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B.E/B.Tech DEGREE END SEMESTER EXAMINATIONS, April 2011

Industrial Engineering

FOURTH SEMESTER

IE 9251: Engineering Economy, Costing and Accounting

(Regulations 2008)

Time: 3 hrs **Max. Marks: 100**

Answer All questions

PART - A **(10 * 2 = 20 marks)**

1. List the factors that are influencing Managerial decisions.
2. A Monopolist earns super normal profits even in the long run, Do you agree? Justify.
3. What is Oligopoly?
4. Distinguish between Income effect and Substitution effect.
5. What do you mean by Factory Cost?
6. What is Over head allocation?
7. What is Job Costing?
8. What do you mean by Material Usage Variance?
9. What are the drawbacks of Pay-back period Method?
10. Give some examples for Secondary Expenses.

PART - B **(5 * 16 = 80 marks)**

11. (i). Price Cutting at the Times of India

The Times of India, is one of the leading Newspapers in India. In September 1972, it lowered its price from 45 paise to 30 paise while price of its rivals remained unchanged. The number of newspapers sold by Times of India was as follows:

Particulars	Aug 1972	May 1973
Times of India	3,55,000	5,18,000
Statesman	10,24,000	9,93,000
The Hindu	3,92,000	4,02,000
Hindustan Times	3,25,000	2,77,000

(a). Based on the figures, find the price elasticity of demand for Times of India (3)

(b). Was the Cross elasticity of demand between statesman and Times of India Positive or Negative? (3)

(c). Would you expect it to be Positive or Negative? Give reasons for your answer. (2)

(ii). Given the demand function Q=100-0.2P, determine: (4 X 2 = 8)

(a). The Total Revenue equation as a function of Q.

(b). The Marginal Revenue equation as a function of Q.

(c). The Value of Q that Maximizes the Total Revenue.

(d). If the firm is charging Rs.60, should price be increased or decreased to increase Total Revenue?

12. (a).The following table gives the information regarding the units produced, TR and TC of production of a North Indian Tool's factory. Complete the table. (10)

Total Profit	Marginal Profit	Unit Of Output	Total Revenue	Marginal Revenue	Total Cost	Marginal Cost
		250	1000		752	
		251	1004		753	
		252	1008		755	
		253	1012		758	
		254	1016		762	
		255	1020		767	
		256	1024		773	
		257	1028		780	

(i). Determine the Profit maximizing output level. (2)

(ii). Is profit Maximum at the output where Marginal Profit equals zero? Is this always the case or Is this unique to this particular problem? (2)

(iii). Is Profit Maximum where Total Revenue equals Total Cost? Explain. (2)

(or)

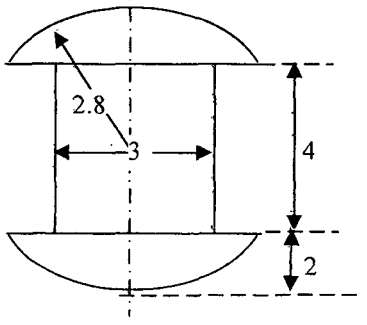
(b).(i).Discuss, with suitable examples, how Managerial Economics, is an integral Part of business activity. (8)

(ii)."It is believed that a firm under a perfect competition is a price-taker and not a price-maker". Explain giving examples. (8)

13. (a). (i).In a Factory there are 5 Machines, you are required to calculate Machine hour rate from the following data:

Space of the Department	: 8000 sq.ft
Effective Space occupied be by each M/C	: 1600 sq.ft
Cost of machine	: 2,50,000
Estimated life of the Machine	: 10 Years (Working for 2000 hours p.a)
Depreciation	: 10% p.a
Power consumed by this Machine	: Rs.12000 p.a
Estimated Repair for this Machine	: Rs. 6000 p.a
Annual Rent for the dept	: Rs.60,000
Annual Lighting Charges for the dept	: Rs.3600
Annual Supervision Charges	: Rs.1,50,000
Other Charges per annum	: Rs.40,000(for all Machines)
$2/5^{ths}$ of the Supervision is for this Machine.	(8)

(ii). Calculate the number of rivets of dimensions shown in fig, which can be manufactured from 4 kg of M.S. Assume that there is no wastage of material. Density of M.S. is 8 gm/cc.



