Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.TECH (ME/PE/AUE)/SEM-7/HU-702/2009-10

2009

ENGINEERING ECONOMY AND FINANCIAL MANAGEMENT

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Graph sheet(s) will be provided by the institution.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

i) Break-even point is a point at which the firm makes

a) Zero profit b) Normal profit

c) Super profit d) None of these.

ii) Margin of Safety means

a) BEP sales (–) Actual sales

b) Actual sales (–) BEP sales

c) Budgeted sales (–) BEP sales

d) None of these.

iii) Workinng Capital means

a) Current Assets (–) Non-current Liabilities

b) Non-current Assets (–) Current liabilities

c) Current Asets (–) Non-current liabilities

d) None of these.

iv) Current ratio measures

a) the solvency of the business

b) the liquidity of the business

c) the profitability of the business

d) the efficiency of the business.

v) Materials issued are priced at the latest purchase in

a) FIFO b) Simple average

c) HIFO d) LIFO.

vi) Marginal costing is

a) a system of costing

b) a method of costing

c) a distinct technique of costing

d) none of these.

vii) When $e = 0$, elasticity of demand is

a) perfectly elastic b) unitary

c) inelastic d) perfectly inelastic.

viii) Inferior goods are those for which price elasticity (E_p) is

a) postive b) negative

c) one d) zero.

ix) An indifference curve is

a) convex to the origin

b) concave to the origin

c) straight line

d) circular.

x) Break-even point indicates the volume of production related to

a) profit b) poss

c) no profit no loss d) none of these.

xi) If output increases by the same proportion as capital it is

a) decreasing returns to scale

b) increasing returns to scale

c) constant returns to scale

d) none of these.

xii) Cobb-Douglas production function has the form

a) $X = b_0 L^{b1} K^{b2}$

b) $X = b_0 L^{b1} + K^{b2}$

c) $X = b_0 LK$

d) $X = b_0 L^{b1} - K^{b2}$.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Explain the effect of technology on economy.

3. Differentiate between NPV and IRR in the decision making process.

4. a) Define cost functions.

   b) How can you differentiate short run and long run cost functions ? 2 + 3

5. State the role of working capital in industry.

6. Distinguish between cardinal utility and ordinal utility. Which is more realistic ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) Suppose in a typical Kolkata market the average price of a jackfruit is Rs. 10. Because of a large number of sellers, the price will not be affected by new entrant in the market. Suppose a firm's cost function is

   $TC = 1000 + 2Q + 0{\cdot}01\ Q^2$. To maximize profit how many jackfruits must be produced ? How much profit will the firm make ? 10

   b) What is the shape of the average total cost curve (AC) ? Explain graphically or algebraically why is it so ? 1 + 4

8. a) What do you understand by Factory overhead ?

b) In a manufacturing concern there are four Departments *viz, A, B, C* and *D*. The overhead expenses incurred in a year as follows :

Particulars	***Rs.***
Rent	2,000
Depreciation	900
Repairs (base-wage)	1,200
Light	200
Supervision	3,000
Insurance	1,000
Employee insurance	300
Power	1,800

The following data are also available regarding the Departments :

Particulars	***A***	***B***	***C***	***D***
Floor space occupied (sq.ft.)	150	110	90	50
Value of plant (Rs.)	24,000	18,000	12,000	6,000
Value of stock (Rs.)	15,000	9,000	6,000	—
No. of workers	24	16	12	8
Total wages	8,000	6,000	4,000	2,000

Apportion the cost to the various departments on the most equitable method. 3 + 12

9. a) The relevant financial information for Xevier Limited for the year ended 2009 is given below :

Profit and loss account data (*Rs. million*)			*Balance Sheet data*	
			Beginning of 2009	End of 2009
Sales	80	Inventory	9	12
Cost of goods sold	56	Accounts receivable	12	16
		Accounts payable	7	10

What is the length of operating cycle and cash cycle ? Assume 365 days to a year. 5

b) The expected cash flows of a project are as follows :

Year	*Cash flow (Rs.)*
0	– 1,00,000
1	20,000
2	30,000
3	40,000
4	50,000
5	30,000

The cost of capital is 12%. Calculate the followings :

i) Net Present Value

ii) Benefit-cost Ratio

iii) Internal Rate of Return

iv) Modified Internal Rate of return

v) Discounted Payback period. 10

10. a) A product passes through two processes, *A* and *B*, during the month ended June 30, 1,500 units were produced. The detail cost break up is as follows :

	Process A *Rs.*	*Process B* *Rs.*
Direct materials	90,000	75,000
Direct labour	75,000	1,50,000
Direct expenses	15,000	18,000

Indirect overhead cost during the period was Rs. 60,000 apportioned to the processes on the basis of direct labour cost. No work-in-progress existed at the beginning and end of the period. Prepare relevant process accounts. 5

b) The following annual figures related to *XYZ* Co. :

	Rs.
Sales (at two months' credit)	36,00,000
Materials consumed (suppliers extend two months credit)	9,00,000
Wages paid (monthly in arrear)	7,20,000
Manufacturing expenses outstanding at the end of the year (Cash expenses are paid one month in arrear)	80,000
Total administrative expenses, paid as above	2,40,000
Sales promotion expenses, paid quarterly in advance	1,20,000

The company sells its products on gross profit of 25 per cent counting depreciation as part of the cost of production. It keeps one month stock each of raw materials and finished goods and a cash balance of Rs. 1,00,000.

Assuming a 20 per cent safety margin, calculate the working capital requirements of the company on cash cost basis. Ignore work-in-process. 10

11. Write short notes on any *three* of the following : 3 × 5

a) Earning per share (EPS)

b) Acid Test Ratio

c) Sunk cost

d) Marginal Utility

e) Opportunity cost.