AC: 14/07/2023

S P Mandali's

R. A. PODAR COLLEGE OF COMMERCE AND ECONOMICS (AUTONOMOUS),

Matunga, Mumbai-400019

Course Structure

Bachelor of Commerce (Actuarial Studies)
Semester I & II

HYPERLINK "http://www.rapodar.ac.in" www.rapodar.ac.in

AC: 14/07/2023

Bachelor of Commerce (B.Com with Actuarial Studies) Programme

Syllabus as per National Education Policy 2020

Course Structure

F.Y.B.COM (Actuarial Studies) (Level 4.5)

(To be implemented from Academic Year- 2023-24)

No. of Course s	Semester I	Credits	No. Of Course s	Semester II	Credits
1	**Major (06 credits)**		**1**	**Major (06 credits)**	
1.A	**School of Actuarial Studies-I**		**1.A**	**School of Actuarial Studies-II**	
1.A.a	**School of Actuarial Studies-I** Insurance Business and Analysis – I	**03**	1.A.a	**School of Actuarial Studies-III** Insurance Business and Analysis – II	**03**
1.A.b	**School of Actuarial Studies-II** Financial Mathematics – I	**03**	1.A.b	**School of Actuarial Studies-IV** Financial Mathematics – II Statistics	**03**
2	**Minor (03 credits)**		**2**	**Minor (03 credits)**	
2.A.a	Allied Course-I Business Economics I	**03**	2.A.a	Allied Course-II Business Economics II	**03**
3	**General Elective (GE)/ Open Elective (OE) (03 Credits)**		**3**	**General Elective (GE)/ Open Elective (OE) (03 Credits)**	
3.A.a	Introduction to Python	**03**	3.A.a	Data structures and algorithms using Python	**03**
4	**Vocational & Skill Enhancement Courses (VSEC) (02 credits)**		**4**	**Vocational &Skill Enhancement Courses (VSEC) (02 credits)**	
4.A	**Vocational Skill Course (VSC)**		**4.A**	**Vocational Skill Course (VSC)**	
4.A.a	NA	**NA**	4.A.a	Intellectual property Rights	**02**
4.B	**Skill Enhancement Course (SEC)**		**4.B**	**Skill Enhancement Course (SEC)**	
4.B.a	Office Automation	**02**	4.B. a	Application of Excel in Financial Mathematics	**02**
5	**Enhancement Course, Value Enhancement Course, Indian Knowledge System (08 credits)**		**5**	**Ability Enhancement Course, Value Enhancement Course, Indian Knowledge System (08 credits)**	
5.A	**Ability Enhancement Course (AEC)**		**5.A**	**Ability Enhancement Course (AEC)**	
5.A.a	Language and Literature – I	**03**	5.A.a	Language and Literature – II	**03**
5.B	**Value Enhancement Course (VEC)**		**5.B**	**Value Enhancement Course (VEC)**	
5.B.a	Computer Applications	**03**	5.B.a	Structure of Finance and Regulation	03
5.C	**Indian Knowledge System (IKS)**		**5.C**	**Indian Knowledge System (IKS)**	
5.C.a		**02**		NA	**NA**
TOTAL	**CUMULATIVE CREDITS**	**22**	**TOTAL**	**CUMULATIVE CREDITS**	**22**

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
1. Major (1.A.a Insurance Business and Analysis – I)

Insurance Business and Analysis I (3 Credits)

Semester I

1.Major	
1.A School of Actuarial Studies-I	
1.A.a Insurance Business and Analysis – I	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To make the learner aware about basic concepts, terms and evolution of insurance business
CObj 2	To introduce the learner to the business of insurance and the principles of insurance contracts
CObj 3	To educate the learner about the currently available insurance products.
CObj 4	To make them aware about growing career opportunities in the field. .
Course Outcomes	
COut 1	The learners understand and appreciate the uniqueness of insurance contracts
COut 2	The learner recognizes different types of Insurance products
COut 3	The learner acquires the necessary skills for comparing insurance products
COut 4	Learners assess the scope of insurance business and the career opportunities
COut 5	The learners get the understanding of the provisions of insurance contracts.
COut 6	They get an idea of the management of insurance entities,
COut 7	Thery become aware of the organizational structure and design
COut 8	The learners demonstrate knowledge of life insurance, health insurance and employee benefit plans.
Cout 9	They understand concepts of underwriting and claim settlement.
COut 10	The learner gets awareness of the various insurance products and the insurance market.

Modules at a Glance

Insurance Business and Analysis- I		
Sr. No.	**Modules**	**No. of Lectures**
1	The Conceptual Framework	11
2	The Insurance Contract	11
3	Insurance Products	11
4	The Insurance Market	12
	Total No. of Lectures:	**45**

Sr. No.	Modules
1	**The Conceptual Framework**
	1. What is insurance- Meaning and Definition 2. Brief history of Insurance 3. Understanding Perils and Risks 4. Classification of Risks and Hazards 5. Role of Insurance in Social and Economic Development 6. Classes of Insurance 7. Growth and Evolution of Insurance Industry in India 8. Unique Characteristics of Insurance Business 9. Managing Risks 10. Introduction into Insurance Funds 11. Trustees in Insurance Business 12. Reinsurance 13. Linking Insurance with Social Security
2	**The Insurance Contract**
	1. Utmost Good Faith or Uberrima Fides 2. Insurable Interest and Insurer's insurable interst 3. Criminal Acts 4. Indemnity 5. Subrogation and Contribution 6. Proximate Cause 7. Personal and Non-Personal Contracts 8. Insurance Terminology- First Premium- Renewal- Mode- Limited Payment- Policies-Single Premium- Convertible- Days of Grace- Lapse- Paid Up Policy- Revival- Deferment Period- Nomination- Assignment- Bonus- Arbitration

3	**Insurance Products**
	1. Life Insurance Products including Government Schemes 2. Introduction to Non-Life Insurance, Fire, Loss of Profits, Marine , Marine Cargo,Motor and Miscellaneous 3. Personal, Accident, Hit and Run Cases, Aviation, Health etc 4. Insurance Policy and Documents- Certificates of Insurance, Open Policy, Floater,Franchise, Coinsurance Compensation under Insurance- Total Loss- Actual or Constructive Loss- Bonus-Replacement- Policy value- Agreed value- Full value- First Loss- Increased value
4	**The Insurance Market**
	1. Life and Non-Life Insurers- Reinsurers- Individual and Corporate Agents- Brokers- Surveyors- Medical Examiners- Third Party Administrators 2. IRDA- Insurance Councils- Ombudsmen- Educational Institutes- Councils- Tariff Advisory Committee 3. Career Opportunities in Insurance Business Ethical Aspects of Insurance Business

AC: 14/07/2023

Insurance and Business Analysis I

Question Paper Pattern (Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Assignments	20
Power Point Presentation and Group discussion	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1	Attempt **any two** of the following		
(Module-I)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question	6 6 6	12
Q-2	Attempt **any two** of the following		
(Module-II)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question	6 6 6	12
Q-3	Attempt **any two** of the following		
(Module-III)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question	6 6 6	12
Q-4	Attempt **any two** of the following		
(Module-IV)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question	6 6 6	12
Q-5	Questions based on the various projects presented in the class by the learner /Case Study OR Write short notes on (Any 3 out of 4) Based on entire syllabus	16	12
	Total	**88**	**60**

Reference Books (with Chapters):

1.Kew John, Business Environment: Managing in a Strategic Context, Jaico Publications 2006.

2. Hanke John K, Business Forecasting, Prentice Hall India, 2002.

3. Paul Justin, Business Environment, Tata McGraw Hill, 2008.

4. Butter David, Business Planning: A Guide to Business Start-up, Butterworth Heinemann, 2003.

5. Piramal Gita, Business Legends, Penguin Books, 1998.

6. Hitt Michael A, Strategic Management, Cengage Learning, 2016.

7. Zeithaml, Valarie A, Services Marketing, McGraw Hill Education, 2011.

8.Gupta S L, Retailing & E- tailing, International Book House, New Delhi, 2011.

9.Raghuram G, Logistics & Supply Chain Management: Cases and Concepts, Macmillan Business Books.

10. Joseph P T, E-Commerce an Indian Perspective, Prentice Hall India, 2015

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
1. Major (1.A School of Actuarial Studies-II)

Financial Mathematics I (3 Credits)

Semester I

1.Major	
1.A School of Actuarial Studies-II	
1.A.b Financial Mathematics- I	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To orient the learners about financial mathematics in general.
CObj 2	To build a strong foundation of simple interest, its calculation as well as distinguish betweencompound interest and its formulation
CObj 3	To give learners a fair idea about terms used in finance as an applied component.
CObj 4	To lay foundations for the net component of valuation under finance and portfolio mix.
Course Outcomes	
COut 1	The learner becomes confident of applying mathematical and statistical tools.
COut 2	The learner is able to understand the nuances of SIP and other investment avenues
COut 3	The learner appreciates the importance of portfolio management
COut 4	The learners become curious about the finance, mathematics interface.
COut 5	The learner understands the Concept of Annuity, Discounting and accumulating
COut 6	The learner becomes aware of Classificationof Annuities, Amount and Present Value of an ordinary annuity, annuity due and continuous annuity
COut 7	The concepts of Nominal and Effective Rate of interest and discount, equation of value, Determinants of interest rates are better understood by the learner
COut 8	The learner is able to understand the nuances of Amortization, Leasing.
COut 9	The learner learns about Concept of share, face value, market value, dividend, equity shares, preferential shares, bonus shares, Rights issues
COut 10	The learner gets a fair idea about Debt instruments. Valuation and Portfolio Mix

Modules at a Glance

Financial Mathematics -I		
Sr. No.	**Modules**	**No. of Lectures**
1	Interest and Annuity	11
2	Application of Time Value of Money	11
3	Shares and Mutual Funds	11
4	Decision and Management of investments	12
	Total No. of Lectures:	**45**

Sr. No.	Modules
1	**Interest and Annuity**
	• Simple Interest, Problems on Simple Interest • Compound Interest, Problems on Compound Interest • Sum of the Series, Arithmetic Progression (AP), • Geometric Progression (GP)Sum of AP, • Sum of GP for finite and infinite term. • Introduction- Concept of Annuity, Discounting and accumulating, Classificationof Annuities, Amount and Present Value of an ordinary annuity, annuity due and continuous annuity. • Amount of a deferred, non-level, payable monthly annuity, and sinking fund,Perpetual Annuity. Arithmetic increasing/decreasing annuity, geometric increasing/decreasing annuity, term of annuity. • For each of the following types of annuity/cash flows, given sufficient information of immediate or due, present value, future value, current value, interest rate, payment amount, and term of annuity, calculate any remaining item.Level annuity, Level perpetuity, Non-level annuities/cash flows.Other non-level annuities/cash flows.
2	**Application of Time Value of Money**

