon's Model is calculated as follows:

Particulars	Amount (₹)
Net Profit	50 lakhs
Less: Preference dividend	15 lakhs
Earnings for equity shareholders	35 lakhs
Therefore, earning per share	35 lakhs/5 lakhs = ₹ 7.00

Price per share according to Gordon's Model is calculated as follows:

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

Here, $E_1 = 7$, $K_e = 16\%$

i. When dividend pay-out is 25%

$$P_0 = \frac{7 \times 0.25}{0.16 - (0.75 \times 0.2)} = \frac{1.75}{0.16 - 0.15} = 175$$

ii. When dividend pay-out is 50%

$$P_0 = \frac{7 \times 0.5}{0.16 - (0.5 \times 0.2)} = \frac{3.5}{0.16 - 0.10} = 58.33$$

iii. When dividend pay-out is 100%

$$P_0 = \frac{7 \times 1}{0.16 - (0 \times 0.2)} = \frac{7}{0.16} = 43.75$$

Answer 6.

Workings:

(a) Value of Debt $= \dfrac{\text{Interest}}{\text{Cost of debt } (K_d)}$

$$= \frac{₹\ 7,50,000}{0.08} = ₹\ 93,75,000$$

(b) Value of equity capital $= \dfrac{\text{Operating profit} - \text{Interest}}{\text{Cost of equity } (K_e)}$

$$= \frac{₹\ 34,50,000 - ₹\ 7,50,000}{0.16} = ₹\ 1,68,75,000$$

(c) New Cost of equity (K_e) after proposal

$$= \frac{\text{Increased Operating profit - Interest on Increased debt}}{\text{Equity capital}}$$

$$= \frac{(₹\ 34,50,000 + ₹\ 14,25,000) - (₹\ 7,50,000 + ₹\ 6,00,000)}{₹\ 1,68,75,000}$$

$$= \frac{₹\ 48,75,000 - ₹\ 13,50,000}{₹\ 1,68,75,000} = \frac{₹\ 35,25,000}{₹\ 1,68,75,000} = 0.209 \text{ or } 20.9\%$$

(i) Calculation of Weighted Average Cost of Capital (WACC) before the new proposal

Sources	Amount (₹)	Weight	Cost of Capital	WACC
Equity	1,68,75,000	0.6429	0.160	0.1029
Debt	93,75,000	0.3571	0.080	0.0286
Total	**2,62,50,000**	**1**		**0.1315 or 13.15 %**

(ii) Calculation of Weighted Average Cost of Capital (WACC) after the new proposal

Sources	Amount (₹)	Weight	Cost of Capital	WACC
Equity	1,68,75,000	0.5000	0.209	0.1045
Debt	1,68,75,000	0.5000	0.080	0.0400
Total	**3,37,50,000**	**1**		**0.1445 or 14.45 %**

SECTION – B: ECONOMICS FOR FINANCE (40 Marks)

Answer all questions

Answer 7.

a. Spending multiplier = 1/(1-MPC).

MPC = Increase in Consumption/ Increase in Income

= (42,500−35,400)/ (50,000 − 42,300)

= 0.922

Multiplier = 1/(1-0.922)

= 1/(0.078)

= 12.83

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

- final public goods which are 'outcomes' such as ozone layer preservation or climate change prevention, or
- intermediate public goods, which contribute to the provision of final public goods. e.g., international health regulations

The World Bank identifies five areas of global public goods which it seeks to address: namely, the environmental commons (including the prevention of climate change and biodiversity), communicable diseases (including HIV/AIDS, tuberculosis, malaria, and avian influenza), international trade, international financial architecture, and global knowledge for development.

c. Fiscal policy is in the nature of a demand-side policy. An economy which is producing at full-employment level does not require government action in the form of fiscal policy. when an economy expands, employment increases, with progressive system of taxes people have to pay higher taxes as their income rises. This leaves them with lower disposable income and thus causes a decline in their consumption and therefore aggregate demand.

