Sem	Course No.	Course Name	Course type (T/L/P)	Hrs/Week Science: 4+2	Credits Science: 4+1	Max. Marks Cont/Internal/Mid Assessment	Max.marks Sem.End Exam
I	1	Problem Solving in C	T	4	4	25	75
		Problem Solving in C Lab	L	2	1	-	50
II	2	Data Structures using C	T	4	4	25	75
		Data Structures using C Lab	L	2	1	-	50

Sem	Course No.	Course Name	Course type (T/L/P)	Hrs/Week Science: 4+2	Credits Science: 4+1	Max. Marks Cont/Internal/Mid Assessment	Max.marks Sem.End Exam
III	3	Database Management System	T	4	4	25	75
		Database Management System Lab	L	2	1	-	50
IV	4	Object Oriented Programming usingJava	T	4	4	25	75
		Object Oriented Programmingusing Java Lab	L	2	1	-	50
	5	Operating Systems	T	4	4	25	75
		Operating Systems Lab using C/Java	L	2	1	-	50
V	6A	Web Interface Designing Technologies	T	4	4	25	75
		Web Interface Designing Technologies Lab	L	2	1	-	50
	7A	Web Applications Development using PHP&MYSQL	T	4	4	25	75
		Web Applications Development using PHP & MYSQL Lab	L	2	1	-	50
	6B	Internet of Things	T	4	4	25	75
		Internet of Things Lab	L	2	1	-	50
	7B	Application Development using Python	T	4	4	25	75
		Application Development Using Python Lab	L	2	1	-	50
	6C	Data science	T	4	4	25	75
		Data Science Lab	L	2	1	-	50
	7C	Python for Data science	T	4	4	25	75
		Python for Data Science Lab	L	2	1	-	50

Batch 2024-2028
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For I B.Sc., Maths, Phy, Chem, Computer Science, Elect and Data Science Major Programs
Course-1: Essentials and Applications of Mathematical, Physical and Chemical Sciences
SEMESTER-I

Hours: 5hrs/week   Credits: 4

Course Objective:

The objective of this course is to provide students with a comprehensive understanding of the essential concepts and applications of mathematical, physical, and chemical sciences. The course aims to develop students' critical thinking, problem-solving, and analytical skills in these areas, enabling them to apply scientific principles to real-world situations.

Learning outcomes:

1. Apply critical thinking skills to solve complex problems involving complex numbers, trigonometric ratios, vectors, and statistical measures.

2. To explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to connect their knowledge of physics to everyday situations

3. To explain the basic principles and concepts underlying a broad range of fundamental areas of chemistry and to connect their knowledge of chemistry to daily life.

4. Understand the interplay and connections between mathematics, physics, and chemistry in various applications. Recognize how mathematical models and physical and chemical

5. Principles can be used to explain and predict phenomena in different contexts.

6. To explore the history and evolution of the Internet and to gain an understanding of network security concepts, including threats, vulnerabilities, and countermeasures.

UNIT I: ESSENTIALS OF MATHEMATICS: 9hrs

Complex Numbers: Introduction of the new symbol i – General form of a complex number – Modulus- Amplitude form and conversions

Trigonometric Ratios: Trigonometric Ratios and their relations – Problems on calculation of angles
Vectors: Definition of vector addition – Cartesian form – Scalar and vector product and problems
Statistical Measures: Mean, Median, Mode of a data and problems

UNIT II: ESSENTIALS OF PHYSICS: 9hrs

Definition and Scope of Physics- Measurements and Units - Motion of objects: Newtonian Mechanics and relativistic mechanics perspective - Laws of Thermodynamics and Significance - Acoustic waves and electromagnetic waves- Electric and Magnetic fields and their interactions - Behaviour of atomic and

nuclear particles- Wave-particle duality, the uncertainty principle - Theories and understanding of universe

UNIT III: ESSENTIALS OF CHEMISTRY: 9hrs

Definition and Scope of Chemistry - Importance of Chemistry in daily life - Branches of chemistry and significance – PERIODIC TABLE:- Significance, Electronic Configuration, Periodic properties like Atomic size and Ionization potential and their trend. Types of chemical changes - Classification of matter; BIOMOLECULES:- Classification & Functions of Carbohydrates, Proteins, Fats & Vitamins.

UNIT IV: APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY: 9hrs

Applications of Mathematics in Physics & Chemistry: Calculus, Differential Equations & Complex Analysis

Application of Physics in Industry and Technology: Electronics and Semiconductor Industry, Robotics and Automation, Automotive and Aerospace Industries, Quality Control and Instrumentation, Environmental Monitoring and Sustainable Technologies.

Applications of Chemistry in Industry and Technology:

Chemical Manufacturing, Pharmaceuticals and Drug Discovery, Materials Science, Food and Beverage Industry

UNIT V: ESSENTIALS OF COMPUTER SCIENCE: 9 hrs

Milestones of Computer Evolution - Computer – Block Diagram, Generations of Computers; Internet Basics, history, Internet Service Providers, Types of Networks, IP, Domain Name Services, applications;

Ethical and social implications: Network and security concepts- Information Assurance Fundamentals, Cryptography - Symmetric and Asymmetric, Malware, Firewalls, Fraud Techniques- Privacy and Data Protection;

Recommended books:

1. Functions of one complex variable by John.B.Conway, Springer- Verlag.
2. Elementary Trigonometry by H.S.Hall and S.R.Knight
3. Vector Algebra by A. R. Vasishtha, Krishna Prakashan Media (P) Ltd.
4. Basic Statistics by B. L. Agarwal, New age international Publishers
5. University Physics with Modern Physics by Hugh D. Young and Roger A. Freedman
6. Fundamentals of Physics by David Halliday, Robert Resnick, and Jearl Walker
7. "Physics for Scientists and Engineers with Modern Physics" by Raymond A. Serway and John W. Jewett Jr.
8. Physics for Technology and Engineering" by John Bird
9. Chemistry in daily life by Kirpal Singh

10. Chemistry of bio molecules by S. P. Bhutan

11. Fundamentals of Computers by V. Raja Raman

12. Cyber Security Essentials by James Graham, Richard Howard, Ryan Olson

GUIDELINES TO THE PAPER SETTER
BLUE PRINT

Unit No.	Section-A MCQ's	Section-B Fill in the Blanks	Section-C Matching Questions
I	8	2	2
II	8	2	2
III	8	2	2
IV	8	2	2
V	8	2	2
Total	**40**	**10**	**10**