	● Present Value, future value, force of interest, monthly interest rate, Real and Money rate of interest, Nominal and Effective Rate of interest and discount, equation of value, Determinants of interest rates. ● Amortization, Leasing, Capital Expenditure and Bonds Definitions of the following terms: price, book value, amortization of premium, accumulation of discount, redemption value, par value/face value, yield rate, coupon, coupon rate, term of bond, callable/non-callable, call price, call premium.Given sufficient partial information about the items listed below, calculate any of the remaining items Price, book value, amortization of premium, accumulation of discount. Calculate the price of a callable bond to achieve a specified minimum yield. ● Loan Repayment: Definitions of the following terms: principal, interest, term of loan, outstanding balance, final payment (drop payment, balloon payment), amortization. ● Calculate: The missing item, given any four of: term of loan, interest rate, payment amount,payment period, principal. The outstanding balance at any point in time. The amount of interest and principal repayment in a given payment.Similar calculations to the above when refinancing is involved
3	**Shares and Mutual Funds**
	● Introduction- Concept of share, face value, market value, dividend, equityshares, preferential shares, bonus shares, Rights issues Problems based on these concepts, pricing using dividend discount model. ● Mutual funds: Simple problems on calculations of Net income after considering entry load, Dividend, change in Net Asset value (NAV) and Exit Load Averaging of price under the Systematic Investment Plans (S.I.P).
4	**Decision and Management of investments**
	● Bonds: price, book value, amortization of premium, accumulation of discount, redemption value, par value/face value, yield rate, coupon, coupon rate, term ofbond, callable/non-callable ● Debt instruments. Valuation and Portfolio Mix

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Financial Mathematics I

Question Paper Pattern
(Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Written Test	20
Assignments	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1 (Module-I)	Attempt **any two** of the following. A.Numerical B. Numerical C. Higher Order Thinking skills	**18**	**12**
Q-2 (Module-II)	Attempt **any two** of the following. A. Numerical B. Numerical C. Higher Order Thinking skills	**18**	**12**
Q-3 (Module-III)	Attempt **any two** of the following. A. Numerical B. Numerical C. Higher Order Thinking skills	**18**	**12**
Q-4 (Module-IV)	Attempt **any two** of the following. A. Numerical B. Numerical C. Higher Order Thinking skills	**18**	**12**
Q-5	A) Case Study OR Write short notes on (Any 3 out of 4) Based on entire syllabus	**16**	**12**
	Total	**88**	**60**

Reference Books (with Chapters):

1. Mathematics for Economics and Finance Methods and Modelling by Martin Anthonyand Norman Biggs, Cambridge University Press, Cambridge low-priced edition, 2000,Chapters 1, 2, 4, 6 to 9 & 10.
2. Applied Calculus: By Stephen Waner and Steven Constenoble, Brooks/Cole Thomson Learning, second edition, Chapter 1 to 5.
3. Business Mathematics By D. C. Sancheti and V. K. Kapoor, Sultan Chand &Sons, 2006, Chapter 1, 5, 7, 9 &10.
4. Mathematics for Business Economics: By J. D. Gupta, P. K. Gupta and Man Mohan,Tata Mc-Graw Hill Publishing Co. Ltd., 1987, Chapters 9 to 11 & 16.
5. Quantitative Methods-Part-I By S. Saha and S. Mukerji, New Central Book Agency, 1996, Chapters 7 & 12.
6. Mathematical Basis of Life Insurance By S.P. Dixit, C.S. Modi and R.V. Joshi, Insurance Institute of India, Chapters 1 and 2.
7. Securities Laws & Regulation of Financial Market : Intermediate Course Paper8, Institute of Company Secretaries of India, Chapter 11.
8. Investments By J.C. Francis & R.W. Taylor, Schaum's Outlines, Tata Mc-Graw Hill Edition 2000, Chapters 2,4 & section 25.1.
9. Indian Mutual Funds Handbook : By SundarShankaran, Vision Books, 2006, Sections 1.7,1.8.1, 6.5 & Annexures 1.1to 1.3.
10. STATISTICS by Schaum Series.
11. Operations Research by Gupta and Kapoor.
12. Operations Research by Schaum Series.
13. Fundamentals of Statistics - D. N. Elhance.
14. Statistical Methods - S.G. Gupta (S. Chand & Co).
15. Statistics for Management - Lovin R. Rubin D.S. (Prentice Hall of India).
16. Statistics - Theory, Method & Applications D.S.Sancheti & V. K. Kapoor
17. Modern Business Statistics - (Revised}-B. Pearles& C. Sullivan –Prentice Hall of India.
18. Business Mathematics &Statistics : B Aggarwal, Ane Book Pvt. Limited.
19. Business Mathematics : D C Sancheti& V K Kapoor, Sultan Chand & Sons.
20. Business Mathematics: A P Verma, Asian Books Pvt.: Limited.
21. Statistics of Management , Richard Levin &David S. Rubin,Printice Hall of India , New Delhi.
22. Statistics for Business & Economics, David R Anderson, Dennis J Sweney, Thopmson Publication.
23. Business Statistics, Bharadwaj, Excel Books, Delhi.
24. Business Mathematics, S.K Singh & J.K Singh, Brijwasi Book Distributor &Publisher.

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
2. Minor (Allied Course-I)

Business Economics I (3 Credits)

Semester I

2. Minor (1.A School of Actuarial Studies-III)	
2.A .a Business Economics- I - Allied Course- I	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To sensitize the learners the need for optimum utilization of scarce resources.
CObj 2	To familiarize the learners with the basic tools used for understanding production and consumption
CObj 3	To make them understand the interplay between market forces and optimum use of resources
CObj 4	To enable the learners about cost output relationship.
Course Outcomes	
COut 1	Learners understand the concept of consumer demand and be able to analyze it using demandforecasting .
COut 2	Learners Explain consumer behaviour using ordinal utility analysis and be able to apply in theanalysis of a variety of public policy issues.
COut 3	Learners Differentiate between various types of costs and also be able to illustrate the cost-outputrelationship in the short-run and long-run.
COut 4	Learners identify and plan to achieve economies of scale
COut 5	Learners understand the concept and role of price mechanism
COut 6	Learners learn to differentiate between Price expectations and speculation
COut 7	Learners understand the details of Indifference curves
COut 8	Learners are able to understand Economies of Scale and Break even analysis
COut 9	Understanding of Marginal and Average- Interrelationship of revenue and cost and Market Behavior is seen in the learner.

Modules at a Glance

Business Economics -I		
Sr. No.	**Modules**	**No. of Lectures**
1	Principles of Economics	11
2	Consumer Behaviour Theory	11
3	Supply side Decisions	11
4	Market Behaviour	12
	Total No. of Lectures:	**45**

Sr. No.	Modules
1	**Principles of Economics**
	● Concept of Scarcity, Choices and Opportunity Cost ● The role of price mechanism in a free market. Market equilibrium quantity and price- factors that influence the market demand andsupply. ● Elasticities of demand and price elasticity of supply- factors that affect elasticity(Calculate elasticities of demand using both original and average quantities) ● Price expectations and speculation
2	**Consumer Behaviour Theory**
	● Ordinal Utility theory (Indifference curve approach): Consumer's preferences ● Indifference curves; Budget line; Consumer's equilibrium (necessary and sufficientconditions) ● Concepts of rational choice, perfect information and irrational behaviour in behavioural Economics

3	**Supply side Decisions**
	● **Production function**: short run analysis with Law of Variable Proportions; Long runproduction function - Laws of Returns to Scale. ● Cost Output Relationship in the Short Run and Long Run ● Economies of Scale ● Break even analysis ● Revenue: Marginal and Average- Interrelationship of revenue and cost- how price is determined- average cost pricing; multiple product pricing.
4	**Market Behavior**
	● **Perfect Competition**: Features; Equilibrium of the firm in the short run and long run. ● **Monopoly**: Barriers to entry, Short-run and long-run equilibrium of monopoly firm-Price discrimination ● **Monopolistic Competition:** Features; effects of advertising on demand. ● **Oligopoly** and interdependence- collusive oligopoly

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Business Economics I

Question Paper Pattern
(Academic Year: 20232024)
Internal Examination & Semester End Examination – 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Assignment	20
Power Point Presentation	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1	A. Theory/ Concept based question B. Theory/ Concept based question **OR** C. Theory/ Concept based question	6 6 12	12
Q-2	A Theory/Concept based question B. Theory/Concept based question **OR** C . Theory/Concept based question	6 6 12	12
Q-3	A . Theory/Concept based question B . Theory/Concept based question **OR** C . Theory/Concept based question	6 6 12	12
Q-4	**A.** Theory/Concept based question **B.** heory/Concept based question **OR** A. Theory/Concept based question	6 6 12	12
Q-5	A. Theory/Concept based question B. Theory/Concept based question **OR** C. Theory/Concept based question	6 6 12	12
	Total	**120**	60

Reference Books (with Chapters):

1. Mehta, P.L.: Managerial Economics –
   Analysis, Problem and Cases (S. Chand & Sons, N. Delhi).
2. Hirchey.M., Managerial Economics, Thomson South Western
3. Salvatore, D.: Managerial Economics in a global economy (Thomson South Western Singapore).
4. Frank R.H, Bernanke.B.S., Principles of Economics (Tata McGraw Hill).
5. Gregory Mankiw., Principles of Economics, Thomson South Western.
6. Samuelson & Nordhas.: Economics (Tata McGraw Hills, New Delhi).
7. Pal Sumitra, Managerial Economics cases and concepts (Macmillan, New Delhi).