Similarly, corporate profits tend to be higher during an expansionary phase attracting higher corporate tax payments. With higher income taxes, firms are left with lower surplus

causing a decline in their investments and thus in the aggregate demand. Governments may directly as well as indirectly influence the way resources are used in an economy. Governments influence the economy by changing the level and types of taxes, the extent and composition of spending, and the quantity and form of borrowing.

d. When a country enjoys the best trade terms given by its trading partner it is said to enjoy the Most Favored Nation (MFN) status. Originally formulated as Article 1 of GATT, this principle of non discrimination states that any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be extended immediately and unconditionally to the like product originating or destined for the territories of all other contracting parties . Under the WTO agreements, countries cannot normally discriminate between their trading partners. If a country improves the benefits that it gives to one trading partner, (such as a lower a trade barrier, or opens up a market), it has to give the same best treatment to all the other WTO members too in respect of the same goods or services so that they all remain 'most-favoured'. As per the WTO agreements, each member treats all the other members equally as "most-favoured" trading partners.

Answer 8.

a. A tariff levied on an imported product affects both the country exporting a product and the country importing that product.

i. Tariff barriers create obstacles to trade, decrease the volume of imports and exports and therefore of international trade. The prospect of market access of the exporting country is worsened when an importing country imposes a tariff.

ii. By making imported goods more expensive, tariffs discourage domestic consumers from consuming imported foreign goods. Domestic consumers suffer a loss in consumer surplus because they must now pay a higher price for the good and also because compared to free trade quantity, they now consume lesser quantity of the good.

iii. Tariffs encourage consumption and production of the domestically produced import substitutes and thus protect domestic industries.

iv. Producers in the importing country experience an increase in well -being as a result of imposition of tariff. The price increase of their product in the domestic market increases producer surplus in the industry. They can also charge higher prices than would be possible in the case of free trade because foreign competition has reduced.

v. The price increase also induces an increase in the output of the existing firms and possibly addition of new firms due to entry into the industry to take advantage of the new high profits and consequently an increase in employment in the industry.

vi. Tariffs create trade distortions by disregarding comparative advantage and prevent countries from enjoying gains from trade arising from comparative advantage. Thus, tariffs discourage efficient production in the rest of the world and encourage inefficient production in the home country.

vii. Tariffs increase government revenues of the importing country by the value of the total tariff it charges.

b. 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.

c. Richard Musgrave in his classic treatise "The Theory of Public Finance" introduced the three- branch taxonomy of the role of government in a market economy. The functions of the government are to be separated into three namely: resource allocation, income redistribution and macroeconomic stabilization. The allocation and redistribution function are primarily microeconomic functions while stabilization is a macroeconomic function. The allocation function aims to correct the sources of inefficiency in the economic system while distribution role ensures that the distribution of wealth and income is fair. Monetary and fiscal Policy, maintenance of high levels of employment and price stability fall under the stabilization function.

d. Government's fiscal policy has a strong influence on the performance of the macro economy in terms of employment, price stability, economic growth, and external balances. Proceeds from progressive taxes to be used for financing public services, especially those that benefit low -income households (for example, supply of essential food grains at highly subsidized prices to BPL households). The challenge before any government is how to design its budgetary policy so that the pursuit of one goal does not jeopardize the other.

