A positive NPV Training Center

MOCK TEST PAPER

FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

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

Topic cover in question paper

Financial Management: *Investment Decisions(Capital Budgeting) & Risk Analysis in Capital Budgeting*

Economics for Finance : *National Income, The Keynesian Theory & Theories of International Trade*

SECTION – A: FINANCIAL MANAGEMENT (60 Marks)

Answer all questions

Question 1.

NavJeevani hospital is considering to purchase a machine for medical projectional radiography which is priced at ₹ 2,00,000. The projected life of the machine is 8 years and has an expected salvage value of ₹ 18,000 at the end of 8th year. The annual operating cost of the machine is ₹ 22,500. It is expected to generate revenues of ₹ 1,20,000 per year for eight years. Presently, the hospital is outsourcing the radiography work to its neighbour Test Center and is earning commission income of ₹ 36,000 per annum, net of taxes.

Required:

ANALYSE whether it would be profitable for the hospital to purchase the machine? Give your recommendation under:

i. Net Present Value method

ii. Profitability Index method.

Consider tax @30%. PV factors at 10% are given below:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467

5 + 5 = 10 Marks

Question 2.

SL Ltd. has invested ₹1,000 lakhs in a project. The risk-free rate of return is 5%. Risk premium expected by the Management is 10%. The life of the project is 5 years. Following are the cash flows that are estimated over the life of the project.

Year	Cash flows (₹ in lakhs)
1	125
2	300
3	375
4	400
5	325

Calculate Net Present Value of the project based on Risk free rate and also on the basis of Risks adjusted discount rate.

10 Marks

Question 3.

The General Manager of Merry Ltd. is considering the replacement of five -year-old equipment. The company has to incur excessive maintenance cost of the equipment. The equipment has zero written down value. It can be modernized at a cost of ₹ 1,40,000 enhancing its economic life to 5 years. The equipment could be sold for ₹ 30,000 after 5 years. The modernization would help in material handling and in reducing labour , maintenance & repairs costs.

The company has another alternative to buy a new machine at a cost of ₹ 3,50,000 with an economic life of 5 years and salvage value of ₹ 60,000. The new machine is expected to be more efficient in reducing costs of material handling, labour , maintenance & repairs, etc.

The annual cost are as follows:

	Existing Equipment (₹)	Modernization (₹)	New Machine (₹)
Wages & Salaries	45,000	35,500	15,000
Supervision	20,000	10,000	7,000
Maintenance	25,000	5,000	2,500
Power	30,000	20,000	15,000
	1,20,000	70,500	39,500

Assuming tax rate of 50% and required rate of return of 10%, should the company modernize the equipment or buy a new machine?

PV factor at 10% are as follows:

Year	**1**	**2**	**3**	**4**	**5**
PV factor	0.909	0.826	0.751	0.683	0.621

10 marks

Question 4.

PNR Ltd. is considering a project with the following Cash flows:

Years	Cost of Plant (₹)	Running Cost (₹)	Savings (₹)
0	12,00,00,000		
1		4,00,00,000	12,00,00,000
2		5,00,00,000	14,00,00,000
3		6,00,00,000	11,00,00,000

The cost of capital is 12%. Measure the sensitivity of the project to changes in the levels of plant cost, running cost and savings (considering each factor at a time) such that the NPV becomes zero. The P.V. factors at 12% are as under:

Year	0	1	2	3
PV factor @12%	1	0.892	0.797	0.711

Determine the factor which is the most sensitive to affect the acceptability of the project?

10 Marks

Question 5.

A&R Ltd. has under its consideration a project with an initial investment of ₹ 90,00,000. Three probable cash inflow scenarios with their probabilities of occurrence have been estimated as below:

Annual cash inflow (₹)	20,00,000	30,00,000	40,00,000
Probability	0.2	0.7	0.1

The project life is 5 years and the desired rate of return is 18%. The estimated terminal values for the project assets under the three probability alternatives, respectively, are ₹ 0, ₹ 20,00,000 and ₹ 30,00,000.

You are required to:

i. Calculate the probable NPV;

ii. Calculate the worst-case NPV and the best-case NPV; and

iii. State the probability occurrence of the worst case, if the cash flows are perfectly positively correlated over time.

4 + 4 + 2 = 10 Marks

Question 6.

A large profit making company is considering the installation of a machine to process the waste produced by one of its existing manufacturing process to be converted into a marketable product. At present, the waste is removed by a contractor for disposal on payment by the company of ₹ 150 lakh per annum for the next four years. The contract can be terminated upon installation of the aforesaid machine on payment of a compensation of ₹ 90 lakh before the processing operation starts. This compensation is not allowed as deduction for tax purposes.

The machine required for carrying out the processing will cost ₹ 600 lakh to be financed by a loan repayable in 4 equal instalments commencing from end of the year- 1. The interest rate is 14% per annum. At the end of the 4th year, the machine can be sold for ₹ 60 lakh and the cost of dismantling and removal will be ₹ 45 lakh.

