Time allowed: 2 Hrs 30 Min
Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means.** All other instructions on the reverse of Admit Card should be followed meticulously.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5 (Short Questions)	5 Marks each	3*5 = 15
B	2 out of 3 (Long Questions)	10 Marks each	2*10 = 20
C	Compulsory Case Study	15 Marks	15
		Total Marks	**50**

Section-A

A1. A bank lends a company Rs 50,000 at an annual effective rate of 10% *pa*. The loan is to be repaid by five level annual payments at the end of each year. Calculate the annual installment and capital outstanding at the end of 3rd year using prospective method.

A2. A life, 45 years old, purchases an Double Cover Endowment plan for 20 with a Sum Assured of Rs 20,00,000. The annual premium is to be paid in advance for 10 years. Calculate the annual net premium [Use AM 92 ultimate mortality table @6%]

A3. A loan of Rs 5,00,000 is repayable by equal monthly payments for 5 years, with interest payable at 12% *pa* effective. Calculate the amount of each monthly installment (EMI).

A4. There are two options of taking insurance:
(a) Endowment for 30 years for a life entering at age 25 with Sum Assured of 5 lakhs
(b) Whole life plan for life at age 25 with Sum Assured of 5 lakhs.
If Premium is being paid throughout the policy term then in which case the annual premium would be lower and why ?

A5. Calculate the present values as at 1st January 2015 of the following payments:
• a single payment of 2,000 payable on 1 July 2019
• a single payment of 10,000 payable on 31 December 2026.

Assume effective rates of interest of 8% per annum

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Section-B

B1. Using the information given below, Find the annual net premium of the policy :
- A life aged 25, purchases a 30 year Endowment plan
- Sum assured is Rs 1,00,00,000
- Benefit is to be paid at the end of the year of death
- Premium is being paid annually in advance for 15 years

Use AM 92 Ultimate mortality @4% for the calculation

B2. Calculate the present value of the below mentioned annuity certain cash flows:
- 30,000 is paid at the end of each year till first 15 years except for year 3 and year 9.
- Rs 40,000 is at the end of 18th to 25th year except for 20th year.
- Interest rate is 6% p.a

Calculate the Present value of all the cashflows at time 0. Then calculate its accumulated value (Future value) at the end of 35th year.

B3. A loan of Rs 10,00,000 is repayable by equal quarterly installment for 8 years wherein the first installment payment starts at the end of 5th year and then continues for every quarter for next 8 years. Effective rate of interest is 12% pa.
(a) Calculate the quarterly installment.
(b) Calculate the capital outstanding at the end of 10th installment using prospective method.

Section-C

Case Study Compulsory:-

This portion is divided into 5 questions:

1. An immediate annuity certain of Rs 1,000 is payable at the end of each year for the term of 10 years. Calculate the present value when :

(a) Interest rate is 0%
(b) Interest rate is positive infinity.

2. What is the difference between earned and unearned premium ?

3. In which case the annual premium would be lower and why ?

Endowment of 20 years or Endowment for 40 years for a life entering at age 18 years with a sum Insured of Rs 5 Lakhs in both cases wherein premium is paid throughout the policy term.

4. Using the information given below to find the net annual premium of a Term Insurance policy :
- Age of entry is 36
- Term is 34 years
- Sum assured is Rs 90,00,000
- Benefit is to be paid at the end of the year of death
- Premium is being paid annually in advance for 8 years

Use AM 92 Ultimate mortality @6%

5. Using AM 92 life table, calculate the probability of a 42 year old dying between 55 to 60.