

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER M. TECH DEGREE EXAMINATION

Civil Engineering

(Structural Engineering and Construction Management)

04 CE 7405 - Construction Economics and Finance

Max. Marks: 60

Duration: 3 Hours

PART A

Answer All Questions

Each question carries 3 marks

1. Differentiate Nominal and Effective Interest Rate.
2. Explain cash flow involving Geometric Gradient Payments.
3. Briefly explain Break Even Analysis.
4. Explain tax before depreciation and tax after depreciation.
5. Mention any three objectives of inventory valuation.
6. List out the various reasons for replacement of an equipment.
7. Differentiate between scrap value and salvage value.
8. Write notes on International financial management.

PART B

Each question carries 6 marks

9. A person invests a sum of Rs. 5,000 in a bank at a nominal interest rate of 12% for 10 years. The compounding is quarterly. Find the maturity amount of the deposit after 10 years.

OR

10. Write notes on
 - a) Nominal interest
 - b) Effective interest
11. A person is planning for his retired life. He has 10 more years of service. He would like to deposit Rs. 8500 at the end of the first year and thereafter he wishes to deposit the amount with an annual decrease of Rs. 500 for the next 9 years with an interest rate of 15%. Find the total amount at the end of the 10th year of the above series.

OR

12. An automobile company recently advertised its car for a down payment of Rs. 1,50,000. Alternatively, the car can be taken home by customers without making any payment, but they have to pay an equal yearly amount of Rs. 25,000 for 15 years at an interest rate of 9%, compounded annually. Suggest the best alternative to the customers.
13. A construction firm is planning to invest Rs.800000 for the purchase of construction equipment which will generate a net profit of Rs.140000 per year after deducting the annual operating and maintenance cost. The useful life of the equipment is 10 years and the expected salvage value of the equipment at the end of 10 years is Rs.200000. Compute the rate of return using trial and error method based on present worth, if the construction firms minimum attractive rate of return (MARR) is 10% per year.

OR

14. There are two alternatives for purchasing a concrete mixer. Both the alternatives have same useful life. The cash flow details of alternatives are as follows; **Alternative-1:** Initial purchase cost = Rs.500000, Annual operating and maintenance cost = Rs.25000, Expected salvage value =

Rs.125000, Useful life = 5 years. **Alternative-2:** Initial purchase cost = Rs.200000, Annual operating and maintenance cost = Rs.35000, Expected salvage value = Rs.70000, Useful life = 5 years. Using future worth method, find out which alternative should be selected, if the rate of interest is 10% per year.

15. Give the procedure for Equipment Replacement Analysis.

OR

16. A construction company has purchased a piece of construction equipment 3 years ago at a cost of Rs.4000000. The estimated life and salvage value at the time of purchase were 12 years and Rs.850000 respectively. The annual operating and maintenance cost was Rs.150000. The construction company is now considering replacement of the existing equipment with a new model available in the market. Due to depreciation, the current book value of the existing equipment is Rs.3055000. The current market value of the existing equipment is Rs.2950000. The revised estimate of salvage value and remaining life are Rs.650000 and 8 years respectively. The annual operating and maintenance cost is same as earlier i.e. Rs.150000. The initial cost of the new model is Rs.3500000. The estimated life, salvage value and annual operating and maintenance cost are 8 years, Rs.900000 and Rs.125000 respectively. Company's MARR is 10% per year. Find out whether the construction company should retain the ownership of the existing equipment or replace it with the new model, if study period is taken as 8 years (considering equal life of both defender and challenger).

17. Explain Declining Balance (DB) depreciation method.

OR

18. Explain the concepts 'tax before depreciation' and 'tax after depreciation'.

19. Write notes on foreign currency management.

OR

20. Explain Mortgage Financing.