

P.R.GOV.T. COLLEGE (AUTONOMOUS), KAKINADA.
III B.SC ACTUARIAL SCIENCE/FIFTH SEMESTER – 2020-21
III B.SC PAPER V
COURSE: BASIC LIFE CONTINGENCIES-I
SEMESTER-V

Total Hrs. of Teaching-Learning:45 @ 3 h/Week

Total credits 3

Unit-I

Introduction to Life Insurance. (10L)

Meaning and definition of life insurance features, Types of life insurance, principles of life insurance, Terminology in insurance premiums.

Unit-II

Survival Distributions and Life Tables: (12L)

Probability for the Age-at-Death, the survival function, time- until-death for a person aged x , curtate-future-lifetime, force of mortality.

Life tables, relation of life table functions to the survival function, life table example.

The deterministic survivorship group, other life table functions, assumptions for fractional ages, some analytical laws of mortality, some analytical laws of mortality, select and ultimate tables.

Unit-III

Life Insurance: (12L)

Insurances payable at the moment of death: level benefit insurance, endowment insurance, deferred insurance, varying benefit insurance.

Insurances payable at the end of year of death, relationships between Insurances payable at the moment of death and the end of year of death, recursion equation, commutation functions.

Unit-IV

Life Annuities: (11L)

Single payment contingent on survival, continuous life annuities, discrete life Annuities, life annuities with mthly payments, commutation function formulas for annuities with level payments, varying annuities, recursion equations, complete Annuities-immediate and apportionable annuities-due.

Additional Input: Different types of insurance plans available for the whole life insurance and commercial purpose. Should differentiate modern insurance policies and traditional insurance policies? (not included in examination)

Text Books

1. Bowers, N. L., Gerber, H.U., Hickman, J.C., Jones, D.A., Nesbitt, C.L.(1986), Actuarial Mathematics, The society of actuaries.

Books for References

1. David, C. M., Dickson, Mary R. Hardy and Howard, R. waters.(2009). Actuarial Mathematics for Life Contingent Risks. Cambridge University Press.
2. Deshmukh, S.R. (2009). Actuarial Statistics, Universities Press India.

List of Practicals:

1. Construction of life tables and problems based on life tables.
2. Survival Function and Probability Density Function
3. Analytical laws and Force of Mortality.
4. Actuarial Present value and Net single premiums.
5. True values and estimation of life annuities.
6. Calculation of yearly and mthly premium values of life insurance.

**BLUE PRINT FOR QUESTION PAPER SETTERS
III B.SC PAPER V
LIFE CONTINGENCIES-I
SEMESTER-V**

MAXMUM MARKS : 60

TIME: 2 1/2 Hrs

CHAPTER NAME	ESSAY QUESTIONS 10 MARKS	SHORT QUESTIONS 05 MARKS	MARKS ALLOTTED TO CHAPTER
I. Introduction to life insurance		01	05
II. Survival Distributions and Life Tables	02	02	30
III. Life Insurance	03	02	40
IV. life Annuities	03	01	35
TOTAL MARKS INCLUDING CHOICE	08	06	110

SAQ=Short answer questions (5M), EQ=Essay questions (10M)

III B.SC ACTUARIAL SCIENCE/FIFTH SEMESTER – 2020-21

SEMESTER-V - PAPER V

COURSE: BASIC LIFE CONTINGENCIES-I

QUESTION BANK

Short Questions:

1. Write a short notes on types of Insurance
2. Write a short notes on complete expectation of life
3. Describe deterministic survivorship group
4. Explain analytical laws of mortality.
5. Write a short notes on curtate future lifetime.
6. Describe random survivorship group
7. Explain insurance payable at the moment of death?
8. Explain level benefit insurance?
9. Explain varying benefit insurance?
10. Explain briefly discrete life annuities?

Essay Questions

1. Define Survival function and Time-until-Death for a person age x
2. Define force of Mortality and derive the relationship between distribution function and density function of future lifetime of an individual.
3. Explain briefly n - year temporary life annuity in continuous life Annuities?
4. Explain briefly n -year temporary life annuity due in discrete series?
5. Explain briefly n -year temporary life annuity immediate in discrete series?
6. Explain ' m '^{thly} whole life annuity due in discrete life annuities?
7. Explain ' m '^{thly} n year temporary annuity due in discrete life annuities?
8. Explain ' m '^{thly} whole life annuity immediate in discrete life annuities?
9. Explain commutation function formulas for annuities with level payments?
10. Define present value of insurance benefit in terms of commutation functions?

