B.Sc. ACTUARIAL SCIENCE (SEMESTER WISE) 2019-20

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
FIRST YEAR							
Semester I	Paper-I	Basics of Business Economics	6	5	50	50	100
Semester II	Paper-II	Basics of Financial Mathematics	6	5	50	50	100
SECOND YEAR							
Semester III	Paper-III	Basics of Financial Accountancy	6	5	40	60	100
Semester IV	Paper-IV	Survival Models	6	5	40	60	100
THIRD YEAR							
Semester V	Paper-V	Basics of Life Contingency	5	5	40	60	100
	Paper-VI	Business Communication	5	5	40	60	100
Semester VI*	Paper-VII	Mortality and other Actuarial statistics Or Actuarial Statistics	5	5	40	60	100
Semester VI*	Cluster-1	Life contingency-1	5	5	40	60	100
		LifeContingency-2	5	5	40	60	100
		Project	5	5	40	60	100
	Cluster-2	Principles of Insurance	5	5	40	60	100
		Practice of Insurance	5	5	40	60	100
		Project	5	5	40	60	100

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM
ACTAUARIAL SCIENCE PROPOSED SYLLABUS
I YEAR B.Sc. (MSAS) PAPER-I
SEMESTER-I
BASICS OF BUSINESS ECONOMICS PAPER-1

Total Hrs. required: 60   Total Credits: 03

Unit-I
Nature and scope of economics – Methodology in economics – Concepts of Demand and Supply – Elasticity of demand – price, income, cross.
Unit-II
Cardinal and Ordinal approaches – Law of Diminishing Marginal utility – Indifference curve –Consumer's equilibrium– Consumer surplus.

Unit-III
Market forms – Perfect and Imperfect Markets –Features of various markets – Monopoly, Monopolistic Competition, Oligopoly – Notion of Controlled and Administered prices.

Unit-IV
Concepts of Payback period – Average Annual Rate of return – Net Present Value – Internal Rate of Return criterion – Elements of Social Cost Benefit analysis.

Unit-V
National income and social accounts – concept and measurement of national income – Introduction to Macro Economic policy and Money and monetary institutions…. RBI, Commercial banks – Concept of Insurance, Stock exchanges, SEBI, IRDA .Nature, characteristics and phases of Trade cycles – Carol of Trade Cycles.

 References:
1. CT-7 study material of Institute of Actuaries of India
2. Ackley (1976) Micro Economics – Theory and policy, Macmilan publishing company, Newyork.
3. Gupta S.B(1994), Monetary Economics, S.Chand& Co., New Delhi.4. Heijdra B.J. and F.V.Ploeg (2001) Foundations of Modern Economics, Oxford university Press, Oxford.

Time: 2½ Hrs.   Max.marks:50

SECTION-A

Answer Any Four Questions   4X5=20 M

1. Nature of Economics
2. Deductive Method
3. Cardinal and Ordinal Approaches
4. Consumer's surplus
5. Controlled and Administered Prices
6. Macro-Economic Policy

SECTION-B

Answer Any Three Questions   3X8=24 M

7. Explain the theory of demand and its exemptions?
                            (OR)
8. Explain the law of Diminishing Marginal Utility?
9. Explain the functions of RBI?
                            (OR)
10. Explain the Concept of cost benefit analysis and elopement in social cost benefit analysis?
11. Explain the Concept of National Income?
                            (OR)
12. Explain the Phases of Trade cycles?

SECTION-C

Answer Any Three Questions   3X2=6M

13. Define Demand and Supply
14. Define Oligopoly
15. What is rate of return
16. What is SEBI
17. What are Stock Exchanges

GOVERNMENT COLLEGE [A] RAJAHMAHENDRAVARM
ACTUARIAL SCIENCE PROPOSED SYLLABUS
II YEAR B.Sc. (MSAS) PAPER – III
SEMESTER-III
BASICS OF FINANCIAL ACCOUNTENCY PAPER-III

Total Hrs. required: 60   **Total Credits:03**

Unit-I
Need for Accounting- definition, features, objectives, functions, systems and bases and scope of accounting - Book keeping and Accounting - Branches of Accounting - Advantages and limitations – basic terminology used - Accounting concepts and conventions. Accounting process - Accounting cycle - Accounting equation – classification of accounts – rules of double entry book keeping

Unit-II
Identification of financial transaction – journalizing – posting to ledgers, balancing of ledger accounts – computerized accounting. Meaning and features - creating of an organization – types of vouchers. Sub division of journal-preparation of subsidiary books including different types of cashbooks – simple cash book, cashbook with cash and discount columns, cashbook with cash, discount and bank columns, cashbook with cash and bank columns and petty cash book.