Sales and direct costs of the product emerging from waste processing for 4 years are estimated as under:

(₹ In lakh)

Year	1	2	3	4
Sales	966	966	1,254	1,254
Material consumption	90	120	255	255
Wages	225	225	255	300
Other expenses	120	135	162	210
Factory overheads	165	180	330	435
Depreciation (as per income tax rules)	150	114	84	63

Initial stock of materials required before commencement of the processing operations is ₹ 60 lakh at the start of year 1. The stock levels of materials to be maintained at the end of year 1, 2 and 3 will be ₹ 165 lakh and the stocks at the end of year 4 will be nil. The storage of materials will utilise space which would otherwise have been rented out for ₹ 30 lakh per annum. Labour costs include wages of 40 workers, whose transfer to this process will reduce idle time payments of ₹ 45 lakh in the year- 1 and ₹ 30 lakh in the year- 2. Factory overheads include apportionment of general factory overheads except to the extent of insurance charges of ₹ 90 lakh per annum payable on this venture. The company's tax rate is 30%.

Present value factors for four years are as under:

Year	1	2	3	4
PV factors @14%	0.877	0.769	0.674	0.592

ADVISE the management on the desirability of installing the machine for processing the waste. All calculations should form part of the answer.

10 Marks

SECTION – B: ECONOMICS FOR FINANCE (40 Marks)

Answer all questions

Question 7.

a. An economy is in equilibrium. Calculate national income from the following:

Autonomous consumption	= 100;
Marginal propensity to save	= 0.2;
Investment expenditure	= 200

2 Marks

b. If the consumption function is C= 250 + 0.80 Y and I = 300.
Find out equilibrium level of Y, C and S?

1 + 1 + 1 = 3 Marks

c. Briefly explain the New Trade Theory and its importance.

3 Marks

d. A sells a used car to B and receives Rs. 60,000. How much of the sale proceeds will be included in national income calculation?

2 Marks

Question 8.

a. From the following data, estimate National Income and Personal Income.

Items	₹. in Crores
Net national product at market price	1,891
Income from property and entrepreneurship accruing to government administrative departments	45
Indirect taxes	175

Subsidies	30
Saving of non-departmental enterprises	10
Interest on National debt	15
Current transfers from government	35
Current transfers from rest of the world	20
Saving of private corporate sector	25
Corporate profit tax	25

2 + 3 = 5 Marks

b. From the following data calculate

(i) Gross Domestic Product at Factor Cost, and

(ii) Gross Domestic Product at Market price

Items	**₹ in Crores**
Gross national product at factor cost	61,500
Net exports	(-) 50
Compensation of employees	3000
Rent	800
Interest	900
Profit	1,300
Net indirect taxes	300
Net domestic capital formation	800
Gross domestic capital formation	900
Factor income to abroad	80

3 + 2 = 5 Marks

Question 9.

a. Countries Rose Land and Daisy land have a total of 4000 hours each of labour available each day to produce shirts and trousers. Both countries use equal number of hours on each good each day. Rose Land produces 800 shirts and 500 trousers per day. Daisy land produces 500 shirts and 250 trousers per day.

In the absence of trade:

i. Which country has absolute advantage in producing

b. Shirts

c. Trousers

ii. Which country has comparative advantage in producing

a. Shirts

b. Trousers

2 + 2 = 4 Marks

b. The table below shows the number of labour hours required to produce wheat and cloth in two countries X and Y.

Commodity	Country X	Country Y
I unit of cloth	4	1.0
I unit of wheat	2	2.5

i. Compare the productivity of labour in both countries in respect of both commodities

ii. Which country has absolute advantage in the production of wheat?

iii. Which country has absolute advantage in the production of cloth?

iv. If there is trade, which commodity should these countries produce?

v. What are the opportunity costs of each commodity?

2 + 1 + 1 + 1 + 1 = 6 Marks

Question 10.

a. Given the following data, determine the National Income of a country using **expenditure method** and **income method**:

Particulars	₹ in Crores
Private Final Consumption Expenditure	1000
Government Final Consumption Expenditure	550
Compensation of Employees	600
Net Exports	-15
Net Indirect Taxes	60
Net Domestic Fixed Investment	385
Consumption of Fixed Capital Formation	65
Net Factor Income from Abroad	-10
Interest	310
Rent	200
Mixed Income of Self-Employed	350
Profit	400

4 + 3 = 7 Marks

b. Given the following equations:

C = 50 + 0.6Yd
I = 160
T = 30
G = 28
X-M = 20 - 0.05 Y

i. Find the equilibrium level of income.

ii. Find the net exports at equilibrium.

iii. Find the income and net exports when investment increases to 195.

1 + 1 + 1 = 3 Marks