**P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA.**

**III B.SC ACTUARIAL SCIENCE/SIXTH SEMESTER 2018-19**

**III B.SC (MSAS) PAPER VII (OPTIONAL -I )**

**COURSE: MORTALITY AND OTHER ACTUARIAL SCIENCE**

**SEMESTER-VI**

**Total Hrs. Of Teaching-Learning:45 @ 3 H/Week Total credits 3**

Unit-I Hours:12

Rates and Ratio’s in Mortality- Exposed to Risk Aggregate Rates- Life Year and other rate Intervals

Unit-II Hours:12

Select Rates – Multiple Decrement Tables – Its role in Actuarial Statistics

Unit-III Hours:12

Principles and Purposes of Graduation – The Graphic Method - Graduation by reference to a Standard table.

Unit-IV Hours:12

Compression of Rates of Selection – Social and Economic factors in Mortality – Population Structures and Projections – Age Sex Pyramid

Unit-V Hours:12

U.K. Assured lives and Annuitants Mortality.- The English life Tables – Individual Policy Sickness Experience – Indian Assured Lives Mortality.

Recommended Books:

1. Benjamin, B and Pollard: Analysis of Mortality and other Actuarial Sciences Published by Heinemann: Chapters 1,10,11,12,15,19.
2. Special Note: Exposed to Risk using the Direct and Census methods including mortablity rates by age and Multiple Decrements.
3. Special Note: Population Structures and Projections -1990 Edition
4. English Life Tables No. 14-1980/82 HMSC

**BLUE PRINT FOR QUESTION PAPER SETTERS**

**III B.SC (MSAS)PAPER VII(OPTIONAL-I)**

**COURSE: MORTALITY AND OTHER ACTUARIAL STATISTICS**

**SEMESTER-V1**

MAXMUM MARKS : 70 TIME: 3 Hrs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CHAPTER NAME** | **ESSAY QUESTIONS**  **10 MARKS** | **SHORT QUESTIONS**  **05 MARKS** | **VERY SHORT QUESTIONS**  **01 MARKS** | **MARKS ALLOTTED**  **TO CHAPTER** |
| **UNIT-I** | **02** | **01** | **02** | **27** |
| **UNIT-II** | **01** | **02** | **02** | **22** |
| **UNIT-III** | **01** | **02** | **02** | **22** |
| **UNIT-IV** | **02** | **01** | **02** | **37** |
| **UNIT-V** | **01** | **02** | **02** | **22** |
| **TOTAL MARKS INCLUDING CHOICE** | **08** | **08** | **05** | **125** |

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

**Internal Assessment for 30 Marks*:***

Short Answer Questions : 10 x 1 = 10M

Essay Type Questions : 4 x 5 = 20M

-------------------

Total : 30M

**P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA**

**III YEAR B.Sc PAPER-VII (OPTIONAL-I)**

**MORTALITY AND OTHER ACTURIAL STATISTICS**

**VI SEMESTER**

**(MODEL PAPER)**

**DATE: Max.Marks: 70**

**TIME:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SECTION-A**

**Answer ALL questions from the following**  **5X1=5M**

1. Define ratio of mortality.
2. Define life year interval.
3. Define social factors of mortality.
4. Define economic factors of mortality.
5. Define U.K assured lives.

**SECTION-B**

**Answer any FIVE questions from the following 5X5=25M**

1. Write brief note on rates and ratio of mortality.
2. Write a brief note on multiple and dicriminent roles.?
3. Write a short notes on principles of graduation?
4. Write compression rates of selection?
5. Write population structures.
6. Define annuitants mortality?
7. Write short note on Indian assured lives?

**SECTION-C**

**Answer any TWO questions from the following**  **2x10=20M**

1. Write brief notes on exposed to risk aggregate rates
2. Write brief notes on life year and other rates of intrvals
3. Write brief notes on multiple & discriminate tables
4. Write role on multiple & discriminate tables in actuarial statistics.

**SECTION-D**

**Answer any TWO questions from the following** **2x10=20M**

1. Write graphic method of graduation.
2. write graduation by reference to a standard table.
3. Write about population structures and projections.
4. Explain the English life table, individual policy sickness.