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Course-1: Essentials and Applications of Mathematical, Physical and Chemical Sciences
Semester End Examination Model Question paper
Course - 1
SEMESTER-I

Time: 3 Hours   Max. Marks: 60 M

SECTION-A

I. Answer All Multiple Choice Questions. Each one carries one mark.   40x1=40 M

Unit-1: Q.No 1 to Q.No. 8

Unit-II: Q.No 9 to Q.No. 16

Unit-III: Q.No 17 to Q.No.24

Unit-IV: Q.No 25 to Q.No.32

Unit-V: Q.No 33 to Q.No. 40

SECTION-B

II. Answer all fill in the blanks questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.41 and Q.No.42

Unit-II: Q.No.43 and Q.No.44

Unit-III: Q.No.45 and Q.No.46

Unit-IV: Q.No.47 and Q.No.48

Unit-V: Q.No.49 and Q.No.50

SECTION –C

III. Answer all Matching Questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.51 and Q.No.52

Unit-II: Q.No.53 and Q.No.54

Unit-III: Q.No.55 and Q.No.56

Unit-IV: Q.No.57 and Q.No.58

Unit-V: Q.No.59 and Q.No.60

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Course-1: Essentials and Applications of Mathematical, Physical and Chemical Sciences
Internal Assessment Examination Model Question Paper
Course - 1
SEMESTER-I

Time: 1.30 Hours   **Max. Marks: 28 M**

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   20x1=20 M

Unit-1: Q.No.1 to Q.No.4

Unit-II: Q.No.5 to Q.No.8

Unit-III: Q.No.9 to Q.No.12

Unit-IV: Q.No.13 to Q.No.16

Unit-V: Q.No.17 to Q.No.20

SECTION-B

II. Answer all fill in the blanks questions. Each one carries one mark.   4x1=4 M

Unit-1: Q.No.21

Unit-II: Q.No.22

Unit-III: Q.No.23

Unit-V: Q.No.24

SECTION –C

III. Answer all the Matching questions. Each one carries one mark.   4x1=4 M

Unit-1: Q.No.25

Unit-II: Q.No.26

Unit-III: Q.No.27

Unit-V: Q.No.28

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For I B.Sc., Maths, Physics, Chemistry, Computer Science and Electronics major Programs
Course-1: Essentials and Applications of Mathematical, Physical and Chemical Sciences
SEMESTER-I

Hours: 5hrs/week   **Credits: 4**

STUDENT ACTIVITIES:

UNIT I: ESSENTIALS OF MATHEMATICS:

1: Complex Number Exploration Provide students with a set of complex numbers in both rectangular and polar forms. They will plot the complex numbers on the complex plane and identify their properties

2: Trigonometric Ratios Problem Solving Give students a set of problems that require the calculation of trigonometric ratios and their relations. Students will solve the problems using the appropriate trigonometric functions (sine, cosine, tangent, etc.) and trigonometric identities.

3: Vector Operations and Applications Provide students with a set of vectors in Cartesian form. Students will perform vector addition and subtraction operations to find the resultant vectors. They will also calculate the scalar and vector products of given vectors.

4: Statistical Measures and Data Analysis Give students a dataset containing numerical values. Students will calculate the mean, median, and mode of the data, as well as other statistical measures if appropriate (e.g., range, standard deviation). They will interpret the results and analyze the central tendencies and distribution of the data.

UNIT II: ESSENTIALS OF PHYSICS:

Concept Mapping

Divide students into groups and assign each group one of the topics.

Students will create a concept map illustrating the key concepts, relationships, and applications related to their assigned topic.

Encourage students to use visual elements, arrows, and labels to represent connections and interdependencies between concepts.

Laboratory Experiment

Select a laboratory experiment related to one of the topics, such as motion of objects or electric and magnetic fields.

Provide the necessary materials, instructions, and safety guidelines for conducting the experiment.

Students will work in small groups to carry out the experiment, collect data, and analyze the results.

After the experiment, students will write a lab report summarizing their findings, observations, and conclusions.

UNIT III: ESSENTIALS OF CHEMISTRY

1: Chemistry in Daily Life Presentation

Divide students into groups and assign each group a specific aspect of daily life where chemistry plays a significant role, such as food and nutrition, household products, medicine, or environmental issues.

Students will research and create a presentation (e.g., PowerPoint, poster, or video) that showcases the importance of chemistry in their assigned aspect.

2: Periodic Table Exploration

Provide students with a copy of the periodic table.

Students will explore the periodic table and its significance in organizing elements based on their properties.

They will identify and analyze trends in atomic structure, such as electronic configuration, atomic size, and ionization energy.

3: Chemical Changes and Classification of Matter

Provide students with various substances and chemical reactions, such as mixing acids and bases or observing a combustion reaction.

Students will observe and describe the chemical changes that occur, including changes in color, temperature, or the formation of new substances.

4: Bio molecules Investigation

Assign each student or group a specific bio molecule category, such as carbohydrates, proteins, fats, or vitamins.

Students will research and gather information about their assigned bio molecule category, including its structure, functions, sources, and importance in the human body.

They can create informative posters or presentations to present their findings to the class.

UNIT IV: APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

1: Interdisciplinary Case Studies

Divide students into small groups and provide them with interdisciplinary case studies that involve the interdisciplinary application of mathematics, physics, and chemistry.

Each case study should present a real-world problem or scenario that requires the integration of concepts from all three disciplines.

2: Design and Innovation Project

Challenge students to design and develop a practical solution or innovation that integrates mathematics, physics, and chemistry principles.

Students can choose a specific problem or area of interest, such as renewable energy, environmental conservation, or materials science.

3: Laboratory Experiments

Assign students laboratory experiments that demonstrate the practical applications of mathematics, physics, and chemistry.

Examples include investigating the relationship between concentration and reaction rate, analyzing the behavior of electrical circuits, or measuring the properties of materials.

4: Mathematical Modelling

Present students with real-world problems that require mathematical modeling and analysis.

UNIT V: ESSENTIALS OF COMPUTER SCIENCE

Identifying the attributes of network (Topology, service provider, IP address and bandwidth of your college network) and prepare a report covering network architecture.

Identify the types of malwares and required firewalls to provide security.