Unit-III
Trial Balance meaning, objectives, methods of preparation – Final Accounts meaning, features, uses and preparation of manufacturing, trading account, profit & Loss Account and balance sheet – adjusting and closing entries.   Funds flow and cash flow statements uses and limitations – concept of cash construction of cash flow statement as per accounting standard, meaning of ratio analysis

Unit-IV
 Classification of ratio analysis–computation and interpretation of different accounting ratios – liquidity, profitability turnover ratios and solvency ratios

Unit-V
Life insurance companies–preparation of revenue accounts profit and loss account balance sheet and valuation of balance sheet.

Suggested Readings:
Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons Accountancy – I, S.P. Jain & K.L Narang ,Kalyani PublishersAccountancy – I, Tulasian,TataMcgraw Hill Co Financial Accounting – Dr.V.K.Goyal , Excel Books Introduction to Accountancy, T.S.Grewal ,S.Chand and CO Accountancy – I, Haneef and Mukherjee, tataMcgraw Hill co Advanced Accountancy – Arulanandam, Himalaya publishers

BASICS OF FINANCIAL ACCOUNTENCY PAPER-III

Time: 3 Hrs.   **Max.marks:60**

SECTION-A
Answer Any FOUR Questions   **4X5=20 M**

1. What is the difference between book keeping and Accounting?
2. What are the importance and limitations of Accounting?
3. Explain various types of subsidiary books?
4. Write a simple Cash account for the following transactions>
   a. Opening Dr. Balance: Rs. 10,000/-
   b. Cash Received from Roshan Rs. 6,250/-
   c. Cash Deposited into bank Rs. 1200/-
   d. Rent paid Rs. 1500/-
   e. Salaries paid Rs. 2,900/-
   f. Cash Sales Rs. 15,000/-
   g. Goods sold to RohithRs. 5,000/-

5. What is trail balance; advantages of trail balance, draw a perform for good trail balance?
6. Draw proform of various accounts that generally maintained in Insurance companies?

SECTION-B
Answer Any FOUR Questions   **4X10=40 M**

7. What is the difference between Financial Accounting, Cost Accounting and Management Accounting?
8. Explain clearly the concepts and conventions of accounting?

9. Write Journal Entries to the following transactions:
   i. March: 1 Started Business with – 1,00,000
   ii. Purchased good for Rs. – 25,000
   iii. purchased Machinery and paid by bank – Rs. 40,000

iv. Purchased good from Chaitanya Rs. 17,000

v. sale Rs. 1,52,000

vi. Sales to Reddy Rs. 20,000

10.   What are final accounts? Explain with examples how adjustments can be treated in final accounts?

11. Prepare final accounts from the following trail balance?

Debit	Amount	Credit	Amount
Buildings	10,000	Capital	17,000
Plant & Machinery	12,000	Creditors	12,500
Debtors	8,000	Bill payable	500
Purchases	15,000	Rent received	3,500
Repairs	2,000	Sales	25,000
Salary	9,000	Purchase returns	1,500
Insurance	500		
Sales returns	1200		
Wages	1800		
Postage & Stationery	500		
	60,000		60,000

Adjustments: Closing Stock: 5,000/- Outstanding Salary: 3,500/- , Depreciate Plant and Machinery @ 10%

12.   How accountancy in insurance company is different from other forms?

13. The following trail balance was extracted from the books of the new India Life Insurance Company? As on 31-3-2017

Particulars	Debit	Credit
Paid – up capital		
10,000 shares @ 10 each		2,00,000
Life fund balance as on 1-4-2016		29,72,300
Dividend paid	15,000	
Bonus in reduction of premium	31,500	
Premium less re-assurance premium (commission there on Rs. 5,000)		1,61,500
Claims paid	`1,97,000	
Outstanding clams on 1-4-2016		7,000
Commission	9,300	
Management expenses	32,300	
Mortgages in India	4,92,200	
Interest, dividend and rent		1,12,700
Freehold premises	1,40,000	
Agents balance	9,300	
Investments	23,05,000	
Loans on policies	1,73,600	
Cash on deposits	27,000	
Cash on current account	7,300	

Surrenders	7,000	
Medical stores	7,000	
Consideration for annuities granted		10,000
Annuity	10,000	
	34,63,500	34,63,500

Prepare the revenue account for the year ended 31-3-2017 and a balance sheet of the company after considering the adjustments:

      (A) Clams outstanding Rs. 10,000/-

      (B) Further Bonus in reduction of premium Rs. 5000/-

      (C) Premium outstanding Rs. 5000/-

      (D) Claims covered under re-insurance Rs. 80,000/-

      (E) Management expenses due   Rs. 30,000/-

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GOVERNMENT COLLEGE [A] RAJAHMAHENDRAVARM
ACTUARIAL SCIENCE PROPOSED SYLLABUS
IIIYEAR B.Sc. (MSAS) PAPER – V
SEMESTER-V
BASICS OF LIFE CONTINGENCY

Total Hrs. required: 60   **Total Credits: 03**

UNIT-I
Introduction to Life Insurance.
Meaning and definition of life insurance features, Types of life insurance, principles of life insurance, Terminology in insurance premiums.