All dimensions are in mm

(or)

(b). (i) A 20 x 5 cm C.I surface is to be faced on milling machine with a cutter having a dia of 10 cm and 16 teeth. If the cutting speed and feed are 50 m/min and 5 cm/min respectively, determine the milling time, r.p.m of the cutter and feed per tooth. (8)

(ii) What is the cost of welding two plates of size 100 cm long 30cm wide and 4 mm thickness to make a piece of 100 x 60 cm size. No preparation of edges is required. Assume:

Consumption of Oxygen	:	0.2 cu.m/hr
Consumption of acetylene	:	0.2 cu.m/hr
Diameter of filler rod used	:	3 mm
Filler rod used per metre of weld	:	2 metre
Rate of welding	:	5 metres/hr
Cost of oxygen	:	Rs. 70 per cu.m
Cost of acetylene	:	Rs. 200 per cu.m
Cost of Filler metal	:	Rs. 150 per kg
Density of filler metal	:	8 gm/cc. (8)

14. (a). The finished product of a factory has to pass through three processes A,B and C. The normal wastage of each process is 2 % in A. 5% in B and 10% in C. The percentage of waste is computed on the number of units entering each process. The scrap value of wastage of process A, B and C are Rs. 10, Rs. 40, Rs. 20 per 100 units respectively. The output of each process is transferred to the next process and the finished products are transferred from process C into stock. The following further information is obtained:

Particulars	Process		
	A (Rs)	B (Rs)	C (Rs)
Materials Consumed	12000	4000	4000
Direct Labour	8000	6000	6000
Manufacturing Expenses	2000	4000	2000

20000 units were put into process A at a Cost of Rs.16000. The output of each process has been A – 19600 units, B – 18400 units and C – 16700 units. There was no stock of work-in-progress in any process. Prepare the process accounts.

(or)

(b). Following are the information given by an owner of a hotel. You are requested to advise him that what rent should he charge from his customers per day so that he is able to earn 25% on cost other than interest.

(i). Staff salaries Rs.2,00,000 per annum.

(ii). Room Attendants salary Rs.140 per day. The salary is paid on daily basis and services of room attendants are needed only when the room is occupied. There is one room attendant for one room.

(iii). Lighting, Heating and Power: The Normal lighting expenses for a room if it is occupied for a whole month is Rs.1500. Power is used only in winter and normal change per month if occupied for a room is Rs.500.

(iv). Repairs to Building : Rs. 25000 per annum

(v). Linen, etc : Rs. 9600 per annum

(vi). Sundries : Rs. 10,000 per annum

(vii). Interior decoration and Furnishing : Rs. 20,000 per annum

(viii). Cost of building Rs.40,00,000, rate of depreciation 5%.

(ix). Other equipments Rs.10,00,000, rate of depreciation 10%.

(x). Interest @ 5% may be charged on its investments of Rs. 50,00,000 (Bank loan) in the building and equipment.

(xi). There are 100 rooms in the hotel and 80% of the rooms are normally occupied in summer and 30% of the room are busy in winter. You may assume that period of summer and winter is Six month each. Normal days in a month may be assumed to be 30.

15. (a). From the following trial balance of Vikram Foundry Works, prepare trading and Profit & Loss account for the year ending March 31, 2011. Also prepare a balance sheet as on that date.

Trial Balance as on March 31, 2011

Debit Balances	Amount(Rs)	Credit Balances	Amount(Rs)
Electricity	14000	Interest on Investment	16000
Land	1,40,000	Discount Received	6000
Loan Interest	16000	Sales	8,00,000
Wages	50000	Sundry Creditors	60000
Opening Stock	20000	Capital	3,02,000
Rent	24000	Bills Payable	5000
Purchases	3,00,000		
Office Expenses	30000		
Building	4,00,000		
Salaries	90000		
Power gas and Water	30000		
Furniture	15000		
Sundry debtors	60000		
Total	11,89,000	Total	11,89,000

Adjustments:

(i). Closing Stock Rs.80,000

(ii). Depreciate building @ 10 per cent per annum.

(or)

(b).The following are the details pertaining to a Company which is considering to acquire a fixed asset:

Project A	:	Cost of the proposal: Rs. 42,000
Life	:	5 Years
Average annual Cash inflow	:	Rs. 14000
Project B	:	Cost of the proposal: Rs.45,000
Life	:	5 Years

Annual Cash flow year1; Rs.28,000; Year 2 Rs.12,000; Year 3 Rs.10,000; Year 4 Rs.10,000 and Year 5 Rs.10,000. Which project do you recommended under the following Methods: Cost of capital may be assumed as 10%

(i). Pay back period (ii). ARR (iii). NPV (iv).IRR