Latest Fraud techniques used by hackers;

Batch 2024-2028
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.A., Hon's in Political Science under CBCS w.e.f A.Y. 2023-2024
For I B.A., Political Science, History and Economics Major programs
Paper-1: Fundamentals of Social Sciences
SEMESTER-I

Hours: 5hrs/week   **Credits: 4**

Learning objectives: The student will be able to understand the nature, various approaches, and organs of the state, social perspectives and application of ICT.

Learning Outcomes: On successful completion of the course the student will be able to:

1. Learn about the nature and importance of social science.

2. Understand the Emergence of Culture and History

3. Know the psychological aspects of social behavior

4. Comprehend the nature of Polity and Economy

5. Knowledge on application of computer technology

Unit – I: What is Social Science?

1. Definition and Scope of Social Science – Different Social Sciences

2. Distinction between Natural Science and Social Sciences

3. Interdisciplinary Nature of Social Sciences

4. Methods and Approaches of Social Sciences

Unit -II: Understanding History and Society

1. Defining History, Its Nature and Scope

2. History- A Science or an Art

3. Importance of History in the Present Society

4. Types of History and Chronology of Indian History

Unit – III: Society and Social Behaviour

1. Definition , Nature and Scope of Psychology

2. Importance of Social Interaction

3. Need of Psychology for present Society

4. Thought process and Social Behavior

Unit – IV: Political Economy

1. Understanding Political Systems

2. Political Systems – Organs of State

3. Understanding over Economics - Micro and Macro concepts

4. Economic Growth and Development - Various aspects of development

Unit – V: Essentials of Computer

1. Milestones of Computer Evolution - Computer – Block Diagram, Generations of Computers

2. Internet Basics – Internet History, Internet Service Providers – Types of Networks – IP – Domain Name Services – Applications

3. Ethical and Social Implications – Network and Security concepts – Information assurance fundamentals

4. Cryptography – Symmetric and Asymmetric –malware – Fire walls – Fraud Techniques – Privacy and Data Protection

Reference Books:

1. The social sciences: An Integrated Approach by James M. Henslin and Danniel F.Chambliss
2. The Wonder that was India – A.L.Bhasham
3. Introduction to Psychology – Morgan and King
4. Principles of Political Science – A.C. Kapoor
5. Contemporary Political Theory – J.C.Johari
6. M.L.Jhingan – Economic Development – Vikas, 2012
7. ML Seth – Macro Economics - Lakshminarayana Agarawal, 2015
8. Fundamentals of Computers by V. Raja Raman
9. Cyber Security Essentials by James Graham, Richard Howard, Ryan Olson

GUIDELINES TO THE PAPER SETTER

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Unit No.	Section-A Multiple Choice Questions	Section-B Fill in the Blanks	Section-C Matching Questions
I	8	2	2
II	8	2	2
III	8	2	2
IV	8	2	2
V	8	2	2
Total	**40**	**10**	**10**

Time: 3 Hours   **Max. Marks: 60 M**

SECTION-A

I. Answer All Multiple Choice Questions. Each one carries one mark.   **40 x 1=40 M**

Unit-1: Q.No 1 to Q.No. 8

Unit-II: Q.No 9 to Q.No. 16

Unit-III: Q.No 17 to Q.No.24

Unit-IV: Q.No 25 to Q.No.32

Unit-V: Q.No 33 to Q.No. 40

SECTION-B

II. Answer all fill in the blanks questions. Each one carries one mark.   **10 x 1=10 M**

Unit-1: Q.No.41 and Q.No.42

Unit-II: Q.No.43 and Q.No.44

Unit-III: Q.No.45 and Q.No.46

Unit-IV: Q.No.47 and Q.No.48

Unit-V: Q.No.49 and Q.No.50

SECTION –C

III. Answer all Matching Questions. Each one carries one mark.   **10 x 1=10 M**

Unit-1: Q.No.51 and Q.No.52

Unit-II: Q.No.53 and Q.No.54

Unit-III: Q.No.55 and Q.No.56

Unit-IV: Q.No.57 and Q.No.58

Unit-V: Q.No.59 and Q.No.60

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I B.A., Hon's in Political Science under CBCS w.e.f A.Y. 2023-2024
For I B.A., Political Science, History and Economics Major programs
Paper-1: Fundamentals of Social Sciences
Internal Assessment Examination Model Question Paper
SEMESTER-I

Time: 1.30 Hours   Max. Marks: 28 M

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   20x1=20 M

Unit-1: Q.No.1 to Q.No.4

Unit-II: Q.No.5 to Q.No.8

Unit-III: Q.No.9 to Q.No.12

Unit-IV: Q.No.13 to Q.No.16

Unit-V: Q.No.17 to Q.No.20

SECTION-B

II. Answer all fill in the blanks questions. Each one carries one mark.   4x1=4 M

Unit-1: Q.No.21

Unit-II: Q.No.22

Unit-III: Q.No.23

Unit-V: Q.No.24

SECTION –C

III. Answer all the Matching questions. Each one carries one mark.   4x1=4 M

Unit-1: Q.No.25

Unit-II: Q.No.26

Unit-III: Q.No.27

Unit-V: Q.No.28

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For I B.A.., Political Science, History and Economics major Programs
Paper-1: Fundamentals of Social Sciences
SEMESTER-I

Hours: 5hrs/week   **Credits: 4**

Activities:

1. Group Project Work

2. PPT Presentation, Participation in Webinars

3. Field visits

4. Group Discussion

5. Survey and Analysis

6. Charts and Poster presentation

7. Identifying the attributes of network (Topology, service provider, IP address and bandwidth of your college network) and prepare a report covering network architecture.

8. Identify the types of malwares and required firewalls to provide security.

9. Latest Fraud techniques used by hackers.

Batch 2024-2028
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I B.Sc., Hon's in Geography under CBCS w.e.f A.Y. 2023-2024
For I B.Sc., Hon's in Geography Major Program
Course-1: Essentials and Applications of Mathematical, Physical and Chemical Sciences
SEMESTER-I

Hours: 5hrs/week   **Credits: 4**

Course Objective:

The objective of this course is to provide students with a comprehensive understanding of the essential concepts and applications of mathematical, physical, and chemical sciences. The course aims to develop students' critical thinking, problem-solving, and analytical skills in these areas, enabling them to apply scientific principles to real-world situations.