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
3. General /Open Electives
General Electives (GE)/ Open Elective (OE)

3.A .a Introduction to Python (3 Credits)

Semester I

3. General /Open Electives	
General Electives (GE)/ Open Elective (OE)	
3.A.a Introduction to Python	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	Learn Programming fundamentals using Python
CObj 2	Understand the concepts and usage data types, variables and other basic elements
CObj 3	Learn about using operators and control statements in Python
CObj 4	Learn about using arrays and strings in Python
Course Outcomes	
COut 1	The learner will be able to achieve proficiency in using and applying various data types including, string, array list, tuple anddictionary.
COut 2	The learner is able to use regular expressions to perform complex operations in less code.
COut 3	The learner learns to make use of date and time in Python for various applications
COut 4	The learner learns to Create a List ,Dictionary
COut 5	The learner learns Using for Loop with Dictionaries
COut 6	The learner is able to Retrieve information from an HTML File
COut 7	The learner learns to find durations using timedelta
COut 8	The learner learns working with Characters
COut 9	The learner understands Input Function, Output Statements
COut 10	The learner is able to work with Strings

Modules at a Glance

Introduction to Python		
Sr. No.	**Modules**	**No. of Lectures**
1	Introduction to Python Language	15
2	Functions, Operators, Arrays and Strings	15
3	Lists and Tuples, Dictionaries, Date and time in Python	15
	Total No. of Lectures:	**45**

Sr. No.	Modules
1	**Introduction to Python Language**
	Introduction to Python Language: Overview, Features of Python, Execution of a Python Program, Innards of Python, Frozen Binaries, Python Interpreter, Comparison of Python with C and Java, InstallingPython, Writing & Executing, IDLE **Data Types, Variables And Other Basic Elements**: Comments,Docstrings, Data types-Numeric, Compound, Boolean, Dictionary,Sets, Mapping, Basic Elements of Python, Variables **Input and Output Operations**: Input Function, Output Statements, Command Line Arguments **Control Statements:** Control Statements- Loop Statement, The else Suite, break Statement, continue Statement, pass Statement, assert Statement, return Statement
2	**Functions, Operators, Arrays and Strings**
	Functions: Defining & Calling a Function, Returning Results, Returning Multiple Values, Built-in Functions, Parameters and Arguments, Recursive Functions, Anonymous or Lambda Functions **Operators**: Arithmetic operators, Assignment operators, Unary minus operator, Relational operators, Logical operators, Bitwise operators, Membership operators, Identity operators, Precedence of Operators, Associativity of Operators **Arrays**: Creating Arrays, Indexing and Slicing, Basic Array Operations, Arrays Processing, Mathematical Operations on Array, Aliasing Arrays, Slicing and Indexing in NumPy Arrays, Basic Slicing. Advanced Indexing. Dimensions of Arrays, Attributes of an Array

	Strings: Creating Strings, Functions of Strings, Working with Strings,Length of a String, Indexing & Slicing, Repeating & Concatenation ofStrings, Checking Membership, Comparing Strings, Removing Spaces, Finding Substrings, Counting Substrings, Strings are Immutable, Splitting and Joining Strings, Changing Case, Checking Starting and Ending of a String, Sorting & Searching in the Strings, Formatting the Strings, Working with Characters
3	**Lists and Tuples, Dictionaries, Date and time in Python**
	Lists and Tuples: Lists, List Functions and Methods, List Operations,Tuples **Dictionaries**: Creating a Dictionary, Operators in Dictionary, Dictionary Methods, Using for Loop with Dictionaries, Operations onDictionaries, Ordered Dictionaries **Regular Expressions**: What is a Regular Expression? Sequence Characters in Regular Expressions, Quantifiers in Regular Expressions, Special Characters in Regular Expressions, Using Regular Expression on Files, Retrieving Information from an HTML File **Date and Time in Python:** Date and Time, Date and Time Now, Combining Date and Time, Formatting Dates and Times, Finding Durations using "timedelta", Comparing Two Dates, Sorting Dates, Stopping Execution Temporarily, Knowing the Time taken by a Program, Working with Calendar Module

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Introduction to Python

Question Paper Pattern (Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 100 Mark

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Assignment	20
Power Point Presentation	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1	A. Theory/ Concept based question B. Theory/ Concept based question OR C. Theory/ Concept based question	6 6 12	12
Q-2	A. Theory/Concept based question B. Theory/Concept based question **OR** C. Theory/Concept based question	6 6 12	12
Q-3	A. Theory/Concept based question B. Theory/Concept based question **OR** C. Theory/Concept based question	6 6 12	12
Q-4	A. Theory/Concept based question B. Theory/Concept based question **OR** C. Theory/Concept based question	6 6 12	12
Q-5	A. Theory/Concept based question B. Theory/Concept based question **OR** C. Theory/Concept based question	6 6 12	12
	Total		60

Reference Books (with Chapters):

Sr. No.	Title	Author/s	Publisher	Year
1.	Hands-On Data Structures andAlgorithms with Python	Basant Agarwal,Benjamin Baka	Packt Publishing	2018
2.	Data Structure and algorithm Using Python	Rance D. Necaise	Wiley India Edition	2016
3.	Data Structure and algorithm in Python	Michael T. Goodrich, RobertomTamassia	Wiley India Edition	2016
4.	Data Structure and Algorithmic Thinking withPython	Narasimha Karumanchi	Careermonk Publications	2015
5.	Fundamentals of Python:Data Structures	Kenneth Lambert	Delmar Cengage Learning	2018

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)

4. Vocational & Skill Enhancement Courses (VSEC)
4.A Vocational Skill Courses (VSC)

4.A.a Office Automation (3 Credits)

Semester I

4. Vocational & Skill Enhancement Courses (VSEC)	
4.A Vocational Skill Courses (VSC)	
4.A.a Office Automation	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To build an understanding of how to use excel from scratch and then gradually scale up to higher levels of competence
CObj 2	To equip the students with MS Excel features which will develop their foundation of using spreadsheets
CObj 3	To provide insights into the data analysis tools in Excel so that they can extract meaningful information from vast arrays of data
CObj 4	To familiarize students with the important functions and data visualization features available in Excel which help in performing data mining
Course Outcomes	
COut 1	The learner can prevent unintended or malicious intrusions over the workings.
COut 2	The learners are able to assign validations and protections excel based templates and files
COut 3	Learners are able to create Pivot Tables and Pivot Charts
COut 4	The learner acquires knowledge about about Conditional formatting
COut 5	The learners can analyze Charts of various kinds
COut 6	Learners is able to analyze more about Data Validation
COut 7	The learner knows how to Protect Workbook and Worksheet
COut 8	The learner learns to assign read /write access passwords to files
COut 9	Learner creates and opens workbooks
COut 10	The learner is aware of modification of columns, rows and cells

Modules at a Glance

Office Automation		
Sr. No.	**Modules**	**No. of Lectures**
1	Introduction to Excel	10
2	Essential Functions	10
3	Data Analysis, validation and Visualizations	10
	Total No. of Lectures:	**30**

Sr. No.	Modules
1	**Introduction to Excel**
	• Creating and opening workbooks • Cell basics • Modifying columns, rows and cells • Worksheet basics • Introduction to formulas • Freeze Panes • Formatting features of cells • Sort • Filters • Fill Handle • Copy a sheet • Find and Replace • Relative and Absolute Cell Referencing • Text to columns • Paste Special • Subtotals • Comments

2	**Essential Functions**
	• Sum, Count, Min, Max, Average, Median, Subtotal • Date, Today, Now • If, And, Or • Vlookup and Hlookup • Round, Roundup and Rounddown • Sumif and Sumifs • Countif and Countifs • Averageif and Averageifs • Concatenate and Trim
3	**Data Analysis, validation and Visualizations**
	• Pivot Tables and Pivot Charts • Remove Duplicates • Conditional formatting • Charts of various kinds • Data Validation • Protect Workbook • Protect Worksheet • Assigning read /write access passwords to files

AC: 14/07/2023

Office Automation

Question Paper Pattern
(Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 50 Marks

A] Internals-20 Marks

Allocation of 20 Marks---Internal evaluation

Method of evaluation	**Total marks**
Practical work	20
TOTAL	**20**

B] Semester End Examination (SEE)- 30 Marks

Maximum Marks 30
Duration : 1 Hour
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1	Attempt any 2		
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
Q-2	Attempt any 2		
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	
Q-3	Attempt any 2		
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
	Total	**45**	**30**

Reference Books (with Chapters):
Acted CMP CM1 2019 – IFoA course book
Mastering Financial Modelling in Microsoft Excel – Alastair Day

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)

5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System
5.A Ability Enhancement Course (AEC)

5.A.a Language and Literature-I & II (3 Credits)
Semester I

5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System	
5.A Ability Enhancement Course (AEC)	
5.A.a Language and Literature- I	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To understand the effective use of power point presentation, relevance and importance of interpersonal communication skills
CObj 2	To enhance written communication skills
CObj 3	To enable the learners to adapt to the requirements of the industry.
Course Outcomes	
COut 1	The learners learn to use statistical tools in PowerPoint presentations, write letters of enquiry and letters of complaint.
COut 2	Practical application of preparing flyers and leaflets help the learners demonstrate their creativity.
COut 3	Nonverbal communication skills of learners are enhanced.
COut 4	The learner is able to analyze the components of letter writing
COut 5	Learners can understand the theories of communication
COut 6	Learners can differentiate between the different modes of communication
COut 7	Learners is trained to apply ethics at work place
COut 8	Learners is able to create a resume and face job interviews with ease
COut 9	Learners can relate to the barriers of communication and are able to cope with the same
COut 10	Learners can apply the most appropriate and effective mode of communication

Modules at a Glance

Language and Literature- I		
Sr. No.	**Modules**	**No. of Lectures**
1	Theory of Communication & Obstacles to Communication in Business World	15
2	Business Correspondence	15
3	Language and Writing Skills	15
	Total No. of Lectures:	**45**

Sr. No.	Modules
1	**Theory of Communication & Obstacles to Communication in Business World**
	Concept of Communication: Meaning, Definition, Process, Need, Feedback Emergence of Communication as a key concept in the Corporate and Global world Impact of technological advancements on Communication Channels and Objectives of Communication: Channels- Formal and Informal- Vertical, Horizontal, Diagonal, Grapevine Objectives of Communication: Information, Advice, Order and Instruction, Persuasion, Motivation, Education, Warning, and Boosting the Morale of Employees(A brief introduction to these objectives to be given) Methods and Modes of Communication: Methods: Verbal and Nonverbal, Characteristics of Verbal Communication Characteristics of Non-verbal Communication, Business Etiquette Computers and E- communication: Organizing and use of Video and Satellite. Problems in Communication /Barriers to Communication: Physical/ Semantic/Language / Socio-Cultural / Psychological / Barriers, Ways to Overcome these Barriers Listening: Importance of Listening Skills, Cultivating good Listening Skills Introduction to Business Ethics: Concept and Interpretation, Importance of Business Ethics
2	**Business Correspondence**
	Theory of Business Letter Writing: Parts, Structure, Layouts—Full Block, Principles of Effective Letter Writing, Principles of effective Email Writing, Personnel Correspondence: Statement of Purpose, Job Application Letter and Resume, Letter of Acceptance of Job Offer, Letter of Resignation [Letter of Appointment, Promotion and Termination, Letter of Recommendation

3	**Language and Writing Skills**
	Commercial Terms used in Business Communication Paragraph Writing: Developing an idea, using appropriate linking devices, etc Cohesion and Coherence, etc [Interpretation of technical data, Composition on a given situation, a short informal report & improvisation Activities] Listening, Comprehension, Speaking Skills: Presenting a News Item, Dialogue and Speeches Paragraph Writing: Preparation of the first draft, Revision and Self Editing, Rules of spelling. Reading Comprehension: Analysis of texts from the fields of Commerce and Management

Language and Literature I

Question Paper Pattern (Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Synopsis of a Biography	20
Film/ Theatre review	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	A. Theory/ Concept based question B. Theory/ Concept based question **OR** C .Theory/ Concept based question	**6** **6** **12**	12
Q-2	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-3	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-4	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-5	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
	Total		60

