

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May-2019

M.Tech. (CM) II<sup>nd</sup> Semester

COURSE CODE: 10M11CE214

MAX. MARKS: 35

COURSE NAME: Construction Financial Management

COURSE CREDITS: 03

MAX. TIME: 2 Hours

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

1. A material testing laboratory has two alternatives for purchasing a compression testing machine which will be used for determining the compressive strength of different construction materials. The alternatives are from two different manufacturing companies. The cash flow details of the alternatives are as follows; Alternative-1: Initial purchase price = Rs.1000000, Annual operating cost = Rs.10000, Expected annual income to be generated from testing of different construction materials = Rs.175000, Expected salvage value = Rs.200000, Useful life = 10 years. Alternative-2: Initial purchase price = Rs.700000, Annual operating cost = Rs.15000, Expected annual income to be generated from testing of different construction materials = Rs.165000, Expected salvage value = Rs.250000, Useful life = 5 years. Find out the most economical alternative at interest rate of 10% per year by future worth method. (7)
2. Write short note on Time value of money. Give one appropriate example. (3)
3. There are two alternatives for purchasing a concrete mixer and following are the cash flow details; Alternative-1: Initial purchase cost = Rs.300000, Annual operating and maintenance cost = Rs.20000, 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. The annual revenue to be generated from production of concrete (by concrete mixer) from Alternative-1 and Alternative-2 are Rs.50000 and Rs.45000 respectively. Compute the equivalent uniform annual worth of the alternatives at the interest rate of 10% per year and find out the economical alternative. (7)
4. The initial cost of a piece of construction equipment is Rs.3500000. It has useful life of 10 years. The estimated salvage value of the equipment at the end of useful life is Rs.500000. Calculate the annual depreciation and book value of the construction equipment using straight-line method and double-declining balance method. (7)
5. Select correct option: (11)
  - (i) You want to buy an ordinary annuity that will pay you INR 4,000 a year for the next 20 years. You expect annual interest rates will be 8 percent over that time period. The maximum price you would be willing to pay for the annuity is closest to,  
(a) INR 32,000      (b) INR 39,272      (c) INR 40,000      (d) INR 80,000

(ii) With continuous compounding at 10 percent for 30 years, the future value of an initial investment of INR 2,000 is closest to,

- (a) INR 34,898      (b) INR 40171      (c) INR 164,500      (d) INR 328,282

(iii) In 3 years, you are to receive INR 5,000. If the interest rate were to suddenly increase, the present value of that future amount to you would

- (a) fall.      (b) rise.      (c) remain unchanged.

(d) cannot be determined without more information.

(iv) Assume that the interest rate is greater than zero. Which of the following cash-inflow streams should you prefer?

	Year1	Year2	Year3	Year4
(a)	\$400	\$300	\$200	\$100
(b)	\$100	\$200	\$300	\$400
(c)	\$250	\$250	\$250	\$250

(d) Any of the above, since they each sum to \$1,000.

(v) You are considering investing in a zero-coupon bond that sells for INR 250. At maturity in 16 years it will be redeemed for INR 1,000. What approximate annual rate of growth does this represent?

- (a) 8 percent.      (b) 9 percent.      (c) 12 percent.      (d) 25 percent.

(vi) For \$1,000 you can purchase a 5-year ordinary annuity that will pay you a yearly payment of \$263.80 for 5 years. The compound annual interest rate implied by this arrangement is closest to

- (a) 8 percent.      (b) 9 percent.      (c) 10 percent.      (d) 11 percent.

(vii) You are considering borrowing \$10,000 for 3 years at an annual interest rate of 6%. The loan agreement calls for 3 equal payments, to be paid at the end of each of the next 3 years. (Payments include both principal and interest.) The annual payment that will fully pay off (amortize) the loan is closest to

- (a) \$2,674.      (b) \$2,890.      (c) \$3,741.      (d) \$4,020.

(viii) When  $n = 1$ , this interest factor equals one for any positive rate of interest.

- (a) PVIF      (b) FVIF      (c) PVIFA      (d) FVIFA      (e) None of the above

(ix)  $(1 + i)^n$  represents

- (a) PVIF      (b) FVIF      (c) PVIFA      (d) FVIFA

(x) In a typical loan amortization schedule, the dollar amount of interest paid each period

- (a) increases with each payment      (b) decreases with each payment

(c) remains constant with each payment

(xi) In a typical loan amortization schedule, the total amount of money paid each period.....

- (a) Increases with each payment  
(b) Decreases with each payment  
(c) Remains constant with each payment.