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**7592**

Register Number:

Name of the Candidate:

**P.G.DIPLOMA EXAMINATION, May 2015**

**(ACTUARIAL STATISTICS)**

**120: INSURANCE AND ANNUITIES**

Time: Three hours

Maximum : 100 marks

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**SECTION – A**

**Answer any FIVE Questions**

**(5 × 8 = 40)**

1. Explain endowment insurance.
2. Describe varying benefit insurance.
3. Define annuity. State the classification of annuity.
4. Obtain the formula for the present value of an immediate annuity of 1 p.a.
5. Explain temporary assurance.
6. Describe an expression for the present value of an pure endowment assurance.
7. Define commutation function. State some of the relationships between the commutation notations.
8. Find the accumulated value at the end of 10 years of an intermediate annuity of ₹100 p.a. for 15 years the rate of interest being 5% p.a.

**SECTION – B**

**Answer ALL Questions**

**(5 × 12 = 60)**

9. a) Explain the procedure of insurance payable at the moment of death.  
(OR)  
b) Find the net annual premium for a sum assured of ₹1000 for the following assurances of (30) for the given data.  $M_{30}=19801$ ,  $N_{30}=2666994$ ,  $N_{50}=623195$ .
  - i) Whole life assurance
  - ii) Whole life assurance premium limited to 20 yrs.
10. a) Describe the concept of insurance payable at the end of the year of death.

(OR)

b) Given:

<b>X</b>	<b>30</b>	<b>50</b>	<b>55</b>
<b>M</b>	19810	--	12716
<b>N</b>	2666994	623195	403807
<b>D</b>	--	--	35573

Calculate the net annual premiums for a sum assured of ₹1000 on (30) for the following at 6% p.a.

- Whole life assurance.
- Whole life assurance premium limited to 20 years.
- Endowment assurance for 25 years.

11. a) Define differed annuity certain. Obtain the expression for the present value of a deterred immediate annuity of 1 p.a. for n years certain.

(OR)

b) 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 fee payments are ₹300 each and the last three payments all ₹200 each. Find the present value of the effect payments @8% p.a.

12. a) Given the following:

<b>x</b>	25	26	27	28	29	30
<b>lx</b>	97380	97088	96794	96496	96194	95887
<b>dx</b>	292	294	298	302	307	313

Calculate ignoring interest and expenses.

- The value of temporary assurance benefit of ₹1000 for 4 years to a person aged 25.
- The value of endowment assurance benefit of ₹1000 for 4 years to a person aged 25.

(OR)

b) Find the expression for present value of

- Temporary assurance
- Whole life assurance in terms of commutation notation.

13. a) Write an explanations note on increasing life annuity.

(OR)

b) Prove that  $(I_a^{00})_x = \frac{Sx}{Dx}$

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