20. While the distribution in this example is not realistic, it is offered as a vehicle to explo

**P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA.**

**III B.SC, ACTUARIAL SCIENCE/SIXTH SEMESTER - 2018-19**

**PAPER VII (OPTIONAL-2)**

**COURSE: ACTUARIAL STATISTICS**

**SEMESTER- VI**

**Total Hrs. of Teaching-Learning:60 @ 4 h/Week Total credits 3**

Unit-I Hours-12

Warning’s Result- Compound Distribution – Branching Process – Poissonian Process – Linear Population Process

Unit-II Hours-12

Linear Combination of Random Variables – Chebyshev Inequality Central Limit Theorem – Special Distributions.

Unit-III Hours-12

Descriptive Statistics – Inferential Statistics – Estimation of Method of Moments – Properties of Estimation.

Unit-IV Hours-12

Confidence Intervals – Single Sample Problems – Two sample Problems – Paired problems.

Unit-V Hours-12

Testing of Hypothesis – Single sample Problems – Two Sample problems – Chi square Tests - Bayesian Methods

References:

1. Gray, J.R: Probability ( Chapters 1,2,3,4,5, and 8)
2. Larson, H.J.: Introduction to Probability Theory and Statistical Inference. Published by Wiley.

**BLUE PRINT FOR QUESTION PAPER SETTERS**

**III B.SC (MSAS)PAPER VII(OPTIONAL-I)**

**COURSE: ACTUARIAL STATISTICS**

**SEMESTER-V1I**

MAXMUM MARKS : 70 TIME: 3 Hrs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CHAPTER NAME** | **ESSAY QUESTIONS**  **10 MARKS** | **SHORT QUESTIONS**  **05 MARKS** | **VERY SHORT QUESTIONS**  **01 MARKS** | **MARKS ALLOTTED**  **TO CHAPTER** |
| **UNIT-I** | **02** | **01** | **02** | **27** |
| **UNIT-II** | **01** | **02** | **02** | **22** |
| **UNIT-III** | **01** | **02** | **02** | **22** |
| **UNIT-IV** | **02** | **01** | **02** | **37** |
| **UNIT-V** | **01** | **02** | **02** | **22** |
| **TOTAL MARKS INCLUDING CHOICE** | **08** | **08** | **05** | **125** |

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

**Internal Assessment for 30 Marks*:***

Short Answer Questions : 10 x 1 = 10M

Essay Type Questions : 4 x 5 = 20M

-------------------

Total : 30M

**P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA**

**III YEAR B.Sc (MODEL PAPER)**

**VI SEMESTER PAPER VII (OPTIONAL-II)**

**ACTURIAL STATISTICS**

**DATE: Max.Marks: 70**

**TIME:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SECTION-A**

**Answer ALL questions from the following**  **5X1=5M**

1. Write compound distribution.
2. Write statement of central limit theorem.
3. Write about descriptive statistics.
4. Define confidence interval.
5. Define testing of hypotheses.

**SECTION-B**

**Answer any FIVE questions from the following 5X5=25M**

1. Write brief note on branching process.
2. Write a brief note on poisson process.?
3. Write linear combination of random variables?
4. Write about inferential statistics?
5. Write brief notes on single sample problem.
6. Write brief notes on double sample problem?
7. Write single sample problem for testing of hypotheses.

**SECTION-C**

**Answer any TWO questions from the following**  **2x10=20M**

1. Write properties of poisson process.
2. Write brief notes on branching process.
3. State and prove chebechev’s inequality.
4. State and prove central limit theorem.

**SECTION-D**

**Answer any TWO questions from the following** **2x10=20M**

1. Write estimation of method of moments also write its properties.
2. Write procedure of chi-square goodness of fit .
3. Write procedure of chi-square independence of attributes .
4. Write procedure of Bayesian methods.

**P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA.**

**III B.SC, ACTUARIAL SCIENCE/SIXTH SEMESTER (W.E.F. 2018-19)**

**COURSE: LIFE CONTINGENCIES-II PAPER VIII (CLUSTER-I)**

**(OPTIONAL-1)**

**Total Hrs. of Teaching-Learning:60 @ 4 h/Week Total credits 3**

**Net premiums or Benefit premiums (12L)**

The random future loss under an assurance or annuity contract, state the principle

of equivalence, Notations and formulae of net premium for common life insurance

contracts, Fully Discrete Premiums, True m-thly payment premium, Commutation

functions, increasing and decreasing Benefit premiums, Profits contract, Types of

bonus, Calculating net premiums for with-profit contracts.

