அரசினர் ஆடவர் கலைக்கல்லூரி (தன்னாட்சி), நந்தனம், சென்னை – **35.**

CODE: **196130** TIME: 3Hrs

NOVEMBER 2020 MAX. MARKS : 50

PART A *(10 x 2=20)*

*Answer any **TEN** questions*

1. Define outstanding principle
2. What is book value?
3. Define bond
4. Define bond rate
5. What is callable bond?
6. Define IRR
7. What is meant by depreciation base of an asset?
8. Define independent events
9. While throwing a die find the probability of getting a 5?
10. What is pure endowment?
11. Define whole life insurance.
12. What is *n*-year term endowment insurance

PART B *(2 x5=10)*

*Answer any **TWO** questions*

13. A loan of $8 000 is to be amortized with equal monthly payments over 2 years at j_{12} = 15 %. Find the outstanding principal after 7 months and spilt the eighth payment into principal and interest portions.
14. Mrs. Smith borrows $15 000 to be paid in equal installments over 4 years at j_{12} = 9%. Find the total amount of interest she will pay in the lifetime of the loan.
15. A $1000 bond that pays interest at j_2 = 12% is redeemable at par at the end of 10 years. Find the purchase price to yield 10% compounded semiannually.
16. A project is expected to provide the cash flows indicated below. Would you invest $100 000 in this project if the cost of capital is j_1 = 7% ? (b) j_1 = 14%?

Year End	1	2	3	4
Cash Flow	$40 000	$ 25 000	$35 000	$30 000

17. A machine costing $40 000 is estimated to have a useful lifetime of 5 years and scrap value of $5 000. Prepare a depreciation schedule using the straight - line method.
18. Mr. A pays $10 to enter a betting game. If he can get 3 tails in a row by tossing a fair coin, he wins $50 otherwise he loses his $10. What is his expected gain?
19. Find the net annual premium for a whole life annuity due of $3000 per year issued to a male now aged 95, using j_1 = 7%.
20. Find the net annual premium for a whole life annuity due of $50 000 per year issued to a female now aged 70, using j_1 = 8% if the first payment due is to be at the age 95.

PART *(2x10=20)*

*Answer any **TWO** questions*

21. The Andersons borrow $15 000 to buy a car. The loan will be repaid over three years with monthly payments at j_{12} = 6%. Find the total interest paid in the 12 payments of the second year

22. A $1000 bond redeemable at 105 on October 1, 1997, pays semiannual coupons at $10\frac{1}{2}$%. The bond is bought on April 1, 1195 to yield j_{365}=14% . Find the purchase price and construct a bond schedule.

23. For an investment of $7 200 today and $27 000 in 2 years time, an investor expects to receive $24 200 in 1 year and $10 000 in 3 years. Determine the IRR.

24. A mutual fund can invest $1 000 000 in a series of f $100 government bonds paying semiannual bond interest at j_2=12% redeemed at par in 4 years and priced at $95; or a zinc mine with 3 years of ore left, but which requires environmental clean up in year 4. The expected pay-off is

Year	1	2	3	4
Cash Flow	$400 000	$600 000	$500 000	-$200 000

Which investment should be preferred?

25. Mary Smith inherits $10 000 on her 47th birthday. She uses the money to buy a pure endowment payable if and when she attains age 60. (a) Assuming she survives, how much will she receive if j_4 = 8%. (b) Compare the endowment to investing the money in a savings account at j_4 = 8%