Learning outcomes:

1. Apply critical thinking skills to solve complex problems involving complex numbers, trigonometric ratios, vectors, and statistical measures.
2. To explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to connect their knowledge of physics to everyday situations
3. To explain the basic principles and concepts underlying a broad range of fundamental areas of chemistry and to connect their knowledge of chemistry to daily life.
4. Understand the interplay and connections between mathematics, physics, and chemistry in various applications. Recognize how mathematical models and physical and chemical
5. Principles can be used to explain and predict phenomena in different contexts.
6. To explore the history and evolution of the Internet and to gain an understanding of network security concepts, including threats, vulnerabilities, and countermeasures.

UNIT I: ESSENTIALS OF MATHEMATICS: **9hrs**

Complex Numbers: Introduction of the new symbol i – General form of a complex number – Modulus- Amplitude form and conversions

Trigonometric Ratios: Trigonometric Ratios and their relations – Problems on calculation of angles Vectors: Definition of vector addition – Cartesian form – Scalar and vector product and problems Statistical Measures: Mean, Median, Mode of a data and problems

UNIT II: ESSENTIALS OF PHYSICS: **9hrs**

Definition and Scope of Physics- Measurements and Units - Motion of objects: Newtonian Mechanics and relativistic mechanics perspective - Laws of Thermodynamics and Significance - Acoustic waves and electromagnetic waves- Electric and Magnetic fields and their interactions - Behaviour of atomic and

nuclear particles- Wave-particle duality, the uncertainty principle - Theories and understanding of universe

UNIT III: ESSENTIALS OF CHEMISTRY: 9hrs

Definition and Scope of Chemistry - Importance of Chemistry in daily life - Branches of chemistry and significance – PERIODIC TABLE:- Significance, Electronic Configuration, Periodic properties like Atomic size and Ionization potential and their trend. Types of chemical changes - Classification of matter; BIOMOLECULES:- Classification & Functions of Carbohydrates, Proteins, Fats & Vitamins.

UNIT IV: ESSENTIALS OF GEOGRAPHY 9hrs

Geography – definition, Nature and Scope of Physical geography;

Geography – Interaction with other Sciences;

Interior of the earth

Environment and Natural Resources;

Introduction to Remote Sensing – Definition, History and advantages

UNIT V: ESSENTIALS OF COMPUTER SCIENCE: 9 hrs

Milestones of Computer Evolution - Computer – Block Diagram, Generations of Computers; Internet Basics, history, Internet Service Providers, Types of Networks, IP, Domain Name Services, applications;

Ethical and social implications: Network and security concepts- Information Assurance Fundamentals, Cryptography - Symmetric and Asymmetric, Malware, Firewalls, Fraud Techniques-Privacy and Data Protection;

Recommended books:
1. Functions of one complex variable by John. B. Conway, Springer- Verlag.
2. Elementary Trigonometry by H. S. Hall and S. R. Knight
3. Vector Algebra by A. R. Vasishtha, Krishna Prakashan Media (P) Ltd. .
4. Basic Statistics by B. L. Agarwal, New age international Publishers
5. University Physics with Modern Physics by Hugh D. Young and Roger A. Freedman
6. Fundamentals of Physics by David Halliday, Robert Resnick, and Jearl Walker
7. "Physics for Scientists and Engineers with Modern Physics" by Raymond A. Serway and John W. Jewett Jr.
8. Physics for Technology and Engineering" by John Bird
9. Chemistry in daily life by Kirpal Singh
10. Chemistry of bio molecules by S. P. Bhutan
11. Strahler, AH, and StrahlerAn (1971) Physical Geography, Wiley Eastren, New Delhi
12. John R Jenson 2009, Remote Sensing of the Environment, Pearson Education, New Delhi
13. Fundamentals of Computers by V. Raja Raman

14. Cyber Security Essentials by James Graham, Richard Howard, Ryan Olson

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Unit No.	Section-A Multiple Choice Questions	Section-B Fill in the Blanks	Section-C Matching Questions
I	5	1	1
II	5	1	1
III	5	1	1
IV	20	6	6
V	5	1	1
Total	**40**	**10**	**10**

SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.Sc., Hon's under CBCS w.e.f A.Y. 2023-2024
For I Semester Geography major
Course-1: Essentials and Applications of Mathematical, Physical and Chemical Sciences
Semester End Examination Model Question paper
Course - 1
SEMESTER-I

Time: 3 Hours   Max.Marks: 60 M

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   40x1=40 M

Unit-1: Q.No.1 to Q.No.5

Unit-II: Q.No.6 to Q.No.10

Unit-III: Q.No.11 to Q.No.15

Unit-IV: Q.No.16 to Q.No.35

Unit-V: Q.No.36 to Q.No.40

SECTION-B

II. Answer all fill in the Blanks questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.41

Unit-II: Q.No.42

Unit-III: Q.No.43

Unit-IV: Q.No.44 to Q.No.49

Unit-V: Q.No.50

SECTION –C

III. Answer all the Match questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.51

Unit-II: Q.No.52

Unit-III: Q.No.53

Unit-IV: Q.No.54 to Q.No.59

Unit-V: Q.No.60

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For I Semester Geography major
Course-1: Essentials and Applications of Mathematical, Physical and Chemical Sciences
Internal Assessment Examination Model Question Paper
Course - 1
SEMESTER-I

Time: 1.30 Hours   **Max.Marks: 28 M**

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   20x1=20 M

Unit-1: Q.No.1 and Q.No.2

Unit-II: Q.No.3 and Q.No.4

Unit-III: Q.No.5 and Q.No.6

Unit-IV: Q.No.7 to Q.No.18

Unit-V: Q.No.19 and Q.No.20

SECTION-B

II. Answer all fill in the Blanks questions. Each one carries one mark.   4x1=4 M

Unit-II: Q.No.21

Unit-III: Q.No.22

Unit-IV: Q.No.23

Unit-V: Q.No.24

SECTION –C

III. Answer all the Match questions. Each one carries one mark.   4x1=4 M

Unit-II: Q.No.25

Unit-III: Q.No.26

Unit-IV: Q.No.27

Unit-V: Q.No.28

Batch 2024-2028
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I B.Sc., Hon's (Computer Science Major) under CBCS w.e.f A.Y. 2023-2024
For I B.Sc., Maths, Phy, Chem, Computer Science, Elect and Data Science Major Programs
Course -2: Advances in Mathematical, Physical and Chemical Sciences
SEMESTER-I

Hours: 5hrs/week   **Credits: 4**

Course Objective:

The objective of this course is to provide students with an in-depth understanding of the recent advances and cutting-edge research in mathematical, physical, and chemical sciences. The course aims to broaden students' knowledge beyond the foundational concepts and expose them to the latest developments in these disciplines, fostering critical thinking, research skills, and the ability to contribute to scientific advancements.