**Benefit Reserves (9L)**

Prospective and Retrospective Reserves , Net future random loss for reserves,

Conditions for equality of prospective and retrospective Reserves, Fully Continuous

Benefit Reserves, other formulas for fully Continuous Benefit Reserves, Fully

Discrete Benefit Reserves, Benefit Reserves on a Semi-continuous basis, Benefit

Reserves based on True m-thly Benefit premiums, Net Premium Reserves, Thiele’s

Differential Equation, Death strain at risk(DSAR), Expected death strain(EDS),

Actual death strain (ADS), Mortality profit, Mortality profit on a portfolio of policies,

Calculating net Reserves for with-profit contracts.

**Analysis of Benefit Reserves (6L)**

Benefit Reserves for General Insurances, Recursion Relations for Fully Discrete

Benefit Reserves, Benefit Reserves at Fractional Durations.

**Insurance Models Including Expenses (8L)**

List the type of expenses incurred in writing a life insurance contract, Describe the

influence of inflation on the expenses, Define the gross future loss random variable

for the benefits and annuities using equivalence principle.

**Multiple Life Functions (10L)**

Joint distribution of Future Lifetimes, The Joint-Life Status, The Last-Survivor

Status, More Probabilities and Expectations, Dependent Lifetime Models: Common

Shock, Insurance and Annuity Benefits: Survival Status, Special Two-Life Annuities,

Reversionary Annuities, Simple Contingent Functions.

**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.

**References**

1. UK Institute of Actuaries core reading for subject CT5-Contingences.

2. Robin Cunningham, Thomas N. Herzog, Richard L. Models for Quantifying Risk,

4th Edition, ACTEX Publications, 2011.

3. Dickson, David C. M., Hardy, Mary R. and Waters, Howard R., Actuarial

Mathematics for life contingent risks, International series on actuarial science,

Cambridge 2009.4. Deshmukh S. R., An Introduction to Actuarial Statistics, University Press, 2009

**BLUE PRINT FOR QUESTION PAPER SETTERS**

**III B.Sc- PAPER-VIII - (OPTIONAL -I ) LIFE CONTINGENCIES-II**

**SEMESTER- VI**

MAXMUM MARKS : 70 TIME: 3 Hrs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CHAPTER NAME** | **ESSAY QUESTIONS**  **10 MARKS** | **SHORT QUESTIONS**  **05 MARKS** | **VERY SHORT QUESTIONS**  **01 MARKS** | **MARKS ALLOTTED**  **TO CHAPTER** |
| **I Net premiums or**  **Benefit premiums** | **02** | **02** | **01** | **31** |
| **IIBenefit Reserves** | **01** | **02** | **01** | **21** |
| **III.Analysis of Benefit**  **Reserves** | **01** | **01** | **01** | **16** |
| **IVInsurance Models**  **Including Expenses** | **02** | **01** | **01** | **16** |
| **V Multiple Life**  **Functions** | **02** | **02** | **01** | **31** |
| **TOTAL MARKS ALLOTTED** | | | | **115** |

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

**Internal Assessment for 30 Marks*:***

Short Answer Questions : 10 x 1 = 10M

Essay Type Questions : 4 x 5 = 20M

-------------------

Total : 30M

-- -----------------

**P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA**

**III YEAR B.Sc (MODEL PAPER)**

**LIFE CONTINGENCIES- II(CLUSTER-I)(OPTIONAL-1)**

**VI SEMESTER**

**DATE: Max.Marks: 70**

**TIME:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SECTION-A**

**Answer ALL questions from the following**  **5X1=5M**

1. Define Premium.
2. Define Death strain at risk.
3. Define Prospective reserves.
4. Define the gross future loss random variable.
5. Define survival status.