P.R.GOV'T COLLEGE (AUTONOMOUS), KAKINADA

III.B.SC (ACTUARIAL SCIENCE)

PAPER – V (MODEL PAPER)

COURSE: BASIC LIFE CONTINGENCIES-I

SEMESTER-V

Time:2 ½ hrs

Max.marks: 60

SECTION-A

Answer any **FOUR** from the following

4X5=20M

1. Explain principles of life insurance.
2. Given that

X	1000q	1000q _{x+1}	1000q _{x+2}	<i>l_x</i>	<i>l_{x+1}</i>	<i>l_{x+2}</i>	X+2
30	0.222	0.330	0.422	9906.738	9904.538	9901.2702	32
31	0.234	0.352	0.459	9902.894	9900.57	9897.091	33
32	0.250	0.377	0.500	9898.754	9896.280	9892.549	34
33	0.269	0.407	0.545	9894.290	9891.628	9887.602	35
34	0.291	0.441	0.596	9889.451	9886.574	9882.214	36

Evaluate a) 2^p [30]

B) 5^p [30]

c) $1|^q$ [31]

d) 3^q [31] + 1

3. Write a brief note on force of mortality.
4. Consider a 5-years differed whole life insurance payable the moment of the death of (X) the individual is subject to the constant force of mortality $\mu=0.04$ for the distribution of the present value of the benefits payment , at $\delta=0.10$
 - a) Calculate the expectation
 - b) Calculate the variance
5. Assuming that probabilities come from an aggregate table , obtain formula for

a) $\frac{\partial}{\partial x} \bar{a}_{x:n}$ b) $\frac{\partial}{\partial n} {}_n|\bar{a}_x$

6. Compare the variance of the present value random variables for the compute annuity – immediate and apportionable annuity due .

SECTION – B

Answer any **TWO** from the following

2X10=20M

7. Write a brief note on assumptions for fractional ages
8. An aviary of birds which has a constant intake of 1500 new born birds per year experiences the following mortality rates

Age(X) : 0 1 2 3 4 5

q_x : 0.3 0.1 0.2 0.4 0.7 1.0

- I) What is the expected total no. of birds in the aviary at any time
II) What is the expected no. living between ages 1 and 4
III) If the owner wanted the population to be steady at 5000, on an average how many extra new born birds would he have to add each year.
9. Assume that each of the 100 independent lives.

i) is age x

ii) is subject to a constant force of mortality, $\mu=0.04$

iii) is insure for a death benefit amount of 10 units payable at the moment of death.

The benefit payment are to be withdrawn from an investment fund earning $\delta=0.06$. calculate the minimum amount at $t=0$ show that probability is approximately 0.9 that sufficient funds will be on hand to withdraw the benefit payment at the death of each individual.

10. Write a short notes on endowment differed and varying benefit insurance.

SECTION-C

Answer any **TWO** from the following

2X10=20M

11. let $\mu(x)=1/1+x$, for all $x>0$

(a)integrated by parts to show that $A_x=1-\delta\int_0^\infty e^{-\delta t} (1+x)/(1+x+t)dt$

(b) use the expression in (a) show that $dA_x/dx <0$ for all $x>0$

12. Find the formulas for the expectation and variance of the present value of random variable for n year term life annuity due.

13. Write a notes on life annuities with a m -thly payments.

14. Under the assumptions of a constant force of mortality μ , and of a constant force of interest, δ , evaluate

(a) $a_x = E[a_t \bar{1}]$

(b) $\text{var}(a_t \bar{1})$

(c)the probability that $a_t \bar{1}$ will exceed a_x

P.R.GOV.T. COLLEGE (AUTONOMOUS), KAKINADA.
III B.SC ACTUARIAL SCIENCE/FIFTH SEMESTER 2020-21
III B.SC (MSAS) PAPER- VI SEMESTER-V
COURSE: BUSINESS COMMUNICATION

Total Hrs. Of Teaching-Learning:90 @ 6 H/Week

Total credits 05

OBJECTIVES :

- To understand the nature and scope of communication
- To provide the knowledge of Business communication
- To understand the non-verbal –verbal communication
- To know the student to effective communication.

