

(b) Prove that

$$A_{\overline{x:n}|} = \frac{M_x - M_{x+n}}{D_x}.$$

13. (a) Examine in detail increasing life annuity.

(OR)

(b) Prove that

$$(I \ddot{a})_x = \frac{S_x}{D_x}.$$

Register Number :

Name of the Candidate :

2 1 8 9

P.G. DIPLOMA EXAMINATION, 2008

(ACTUARIAL STATISTICS)

(PAPER - II)

120. INSURANCE AND ANNUITIES

May]

[Time : 3 Hours

Maximum : 100 Marks

SECTION - A (5 × 8 = 40)

Answer any FIVE questions.

Each question carries EIGHT marks.

1. Explain in detail endowment insurance.
2. What do you mean by deferred insurance ?
Give an example.
3. Explain accumulated value of an annuity.
4. Derive the formula for present value of a perpetuity due of 1 p.a.

Turn over

5. Write a brief note on temporary assurance.
6. Derive an expression for endowment assurance.
7. Explain temporary immediate life annuity.
8. State the features of variable life annuity.

SECTION - B (5 × 12 = 60)

Answer ALL questions by choosing either (a) or (b).

Each question carries TWELVE marks.

9. (a) Discuss in detail the different aspects involved in varying benefit insurance.

(OR)

- (b) The *p.d.f.* of the future life time, T for (x) is assumed to be

$$f_T(t) = \begin{cases} 1/80 & 0 \leq t \leq 80 \\ 0 & \text{otherwise} \end{cases}$$

At a force of interest, δ calculate Z for Z , the present - value random variable for a whole life insurance of unit amount issued to (x): the actuarial present value and the variance.

10. (a) Establish the relationship between insurances payable at the amount of death and the end of the year of death.

(OR)

- (b) If

$$l_x = 100 - x \text{ for } 0 \leq x \leq 100$$

and $i = 0.05$, evaluate $(IA)_{40}$.

11. (a) Prove that

$$m / a_{\overline{n}|} = a_{\overline{m+n}|} - a_{\overline{m}|}$$

(OR)

- (b) Establish the relation between

$$s_{\overline{n}|} \text{ and } a_{\overline{n}|}$$

12. (a) Write a detailed note on :

- (i) Increasing temporary assurance.
- (ii) Increasing whole life assurance.

(OR)

Turn over