**SECTION-B**

**Answer any FIVE questions from the following 5X5=25M**

1. Derive the formulas for the annual benefits premium for a 5000, 20 year term insurance on (x) providing, in case of death within the 20 years, the return of the annual benefit premiums paid.
2. Without interest
3. Accumulated at the interest rate used in the determination of premiums. In each case, the return of premium is in addition to the 5000 sum insured and benefit payments are made at end of the year of death.
4. Write a brief note on discrete premiums.?
5. Write a short notes on Fully discrete benefit reserves.?
6. For Insurance contract and assumptions of an aggregate mortality law
7. Exhibit the formulas for the d.f and p.d.f of conditional distribution for , given T(x)>t
8. Display graphs of these conditional p.d.f’s for t=0,20,40,60
9. Write a short notes on benefit reserves for General Insurance.?
10. Determine the actuarial present value of a payment of 1000 at the moment of death of (x) providing that (y) is still alive for (x) and (y) are independent and on the basis of =0.04?
11. Define the gross future loss random variable for benefits.?
12. Write short note on joint distribution of future life time?

**SECTION-C**

**Answer any TWO questions from the following**  **2x10=20M**

1. An insurer is planning to issue a policy to a life age 0 whose curtate- future life time, K, is governed by the p.fk\q0 =0.2 k=0, 1, 2, 3, 4

The policy will pay 1 unit at the and of the year of death in exchange for the payment P at the beginning of each year, provided the life survives find the annual premium P, as determined by

1. P will be the least annual premium such that the insurer has probability of a financial loss of a positive financial loss at most 0.25.
2. P will be the least annual premium such that the insurer, using a utility of wealth function u(x)=x, will be indifferent between accepting and not accepting the risk

From two parts assume the insurer will use an annual effective interest rate of i=0.06

1. Write notes on true m-thly premiums.?
2. Under the assumption of uniform distribution of deaths over each year of age and

i=0.06 Calculate the following for a 20-year endowment insurance issued to (50) with a

unit benefit and true semiannual benefit premiums.

1. The benefit reserve at the end of the 10th year if the benefit is payable at the end of the year of death.
2. The benefit reserve at the end of the tenth year if the benefit is payable at the moment of death
3. .Write a short note on benefit reserves for General Insurance?

**SECTION-D**

**Answer any TWO questions from the following** **2x10=20M**

18. .Describe the influence of inflation on the expenses.?

19. . List the type of expenses incurred in writing a life insurance contract.?

20. While the distribution in this example is not realistic, it is offered as a vehicle to explore a joint distribution for two dependent future lifetime. For two lives (x)and (y),the joint p.d.f. of their future life times, T(x) and T(y), is

fT(x)T(y)(s,t)=

Determine the following

1. The joint d.f. of T(x) and T(y)
2. The p.d.f. of d.f.,

21. Write a brief note on joint life status.?

**P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA.**

**III B.SC, ACTUARIAL SCIENCE/SIXTH SEMESTER (W.E.F. 2018-19)**

**PAPER VIII (CLUSTER-1) (OPTIONAL-II)**

**COURSE: LIFE CONTINGENCIES-III**

**SEMESTER-VI**

**Total Hrs. of Teaching-Learning:60 @ 4 h/Week Total credits 3**

**Multiple Decrement Model (12L)**

Two random variables, Random Survivorship Group, Deterministic Survivorship

Group, Associated single Decrement tables: Basic Relationship, Uniform

Distribution Assumption for multiple decrements, Construction of Multiple

decrement table, Relationship between single and multiple decrement tables.

**Application of multiple decrement theory (12L)**

Actuarial present value and their numerical evaluation, benefit premium and

reserves, competing risks, multiple state modelling, multiple state Markov model,

Kolmogorov forward equations, multiple decrement tables.

**Profit testing (11L)**

Discounted emerging costs, unit-linked contract, Profit test annual premium

contracts, the profit vector, the profit signature, the net present value and the profit

margin, determining premiums using profit test, Profit criterion, determining

reserves using profit testing, Zeroising negative cashflows, Equity-linked insurance,

deterministic profit testing for equity linked insurance, Stochastic profit testing,

Stochastic pricing, Stochastic reserving.

**Pension funds (10L)**

Multiple decrement service table for pensions calculations, updating a service table,

the salary scale function, setting the DC contribution, the service table, funding

plans, valuation of benefits: Final salary plans, Career average earnings plans.

