Bachelor of Mechanical Engineering Examination, 2019

(4th Year, 2nd Semester)

Engineering Economics and Costing

Time: Three Hours **Full Marks: 100**

Different parts of the same question should be answered together

Answer any five questions. (Only first five answered questions shall be examined.) **5 x 20 = 100**

1. Write short notes on any four of the following: **4 x 5**
   (i) features of perfect competition; **(ii)** least cost combination of inputs; **(iii)** advantages of cost-plus pricing; **(iv)** market skimming pricing; **(v)** price controls;**(vi)** production possibility frontier.

2. How does 'scarcity' impact economic decision making? Describe in your own words importance of economics for engineers. Explain the concept of comparative advantage of countries from economic point of view. Describe in your own words 'central problems' of an economy. Illustrate pricing under very short-run for perfect competition. **3 + 3 + 3 + 6 + 5**

3. Enumerate advantages of joint-stock companies. Describes types of joint ventures in India. Explain forms of PPP in Indian context. Summarise functions of RBI. **3 + 6 + 6 + 5**

4. Present your views on debt-equity ratio from the perspectives of creditors and shareholders. Why are profitability ratios important for stakeholders of organisations? Differentiate profit centres from cost centres. State the situations under which LIFO, FIFO and weighted average methods are applied for stores issue pricing. **5 + 5 + 4 + 6**

5. From the following list of transactions prepare appropriate journal entries, ledger entries and the relevant month-end trail balance of Basanti Co. **5 + 10 + 5**
   .(i) Basanti co. started a business with Rs.50 lakh in capital on 01/01/2018,
   (ii) On 10/01/2018, purchased fixed assets of Rs. 10 lakh on long-term loan.
   (iii) On 15/01/2018, purchased inventories from Vishwakarma Ltd. Of Rs. 10 lakh, payable in net 45 days,
   (iv) On 31/01/2018, paid salaries of Rs. 1 lakh by NEFT,
   (v) On 31/01/2018, sold finished goods of Rs. 15 lakh in cash to Shiva Ltd.

6. **(a)** How do shareholders treat EPS and P/E ratio? **2 + 2**

   (b) Develop a cost sheet from the following particulars in the book of Saraswati Publishers (in '000 rupees): **16**

Raw materials purchased	= 1,20,000	Paid inward freight charges	= 10,000
Wages paid to labourers	= 30,000	Directly chargeable expenses	= 5,000
Salesman's salary	= 6,000	Office insurance	= 1,000
Cost of moulds	= 3,000	Factory manager's salary	= 1,000
Depreciation on machinery	= 800	Office salary	= 9,000
Directors' fees	= 2,000	Showroom expenses	= 1,200
Telephone charges	= 700	Depreciation on office building	= 800
Distribution centre's godown exp.	= 800	Market research expenses	= 600
Expenses of delivery van	= 1,500		
Sales	= 2,10,000		

[Turn over

	Opening stock	Closing stock
Raw materials	12,000	20,000
Work in progress	17,500	24,000
Finished goods	40,000	50,500

7. The expenses for budgeted production of 10,000 units in a factory are furnished below. Prepare a flexible budget for 70% capacity and compare it with 130% capacity. **10 + 10**

Particulars	Per Unit Cost (Rs.)
Material	70
Labour	25
Variable overheads	20
Fixed overheads (Rs. 1,00,000)	10
Variable expenses (direct)	5
Selling expenses (10% fixed)	13
Distribution expenses (20% fixed)	7
Administration expenses (Rs. 50,000)	5
Total cost per unit	155

8. From the following extracts of Trial Balance of Mahakal Rudraksha Traders as on 31- March-2018, draw the final accounts from the balances there from (Trading A/c, P&L A/c, and year-end Balance Sheet):

Capital	Rs. 1,50,000	Stock (1st April, 2017)	Rs. 30,000
Cash at bank	Rs. 10,000	Cash in hand	Rs. 5,000
Machinery	Rs. 10,000	Furniture	Rs. 13,000
Purchases	Rs. 2,00,000	Wages	Rs. 50,000
Carriage inward	Rs. 33,000	Salaries	Rs. 70,000
Discount allowed	Rs. 4,000	Discount received	Rs. 5,000
Advertising expenditure	Rs. 50,000	Office expenses	Rs. 40,000
Sales	Rs. 5,00,000	Sundry debtors	Rs. 90,000
Sundry creditors	Rs. 40,000		

Value of stock as on 31st March, 2018 was Rs. 50,000. **8 + 7 + 5**

9. A mechanical device with an economical life of 5 years will cost Rs. 50,000 for purchase by Shiva Shakti Ltd. Maintenance will cost Rs. 2,000 per year starting from the 1st year. The device will generate revenues of Rs. 15,000 each year. There will be an up gradation cost of Rs 10,000 for the device at the end of 3rd year. Salvage value will be Rs 20,000.

a) If the required rate of return is 10% p.a., should the device be purchased based on IRR? Show in details IRR calculation on trial & error method. **9**

b) Given return requirement = 10% p.a., should the device be purchased on the basis of profitability index? **6**

c) The management desires a discounted payback period of 4 years. Does this device qualify for purchase at 10% p.a. discount rate? **5**