

NEPAL COLLEGE OF INFORMATION TECHNOLOGY
ASSESSMENT SPRING-2022

Level: Bachelor
Programme: BE_SE
Course: Engineering Economics

Year: 2022
FM: 100

Time: 3 hrs

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

The figures in the margin indicate full marks.

Attempt all the questions

- 1 a) What is engineering economics? Explain why the subject of engineering economics is important to the practicing engineer. 8
- b) Explain concepts of manufacturing and non-manufacturing cost with suitable example. 7
- 2 a) Indira wants to deposit certain amount in Nepal Bank now, so she can withdraw an equal amount of Rs. 20,000 each year for the first 5 years and Rs. 25,000 for the following 4 years. Calculate what K amount she should deposit now, if the interest earned is 11% per year. Draw cash flow diagram. 8
- b) Arun has taken auto loan of Rs. 2,40,000 from a bank, which is to be repaid in equal end of month installment for 2 years with nominal interest rate of 12 percent compounded monthly. Calculate the amount of each monthly installment as well as effective rate of interest of loan. 7
- 3 a) An investment of Rs. 200,000 can be made in a project that will produce uniform annual revenue of Rs. 125,000 for 5 years and then have a market salvage value of Rs. 40,000. Annual expenses will be Rs. 60,000 each year. Company accepts project that earns 10% or more. Evaluate IRR of this project and suggest whether the project is feasible or not? 8
- b) Hongshi Company is considering to purchase a new thermal plant costing of Rs. 40 million having salvage value Rs. 10 million at the end of 5th year. The use of plant will increase annual revenue by Rs. 15 million and that needs fuel cost of Rs.

3 million per year. Find the conventional and modified B/C ratio when MARR = 10%.

- 4 a) Compare PW following projects and select best alternatives using repeatability assumption when MARR is 13%. 8

A	B	
Initial Investment	Rs. 3,00,000	Rs.
4,00,000		
Annual Revenue	Rs. 180,000	Rs.
2,00,000		
Annual Expenses	Rs. 40,000	Rs.
64,000		
Salvage Value	Rs. 100,000	Rs.
200,000		
Useful Life (yrs.)	2	4

- b) What do you mean by project risk? Discuss different methods of describing project risk analysis in engineering economics field? 7

OR

Conduct sensitivity analysis of following project with $\pm 25\%$ fluctuation on annual revenue and useful life of following projects and interpret the results. Investment= Rs. 2,00,000, Annual revenue= Rs. 50,000, Salvage value= Rs. 1,00,000 and useful life=5 years.

- 5 a) What is depreciation? A photocopy machine is costing of Rs. 4,00,000 with estimated salvage value Rs. 5,000 at the end of 5th year. Find depreciation amount and book value by (i) Double declining balance method ii) Sum of years digit (SOYD) method for each year. 8
- b) What do you know about equity financing and debt financing? Explain way to project funding mechanisms by giving suitable examples of Nepali context. 7
- 6 a) Define ecological limit and ecological footprint. Discuss ways to overcome ecological limit. 8
- b) Define ratio analysis and its importance. What are the major ratios that can be applied in decision making? 7

OR

Describe income statement and balance sheet including their format. How are they related to each other?

7 Write short notes on: (Any Two)

2*

5

- i) FIRR and EIRR
- ii) Nominal Rate and Effective Rate
- iii) Value Added Tax (VAT)