**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.

**References**

1.UK Institute of Actuaries core reading for subject CT5-Contingencies.

2.Robin Cunningham, Thomas N. Herzog, Richard L. Models for Quantifying Risk,

4th Edition, ACTEX Publications.

3.Dickson, David C.M., Hardy, Mary R. and Waters, Howard R., Actuarial

Mathematics for life contingent risks, International series on actuarial science,

Cambridge 2009.

4.Deshmukh, S. R., An introduction to Actuarial Statistics, University Press

**BLUE PRINT FOR QUESTION PAPER SETTERS**

**PAPER VIII (CLUSTER-I) (OPTIONAL-2)**

**LIFE CONTINGENCIES-III**

**SEMESTER-VI**

MAXMUM MARKS : 70 TIME: 3 Hrs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CHAPTER NAME** | **ESSAY QUESTIONS**  **10 MARKS** | **SHORT QUESTIONS**  **05 MARKS** | **VERY SHORT QUESTIONS**  **01 MARKS** | **MARKS ALLOTTED**  **TO CHAPTER** |
| **I Multiple Decrement**  **Model** | **02** | **02** | **01** | **31** |
| **IIApplication of**  **multiple decrement**  **theory** | **02** | **02** | **01** | **31** |
| **III.Profit testing** | **02** | **02** | **02** | **32** |
| **IVPension funds** | **02** | **02** | **01** | **31** |

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

**Internal Assessment for 30 Marks*:***

Short Answer Questions : 10 x 1 = 10M

Essay Type Questions : 4 x 5 = 20M

-------------------

Total : 30M

**P.R.GOVT COLLEGE (AUTONOMOUS), KAKINADA**

**III.B.SC (ACTUARIAL SCIENCE)**

**VI SEMESTER PAPER VIII (CLUSTER-1) (POTIONAL-2)**

**(MODEL PAPER)**

**COURSE: LIFE CONTINGENCIES-III**

**Time:3Hrs Max.Marks:70**

**SECTION-A**

**Answer ALL Question 5X1=5M**

1. Define two random variable.
2. Define competing risk.
3. Define profit vector.
4. Define Profit criterion.
5. Define Defined contribution.

**SECTION-B**

**Answer any Five questions from the following 5X5=25M**

1. Write a short note on random survivorship group.?
2. Consider a situation with three causes of decrement mortality, disability and withdrawal assume mortality and disability are uniformly distributed in each year of age in the associated single decrement tables with absolute rates of and respectively. Also assume that withdrawals occur only at the end of the year with an absolute rate of

Give formulas for the probabilities of decrement in the year of age x to x+1 for three cause.

1. Write a short note on multiple state model.?
2. Write a short note on multiple state markov model.?
3. Describe the types of benefit provided by unit-linked contract.?
4. Define net present value and profit margin.?
5. Write a short note on salary scale function.?
6. Explain funding plans.?

**SECTION-C**

**Answer any TWO questions from the following**  **2X10=20M**

1. Consider a multiple decrement model with two causes of decrement; the force of decrement are given by x(1) (t)= t0 x(2) (t)= t0

For this model calculate the p.f for the joint marginal and conditional distribution.

1. Explain uniform distribution assumption for multiple decrements.?
2. Explain actuarial present value and their numerical evaluation .?
3. Explain kolmogorov forward equations.?

**SECTION-D**

**Answer any TWO questions from the following**  **2X10=20M**

1. Describe the profit test annual premium.?
2. Explain stochastic profit testing.?
3. Write about DC contribution and setting DC contribution.?
4. Explain valuation of benefits.?

**P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA.**

**III B.SC, ACTUARIAL SCIENCE/SIXTH SEMESTER (W.E.F. 2018-19)**

**PAPER VIII (CLUSTER-2) (OPTIONAL-I)**

**COURSE: PRINCIPLES OF INSURANCE**

**SEMESTER-VI**

**Total Hrs. of Teaching-Learning:60 @ 4 h/Week Total credits 3**

Unit-I Hours-12

Risk Management: Meaning of risk and distinguish between different types of risks, Risk analysis and risk management techniques, Concept of risk retention for individuals.