Learning outcomes:

- by the end of this course students can know the importance of communication
- difference of verbal and no-verbal communication
- tips for effective use of communication.
- know the formal and informal communication.
- have the knowledge of Barriers to effective communication.

Unit - I: NATURE AND SCOPE OF COMMUNICATION

Nature and scope of communication – Introduction- Functions of Communication-Role of a Manager- Communication Basics- Communication Networks-Miscommunication-Barriers to Effective Communication.

Assignment: Role of Manager-Functions of communication

Unit – II: TIPS FOR EFFECTIVE INTERNAL COMMUNICATION

Tips for effective internal communication – Informal Communication (Beyond the organizational Hierarchy) - Effectiveness in managerial communication --Strategies for improving organizational communication

Unit-III : NON- VERBAL COMMUNICATION

INTRODUCTION –Forms of non-verbal communication-interpreting non – verbal messages – Tips for effective use of non –verbal communication-verbal communication.

Assignment : Non-verbal communication –interpreting non-verbal messages

Unit – IV : EFFECTIVE PRESENTATION

Cross cultural communication-elements of cultural – principals of effective business writing – purpose of writing-writing style-role of communication-business correspondence principals of effective business writing.

Addition Input: Students are able to gain knowledge additionally on different types of communication skills and business transactions. To develop an ideas to start small business plans and entrepreneur ships. (not included in examination)

Suggested books : 1. AnjaneesathReferil – Business communication

2. Sankirtan Bodhi – Business communication

3. BharnaAdhikar – Business communication

BLUE PRINT FOR QUESTION PAPER SETTERS
III B.SC (MSAS) PAPER VI
COURSE: BUSINESS COMMUNICATION
SEMESTER-V

MAXIMUM MARKS : 60

TIME: 2 1/2 Hrs

CHAPTER NAME	ESSAY QUESTIONS 10 MARKS	SHORT QUESTIONS 05 MARKS	MARKS ALLOTTED TO CHAPTER
I Nature and Scope Of Communication	02	02	30
II Tips for Effective Internal Communication	02	01	25
III. Non Verbal Communication	02	02	30
IV Oral Presentation	02	01	25
TOTAL MARKS INCLUDING CHOICE	08	06	110

SAQ=Short answer questions (5M), EQ=Essay questions (10M)

**III BSC ACTUARIAL SCIENCE
SEMESTER – V PAPER-VI
BUSSINESS COMMUNICATION
QUESTION BANK**

SHORT QUESTIONS

- 1. Explain miss communication.**
- 2. Barrie's to effective communication.**
- 3. Informal communication.**
- 4. Tips for effective internal communication.**
- 5. Verbal communication.**
- 6. Forms of non verbal communication.**
- 7. Cross cultural communication.**
- 8. Purpose of writing style.**
- 9. Role of communication.**
- 10. Effectiveness in managerial communication.**

ESSAY QUESTIONS

- 1. Functions of communication**
- 2. Strategies for improving organizational communication.**
- 3. Role of manager in communication.**
- 4. Explain the effectiveness in managerial communication.**
- 5. Interpreting non-verbal messages.**
- 6. Tips for effective use of non-verbal communication.**
- 7. Explain the cultural elements.**
- 8. Principles of effective business writing.**

P.R.GOVERNMENT COLLEGE(AUTONOMOUS), KAKINADA
III YEAR B.Sc. PAPER-VI (MODEL PAPER)
BUSINESS COMMUNICATION
SEMESTER-V

DATE:

Max. Marks: 60

TIME: 2 ½ Hrs

SECTION-A

Answer any **FOUR** questions from the following

4X5=20M

1. Miss communication
2. Barrie's to effective communication.
3. Tips for effective internal communication
4. Verbal communication
5. Forms of non verbal communication.
6. Cross cultural communication.

SECTION-B

Answer any **TWO** questions from the following

2x10=20M

7. Functions of communication?
8. Role of Manager Communication?
9. Strategies for improving organizational communication?
10. Explain the effectiveness in managerial communication?

SECTION-C

Answer any **TWO** questions from the following

2x10=20M

11. Interpreting non-verbal messages?
12. Tips for effective use of Non-verbal Communication?
13. Explain the cultural Elements?
14. Principals of Effective Business Writing?