UNIT-II
Survival Distributions
Survival Distribution-meaning, definitions, importance of Survival distributions Probability for the Age-at-Death, the survival function, time- until-death for a person aged *x,* curate-future-lifetime, force of mortality.

UNIT-III
Life Tables
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-IV
Life Insurance
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-V
Life Annuities
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.

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.

GOVERNMENT COLLEGE [A] RAJAHMAHENDRAVARM
MODEL PAPER FOR THE YEAR 2019-2020
III YEAR B.Sc. (MSAS) PAPER – V
SEMESTER-V
BASICS OF LIFE CONTINGENCY

Time: 3 Hrs.   **Max.marks:60**

SECTION-A

Answer Any FOUR Questions   **4X5=20 M**

1. Explain Principles of Life Insurance

2.

X	1000q	$1000q_{x+1}$	$1000q_{x+2}$	l_x	l_{x+1}	l_{x+2}	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. Write short notes on insurance payable at the end of the death

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

6. Write a brief note on continuous Life Annuities.

SECTION-B

Answer Any FOUR Questions   **4X10=40 M**

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

10. 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 $x>0$

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

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

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

(a) $a_x = E[a_t\rceil]$

(b) $var(a_t\rceil)$

(c) the probability that $a_t\rceil$ will exceed a_x

GOVERNMENT COLLEGE [A] RAJAHMAHENDRAVARM
ACTUARIAL SCIENCE PROPOSED SYLLABUS
IIIYEAR B.Sc. (MSAS) PAPER – VI
SEMESTER-V
BUSINESS COMMUNICATION

Total Hrs. required: 60   **Total Credits: 03**

UNIT-I
NATURE AND OF COMMUNICATION
Nature and scope of communication – Introduction- Functions   of Communication-Role of a Manager-Communication-Role of a Manager Communication Basics
 Communication Networks Miscommunication-Barriers to Effective Communication.

UNIT-II
EFFECTIVE INTERNAL COMMUNICATION
 Tips for effective internal communication – Internal Communication (Beyond the organizational Hierarchy) - Effective in managerial communication --Strategies for improving organizational communication

UNIT-III
NON- VERBAL COMMUNICATION
INTRODUCTION –Forms of non-verbal communication-interpreting non – verbal massages – Tips for effective use of non –verbal communication-verbal communication.

UNIT-IV
ORAL COMMUNICATION
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.

UNIT-V
USING SOFTWARE APPLICATIONS-THE INTERNET
Microsoft Office-MS Word ,MS-Excel, MS-PowerPoint, MS-Access, MS-Outlook, Search Engines-The Business Applications of Internet

Suggested books: 1. AnjaneesathReferil – Business communication

2. Sankirtan Bodhi – Business communication

3. BharmaAdhikar – Business communication

4. NamithaGopal -Business Communication

GOVERNMENT COLLEGE [A] RAJAHMAHENDRAVARM
MODEL PAPER FOR THE YEAR 2019-2020
III YEAR B.Sc. (MSAS) PAPER – VI
SEMESTER-V
BUSINESS COMMUNICATION

Time: 3 Hrs.   **Max.marks:60**

SECTION-A

Answer Any FOUR Questions   **4X5=20 M**

1. **Explain Nature and Scope of Communication**

2. **Barrie's to Effective Communication.**

3. **Internal Communication.**

4. **Tips for Effective Internal Communication**

5. **Explain the following terms**

   URL, WWW, WEB BROWSERS, HTML, HTTP, BPS, MODEM

6. **Forms of Non-Verbal Communication.**

SECTION-B

Answer Any FOUR Questions   **4X10=40 M**

7. **Functions of Communication.**

8. **Role of Manager Communication.**

9. **Strategies for improving Organizational Communication.**

10. **Explain the Effectiveness in managerial Communication?**

11. **Explain any two applications of Microsoft office?**

12. **Tips for effective use of Non-verbal Communication.?**

13. **Principles of Effective Business Writing?**