Mid-West University

Examinations Management Office

Semester End Examinations 2081

Bachelor level/ B.E. Computer/ 5th Semester   Full Marks: 50

Time: 3 hours   Pass Marks: 25

Subject: Engineering Economics (SH451/SH509)

- *Attempt all the questions*
- *Figures in the margin indicate full marks.*
- *Assume suitable values, with a stipulation, if necessary.*
- *Candidates are required to answer the questions in their own words as far as possible.*

1. "Knowledge of Engineering economics helps in decision making process" justify it by the principles of engineering. [4]

2. a) Define cashflow diagram and explain its types. [1+2]

   b) How much should you deposit at present for monthly draw of Rs. 15,000 throughout 4 years when interest rate is 6% per semiannually. [3]

3. Use IRR to evaluate following project when MARR is 15% per year. Make also unrecovered balance diagram. [5]

EOY	Cashflow (Rs.)
0	-60,000
1	20,000
2	40,000
3	-40,000
4	50,000
5	70,000

4. Find the both types of B/C ratio of project using Annual Worth formulation. [2+2]

Initial investment	Rs. 4,00,000
Annual revenue	Rs. 1,75,000
Annual Costs	Rs. 45,000
Salvage value	Rs. 65,000
Useful Life (Years)	5
MARR	12%

5. Recommended the best project from the following projects by using repeatability assumption. Assume MARR= 10%. [6]

Project	A	B	C
Investment (Rs.)	5,00,000	7,00,000	9,00,000
Annual Revenue (Rs.)	2,00,000	2,75,000	3,50,000
Annual Cost (Rs.)	40,000	50,000	85,000
Salvage Value (Rs.)	60,000	90,000	1,00,000
Useful life (years)	6	8	10

6. Describe the causes of depreciation of assets. If a machine costing of Rs. 2,00,000 is purchased by expecting the salvage value of 10% of purchased value at the end of 6th years. Calculate the depreciation amount and book value of each year by straight line method and SOYD method. [2+4]

7. Find the economic service life of the project from the following data. [6]
   Initial cost= Rs. 50,000
   Operating cost = Rs. 10,000 for the 1st year and increases by 15% thereafter.
   Salvage value = Decreases each year by 20% from previous value.
   Useful life = 8 years
   MARR = 12%

8. Calculate breakeven volume of a cable manufacturing company from the following: [3]
   Total cost = Rs. 12,50,000
   Variable cost = Rs. 5,00,000
   Income from sales = Rs. 15,00,0000 at production of 5,000 unit.

9. Perform sensitivity analysis of the following project over a range of ±25% in [5]
   i.   Initial investment
   ii. Net annual revenue
   iii. Useful life

Initial investment	Rs. 6,50,000
Net annual revenue	Rs. 1,25,000
Salvage value	Rs. 75,000
Useful life	6
MARR	10%

10. On the basis of taxation law of Nepal, discuss about taxes on normal gain, capital gain [5]
    personal tax, corporate tax and VAT.