Answer 9.

a. The major issues are:

i. The progress of multilateral negotiations on trade liberalization is very slow and the requirement of consensus among all members acts as a constraint and creates rigidity in the system. As a result, countries find regionalism a plausible alternative.

ii. The complex network of regional agreements introduces uncertainties and murkiness in the global trade system.

iii. While multilateral efforts have effectively reduced tariffs on industrial goods, the achievement in liberalizing trade in agriculture, textiles, and apparel, and in many other areas of international commerce has been negligible.

iv. The latest negotiations, such as the Doha Development Round, have run into problems, and their definitive success is doubtful.

v. Most countries, particularly developing countries are dissatisfied with the WTO because, in practice, most of the promises of the Uruguay Round agreement to expand global trade has not materialized.

vi. The developing countries have raised a number of concerns and a few are presented here:

- The real expansion of trade in the three key areas of agriculture, textiles and services has been dismal.
- Protectionism and lack of willingness among developed countries to provide market access on a multilateral basis has driven many developing countries to seek regional alternatives.
- The developing countries have raised a number of issues in the Doha Agenda in respect of the difficulties that they face in implementing the present agreements.
- The North-South divide apparent in the WTO ministerial meets has fuelled the apprehension of developing countries about the prospect of trade expansion under the WTO regime.
- Developing countries complain that they face exceptionally high tariffs on selected products in many markets and this obstructs their vital exports.
- Another major issue concerns 'tariff escalation' where an importing country protects its processing or manufacturing industry by setting lower duties

on imports of raw materials and components, and higher duties on finished products.

- There is also possible erosion of preferences i.e. the special tariff concessions granted by developed countries on imports from certain developing countries have become less meaningful because of the narrowing of differences between the normal and preferential rates.
- The least-developed countries find themselves disproportionately disadvantaged and vulnerable with regard to adjustments due to lack of human as well as physical capital, poor infrastructure, inadequate institutions, political instabilities etc.

b. The GATT lost its relevance by 1980s because-

i. It was obsolete to the fast evolving contemporary complex world trade scenario characterized by emerging globalization.
ii. International investments had expanded substantially.
iii. Intellectual property rights and trade in services were not covered by GATT.
iv. World merchandise trade increased by leaps and bounds and was beyond its scope.
v. The ambiguities in the multilateral system could be heavily exploited.
vi. Efforts at liberalizing agricultural trade were not successful.
vii. There were inadequacies in institutional structure and dispute settlement system.
viii. It was not a treaty and therefore terms of GATT were binding only insofar as they are not incoherent with a nation's domestic rules.

c. 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.

Answer 10.

a. The Problem of the Tragedy of commons was first described by Garrett Hardin. Economists used the term to describe the problem which occurs when rivalrous and non-excludable goods are overused to the disadvantage of the entire world. The term

"commons "is derived from the traditional English legal term of "Common land " where farmers / peasant would graze their livestock, hunt and collect wild plants and other produce. Everyone has access to a commonly held pasture there and are no rules for sustainable numbers for grazing. The outcome of the individual rational economic decisions of cattle owners was market failure because these actions resulted in degradation, depletion or even destruction of the resource leading to welfare loss for the entire society.

b. i. $\frac{1}{MPS} = \frac{1}{1-MPC}$

= 1/(1 - 0.6)

= 1/0.4

= 2.5

ii. & iii. Change in GDP = Initial Change in Spending x (1−MPC)

50 x 2.5 = 125 billion

c. The level of disposable income Y_d is given by

Y_d = Y-Tax + Transfer Payments, Where, Transfer Payment = 110

= Y -0.2 Y +110 = 0.8Y +110,

and C = 50+0.75 Y_d

= 50+0.75(0.8Y +110)(where Y_d = 0.8Y +110)

= 50+(0.75×0.8Y) + (0.75X110) =132.50+0.6Y

C = 132.50+0.6 Y

Now Y = C+I+G, Where C = 132.50+0.6Y, I = 100 , G = 200(Given)

Y = (132.50+0.6Y)+100+200

= 432.50+0.6Y

Y-0.6Y= 0.4Y = 432.50

or Y = 432.50/0.4 = 1,081.25 Crores

Expenditure Multiplier $= \frac{1}{1-b} = \frac{1}{1-0.6} = 2.5$ $\left(\text{Multiplier in closed economy } \frac{1}{1-b}\right)$

$\left(\text{Here } b = MPC = \frac{\Delta C}{\Delta Y}\right)$