Learning outcomes:

Explore the applications of mathematics in various fields of physics and chemistry, to understand how mathematical concepts are used to model and solve real-world problems.

To Explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations.

Understand the different sources of renewable energy and their generation processes and advances in nanomaterials and their properties, with a focus on quantum dots. To study the emerging field of quantum communication and its potential applications. To gain an understanding of the principles of biophysics in studying biological systems. Explore the properties and applications of shape memory materials.

Understand the principles and techniques used in computer-aided drug design and drug delivery systems, to understand the fabrication techniques and working principles of nanosensors. Explore the effects of chemical pollutants on ecosystems and human health.

Understand the interplay and connections between mathematics, physics, and chemistry in various advanced applications. Recognize how mathematical models and physical and chemical principles can be used to explain and predict phenomena in different contexts.

Understand and convert between different number systems, such as binary, octal, decimal, and hexadecimal. Differentiate between analog and digital signals and understand their characteristics.Gain knowledge of different types of transmission media, such as wired (e.g., copper cables, fiber optics) and wireless (e.g., radio waves, microwave, satellite)..

UNIT I: ADVANCES IN BASICS MATHEMATICS: 9hrs

Straight Lines: Different forms − Reduction of general equation into various forms −Point of intersection of two straight lines

Limits and Differentiation: Standard limits – Derivative of a function –Problems on product rule and quotient rule

Integration: Integration as a reverse process of differentiation – Basic methods of integration

Matrices: Types of matrices – Scalar multiple of a matrix – Multiplication of matrices – Transpose of a matrix and determinants

UNIT II: ADVANCES IN PHYSICS: 9hrs

Renewable energy: Generation, energy storage, and energy-efficient materials and devices. Recent advances in the field of nanotechnology: Quantum dots, Quantum Communication- recent advances in biophysics- recent advances in medical physics- Shape Memory Materials.

UNIT III: ADVANCES IN CHEMISTRY: 9hrs

Computer aided drug design and delivery, Nanosensors, Chemical Biology, impact of chemical pollutants on ecosystems and human health, Dye removal - Catalysis method

UNIT IV: ADVANCED APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY   9hrs

Mathematical Modelling applications in physics and chemistry Application of Renewable energy: Grid Integration and Smart Grids, Application of nanotechnology: Nanomedicine,

Application of biophysics: Biophysical Imaging, Biomechanics, Neurophysics,

Application of medical physics: Radiation Therapy, Nuclear medicine

Solid waste management, Environmental remediation- Green Technology, Water treatment

UNIT V: Advanced Applications of Computer Science   9hrs

Number System-Binary, Octal, decimal, and Hexadecimal, Signals-Analog, Digital, Modem, Codec, Multiplexing, Transmission media, error detection and correction- Parity check and CRC, Networking devices- Repeater, hub, bridge, switch, router, gateway.

Recommended books:

1. Coordinate Geometry by S.L.Lony, Arihant Publications

2. Calculus by Thomas and Finny, Pearson Publications

3. Matrices by A.R.Vasishtha and A.K.Vasishtha, Krishna Prakashan Media(P)Ltd.

4. "Renewable Energy: Power for a Sustainable Future" by Godfrey Boyle

5. "Energy Storage: A Nontechnical Guide" by Richard Baxter

6. "Nanotechnology: Principles and Applications" by Sulabha K. Kulkarni and Raghvendra A. Bohara

7. "Biophysics: An Introduction" by Rodney Cotterill

8. "Medical Physics: Imaging" by James G. Webster

9. "Shape Memory Alloys: Properties and Applications" by Dimitris C. Lagoudas

10. Nano materials and applications by M.N.Borah

11. Environmental Chemistry by Anil.K.D.E.

12. Digital Logic Design by Morris Mano

13. Data Communication & Networking by Bahrouz Forouzan.

GUIDELINES TO THE PAPER SETTER
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Unit No.	Section - A MCQ's	Section - B Fill in the blanks	Section - C Matching Questions
I	8	2	2
II	8	2	2
III	8	2	2
IV	8	2	2
V	8	2	2
Total	40	10	10

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Batch 2024-2028
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.Sc., Hon's under CBCS w.e.f A.Y. 2023-2024
For I B.Sc., Maths, Phy, Chem, Computer Science, Elect and Data Science Major Programs
Course-2: Advances of Mathematical, Physical and Chemical Sciences
Semester End Examination Model Question paper
Course-2
SEMESTER-I

Time: 3 Hours   Max. Marks: 60 M

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   40x1=40 M

Unit-1: Q.No.1 to Q.No.8

Unit-II: Q.No.9 to Q.No.16

Unit-III: Q.No.17 to Q.No.24

Unit-IV: Q.No.25 to Q.No.32

Unit-V: Q.No.33 to Q.No.40

SECTION-B

II. Answer all fill in the blanks questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.41 and Q.No.42

Unit-II: Q.No.43 and Q.No.44

Unit-III: Q.No.45 and Q.No.46

Unit-IV: Q.No.47 and Q.No.48

Unit-V: Q.No.49 and Q.No.50

SECTION –C

III. Answer all the Matching questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.51 and Q.No.52

Unit-II: Q.No.53 and Q.No.54

Unit-III: Q.No.55 and Q.No.56

Unit-IV: Q.No.57 and Q.No.58

Unit-V: Q.No.59 and Q.No.60

Course-2: Advances of Mathematical, Physical and Chemical Sciences
Internal Assessment Examination Model Question Paper
Course - 2
SEMESTER-I

Time: 1.30 Hours   Max. Marks: 28 M

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   20x1=20 M

Unit-1: Q.No.1 to Q.No.4

Unit-II: Q.No.5 to Q.No.8

Unit-III: Q.No.9 to Q.No.12

Unit-IV: Q.No.13 to Q.No.16

Unit-V: Q.No.17 to Q.No.20

SECTION-B

II. Answer all fill in the blanks questions. Each one carries one mark.   4x1=4 M

Unit-1: Q.No.21

Unit-II: Q.No.22

Unit-III: Q.No.23

Unit-V: Q.No.24

SECTION –C

III. Answer all the Matching questions. Each one carries one mark.   4x1=4 M

Unit-1: Q.No.25

Unit-II: Q.No.26

Unit-III: Q.No.27

Unit-V: Q.No.28

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For I B.Sc., Maths, Physics, Chemistry, Computer Science, Electronics major Programs
Course-2: Advances in Mathematical, Physical and Chemical Sciences
SEMESTER-I

Hours: 5hrs/week   **Credits: 4**

STUDENT ACTIVITIES

UNIT I: ADVANCES IN BASIC MATHEMATICS

1. Straight Lines Exploration Provide students with a set of equations representing straight lines in different forms, such as slope-intercept form, point-slope form, or general form. Students will explore the properties and characteristics of straight lines, including their slopes, intercepts, and point of intersection.