Reference Books (with Chapters):

1) Agarwal, Anju D(1989) A Practical Handbook for Consumers, IBH.
2) Alien, R.K.(1970) Organizational Management through Communication.
3) Ashley,A(1992) A Handbook Of Commercial Correspondence, Oxford University Press.
4) Aswathapa, K (1991)Organisational Behaviour, Himalayan Publication, Mumbai.
5) Atreya N and Guha (1994) Effective Credit Management, MMC School of Management, Mumbai.
6) Bahl,J.C. and Nagamia,S.M. (1974) Modern Business Correspondence and Minute Writing.
7) Balan,K.R. and Rayudu C.S. (1996) Effective Communication, Beacon New Delhi. • Bangh, LSue, Fryar,Maridell and Thomas David A. (1998) How to Write First Class Business Correspondence, N.T.C. Publishing Group USA.
8) Banerjee, Bani P (2005) Foundation of Ethics in Mangement Excel Books 10.Businessworld Special Collector's Issue: Ethics and the Manager
9) Barkar, Alan(1993) Making Meetings Work, Sterling Publications Pvt. Ltd., New Delhi.
10) Basu,C.R.(1998) Business Organisation and Management, T.M.H.New Delhi.
11) Benjamin, James (1993) Business and Professional Communication Concepts and Practices, Harper Collins College Publishers, New York.
12) Bhargava and Bhargava91971) Company Notices, Meetings and Regulations
13) Black, Sam (1972) Practical Public Relations, E.L.B.S. London.
14) BoveeCourtland,L and Thrill, John V(1989) Business Communication, Today McGraw Hill, New York, Taxman Publication.
15) Burton, G and Thakur, (1995) Management Today- Principles and Practices. T.M.H.,New Delhi.
16) Darrow, Richard, Forrstal, Dan and Coolman, Aubrey (1967) Public Relations Handbook, TheDartwell Co., Chicago.
17) Dayal, Ishwar(9810) Managing Large Organizations: A Comparative Study.
18) Drucher,P.F.((1970) Technology, Management and Society, Pan Books London.
19) Drucher,P.F.((1974)Management Responsibilities Practices, Heinemann, London. 22.Eyre, E.C. (1985) Effective Communication Made Simple, Rupa and Co.Calcutta.
20) Ecouse Barry, (1999), Competitive Communication: A Rhetoric for Modern Business, OUP.
21) Fisher Dalmar, (1999), Communication in Organisation, Jaico Pub House, Mumbai, Delhi.
22) Frailley, L.E. (1982) Handbook of Business Letters, Revised Edn. Prentice Hall Inc. French, Astrid (1993) Interpersonal Skills. Sterling Publishers, New Delhi.
23) 27 Fritzsche, David J (2005) Business Ethics: A Global and Managerial Perspective McGraw Hill
24) Garlside, L.E. (1980) Modern Business Correspondence, McDonald and Evans Ltd. Plymouth.
25) Ghanekar, A (1996) Communication Skill for Effective Management. Everest Publishing House, Pune.
26) Graves, Harold F. (1965) Report Writing, Prentice Hall, New Jersey.
27) Gupta, Anand Das (2010) Ethics, Business and Society: Managing Responsibly Response Books 32.Gupta, Dipankar (2006) Ethics Incorporated: Top Priority and Bottom Line Response Books
28) Krevolin, Nathan (1983) Communication Systems and Procedures for Modern Office, Prentice Hall, New Jersey.
29) Lesikar, Raymond V and Petit, John D.(1994) Business Communication: Theory and Application , Richard D. Irwin Inc. Ilinois.
30) Ludlow,Ron.(1995) The Essence of Effective Communication, Prentice , New Delhi.
31) 36.M. Ashraf, Rizvi (2006) Effective Technical Communication Tata McGraw Hill
32) Martson, John E. 1963) The Nature of Public Relations, McGraw Hill, New Delhi.
33) Majumdar,P.K.(1992) Commentary on the Consumer protection Act, Prentice, NewDelhi.
34) McQuail, Denis (1975), Communication, Longman.

Syllabus of courses of FY B. Com Programme
(With effect from the Academic Year 2023-2024)

5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System
5.B Value Enhancement Course (VEC)
5.B.a Computer Applications (3 Credits)

Semester I

5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System	
5.B Value Enhancement Course (VEC)	
5.B.a Computer Applications	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To impart knowledge in concepts and components of Data Communications and Networking
CObj 2	To access and manipulate the information and data using MySQL
CObj 3	To impart knowledge in concepts and types of E-Commerce
CObj 4	To Understand basic concepts of Web pages using HTML tags
Course Outcomes	
COut 1	The learner learns to Implement websites
COut 2	The learner learns to implement Security on databases and firm
COut 3	The learner Can work with I.T Firm
COut 4	The learner understands data communication, networking and the internet.
COut 5	The learner becomes aware of Network Models LAN, MAN, WAN
COut 6	The learner learns about network hardware
COut 7	The learner learns about database and MySQL
COut 8	The learner understands Advance Database and MySQLfunctions
COut 9	The learner learns about Multi- table queries
COut 10	The learner learns to Create tables using MySQL.

Modules at a Glance

Computer Applications		
Sr. No.	**Modules**	**No. of Lectures**
1	Data Communication, Networking and Internet	15
2	Database and MySQL	15
3	Advance Database and MySQL	15
	Total No. of Lectures:	**45**

Sr. No.	Modules
1	**Data Communication, Networking and Internet**
	Data Communication Component Data representation Distributed processin **Network Basics and Infrastructure** Network Models LAN, MAN, WAN **Network Hardware**: Hubs, Bridges, Switches, and Routers Network Structures – Server Based, Client server, Peer to Peer Topologies – Star, Bus, Ring Network Protocols – TCP/IP, OSI Model **Internet** Definition, Types of connections, Services on net- WWW, Email-Blogs. IP addresses, Domain names, URLs, Hyperlinks, Web Browsers Cyber Crime, Hacking, Sniffing, Spoofing
2	**Database and MySQL**
	Introduction To Databases, Relational and Non-relational database system MySQL as a Nonprocedural Language. View of data **MySQL Basics** Introduction Statements (Schema Statements, Data statements, Transaction statements), names (table & column names) Data types(Char, Varchar, Text, Mediumtext, Longtext, Smallint, Bigint, Boolean, Decimal, Float, Double, Date, Date Time,Timestamp, Year, Time) **MYSQL Functions** Creating Database, inserting data, Updating data, Deleting data

	Expressions, Built-in-functions- lower, upper, reverse, length, ltrim, rtrim, trim, left, right, mid, concat, now, time, date, curdate, day, month, year, dayname, monthname, abs, pow, mod, round, sqrt Missing data(NULL and NOT NULL DEFAULT values) CONSTRAINTS
3	**Advance Database and MySQL**
	MySQL Simple queries: The SELECT statement (From, Where, Group By, Having, Order By, Distinct) Filtering Data by using conditions Aggregate Functions- count, sum, avg, max, min **Multi-table queries** Simple joins (INNER JOIN) SQL considerations for multi table queries (table aliases, qualified column) All (column selections self joins) **Nested Queries (Only upto two levels)** Using sub queries, sub query search conditions, sub queries &amp Joins, nested sub queries, correlated sub queries, subqueries in the HAVING clause Simple Transaction illustrating START, COMMIT, and ROLLBACK

PRACTICALS

SR.NO	PRACTICAL
1	Creating tables using MySQL.
2	Modifying tables using MySQL.
3	Case Studies on Star, Ring, Bus Topology
4	Using CLI checking ip address
5	Use of command ping, netcat, tracert

AC: 14/07/2023

Computer Applications
Question Paper Pattern
(Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Assignments/Practicals	20
Power point presentations	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60

Duration : 2 Hours

Note: 1) All questions are compulsory

2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1	A. Theory/ Concept based question B. Theory/ Concept based question **OR** C Theory/ Concept based question	**6** **6** **12**	12
Q-2	A. Theory/Concept based question B. Theory/Concept based question **OR** C Theory/Concept based question	**6** **6** **12**	12
Q-3	A. Theory/Concept based question B. Theory/Concept based question **OR** C Theory/Concept based question	**6** **6** **12**	12
Q-4	A. Theory/Concept based question B. Theory/Concept based question **OR** C. Theory/Concept based question	**6** **6** **12**	12
Q-5	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
	Total	**120**	60

Reference Books (with Chapters):

- Data Communication and Networking -Behrouz A Forouzan
- Introduction to Computers – Peter Norton, Tata McGraw Hill
- Fundamentals of Database Systems – Elmasri Navathe, Somayajulu, Gupta
- Database Systems and Concepts - Henry F. Korth, Silberschatz, Sudarshan McGraw Hill
- DBMS – Date "Digital Marketing". Techopedia. Retrieved 22 August 2015.
- The complete reference SQL - Vikram Vaswani TMH
- The complete reference SQL - James R. Groff & Paul N. Weinberg TMG
- Learning SQL - Alan Beaulieu O'REILLY.
- Learning MySQL - Seyed M. M. and Hugh Williams, O'REILLY.
- SQL a complete reference - Alexis Leon

Syllabus of courses of FY BCom (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System
5.C Indian Knowledge System (IKS)
5.C.a Indian Knowledge System I & II (2 Credits)

Semester I

5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System	
5.C Indian Knowledge System (IKS)	
5.C. Conservation and Sustainability in Ancient India	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	The course will enable the learner to understand the scientific and moral value of traditional ancient Indian knowledge.
CObj 2	The course is expected to convert the ancient wisdom to the applied aspects of the modern scientific paradigm.
CObj 3	The course is expected to create interest and excitement in the learner to explore more on the specific area of knowledge.
CObj 4	The course is expected to empower the learner to inspire others in learning our own traditional practices of sustainability.
CObj 5	The course is expected to develop the interest in the learner to do further research in the specific area of knowledge.
Course Outcomes	
COut 1	The learners shall be able to acknowledge the contribution of traditional Indian wisdom in various commercial fields.
COut 2	The learner should be able to draw connections between the trade & commercial activities along with their influence on the environment and the efforts to address the same.
COut 3	The learners shall be able to identify traditional eco-friendly options for current modes of transportation.
COut 4	The learner should be able to understand the ancient practices of resource conservation and to have a holistic approach towards sustainable development in modern times.
COut 5	The learners should be able to analyze the current practices of land management with respect to ancient Indian practices for the conservation of the same.
COut 6	The syllabus shall enable the learners to correlate the conventional practices of water conservation with special reference to ancient wisdom in the same regards.
COut 7	The learners shall be able to suggest measures for forest conservation through various ancient Indian solutions.
COut 8	The learners should be able to evaluate the Indian contribution in various contemporary fields of social sciences and technologies.
COut 9	The learners should be able to describe the case studies to illustrate the significant contribution of Indian scholars in various conventional fields of social sciences.
COut 10	The learners should be able to examine the future perspectives and possibilities of various aspects of the Indian Knowledge System to enrich the society

Modules at a Glance

Conservation and Sustainability in Ancient India		
Sr. No.	**Modules**	**No. of Lectures**
1	Conventional trade & commerce and environment	15
2	Resource conservation and sustainability	15
3	Significant Indian contributions to the world	Internal component/assesment
	Total No. of Lectures:	**30**

Sr. No.	Modules
1	**Conventional trade & commerce and environment**
	A. Introduction and overview of Indian Knowledge System. Indian disciplinary knowledge system in different fields like, architecture, science & technology, nature, astronomy, agriculture, health & medicine, Defence (case study of Rani Abbakka Chowta who defeated Portuguese) B. Traditional commercial activities & trade practices with reference to environmental conservation: Agricultural trade, Silk, Cotton, Spices, Metallurgy, Textile industry, etc. C. Transportation and its modes: Grand Trunk road, Boat & ship-building, Energy efficiency in the transport sector: a current scenario, ecomobility. Impact of transport on climate, impact of climate on transport.
2	**Resource conservation and sustainability**
	A. Land Management & Conservation: Ancient & traditional agricultural activities, Conservation strategies, Harappan civilization-town planning, etc. B. Water Management & Conservation: Harappan civilization, ancient practices of irrigation, Tanks, Lakes, Stepwells, Traditional rain-water harvesting, Community involvement. C. Forest & Wildlife Conservation: Sacred forests, sacred groves, sacred hills, Social forestry, Agroforestry, Animal worshiping, Worshiping natural forces. Women and conservation- Ecofeminism.

