

(i) Printed Pages: 4]

Roll No.

(ii) Questions : 10]

Sub. Code :

3	8	6	6
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Exam. Code :

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**Master of Commerce 4th Semester
Examination**

1047

**GROUP F : BANKING AND INSURANCE
ACTUARIAL SCIENCES**

(Same for USOL Candidates)

(MC-421)

Time : 3 Hours]

[Max. Marks : 80

Note :- (i) There are four Units. The students have to attempt *five* questions in all, selecting at least *one* from each Unit.

(ii) Use of scientific calculator is allowed.

Unit-I

1. (i) Define $a_{\overline{n}|}$ and $S_{\overline{n}|}$.

(ii) Find the value of $a_{\overline{6.5}|}$ and $S_{\overline{5.5}|}$ for the interest

7.5% per annum effective.

8,8

N-393

(1)

Turn Over

2. Discuss the following insurance products with their basic features :
- (a) Whole life assurance
 - (b) Term assurance
 - (c) Pure endowment
 - (d) Deferred assurance 4×4=16
3. A loan of Rs. 10,000.00 is repayable in 10 equal annual installments. The effective interest rate is 7% p. a. calculate :
- (i) Annual installment
 - (ii) Principal part of 5th installment
 - (iii) Total interest paid over the 10 years 6,6,4

Unit-II

4. (i) Derive mathematically $a_{\overline{n}|}$.
- (ii) Find the present value of annuity of 1000 per annum payable half yearly at nominal interest rate 10% p. a. convertible half yearly. 6,10

5. Find the present value (of price) of the bond of Rs. 100 (Par value) giving interest income 5% per annum for 10 years redeemed at Rs. 125 at discount rate 10% p. a. 16
6. (i) Distinguish between mortality and annuity table.
(ii) How demographic factors help in deciding the premium of life insurance policies. 8,8

Unit-III

7. Discuss the following terms :
(a) Nominal interest rate
(b) Discount rate
(c) Effective interest rate
(d) Constant annuity 4×4=16
8. An insurance company insures 2000 trucks, 3000 cars and 7000 scooters. Prior data shows that the probability that the vehicles met with an accident respectively are 0.20%, 0.07% and 0.12%. 16

Unit-IV

9. Explain the following terms of joint life assurance and annuities :

(i) tp_{xy}

(ii) tq_{xy}

(iii) A_{xy}

(iv) $tq_{\overline{xy}}$

4×4=16

10. What is the difference between gross premium and net premium ? Explain various office expenses which constitute gross premium ?

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