2. Limits and Differentiation Problem Solving Students will apply the concept of limits to solve various problems using standard limits. Encourage students to interpret the results and make connections to real-world applications, such as analyzing rates of change or optimizing functions.

3. Integration Exploration Students will explore the concept of integration as a reverse process of differentiation and apply basic methods of integration, such as the product rule, substitution method, or integration by parts. Students can discuss the significance of integration in various fields, such as physics and chemistry

4. Matrices Manipulation Students will perform operations on matrices, including scalar multiplication, matrix multiplication, and matrix transpose.

Students can apply their knowledge of matrices to real-world applications, such as solving systems of equations or representing transformations in geometry.

UNIT II: ADVANCES IN PHYSICS:

1. Case Studies

Provide students with real-world case studies related to renewable energy, nanotechnology, biophysics, medical physics, or shape memory materials.

Students will analyze the case studies, identify the challenges or problems presented, and propose innovative solutions based on the recent advances in the respective field.

They will consider factors such as energy generation, energy storage, efficiency, sustainability, materials design, biomedical applications, or technological advancements.

2. Experimental Design

Assign students to design and conduct experiments related to one of the topics: renewable energy, nanotechnology, biophysics, medical physics, or shape memory materials.

They will identify a specific research question or problem to investigate and design an experiment accordingly. Students will collect and analyze data, interpret the results, and draw conclusions based on their findings.

They will discuss the implications of their experimental results in the context of recent advances in the field.

3. Group Discussion and Debate

Organize a group discussion or debate session where students will discuss the ethical, social, and environmental implications of the recent advances in renewable energy, nanotechnology, biophysics, medical physics, and shape memory materials.

Assign students specific roles, such as proponent, opponent, or moderator, and provide them with key points and arguments to support their positions.

UNIT III: ADVANCES IN CHEMISTRY:

Experimental Design and Simulation

In small groups, students will design experiments or simulations related to the assigned topic.

For example, in the context of computer-aided drug design, students could design a virtual screening experiment to identify potential drug candidates for a specific disease target.

For nano sensors, students could design an experiment to demonstrate the sensitivity and selectivity of nano sensors in detecting specific analytes.

Chemical biology-related activities could involve designing experiments to study enzyme- substrate interactions or molecular interactions in biological systems.

Students will perform their experiments or simulations, collect data, analyze the results, and draw conclusions based on their findings.

Case Studies and Discussion

Provide students with real-world case studies related to the impact of chemical pollutants on ecosystems and human health.

Students will analyze the case studies, identify the sources and effects of chemical pollutants, and propose mitigation strategies to minimize their impact.

Encourage discussions on the ethical and environmental considerations when dealing with chemical pollutants.

For the dye removal using the catalysis method, students can explore case studies where catalytic processes are used to degrade or remove dyes from wastewater.

Students will discuss the principles of catalysis, the advantages and limitations of the catalysis method, and its applications in environmental remediation.

3. Group Project

Assign students to work in groups to develop a project related to one of the topics.

The project could involve designing a computer-aided drug delivery system, developing a nano sensor for a specific application, or proposing strategies to mitigate the impact of chemical pollutants on ecosystems.

Students will develop a detailed project plan, conduct experiments or simulations, analyze data, and present their findings and recommendations.

Encourage creativity, critical thinking, and collaboration throughout the project.

UNIT IV: ADVANCED APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

1. Mathematical Modelling Experiment

Provide students with a mathematical modelling experiment related to one of the topics. For example, in the context of renewable energy, students can develop a mathematical model to optimize the placement and configuration of solar panels in a solar farm.

Students will work in teams to design and conduct the experiment, collect data, and analyze the results using mathematical models and statistical techniques.

They will discuss the accuracy and limitations of their model, propose improvements, and interpret the implications of their findings in the context of renewable energy or the specific application area.

2. Case Studies and Group Discussions

Assign students to analyze case studies related to the applications of mathematical modelling in nanotechnology, biophysics, medical physics, solid waste management, environmental remediation, or water treatment.

Students will discuss the mathematical models and computational methods used in the case studies, analyze the outcomes, and evaluate the effectiveness of the modelling approach.

Encourage group discussions on the challenges, ethical considerations, and potential advancements in the field. Students will present their findings and engage in critical discussions on the advantages and limitations of mathematical modelling in solving complex problems in these areas.

Group Project

Assign students to work in groups to develop a group project that integrates mathematical modelling with one of the application areas: renewable energy, nanotechnology, biophysics, medical physics, solid waste management, environmental remediation, or water treatment.

The project could involve developing a mathematical model to optimize the delivery of radiation therapy in medical physics or designing a mathematical model to optimize waste management practices.

Students will plan and execute their project, apply mathematical modelling techniques, analyze the results, and present their findings and recommendations.

Encourage creativity, critical thinking, and collaboration throughout the project.

UNIT V: Advanced Applications of computer Science

Students must be able to convert numbers from other number system to binary number systems

Identify the networking media used for your college network

Identify all the networking devices used in your college premises.

Batch 2024-2028
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I B.A., Hon's in Political Science under CBCS w.e.f A.Y. 2023-2024
For I B.A., Hon's in Political Science, History, and Economics major Programs
Paper-II: Perspectives on Indian Society
SEMESTER-I

Hours: 5hrs/week   **Credits: 4**

Learning objectives: The student is expected to demonstrate the significance of social sciences through better understanding of various fields of social experience and would be able to apply methods and approaches to social phenomena.

