



M 6066

Reg. No.:

Name :

VI Semester B.Sc. Degree (CCSS-Reg./Supple./Improv.)
Examination, May 2014
Core Course in Statistics
6B12 STA : ACTUARIAL STATISTICS

Time : 3 Hours

Max. Weightage : 30

PART – A

Answer **any 10** questions.

(1 each)

1. Define crude birth rate.
2. Give two sources of vital statistics.
3. What is meant by abridged life table ?
4. What is the utility of reproductive rates ?
5. If an investor deposits Rs. 40,000/- in a bank that pays compound interest at the rate of 6 % p.a. What will be the maturity value after 5 years ?
6. If $S(x) = [1 - x | 100]^{1/2}$, $0 \leq x \leq 100$. Evaluate ${}_{17}P_{19}$.
7. Explain complete expectation of life.
8. Explain endowment life insurance at the moment of death.
9. Explain n-year temporary life annuity-due.
10. The loss random variable X have a p.d.f., $f(X) = 0.1 e^{-0.1x}$, $X \geq 0$. Calculate $V(X)$.
11. What do you mean by insurance ? (10×1=10)

PART – B

Answer **any 6** questions. **Each** question carries **2** weightage.

(2 each)

12. What are the uses of vital statistics ?
13. Explain the importance of standardized death rates.

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14. Explain force of mortality.
15. Prove, in usual notations, that $P_x = \frac{lx}{1+lx+1}$.
16. Find the accumulated value of a payment stream of $0.3 + 1.5 t$ that is received continuously from time 4 to time 8, during which the force of interest is $0.01 + 0.05 t$.
17. Write a short note on force of interest.
18. Explain the different classes of insurance.
19. Explain fully continuous benefit reserves in whole life insurance.
20. Derive the relationship between effective rate of interest and nominal rate of interest. (6×2=12)

PART – C

Answer **any two** questions. **Each** question carries **4** weight. (4 each)

21. What are the uses of life table ? State the components of a life table.
 22. Explain various multiple decrement models.
 23. Explain the purpose of a variable annuity and the financial theory that underlies it.
 24. What is utility ? Explain its importance in insurance. (2×4=8)
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