DEGREE EXAMINATION,APRIL 2020
III Year VI Semester
Actuarial Statistics

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Find the present value at rate of interest of 6% p.a. of Rs.300/- payable 5 years hence.
2. Find the accumulated value of the principal of Rs.250/- invested for 10 years at compound interest of 6% p.a.
3. Define an annuity.
4. Write the formula for accumulated value of annuity.
5. Define amortization.
6. What do you mean by depreciation ?
7. Mention the different types of premium.
8. Define office premium.
9. What is surplus?
10. Define policy values.
11. What is called borrowed amount?
12. Define present value?

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Obtain the relationship between effective rate corresponding to nominal rate of interest.
14. Find the rate of discount corresponding to a rate of interest 6% and the rate of interest corresponding to a rate of discount of 0.08.
15. Explain different types of annuities.
16. A series of 8 annual sums of money is payable, the first payment taking place at the end of one year from now. The first five payments are Rs.300 each and the last three payments are Rs.200 each. Find the present value of the eight payment @8%p.a.
17. Write a short notes on redemption of loans in detail.

18. Explain adequacy of premiums.
19. Distinguish between retrospective and prospective methods in policy values.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Find the (i) effective rate p.a. corresponding to the nominal rate of 8% p.a. convertible quarterly. (ii) nominal rate p.a. convertible quarterly corresponding to an effective rate of 8% p.a.
21. An annuity is payable for 15 years certain, the first payment falling due at the end of first year. The annuity is payable at the rate of Rs. 500/- per annum during the first 10 years and at Rs. 300/- per annum during the remaining 5 years. Calaculate the present value of the annuity on the basis of interest at 4% per annum,(Given at 4% a(10) = 8.1109, a(15) = 11.1184).
22. Explain the average yield on the life fund of an insurance office.
23. An office issues 20 year capital redemption policies with sum assured Rs. 20000 and premium payable annually in advance. The premium is calculated on the basis of an effective rate of interest of 7% per annum. Calaculate (i) the annual premium (ii) the policy value immediately before the 9th premium is paid (iii) The paid-up sum assured which will be granted, if premium ceases just before the 9th premium is due(ignore expenses).
24. Explain in detail distribution of surplus.

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