Learning Outcomes: On successful completion of the course the student will be able to:

1. Learn about the significance of human behavior and social dynamics.

2. Remembers the Indian Heritage and freedom struggle

3. Comprehend the philosophical foundations of Indian Constitution

4. Knowledge on Indian Economy

Unit-1: Man in Society

1. Human Nature and Real-Life Engagement

2. Social Groups and Social Dynamics

3. Individualism and Collectivism – Ethical Concerns

4. Human Life – Social Influence and Social Impact

Unit -2: Indian Heritage and Freedom Struggle in India

1. Cultural & Heritage sites of Tourism in India

2. Indian Dance, Music and Yoga

3. Rise of Nationalism Under British Rule in brief (1857-1947)

4. Contemporary history of India-integration of Princely States, abolition of Zamindari, formation of linguistic states

Unit –3: Indian Constitution

1. Philosophical Foundations of Indian Constitution

2. Elements of Indian Constitution

3. Study of Rights in Indian Constitution

4. Directive principles to State

Unit –4: Indian Economy

1. Indian Economy - Features – Sectoral contribution in income

2. Role of Financial Institutions - RBI - Commercial Banks

3. Monetary and Fiscal Policies for Economic Development

4. Economic Reforms - Liberalization - Privatization- Globalization

Unit –5: Impact on Society & Analytics

1. Role of Computer, impact of Computers on human behavior, e-mail
2. Social Networking- WhatsApp, Twitter, face book, impact of Social Networks on human behavior.
3. Simulating, Modeling, and Planning, Managing Data, Graphing, Analyzing, Quantitative Data,
4. Expert Systems and Artificial Intelligence Applications in the Social Sciences

References:

1. Introduction to Psychology – Atkinson RC
2. History of the freedom movement in India – Tarachand
3. India since Independence – Bipinchandra
4. Introduction to the Constitution of India D.D.Basu
5. S.K Misra & V.K Puri – Indian Economy, Himalaya Publishing House , 2015
6. Government of India, Economic Survey (Annual), New Delhi
7. Information and Communication Technology by APCCE
8. Computer Applications in the Social Sciences by Edward E. Brent, Jr. and Ronald E. Anderson

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Unit No.	Section-A Multiple Choice Questions	Section-B Fill in the Blanks	Section-C Matching Questions
I	8	2	2
II	8	2	2
III	8	2	2
IV	8	2	2
V	8	2	2
Total	40	10	10

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For I B.A., Hon's in Political Science, History, and Economics major Programs
Paper-II: Perspectives on Indian Society
Semester End Examination Model Question Paper
SEMESTER-I

Time: 3 Hours   **Max. Marks: 60 M**

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   40x1=40 M

Unit-1: Q.No.1 to Q.No.8

Unit-II: Q.No.9 to Q.No.16

Unit-III: Q.No.17 to Q.No.24

Unit-IV: Q.No.25 to Q.No.32

Unit-V: Q.No.33 to Q.No.40

SECTION-B

II. Answer all fill in the blanks questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.41 and Q.No.42

Unit-II: Q.No.43 and Q.No.44

Unit-III: Q.No.45 and Q.No.46

Unit-IV: Q.No.47 and Q.No.48

Unit-V: Q.No.49 and Q.No.50

SECTION –C

III. Answer all the Matching questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.51 and Q.No.52

Unit-II: Q.No.53 and Q.No.54

Unit-III: Q.No.55 and Q.No.56

Unit-IV: Q.No.57 and Q.No.58

Unit-V: Q.No.59 and Q.No.60

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For I B.A., Hon's in Political Science, History, and Economics major Programs
Paper-II: Perspectives on Indian Society
Internal Assessment Examination Model paper
SEMESTER-I

Time: 1.30 Hours   **Max. Marks: 28 M**

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   20x1=20 M

Unit-1: Q.No.1 to Q.No.4

Unit-II: Q.No.5 to Q.No.8

Unit-III: Q.No.9 to Q.No.12

Unit-IV: Q.No.13 to Q.No.16

Unit-V: Q.No.17 to Q.No.20

SECTION-B

II. Answer all fill in the blanks questions. Each one carries one mark.   4x1=4 M

Unit-1: Q.No.21

Unit-II: Q.No.22

Unit-III: Q.No.23

Unit-V: Q.No.24

SECTION –C

III. Answer all the Matching questions. Each one carries one mark.   4x1=4 M

Unit-1: Q.No.25

Unit-II: Q.No.26

Unit-III: Q.No.27

Unit-V: Q.No.28

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For I B.A., Hon's in Political Science, History, and Economics major programs
Paper-II: Perspectives on Indian Society
SEMESTER-I

Hours: 5hrs/week **Credits: 4**

Activities:

1. Assignment

2. PPT Presentation, Participation in Webinars

3. Field visits

4. Group Discussion

5. Survey and Analysis

6. Charts and Poster presentation

7. Identify the peripherals connected to a system and label them as either Input or Output or both.

8. Identify the Operating System loaded in your system and compare the features with other existing Operating System.

9. Collect latest census data and draw a graph indicating the growth rate.

10. Predicting the risk of depression, substance dependency, drinking, obsessive compulsive disorders, and suicide using AI.

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I B.Sc., Hon's in Geography under CBCS w.e.f A.Y. 2023-2024
For I B.Sc., Geography major program
Course -2: Advances in Mathematical, Physical and Chemical Sciences
SEMESTER-I

Hours: 5hrs/week   **Credits: 4**

Course Objective:

The objective of this course is to provide students with an in-depth understanding of the recent advances and cutting-edge research in mathematical, physical, and chemical sciences. The course aims to broaden students' knowledge beyond the foundational concepts and expose them to the latest developments in these disciplines, fostering critical thinking, research skills, and the ability to contribute to scientific advancements.

Learning outcomes:

Explore the applications of mathematics in various fields of physics and chemistry, to understand how mathematical concepts are used to model and solve real-world problems.

To Explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations.

Understand the different sources of renewable energy and their generation processes and advances in nanomaterials and their properties, with a focus on quantum dots. To study the emerging field of quantum communication and its potential applications. To gain an understanding of the principles of biophysics in studying biological systems. Explore the properties and applications of shape memory materials.

Understand the principles and techniques used in computer-aided drug design and drug delivery systems, to understand the fabrication techniques and working principles of nanosensors. Explore the effects of chemical pollutants on ecosystems and human health.

Understand the interplay and connections between mathematics, physics, and chemistry in various advanced applications. Recognize how mathematical models and physical and chemical principles can be used to explain and predict phenomena in different contexts.

