

= 7 NOV 2023

**National Law University
Insurance Mathematics & Q.T.
III Semester M.B.A., Insurance
Examination 2023**

Max. Marks: 100

Time: 3 Hours

Instructions:

- *Calculator should not be borrowed in the examination hall.*
- *All non-scientific calculators are allowed.*
- *Compound interest table & Mortality table will be provided in the examination hall.*
- *Solve any five questions. Each question carries twenty marks*

1a). Find the value as at the end of 5.5 years of an annuity of Rs 180/- p.a. payable quarterly for 20 years certain, the rate of interest being taken as 8% p.a. convertible quarterly.

b). Find the office annual premium for a capital redemption assurance policy of Rs.3000/- redemption at the end of 20 years, assuming a rate of interest of 6% p.a. and loading of 8% of office premium
10+10=20 Marks

2 a) Find the nominal rate p.a. convertible quarterly corresponding to an effective rate of 12% p.a.

b) Find the present value of Rs.1000/- due at the end of 15 years at an effective rate of interests corresponding to nominal rate of discount of 8% p.a. convertibly half-yearly.
10+10=20 Marks

3 a). Under a settlement of property Mr. Khan is entitled to receive Rs 2000 p.a. adindefinitum, the payment being due at the end of 8 years. Find the present value of Mr. Khan's right @8%.

b). Find the present value of an immediate perpetuity of Rs.200 p.a., payable half -yearly at the rate of interest of 10% p.a. convertible half -yearly
10+10=20 Marks

4a). In how many ways can the letters of the word STRANGE be arranged so that
i) The vowels are never separated?

ii) The vowels never come together?

b). There are 8 gentleman and 4 ladies. Find the number of ways in which the committees of 7 members can formed from these, if each committee is to include at least 3 ladies?
10-10=20 Marks

5 a). Find the probabilities that i) a life aged 35 will die between the ages 45 and 50 ii) a life aged 35 will not die between the ages 45 and 50

National Law University
INSURANCE MATHEMATICS & Q.T
III Semester M.B.A., Insurance
Midterm - 2023

Time: 90 Minutes

Max. Marks: 50

Instructions:

- *Calculator should not be borrowed in the examination hall.*
- *All non-scientific calculators are allowed.*
- *Solve any Ten questions. Each question is of equal marks.*
- *Compound interest table & Mortality table will be provided in the examination hall.*

1. A sum of rupees 5000 is lent at compound interest of 6% p.a. effective. What is the interest earned in 14 years 5 months.
 2. Find the present value of Rs.55000 due 15 years hence at a rate of discount 9% pa
 3. Find the effective rate p.a. corresponding to the nominal rate of 8% p.a. convertible quarterly.
 4. Find the accumulated value of a unit of money for a period of 23 years 5 months @ 8% p.a.
 5. The amount with compound interest of a certain principal at 5% p.a. is Rs 3969. Find that principal when the period is 2 years.
 6. Find the Values of $(v)^{68}$ @ 5% and $(1.03)^{58.6}$
 7. What is the value, at the end of 8 years, of an immediate annuity of Rs.125 p.a. for 12 years, the rate of interests being 5% p.a.
 8. Find the present value at the rate of 8% of 4 annual payment of Rs.5000 p.a. followed by 6 annual payment of Rs.8000 p.a., The first payment being made at the end of one year.
 9. Find the present value of an immediate annuity of Rs.1000 p.a., payable half-yearly at the rate of interest of 12% p.a. convertible half-yearly
 10. Find the present value of Rs.2000 due 10 years hence at a rate of discount 8% pa
 11. A manufacturer reckons that the value of the machine costing him rs.187500 depreciates each year by 10%. find the estimated value at the end of 5 years.
 12. What equivalent payment made at the beginning of each month for 4 years will pay for a house priced at Rs.55,00,000, if money is worth 8% compounded monthly?
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