3	**Significant Indian contributions to the world (internal component/assessment)**
	A. Contribution in the field of agriculture: Food crops, Cotton, Animal husbandry, etc. B. Contribution in the field of science & technology: Invention of zero, etc. C. Contributions in the field of health & medicine: Ayurveda, Meditation, Yoga, etc. D. Case studies on Indian Knowledge System on any particular/ specific area of knowledge: Ayurveda, Agriculture, Astronomy, Architecture, Economics, Mathematics, Philosophy, Yoga, Medicine, Nature, Politics, Weaponry, Military science, Literature, Poetics or any other area of knowledge. Indian Knowledge System- Future perspectives: Challenges and Opportunities.

AC: 14/07/2023

Indian Knowledge System
Question Paper Pattern (Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 50 Marks

A] Internals-20 Marks

INTERNAL ASSESSMENT: 20 MARKS

MODULE-III is given for internal assessment. Students will be writing assignments on the selected topics.

B] Semester End Examination (SEE)- 30 Marks

Maximum Marks 30
Number of Questions to be Set :
Duration : 1 Hour
NOTE: 1. All questions are compulsory.
2. All questions carry equal marks.

Question No.	Particulars (Nature of Questions)	Marks (Given)
Q-1	Attempt **any one** of the following. A. Full length question. B. Full length question	**10**
Q-2	Attempt **any one** of the following. A. Full length question. B. Full length question	**10**
Q-3	Attempt **any two** of the following. a. Short answer. b. Short answer c. Short answer d. Short answer.	**10**
	Total	**30**

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
1. Major (1.A.a School of Actuarial Studies– II)

Insurance Business and Analysis II (3 Credits)

Semester II

1.Major	
1.A School of Actuarial Studies– II)	
1.A.a Insurance Business and Analysis- II	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To ensure basic understanding and knowledge of Life Insurance Business.
CObj 2	To create awareness and understanding of an array of Health Insurance products
CObj 3	To impart information on actuarial valuation of annuities and Group Insurance Schemes
CObj 4	To make the learner knowledgeable about health insurance and the special features.
Course Outcomes	
COut 1	The learners become aware of organizational aspects of insurance.
COut 2	The learners become conversant about valuation for various plans of Life Insurance.
COut 3	The learners analyze different schemes and devise the link with annuities.
COut 4	The learners recognize the present position of health insurance in India and estimate the scope forthe same in future
COut 5	They learn the various aspects of Premiums and Bonuses
COut 6	The methods of Premium Calculation is understood by the learner.
COut 7	The learner understands the concepts of Assignment and Nomination
COut 8	The learner understands the similarities and differences between the long-term coverages
COut 9	The learner learns about Death Cover- Survival Benefit- Term Assurance
COut 10	The learner also knows about Group Insurance- Introduction and Types of Group Insurance Schemes
COut 11	The learner understands the Range of health insurance Products and has awareness about health Contingencies

Modules at a Glance

Insurance Business and Analysis -II		
Sr. No.	**Modules**	**No. of Lectures**
1	Life Insurance Organization	11
2	Introduction to Actuarial Valuation	11
3	Annuities	11
4	Introduction to Health Insurance	12
Total No. of Lectures:		**45**

Sr. No.	Modules
1	**Life Insurance Organization**
	1. Introduction 2. Approaches to Life Insurance- The Indian Context 3. Internal Organization 4. The Distribution System 5. Appointment and functions of Agents 6. Agency continuation , termination and Remuneration to Agents 7. Trends in Life Insurance 8. Distribution Channels 9. Premiums and Bonuses 10. Net and Pure Premium and Premium Calculation 11. Lapse and Revival- Special Revival Scheme- Installment Revival Scheme- Loan-cum- Revival Scheme 12. Assignment, Nomination
2.	**Introduction to Actuarial Valuation**
	1. Describe the similarities and differences between the long-term coverages 2. Describe the appropriate models to be used to calculate expected present values,premiums or contributions, and reserves for each long-term coverage 3. Bonus- Simple Reversionary Bonus- Compound Reversionary Bonus- InterimBonus. 4. Plans of Life Insurance- Death Cover- Survival Benefit- Term

	Assurance- PureEndowment- Linked 5. Some Popular Plans 6. Common Variations 7. With profit and without profit policies 8. Joint Life Policies 9. Children Plans 10. Variable Insurance Plans. 11. Postal Life Insurance
3	**Annuities**
	1. The nature of Annuity 2. Immediate Annuity 3. Deferred Annuity 4. Group Insurance- Introduction- Meaning of Group Insurance- Types of GroupInsurance Schemes 5. Ways to meeting Gratuity Liability 6. Group Superannuation Scheme 7. Group Leave Encashment Schemes (GLES) 8. Other Group Schemes 9. Social Security Schemes 10. Other Special Need Plans 11. Industrial Life Insurance 12. Married Women's Property (MWP) Act Policies 13. Plans for Differently Abled
4	**Introduction to Health Insurance**
	1. Range of Products 2. Awareness about health Contingencies 3. Importance of Health Insurance in India 4. Growth and Evaluation of Health Insurance Companies in India 5. Balanced Funds 6. Premium Holiday 7. Annuities and Pensions 8. Future for Health Insurance 9. Wearables 10. Experience rating 11. third party administrators 12. disease taxonomy 13. Frequency-severity of common health insurance claims

AC: 14/07/2023

Insurance and Business Analysis II

Question Paper Pattern
(Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Assignments	20
Power Point Presentation and Group discussion	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note:1) All questions are compulsory
2)Figures to the right indicate full marks.

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1	Attempt **any two** of the following		
(Module-I)	D. Theory/Concept-based question E. Theory/Concept-based question F. Theory/Concept-based question	6 6 6	12
Q-2	Attempt **any two** of the following		
(Module-II)	D. Theory/Concept-based question E. Theory/Concept-based question F. Theory/Concept-based question	6 6 6	12
Q-3	Attempt **any two** of the following		
(Module-III)	D. Theory/Concept-based question E. Theory/Concept-based question F. Theory/Concept-based question	6 6 6	12
Q-4	Attempt **any two** of the following		
(Module-IV)	D. Theory/Concept-based question E. Theory/Concept-based question F. Theory/Concept-based question	6 6 6	12
Q-5	Questions based on the various projects presented in the class by the learner /Case Study OR Write short notes on (Any 3 out of 4) Based on entire syllabus	16	12
	Total	**88**	**60**

Reference Books (with Chapters):

1. Kew John, Business Environment: Managing in a Strategic Context, Jaico Publications 2006
2. Hanke John K, Business Forecasting, Prentice Hall India, 2002.
3. Paul Justin, Business Environment, Tata McGraw Hill, 2008.
4. Butter David, Business Planning: A Guide to Business Start-up, Butterworth Heinemann, 2003.
5. Piramal Gita, Business Legends, Penguin Books, 1998.
6. Hitt Michael A, Strategic Management, Cengage Learning, 2016.
7. , Valarie A, Services Marketing, McGraw Hill Education,2011.
8. Gupta S L, Retailing & E- tailing, International Book House, New Delhi, 2011.
9. Raghuram G, Logistics & Supply Chain Management: Cases and Concepts, Macmillan Business Books.
10. Joseph P T, E-Commerce an Indian Perspective, Prentice Hall India, 2015

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
1. Major (1.A School of Actuarial Studies -II)

Financial Mathematics- II (3 Credits)

Semester II

1.Major	
1.A School of Actuarial Studies II	
1.A.b Financial Mathematics- II	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To expose the user to fundamental concepts such as cash flows, present value, future value, yield and probability that form the basis for further advanced learning
CObj 2	To understand how to construct the best investment strategies that minimise risks in the real world.
CObj 3	To express, reason, and prove the underlying principles of finance and Research
CObj 4	To tackle the problems of the valuation of assets and financial instruments, as well as optimizingcapital allocation and resources
Course Outcomes	
COut 1	The learner is able to understand basic elements of probability theory and apply them to solve real life problems
COut 2	The learner is able to solve problems based on the industrial decision making process.
COut 3	The learner is able to frame a hypothesis and test it using binomial and normal distributions
COut 4	Understand the different decision-making techniques with certainty and under risk and to compareand conclude the optimal decision.
COut 5	The learner is able to understand concept of random variable and Probability distribution of a discrete random variable
COut 6	The learner is able to understand Confidence intervals for unknown parameters of binomial and normal distributions
COut 7	The learner is able to solve problems based on Standard Deviation and coefficient of variation
COut 8	The learner is able to understand basic tests for one-sample and two- sample situations involving binomial and normal distributions
COut 9	The learner knows about Probability and Moment generating functions
COut10	The learner is able to solve problems based on various Decision making situations

Modules at a Glance

Financial Mathematics -II		
Sr. No.	**Modules**	**No. of Lectures**
1	Random variables	11
2	Statistical distributions	11
3	Elementary Probability Theory	11
4	Decision Theory	12
Total No. of Lectures:		**45**

Sr. No.	Modules
1	**Random variables**
	1. Concept of random variable 2. Random Variable: Probability distribution of a discrete random variable; Expectation and Variance of random variable, simple examples on probability distributions, cdf andpdf. 3. Standard Deviation and coefficient of variation. 4. Discrete Random variables and distribution: Explanation and application of binomial, Negative binomial, geometric, hypergeometric, poisson, uniform and exponential variables.
2	**Statistical distributions**
	1. Continuous Random variables and distribution: Explanation and application of Gamma,normal and chi – squared. 2. Probability and Moment generating functions, pseudo random variables 3. Confidence intervals for unknown parameters of binomial and normal distributions, CLT. Testing of Hypothesis, Null hypothesis, Alternative hypothesis, level of significance, basictests for one-sample and two- sample situations involving binomial and normal distributions,predicted values, and prediction interval
3	**Elementary Probability Theory**
	Prerequisites: (Factorial Notation, Fundamental principle of counting, Permutation as arrangement, Simple examples, combination as selection, Simple examples, Relation between ${}^{n}Cr$ and ${}^{n}Pr$ Examples on commercial application of permutation and combination).