Unit-II Hours-12

Insurance Market: Indian insurance market, role of intermediaries: agents, brokers; role of specialists: surveyors, medical examiners, third party administrators(TPA); role of regulator and other bodies.

Unit-III Hours-12

Insurance Customers: Concept of Insured customer, different types of customers, concept of customer mindset and customer satisfaction, importance of ethical behavior.

Unit-IV Hours-12

Insurance Contract: Notion of insurance contract, significance of principle of insurable interest, principles of indemnity, principles of subrogation and contribution, principles of utmost good faith, concept of proximate cause.

Unit-V Hours-12

Insurance Terminology: Concept of life and non-life insurance, terms specific to life insurance, terms specific to non-life insurance.

References:

1. Principles of Insurance, IC-01, Insurance institute of India.
2. Principles of Insurance and Banking, Dr. S.S. Kundu, Dr. B.S. Bodla

**BLUE PRINT FOR QUESTION PAPER SETTERS**

**PAPER VIII (CLUSTER-2) (OPTIONAL-1)**

**PRINCIPLES OF INSURANCE**

**SEMESTER-VI**

MAXMUM MARKS : 70 TIME: 3 Hrs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CHAPTER NAME** | **ESSAY QUESTIONS**  **10 MARKS** | **SHORT QUESTIONS**  **05 MARKS** | **VERY SHORT QUESTIONS**  **01 MARKS** | **MARKS ALLOTTED**  **TO CHAPTER** |
| **I Multiple Decrement**  **Model** | **02** | **02** | **01** | **31** |
| **IIApplication of**  **multiple decrement**  **theory** | **02** | **02** | **01** | **31** |
| **III.Profit testing** | **02** | **02** | **02** | **32** |
| **IVPension funds** | **02** | **02** | **01** | **31** |

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

**Internal Assessment for 30 Marks*:***

Short Answer Questions : 10 x 1 = 10M

Essay Type Questions : 4 x 5 = 20M

-------------------

Total : 30M

**P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA.**

**III B.SC, ACTUARIAL SCIENCE/SIXTH SEMESTER ( 2018-19)**

**PAPER VIII (CLUSTER-2) (OPTIONAL-I)**

**COURSE: PRINCIPLES OF INSURANCE**

**SEMESTER-VI**

**MODEL PAPER**

**Time:3Hrs Max.Marks:70**

**SECTION-A**

**Answer ALL Question 5X1=5M**

1. Define Risk
2. Define insurance Market
3. Explain insurance contract
4. Define life and non life insurances
5. Meaning of retention?

**SECTION-B**

**Answer any Five questions from the following 5X5=25M**

1. Write Distinguish between different types of risks?
2. Explain the role of intermediaries?
3. Explain the different types of customer ?
4. Rotations of Insurance contract?
5. Explain of significances of principal of Insurance interest?
6. Explain the concept of risk of retention for individuals?
7. Explain the concept of customer satisfaction?
8. Explain the principals of indemnity?

**SECTION-C**

**Answer any TWO questions from the following**  **2X10=20M**

1. Explain the risk analysis and risk management techniques?
2. Explain the role of specialists?
3. Explain the importance of ethical behavior?
4. Explain the role of third party administrators?

**SECTION-D**

**Answer any TWO questions from the following**  **2X10=20M**

1. Explain the principals of subrogation and contribution?
2. Explain the principals of utmost good faith and proximate cost?
3. Explain terms specific to life insurance and specific to non-life insurance?
4. Explain the insurance terminology and the concept of life and non-life insurance ?

**P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA.**

**III B.SC, ACTUARIAL SCIENCE/SIXTH SEMESTER (W.E.F. 2018-19)**

**SEMESTER-VI PAPER VIII**

**(CLUSTER-2) (OPTIONAL-2)**

**COURSE: PRACTICE OF INSURANCE**

**Total Hrs. of Teaching-Learning:60 @ 4 h/Week Total credits 3**

Unit-I Hours-12

Practice of Life Insurance: Introduction, Over view of Indian insurance market, growth of insurance business in india, liberalization of Indian insurance sector, organizational structure of LIC.

Unit-II Hours-12

Premiums and bonuses: Concept of premium, different types of premiums, factors involved in the calculation of premium, concept of bonus.

