USN | | | | | | | | | | |

06ME56

Fifth Semester B.E. Degree Examination, June 2012

Engineering Economics

Time: 3 hrs. Max. Marks:100

Note: 1. *Answer FIVE full questions, selecting at least TWO questions from each part.*
2. *Use of 'discrete interest factors' table is permitted.*

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

PART – A

1 a. Discuss with suitable / relevant examples the different engineering economic problems an engineer confronts with. **(06 Marks)**

b. Distinguish between : i) Intuition and analysis, ii) Tactics and strategy. **(06 Marks)**

c. You have a chance to buy a new car with a list price of Rs.12,00,000/-. You have to pay a down payment of Rs.200,000/- and the dealer will finance the remainder at a nominal rate of 6% per annum compounded monthly for 5 years. Determine the amount of your monthly payment and the total interest you pay over 5 years. **(08 Marks)**

2 a. List and explain the methods of present – worth comparison of alternatives / assets having unequal service lives. **(06 Marks)**

b. A proposal is to be selected among the two available. The net cash flows of the proposals are given below: (Rate of interest = 12%)

Proposal	Cash flow in Rs. at the end of year				
	0	1	2	3	4
A	-20000	7000	9000	7000	8000
B	-20000	10000	6000	7000	6000

Select the best proposal based on present – worth comparison. **(08 Marks)**

c. A deferred annuity is to pay Rs.5000 per year for 10 years with the first payment coming 6 years from today. Determine the present-worth of annuity using an interest rate of 12% per annum. **(06 Marks)**

3 a. Explain the conditions for annual-worth comparison. **(06 Marks)**

b. Reliance petrochem has several retail outlets across the country. The company has decided that a major TV advertisement (ad) will greatly improve the income. Initial developmental costs for the ad will be Rs.120,000. Monthly TV airing costs are estimated as Rs.35,000 for the first month, decreasing by Rs.500 per month thereafter during the period in which the ads will run, which is 18 months. Revenues are expected to be Rs.40,000 in the first month and increase by Rs.700 per month thereafter for 11 months more. The last 6 months of the study are expected to see a linear decline of Rs.300 per month from the peak increase. Determine whether the ad campaign is economically viable using an equivalent monthly worth analysis. Assume a nominal annual interest rate of 12% with monthly compounding. **(10 Marks)**

c. A project has a first cost of Rs.750,000, operating and maintenance cost of Rs.100,000 during each year of its 8 years life, and a salvage value of Rs.150,000. What is its equivalent annual cost if the interest rate is 12% per annum? **(04 Marks)**

4 a. What is depreciation? List different methods of determining depreciation. Explain any two of them. **(06 Marks)**

b. A new corporate bond was initially sold by a stockbroker to an investor for Rs.1000. The issuing corporation (company) has promised to pay the bondholder Rs.40 as interest every six months, and to repay Rs.1000 at the end of 10 years.
After one year, the bond was sold by the original buyer for Rs.950.
i) What rate of return did the original buyer receive on his investment?
ii) What rate of return can the new buyer expect to receive if he keeps the bond for its remaining 9 years life? **(10 Marks)**

c. An equipment with an initial cost of Rs.70000 has a life of 5 years, without any salvage value. Determine the depreciation reserve at the end of year 3, and book value at the end of year 3. Use double declining balance method. **(04 Marks)**

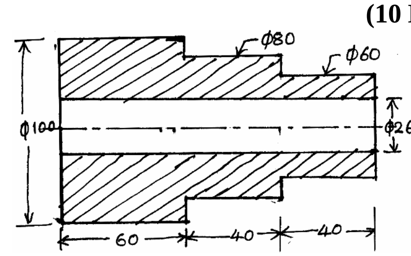
PART – B

5 a. Explain why estimation and costing is necessary. **(05 Marks)**

b. Explain, with a neat block diagram, how the selling price of a product is determined. **(05 Marks)**

c. A cast iron component, as shown in Fig.Q5 (c) is to be manufactured. Estimate the selling price per piece from the following data:
Density of material = 7.2 gms/cc; Cost of molten metal = Rs.20/kg;
Process scrap = 20% of net weight; Scrap return value = Rs.6/kg;
Administrative overheads = Rs.30 per hr ; Sales overheads = 20% of factory cost ;
Profit = 20% of factory cost.
Other expenditures are: **(10 Marks)**

Operation	Time/piece (min.)	Labour cost/hr (Rs.)	Shop over heads (Rs./hr)
Moulding & Pouring	15	20	60
Shot blasting	5	10	40
Fettling & inspection	6	10	40



All dimensions are in mm
Dimensions include machining allowance
Fig. Q5 (c)

6 a. Explain the terms 'assets' and 'liabilities', with suitable examples, as applicable to financial accounting. **(05 Marks)**

b. Explain how a 'Journal' is prepared taking a suitable example. **(05 Marks)**

c. A company X has certain reserves and surplus as per the details given below, as on 31st December 2010.

(Amount is Rs.)

Dividend payable	72000	Debtors	160000
Bank balance	10000	Bills payable	20000
Equity shares	200,000	Plant and equipment	80000
Provision for taxes	40000	Bills receivable	20000
Stock	77000	Creditors	55000
Preference shares	135000	General reserve	40000
Land & building	200,000	Cash in hand	15000

Prepare a balance sheet for the company as on 31st December 2010. **(10 Marks)**

7 a. What do you mean by the term ratio analysis? List the advantages and limitations of ratio analysis. **(05 Marks)**

b. The balance sheet of M/s. Evergreen Co. Ltd. is presented below for the year ending 31st December 2009.

Liabilities	Amount Rs.	Assets	Amount Rs.
Creditors	20000	Cash at bank	15,380
Bills payable	12750	Trade debtors	11,260
Debentures	100,000	Stock on hand	56,160
Reserves	67,250	Fixed assets	217,200
Share capital	100,000		

Other details are:
Sales – Rs.180,000
Net profit – Rs.16,000
Gross profit – Rs.40,000
Find : i) Current ratio ii) Gross profit ratio iii) Proprietary ratio
iv) Debtor's turnover ratio v) Operating ratio **(15 Marks)**

8 a. What is profit planning? List the objectives of profit planning. **(03 Marks)**

b. List different types of budgets. Explain any four factors affecting a production budget. **(05 Marks)**

c. A company XYZ is producing four products A, B, C and D. Prepare a production budget for 3 months ending 31st March 2009 based on the following information:

Product	Estimated stock, units	Estimated sales (units) during 3 months	Desired closing stock (units) as on 31st March 2009
A	20000	100000	30000
B	30000	150000	50000
C	40000	130000	30000
D	30000	120000	20000

The production cost of products A and B is Rs.150 each, and that of products C & D is Rs.200 each. **(12 Marks)**

* * * * *