	1. Probability Theory: Concept of random experiment/trial and possible outcomes; Sample Space and Discrete Sample Space; Events their types, Algebra of Events, Mutually Exclusive and Exhaustive Events, Complementary events. Classical definition of Probability, Addition theorem (without proof), conditional probability. Independence ofEvents: $P(A \cap B) = P(A)\,P(B)$, Venn Diagrams, probability axioms. 2. Moments: Introduction, Methods of calculations: expected value, mode, median, percentile and higher moments.Bayes Theorem and conditional probability
4	**Decision Theory**
	Decision making situation, Decision maker, Courses of Action, States of Nature, Pay-offand Pay-off matrix; Decision making under uncertainty, Maximin, Maximax, Minimax regret and Laplace criteria; simple examples to find optimum decision. Formulation of Payoff Matrix. Decision making under Risk, Expected Monetary Value (EMV); DecisionTree; Simple Examples based on EMV. Expected Opportunity Loss (EOL), simple examples based on EOL

AC: 14/07/2023

Financial Mathematics II

Question Paper Pattern
(Academic Year: 2023-2024)
Internal Examination & Semester End Examination – 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Written Test	20
Assignments	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1 (Module-I)	Attempt **any two** of the following. A.Numerical B. Numerical C. Higher Order Thinking skills	**18**	**12**
Q-2 (Module-II)	Attempt **any two** of the following. A. Numerical B. Numerical C. Higher Order Thinking skills	**18**	**12**
Q-3 (Module-III)	Attempt **any two** of the following. A. Numerical B. Numerical C. Higher Order Thinking skills	**18**	**12**
Q-4 (Module-IV)	Attempt **any two** of the following. A. Numerical B. Numerical C. Higher Order Thinking skills	**18**	**12**
Q-5	B) Case Study OR Write short notes on (Any 3 out of 4) Based on entire syllabus	**16**	**12**
	Total	**88**	**60**

Reference Books (with Chapters):

25. Mathematics for Economics and Finance Methods and Modelling by Martin Anthonyand Norman Biggs, Cambridge University Press, Cambridge low-priced edition, 2000,Chapters 1, 2, 4, 6 to 9 & 10.
26. Applied Calculus: By Stephen Waner and Steven Constenoble, Brooks/Cole Thomson Learning, second edition, Chapter 1 to 5.
27. Business Mathematics By D. C. Sancheti and V. K. Kapoor, Sultan Chand &Sons, 2006, Chapter 1, 5, 7, 9 &10.
28. Mathematics for Business Economics: By J. D. Gupta, P. K. Gupta and Man Mohan,Tata Mc-Graw Hill Publishing Co. Ltd., 1987, Chapters 9 to 11 & 16.
29. Quantitative Methods-Part-I By S. Saha and S. Mukerji, New Central Book Agency, 1996, Chapters 7 & 12.
30. Mathematical Basis of Life Insurance By S.P. Dixit, C.S. Modi and R.V. Joshi, Insurance Institute of India, Chapters 1 and 2.
31. Securities Laws & Regulation of Financial Market : Intermediate Course Paper8, Institute of Company Secretaries of India, Chapter 11.
32. Investments By J.C. Francis & R.W. Taylor, Schaum's Outlines, Tata Mc-Graw Hill Edition 2000, Chapters 2,4 & section 25.1.
33. Indian Mutual Funds Handbook : By SundarShankaran, Vision Books, 2006, Sections 1.7,1.8.1, 6.5 & Annexures 1.1to 1.3.
34. STATISTICS by Schaum Series.
35. Operations Research by Gupta and Kapoor.
36. Operations Research by Schaum Series.
37. Fundamentals of Statistics - D. N. Elhance.
38. Statistical Methods - S.G. Gupta (S. Chand & Co).
39. Statistics for Management - Lovin R. Rubin D.S. (Prentice Hall of India).
40. Statistics - Theory, Method & Applications D.S.Sancheti & V. K. Kapoor
41. Modern Business Statistics - (Revised}-B. Pearles& C. Sullivan –Prentice Hall of India.
42. Business Mathematics &Statistics : B Aggarwal, Ane Book Pvt. Limited.
43. Business Mathematics : D C Sancheti& V K Kapoor, Sultan Chand & Sons.
44. Business Mathematics: A P Verma, Asian Books Pvt.: Limited.
45. Statistics of Management , Richard Levin &David S. Rubin,Printice Hall of India , New Delhi.
46. Statistics for Business & Economics, David R Anderson, Dennis J Sweney, Thopmson Publication.

47. Business Statistics, Bharadwaj, Excel Books, Delhi.
48. Business Mathematics, S.K Singh & J.K Singh, Brijwasi Book Distributor &Publisher.
49. Mathematics for Economics and Finance, Martin Anthony, Norman Biggs, Cambridge lowprice editions, 2000.
50. Business Mathematics, J.K. Singh, 2009, Himalaya Publishing House
51. Mathematics of Finance 2nd Edition Schaum's Outline Series Peter Zima
52. Robert Brows Tata McGraw-Hill Publishing Company Ltd

AC: 14/07/2023

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
2. Minor (Allied Course)
Business Economics II (3 Credits)

Semester II

2. Minor (Allied Course)	
2.A .a Business Economics -II	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To enable learners to analyse the macro economics concepts.
CObj 2	To make learners understand the role of government in an economy
CObj 3	To orient the learner with the function of money and elements of monetary policy.
CObj 4	To make learners understand the dynamics of international trade.
Course Outcomes	
COut 1	The learner is able to understand and identify the functioning of the Trade cycle and thedeterminants of Economic growth.
COut 2	The learner understands the role of the government with respect to fiscal policy.
COut 3	The learner is sensitized about the causes of inflation and appreciates the role of the governmentby generating employment to beat inflation
COut 4	The learner is aware of International exchange rates and can comprehend the disequilibrium inBalance of Payment.
COut 5	The learner is able to understand Trade Cycles and its Features and Phases
COut 6	The learner understands the relation between Efficiency, Markets and Government
COut 7	The learner is aware of Function of money
COut 8	The learner understands the concept of Public Goods and the role of Government
COut 9	The learner learns about Role of Central Bank
COut 10	The learner understands the impact of fiscal policy on the economy

Modules at a Glance

Economics II		
Sr. No.	**Modules**	**No. of Lectures**
1	Macroeconomic concepts	11
2	The Role of Government in an Economy	11
3	Money, Inflation and Unemployment	11
4	International trade	12
Total No. of Lectures:		**45**

Sr. No.	Modules
1	**Macroeconomic concepts**
	1. National Income concepts 2. Circular flow of aggregate income -closed and open economy models 3. Trade Cycles: Features and Phases 4. Determination of the price level in the economy by the interaction between Aggregate supply (AS) and aggregate demand (AD) in a simple AS–AD model. 5. Economic growth- determinants
2	**The Role of Government in an Economy**
	1. Relation between Efficiency, Markets and Governments 2. The concept of Public Goods and the role of Government 3. Fiscal Policy: Meaning, Objectives, constituents and Limitations. Impact of fiscal policy on the economy
3	**Money, Inflation and Unemployment**
	1. Money- Function of money; Demand for money; Money Supply: Determinants ofMoney Supply 2. Elements of Monetary Policy 3. Inflation: Demand pull inflation and cost push inflation; Inflation targeting; Thetrade-off between Inflation and Unemployment. Supply Side Economics: Basic propositions and critical appraisal
4	**International trade**
	1. Balance of Payment: Meaning, Structure 2. Types of BOP Disequilibrium- Causes and measures to correct the disequilibrium inBalance of Payments 3. Foreign Exchange Market: Meaning, Functions, Determination of EquilibriumRate of Exchange. 4. Role of Central Bank in foreign exchange rate management

AC: 14/07/2023

Business Economics II

Question Paper Pattern
(Academic Year: 2023-2024)

Internal Examination & Semester End Examination -100Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	Total marks
Assignment	20
Power Point Presentation	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	A . Theory/ Concept based question B .Theory/ Concept based question **OR** C .Theory/ Concept based question	**6** **6** **12**	12
Q-2	A .Theory/Concept based question B .Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-3	A .Theory/Concept based question B .Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-4	A .Theory/Concept based question B .Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-5	A .Theory/Concept based question B .Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
	Total	**120**	60

Reference Books (With Chapters):

1. Mehta, P.L.: Managerial Economics –Analysis, Problem and Cases (S. Chand & Sons, N. Delhi).
2. Hirchey.M., Managerial Economics, Thomson South Western
3. Salvatore, D.: Managerial Economics in a global economy (Thomson South Western Singapore).
4. Frank R.H, Bernanke.B.S., Principles of Economics (Tata McGraw Hill).
5. Gregory Mankiw., Principles of Economics, Thomson South Western.
6. Samuelson & Nordhas.: Economics (Tata McGraw Hills, New Delhi).
7. Pal Sumitra, Managerial Economics cases and concepts (Macmillan, New Delhi).