Unit-III Hours-12

Plans of Life Insurance: various life insurance plans, importance of ULIPs, importance of riders, industrial life insurance, benefits of MWP, importance of key-man insurance, importance of health insurance.

Unit-IV Hours-12 Annuities: Concept of annuity, analysis of different types of annuity plans, advantages and disadvantages of annuity.

Unit-V Hours-12

Group Insurance: Importance of group insurance, different group insurance schemes, group insurance classifications, features of group insurance schemes, group superannuation schemes, group leave encashment scheme, group insurance scheme in view of EDLI, social security scheme.

Reference:

1. Practice of Life Insurance IC-02, Insurance institute of india.
2. Theory and Practice of Insurance, [J. François Outreville](https://link.springer.com/search?facet-creator=%22J.+Fran%C3%A7ois+Outreville%22).

**BLUE PRINT FOR QUESTION PAPER SETTERS**

**PAPER VIII (CLUSTER-2) (OPTIONAL-2)**

**PRACTICE OF INSURANCE**

**SEMESTER-VI**

MAXMUM MARKS : 70 TIME: 3 Hrs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CHAPTER NAME** | **ESSAY QUESTIONS**  **10 MARKS** | **SHORT QUESTIONS**  **05 MARKS** | **VERY SHORT QUESTIONS**  **01 MARKS** | **MARKS ALLOTTED**  **TO CHAPTER** |
| **I Multiple Decrement**  **Model** | **02** | **02** | **01** | **31** |
| **IIApplication of**  **multiple decrement**  **theory** | **02** | **02** | **01** | **31** |
| **III.Profit testing** | **02** | **02** | **02** | **32** |
| **IVPension funds** | **02** | **02** | **01** | **31** |

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

**Internal Assessment for 30 Marks*:***

Short Answer Questions : 10 x 1 = 10M

Essay Type Questions : 4 x 5 = 20M

-------------------

Total : 30M

**P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA.**

**III B.SC, ACTUARIAL SCIENCE/SIXTH SEMESTER (W.E.F. 2018-19)**

**SEMESTER-VI PAPER VIII**

**(CLUSTER-2) (OPTIONAL-2)**

**COURSE: PRACTICE OF INSURANCE**

**MODEL PAPER**

**Time:3Hrs Max.Marks:70**

**SECTION-A**

**Answer ALL Question 5X1=5M**

1. What is meant by liberalization
2. Define premiums
3. Explain ULIP
4. Explain annuities
5. What is group insurance

**SECTION-B**

**Answer any Five questions from the following 5X5=25M**

1. Explain the growth of insurance business in India?
2. Explain organizational structure of LIC
3. Write the different types of premiums
4. Explain the concept of premiums
5. Write the various life insurance plans
6. Write the benefits of MWP
7. Write the advantages and disadvantages of annuity
8. Write the features of group insurance of schemes

**SECTION-C**

**Answer any TWO questions from the following**  **2X10=20M**

1. Explain briefly about Indian insurance market?
2. Write factors involved in the calculation of premiums and the concept of bonus
3. Write the importance of key-man insurance and health insurance
4. Explain the concept of premiums and write different types of premiums with explanation

**SECTION-D**

**Answer any TWO questions from the following**  **2X10=20M**

1. Write the analysis of different types of annuity plans
2. Write the importance of riders and industrial life insurances
3. Write the group insurance classification
4. Write the group insurance schemes in view of EDLI

**III B.Sc. – Actuarial Science**

**Sixth Semester**

**Practical Paper - VII: Life Contingencies-II**

(Total Hours of Laboratory Exercises: 30 @ 3 h / Week in 15 Sessions)

1. Calculation of Net premiums or Benefit premiums.
2. Calculation of m-thly payment premium.
3. Calculation of Benefit Reserves.
4. Analysis of Benefit Reserves.
5. Insurance Models Including Expenses.
6. Multiple Life Functions

**III B.Sc. – Actuarial Science**

**Sixth Semester**

**Practical Paper - VIII: Life Contingencies-III**

(Total Hours of Laboratory Exercises: 30 @ 3 h / Week in 15 Sessions)

1. Multiple Decrement Models.
2. Actuarial present value in Multiple Decrement Models.
3. Profit testing.

4. Pension funds.