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
3. General /Open Electives
General Electives (GE)/ Open Elective (OE)

3.A.a Data Structures and Algorithms Using Python (3 Credits)

Semester II

3. General /Open Electives	
General Electives (GE)/ Open Elective (OE)	
3.A.a Data Structures and Algorithms Using Python	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To learn the essential Python data structures
CObj 2	To learn the significant Python implementation of popular data structures
CObj 3	To acquire knowledge of how to create complex data structures
CObj 4	To acquire basic understanding of complex data structures such as trees and graphs and their applications
Course Outcomes	
COut 1	Learner is capable of choosing appropriate data structure in Python for specified problems and algorithms
COut 2	Learner is able to implement Linked list and Stack data structure in various domains
COut 3	Learner is able to implement Tree and Queue data structures and use their operation
COut 4	Learner has ability to apply Hashing techniques
COut 5	Learner learns to apply Symbol Table and Graph Algorithms appropriately
COut 6	Learner has skills to handle sorting, searching and pattern matching on various data structures
COut 7	Learner is able to delete an element in a circular list
COut 8	Learner has skills to Iterate through a circular list
COut 9	Learner is able to learn the benefits of a binary search tree
COut 10	Learner is able to write Python Program to implement stack and demonstrate push, pop and peekoperations

Modules at a Glance

Data Structures and Algorithms Using Python		
Sr. No.	**Modules**	**No. of Lectures**
1	Python Data Types and Structures	15
2	Stacks Queues Trees	15
3	Graphs and Other Algorithms	15
Total No. of Lectures:		**45**

Sr. No.	Modules
1	**Python Data Types and Structures**
	Modules for data structures and algorithms: Collections, Deques, Chain Map objects Counter, Counter objects, Ordered dictionaries, defaultdict, Learning about named tuples Arrays Principles of Algorithm Design: An introduction to algorithms, Algorithm design paradigms Recursion and backtracking, Backtracking, Divide and conquer - long multiplication The recursive approach Runtime analysis Asymptotic analysis Big O notation, Composing complexity classes Omega notation, Theta notation. Lists and Pointer Structures: Arrays-Pointer structures Singly linked lists-Singly linked list class, The append operation, A faster append operation, Getting the size of the list, Improving list traversal, Deleting nodes, List search, Clearing a list Doubly linked lists-A doubly linked list node Doubly linked list class Append operation The delete operation List search Circular lists-Appending elements, Deleting an element in a circular list, Iterating through a circular list.
2	**Stacks ,Queues, Trees**
	Stacks: Stack implementation, Push operation, Pop operation, Peek operation, Bracket-matching application Queues:- List-based queues, Stack-based queues Node-based queues, Application of queues Media player queues Trees: Terminology, Tree nodes, Tree traversal, Depth-first traversal In-order traversal and infix notation, Pre-order traversal and prefix notation, Post-order traversal and postfix notation, Breadth-first traversal, Binary trees-Binary search trees, Binary search tree implementation, Binary search tree operations, Finding the minimum and maximum nodes Inserting nodes Deleting nodes, Searching the tree, Benefits of a binary search tree, Balancing trees, Expression trees, Parsing a reverse Polish expression, Heaps, Ternary search tree

3	**Graphs and Other Algorithms**
	Graphs-Directed and undirected graphs, Weighted graphs, Graph representations, Adjacency lists, Adjacency matrices, Graph traversals- Breadth-first traversal, Depth-first search. Sorting: Sorting algorithms- Bubble sort algorithms, Insertion sort algorithms, Selection sort algorithms, Quick sort algorithms

Data Structures and Algorithms Using Python

Question Paper Pattern (Academic Year: 2023-2024)

Internal Examination & Semester End Examination 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	**Total marks**
Assignment	20
Power Point Presentation	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note:) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	A . Theory/ Concept based question B . Theory/ Concept based question **OR** C . Theory/ Concept based question	6 6 12	12
Q-2	A .Theory/Concept based question B .Theory/Concept based question **OR** C .Theory/Concept based question	6 6 12	12
Q-3	A .Theory/Concept based question B .Theory/Concept based question **OR** C .Theory/Concept based question	6 6 12	12
Q-4	A .Theory/Concept based question B .Theory/Concept based question **OR** C .Theory/Concept based question	6 6 12	12
Q-5	A .Theory/Concept based question B .Theory/Concept based question **OR** C .Theory/Concept based question	6 6 12	12
	Total		60

Reference Books (With Chapters):

Sr. No.	Title	Author/s	Publisher	Year
1.	Hands-On Data Structures and Algorithms with Python	Basant Agarwal, Benjamin Baka	Packt Publishing	2018
2.	Data Structure and algorithm Using Python	Rance D. Necaise	Wiley IndiaEdition	2016
3.	Data Structure and algorithm in Python	Michael T. Goodrich, RobertomTamassia	Wiley IndiaEdition	2016
4.	Data Structure and Algorithmic Thinking withPython	Narasimha Karumanchi	Careermonk Publications	2015
5.	Fundamentals of Python:Data Structures	Kenneth Lambert	Delmar Cengage Learning	2018

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
4.A.a Intellectual Property Rights (2 Credits)

Semester II

4. Vocational & Skill Enhancement Courses (VSEC)	
4.A. Vocational Skill Courses (VSC)	
4.A.a Intellectual Property Rights	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To recognize the importance of IP and to educate the pupils on basic concepts of Intellectual Property Rights.
CObj 2	To make the students to understand the statutory provisions of different types of IPRs in simple forms
CObj 3	To learn the procedure of obtaining Patent, Copyright, Geographical Indication, Trademark, Industrial Design and Trade Secret
CObj 4	To Distinguish and explain various forms of IPRs
Course Outcomes	
COut 1	The learner is able to recognize the importance of IP and to educate the pupils on basic concepts of Intellectual Property Rights
COut 2	The learners understand the statutory provisions of different types of IPRs in simple forms.
COut 3	The learner is able to learn the procedure of obtaining Patent, Copyright, Geographical Indication, Trademark, Industrial Design and Trade Secret
COut 4	The learner can explain the various forms of IPRs
COut 5	The learner can identify criterias to fit one;s own intellectual work in a particular form of IPRs.
COut 6	The learner can analyze and apply statutory provisions to protect particular form of IPRs
COut 7	The learner gets familiar with intellectual property protection mechanisms.
COut 8	The learner is able to explain why something is or not entitled to intellectual property protection.
COut 9	New developments in IPRs can be discovered by the learner.
COut 10	Learners shall be able to look for IPR protection primarily before the conventional mode of protection like scientific publication.

Modules at a Glance

Intellectual Property Rights		
Sr. No.	**Modules**	**No. of Lectures**
1	Introduction to Intellectual Property Rights	10
2	Types of Intellectual Property Rights	10
3	Application and Emerging Trends	10
	Total No. of Lectures:	**30**

Sr. No.	Modules
1	**Introduction to Intellectual Property Rights**
	Meaning of Intellectual Property and Property Rights: Basic concepts of Intellectual Property; Nature, Scope and Significance of Intellectual Property
2	**Types of Intellectual Property Rights**
	Patent, Copyright, Geographical Indication, Trademark, Industrial Design and Trade Secret
3	**Application and Emerging Trends**
	Technology and Legal developments in Intellectual Property; Advantages and Disadvantages of IPR; Recent changes in IPR laws; Registration procedure

AC: 14/07/2023

Intellectual Property Rights

Question Paper Pattern
(Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 50 Marks

A] Internals-20 Marks

Allocation of 20 Marks---Internal evaluation

Method of evaluation	**Total marks**
Practical work	20
TOTAL	**20**

B] Semester End Examination (SEE)- 30 Marks

Maximum Marks 30
Duration : 1 Hour
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1	Attempt any 2		
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
Q-2	Attempt any 2		
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	
Q-3	Attempt any 2		
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
	Total	**45**	**30**

Reference Books (with Chapters):

Law Relating to Intellectual Property Rights" by V K Ahuja
"Law Relating To Intellectual Property Rights" by by R Radhakrishnan and S Balasubramanian
"Law Relating to Intellectual Property, 2011 (Reprint)" by B L Wadehra

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
4.B.a Application of Excel in Financial Mathematics (2 Credits)

Semester II

4. Vocational & Skill Enhancement Courses (VSEC)	
4.B.Vocational Skill Courses (VSC)	
4.B.a Application of Excel in Financial Mathematics	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	Learn interest rates and annuities using financial mathematics
CObj 2	Understand financial models and use Excel to create the financial models
CObj 3	Describe and Learn Loans Schedules , Project financial appraisal and learn Bonds, property and equity.
CObj 4	Learn the term structures of interest rates, Redington's laws
Course Outcomes	
COut 1	The learner knows to describe the basic principles of actuarial modelling
COut 2	The learner is able to interpret and discuss the theories on interest rates
COut 3	The learner can evaluate , interpret and discuss mathematical techniques used in financial models
COut 4	The learner is aware of the use of Excel to create and calculate the financial models.
COut 5	The learner is able to describe nominal rate of interest, force of interest and their applications using Excel functions.
COut 6	The learner knows to use Excel Functions to create annuities and increasing annuity
COut 7	The learner is aware of the use Excel Functions to appraise financial projects
COut 8	The learner is able to calculate price and yield of bonds using Excel functions.
COut 9	The learner is able use Excel Functions to calculate price of property and equity
COut 10	The learner is aware of the use Excel Functions to create loan schedules

Modules at a Glance

Application of Excel in Financial Mathematics		
Sr. No.	**Modules**	**No. of Lectures**
1	Theory of interest rates, annuity ,financial models project appraisal, securities and term structure	10
2	Excel Application on annuities, loan schedule and project appraisal, property, equity and term structure	10
Total No. of Lectures:		**20**

Sr. No.	Modules
1	**Theory of interest rates, annuity ,financial models project appraisal, securities and term structure**
	Theory of interest rates: Describe effective interest rates, discount rates, accumulation and discounting. Explain Present value and accumulation value. Describe nominal rate of interest, force of interest and their applications. Describe real rate of interest and money rate of interest. **Annuity:** Explain level annuity and increasing annuity. Find present value and future values of annuity. **Loan Schedules:** Find loan schedule structure by equating annuity payments. Use the formulas of interest component, capital component, loan outstanding (Prospective and Retrospective methods). Describe flat rate of interest and Annual Percentage Rate. **Project Appraisal:** Use Net Present Value, Internal Rate of Return and Discounted Payback Period to appraise a financial project. **Bonds:** Describe Zero coupon Bond, Fixed interest bonds and index linked bonds. Describe the effects of income tax, capital gain tax and variable redemption dates on price and yield of Bonds. **Property and equity:** Calculate the price of property and equity
2	**Excel Application on annuities, loan schedule and project appraisal bonds, property, equity and term structure**
	Explain Financial functions in Excel (DB,PV, FV, NPV, IRR, RATE, YIELD) Use Excel Functions to create annuities and increasing annuity. Use Excel Functions to create loan schedules. Use Excel Functions to appraise financial projects. Use Excel Functions to find price and yield of bonds. Use Excel Functions to use Inflation Index and term structure of interest rates for bond pricing. Use Excel Functions to calculate price of property and equity

AC: 14/07/2023

Application of Excel in Financial Mathematics

Question Paper Pattern(Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 50 Marks

A] Internals-20 Marks

Allocation of 20 Marks---Internal evaluation

Method of evaluation	**Total marks**
Practical work	20
TOTAL	**20**

B] Semester End Examination (SEE)- 30 Marks

Maximum Marks 30
Duration : 1 Hour
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	**Particulars (Nature of Questions)**	**Marks (Given)**	**Marks (To Be Attempted)**
Q-1	Attempt any 2		
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
Q-2	Attempt any 2		
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	
Q-3	Attempt any 2		
	Theory/ Concept based question	**5**	
	Theory/ Concept based question	**5**	10
	Theory/ Concept based question	**5**	
	Total	**45**	**30**

Reference Books (with Chapters):
Acted CMP CM1 2019 – IFoA course book
Mastering Financial Modelling in Microsoft Excel – Alastair Day

Syllabus of courses of FY B. Com (Actuarial Studies) Programme
(With effect from the Academic Year 2023-2024)
5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System
5.A Ability Enhancement Course (AEC)

5.A.a Language and Literature- II (3 Credits)

Semester II

5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System	
5.A Ability Enhancement Course (AEC)	
5.A.a Language and Literature II	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To understand the effective use of power point presentation, relevance, and importance of conducting meetings
CObj 2	To teach the formats of letter writing
CObj 3	To enable the learners to adapt to the requirements of the industry
Course Outcomes	
COut 1	The learners learn to use statistical tools in power point presentations, write letters of enquiry and letters of complaint.
COut 2	Learners can prepare flyers and leaflets help the learners demonstrate their creativity
COut 3	The learners are able to write different types of reports.
COut 4	The learners can analyse all forms of group communication and are able to appropriately use them.
COut 5	Learners understand the importance of following the steps to conduct the meetings.
COut 6	Learners are able to apply the steps taught for an effective communication.
COut 7	The learners understand the role and the scope of work of a chairman.
COut 8	Data is analysed and the learner is able to present the same in the form of a report.
COut 9	Learners are able to create effective presentations
COut 10	Learner is able to evaluate and seek redress under RTI

Modules at a Glance

Language and Literature-II		
Sr. No.	**Modules**	**No. of Lectures**
1	Presentation Skills & Group Communication	15
2	Business Correspondence	15
3	Language and Writing Skills	15
Total No. of Lectures:		**45**

Sr. No.	Modules
1	**Presentation Skills & Group Communication**
	Presentations: (to be tested in tutorials only) 4 Principles of Effective Presentation Effective use of PPT Effective use of statistical tools How to make a Power-Point Presentation **Interviews:** Group Discussion Preparing for an Interview, Types of Interviews – Selection, Appraisal, Grievance, Exit **Meetings:** Need and Importance of Meetings, Conduct of Meeting and Group Dynamics Role of the Chairperson, Role of the Participants, Drafting of Notice, Agenda and Resolutions **Conference:** Meaning and Importance of Conference Organizing a **Public Relations:** Meaning, Functions of PR Department, External and Internal Measures of PR
2	**Business Correspondence**
	Trade Letters: Purchase Order, Credit and Status Enquiry, Collection Explain in detail along with the specimens. **Only following to be taught in detail:-** Letters of Inquiry, Letters of Complaints, Claims, , Sales Letters, promotional leaflets and fliers Consumer Grievance Letters, Letters under Right to Information(RTI) Act
3	**Language and Writing Skills**
	Reports: Parts, Types, Feasibility Reports, Investigative Reports **Summarization:** Identification of main and supporting/sub points Presenting these in a cohesive manner

AC: 14/07/2023

Language and Literature II

Question Paper Pattern
(Academic Year: 2023-2024)

Internal Examination & Semester End Examination – 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	Total marks
Synopsis of a Biography	20
Film/ Theatre review	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	A. Theory/ Concept based question B. Theory/ Concept based question **OR** C .Theory/ Concept based question	**6** **6** **12**	12
Q-2	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-3	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-4	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
Q-5	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	**6** **6** **12**	12
	Total		60

Reference Books (with Chapters):

1. Agarwal, Anju D(1989) A Practical Handbook for Consumers, IBH.
2. Alien, R.K.(1970) Organizational Management through Communication.
3. Ashley,A(1992) A Handbook Of Commercial Correspondence, Oxford University Press.
4. Aswathapa, K (1991)Organisational Behaviour, Himalayan Publication, Mumbai.
5. Atreya N and Guha (1994) Effective Credit Management, MMC School of Management, Mumbai.
6. Bahl,J.C. and Nagamia,S.M. (1974) Modern Business Correspondence and Minute Writing.
7. Balan,K.R. and Rayudu C.S. (1996) Effective Communication, Beacon New Delhi. • Bangh, LSue, Fryar,Maridell and Thomas David A. (1998) How to Write First Class Business Correspondence, N.T.C. Publishing Group USA.
8. Banerjee, Bani P (2005) Foundation of Ethics in Mangement Excel Books 10.Businessworld Special Collector's Issue: Ethics and the Manager
9. Barkar, Alan(1993) Making Meetings Work, Sterling Publications Pvt. Ltd., New Delhi.
10. Basu,C.R.(1998) Business Organisation and Management, T.M.H.New Delhi.
11. Benjamin, James (1993) Business and Professional Communication Concepts and Practices, Harper Collins College Publishers, New York.
12. Bhargava and Bhargava91971) Company Notices, Meetings and Regulations
13. Black, Sam (1972) Practical Public Relations, E.L.B.S. London.
14. BoveeCourtland,L and Thrill, John V(1989) Business Communication, Today McGraw Hill, New York, Taxman Publication.
15. Burton, G and Thakur, (1995) Management Today- Principles and Practices. T.M.H.,New Delhi.
16. Darrow, Richard, Forrstal, Dan and Coolman, Aubrey (1967) Public Relations Handbook, TheDartwell Co., Chicago.
17. Dayal, Ishwar(9810) Managing Large Organizations: A Comparative Study.
18. Drucher,P.F.((1970) Technology, Management and Society, Pan Books London.
19. Drucher,P.F.((1974)Management Responsibilities Practices, Heinemann, London. 22.Eyre, E.C. (1985) Effective Communication Made Simple, Rupa and Co.Calcutta.
20. Ecouse Barry, (1999), Competitive Communication: A Rhetoric for Modern Business, OUP.
21. Fisher Dalmar, (1999), Communication in Organisation, Jaico Pub House, Mumbai, Delhi.
22. Frailley, L.E. (1982) Handbook of Business Letters, Revised Edn. Prentice Hall Inc. French, Astrid (1993) Interpersonal Skills. Sterling Publishers, New Delhi.
23. 27 Fritzsche, David J (2005) Business Ethics: A Global and Managerial Perspective McGraw Hill
24. Garlside, L.E. (1980) Modern Business Correspondence, McDonald and Evans Ltd. Plymouth.
25. Ghanekar, A (1996) Communication Skill for Effective Management. Everest Publishing House, Pune.
26. Graves, Harold F. (1965) Report Writing, Prentice Hall, New Jersey.
27. Gupta, Anand Das (2010) Ethics, Business and Society: Managing Responsibly Response Books 32.Gupta, Dipankar (2006) Ethics Incorporated: Top Priority and Bottom Line Response Books
28. Krevolin, Nathan (1983) Communication Systems and Procedures for Modern Office, Prentice Hall, New Jersey.
29. Lesikar, Raymond V and Petit, John D.(1994) Business Communication: Theory and Application , Richard D. Irwin Inc. Ilinois.
30. Ludlow,Ron.(1995) The Essence of Effective Communication, Prentice , New Delhi.
31. 36.M. Ashraf, Rizvi (2006) Effective Technical Communication Tata McGraw Hill
32. Martson, John E. 1963) The Nature of Public Relations, McGraw Hill, New Delhi.
33. Majumdar,P.K.(1992) Commentary on the Consumer protection Act, Prentice, NewDelhi.

Syllabus of courses of FY B. Com Programme
(With effect from the Academic Year 2023-2024)

5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System
5.B Value Enhancement Course (VEC)
5.B.a Structure of Finance and Regulation (3 Credits)

Semester II

5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System	
5.B Value Enhancement Course (VEC)	
5.B.a Structure of Finance and Regulation	
Course Objectives and Course Outcomes	
Course Objectives	
CObj 1	To make the learners aware about the various aspects of globalization.
CObj 2	To make the learners aware about "The Great Recession."
CObj 3	To familiarize the learners with the concepts related to Global Financial Markets
CObj 4	To enable the learner to appreciate the role of governments in handling global crises
Course Outcomes	
COut 1	The learner understands the role of LPG and its impact
COut 2	The learners appreciates the role played by the government to counter the global financial crisis.
COut 3	The learner appreciates the role of the financial markets in ensuring the stable economy ofthe country
COut 4	The learner appreciates the role of the financial markets in ensuring the stable economy ofthe country.
COut 5	The learner understands concepts of Global financial systems
COut 6	The learner is aware of the Role of the financial markets in helping achieve a nation's objectives
COut 7	The learner understands the concepts of liberalization, privatization and globalization
COut 8	The learner gets a better understanding of the Insurance Core Principles
COut 9	The learner is able to evaluate the Role of World Bank, IMF, UN
COut 10	The learner gets good basics of the different participants in the financial markets

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Globalisation and India	15
2	Global Financial Markets	15
3	International Supervisors	15
Total No. of Lectures:		**45**

Sr. No.	Modules
1	**Globalisation and India**
	• Understanding the concepts of liberalization, privatization and globalization; • International Trade and its impact on business • Impact of globalization on industry: benefits from globalisation of business Free trade vs protection; WTO- impact on international trade.
2	**Global Financial Markets**
	• Global financial systems. • Development of financial systems and the factors affecting the stability of financialsystems. • The different participants in the financial markets. Role of the financial markets in helping achieve a nation's objectives
3	**International Supervisors**
	• Bank for International Settlements. • IAIS principles (Insurance Core Principles). • IOSCO principles. Role of multilateral organisations for supervision of financial markets e.g. World Bank, IMF, UN

AC: 14/07/2023

Structure of Finance and Regulation

Question Paper Pattern (Academic Year: 2023-2024)

Internal Examination & Semester End Examination - 100 Marks

A] Internals-40 Marks

Allocation of 40 Marks---Internal evaluation

Method of evaluation	Total marks
Assignments/Practicals	20
Power point presentations	20
TOTAL	**40**

B] Semester End Examination (SEE)- 60 Marks

Maximum Marks 60
Duration : 2 Hours
Note: 1) All questions are compulsory
2)Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	A. Theory/ Concept based question B. Theory/ Concept based question **OR** C .Theory/ Concept based question	6 6 12	12
Q-2	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	6 6 12	12
Q-3	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	6 6 12	12
Q-4	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	6 6 12	12
Q-5	A. Theory/Concept based question B. Theory/Concept based question **OR** C .Theory/Concept based question	6 6 12	12
	Total	**120**	**60**

Reference Books with Chapters) :

1. Mehta, P.L.: Managerial Economics –
   Analysis, Problem and Cases (S. Chand & Sons, N. Delhi).
2. Hirchey.M., Managerial Economics, Thomson South Western
3. Salvatore, D.: Managerial Economics in a global economy (Thomson South Western Singapore).
4. Frank R.H, Bernanke.B.S., Principles of Economics (Tata McGraw Hill).
5. Gregory Mankiw., Principles of Economics, Thomson South Western.
6. Samuelson & Nordhas.: Economics (Tata McGraw Hills, New Delhi).
7. Pal Sumitra, Managerial Economics cases and concepts (Macmillan, New Delhi).