Understand and convert between different number systems, such as binary, octal, decimal, and hexadecimal. Differentiate between analog and digital signals and understand their characteristics. Gain knowledge of different types of transmission media, such as wired (e.g., copper cables, fiber optics) and wireless (e.g., radio waves, microwave, satellite)..

UNIT I: ADVANCES IN BASICS MATHEMATICS: 9hrs

Straight Lines: Different forms – Reduction of general equation into various forms –Point of intersection of two straight lines

Limits and Differentiation: Standard limits – Derivative of a function –Problems on product rule and quotient rule

Integration: Integration as a reverse process of differentiation – Basic methods of integration

Matrices: Types of matrices – Scalar multiple of a matrix – Multiplication of matrices – Transpose of a matrix and determinants

UNIT II: ADVANCES IN PHYSICS: 9hrs

Renewable energy: Generation, energy storage, and energy-efficient materials and devices. Recent advances in the field of nanotechnology: Quantum dots, Quantum Communication- recent advances in biophysics- recent advances in medical physics- Shape Memory Materials.

UNIT III: ADVANCES IN CHEMISTRY: 9hrs

Computer aided drug design and delivery, Nanosensors, Chemical Biology, impact of chemical pollutants on ecosystems and human health, Dye removal - Catalysis method

UNIT IV: ADVANCED APPLICATIONS OF GEOGRAPHY   9hrs

Urban planning and settlements – Rural and urban

Human adoption to the environment- Eskimos, Bushmen, Goands and Gujjars

Classification of Economic activities – Primary, Secondary, Teritiary and Quaternary

Types of Migrations –

Geographical Information System (GIS) – Definition and advantages

UNIT V: Advanced Applications of Computer Science   9hrs

Number System-Binary, Octal, decimal, and Hexadecimal, Signals-Analog, Digital, Modem, Codec, Multiplexing, Transmission media, error detection and correction- Parity check and CRC, Networking devices- Repeater, hub, bridge, switch, router, gateway.

Recommended books:

1. Coordinate Geometry by S.L.Lony, Arihant Publications
2. Calculus by Thomas and Finny, Pearson Publications
3. Matrices by A.R.Vasishtha and A.K.Vasishtha, Krishna Prakashan Media(P)Ltd.
4. "Renewable Energy: Power for a Sustainable Future" by Godfrey Boyle
5. "Energy Storage: A Nontechnical Guide" by Richard Baxter
6. "Nanotechnology: Principles and Applications" by Sulabha K. Kulkarni and Raghvendra A. Bohara

7. "Biophysics: An Introduction" by Rodney Cotterill
8. "Medical Physics: Imaging" by James G. Webster
9. "Shape Memory Alloys: Properties and Applications" by Dimitris C. Lagoudas
10. Nano materials and applications by M.N.Borah
11. Environmental Chemistry by Anil.K.D.E.
12. M.Anjireddy 2009, Text book of R S and Geographical Information Systems, BS Publications, Hyderabad
13. Wheelar Jetal, 1995. Economic Geography, John Wiley- New York
14. Digital Logic Design by Morris Mano
15. Data Communication & Networking by Bahrouz Forouzan.

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Unit No.	Section-A Multiple Choice Questions	Section-B Fill in the Blanks	Section-C Matching Questions
I	5	1	1
II	5	1	1
III	5	1	1
IV	20	6	6
V	5	1	1
Total	**40**	**10**	**10**

SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.Sc., Hon's under CBCS w.e.f A.Y. 2023-2024
For I Semester Geography majors
Course-2: Advances of Mathematical, Physical and Chemical Sciences
Semester End Examination Model Question paper
Course-2
SEMESTER-I

Time: 3 Hours   Max.Marks: 60 M

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   40x1=40 M

Unit-1: Q.No.1 to Q.No.5

Unit-II: Q.No.6 to Q.No.10

Unit-III: Q.No.11 to Q.No.15

Unit-IV: Q.No.16 to Q.No.35

Unit-V: Q.No.36 to Q.No.40

SECTION-B

II. Answer all fill in the Blanks questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.41

Unit-II: Q.No.42

Unit-III: Q.No.43

Unit-IV: Q.No.44 to Q.No.49

Unit-V: Q.No.50

SECTION –C

III. Answer all the Match questions. Each one carries one mark.   10x1=10 M

Unit-1: Q.No.51

Unit-II: Q.No.52

Unit-III: Q.No.53

Unit-IV: Q.No.54 to Q.No.59

Unit-V: Q.No.60

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Course-2: Advances of Mathematical, Physical and Chemical Sciences
Internal Assessment Examination Model Question Paper
Course - 2
SEMESTER-I

Time: 1.30 Hours   **Max.Marks: 28 M**

SECTION-A

I. Answer All the Multiple Choice Questions. Each one carries one mark.   **20x1=20 M**

Unit-1: Q.No.1 and Q.No.2

Unit-II: Q.No.3 and Q.No.4

Unit-III: Q.No.5 and Q.No.6

Unit-IV: Q.No.7 to Q.No.18

Unit-V: Q.No.19 and Q.No.20

SECTION-B

II. Answer all fill in the Blanks questions. Each one carries one mark.   **4x1=4 M**

Unit-II: Q.No.21

Unit-III: Q.No.22

Unit-IV: Q.No.23

Unit-V: Q.No.24

SECTION –C

III. Answer all the Match questions. Each one carries one mark.   **4x1=4 M**

Unit-II: Q.No.25

Unit-III: Q.No.26

Unit-IV: Q.No.27

Unit-V: Q.No.28

Objectives: This course aims at providing exposure to students in skill development towards basic office applications.

Course Learning Outcomes:

After successful completion of the course, student will be able to:

1. Demonstrate basic understanding of computer hardware and software.
2. Apply skills and concepts for basic use of a computer.
3. Identify appropriate tool of MS office to prepare basic documents, charts, spreadsheets and presentations.
4. Create personal, academic and business documents using MS office.
5. Create spreadsheets, charts and presentations.
6. Analyze data using charts and spread sheets.

UNIT-I: (08 hrs)

MS Windows – Desktop, Recycle bin, My Computer, Documents, Pictures, Music, Videos, Task Bar, Control Panel.

MS-Word: Features of MS-Word - MS-Word Window Components - Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Mail Merge.

UNIT-II: (08 hrs)

MS-Excel : Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Inserting Rows/Columns –Changing column widths and row heights, Formulae, Referencing cells , Changing font sizes and colors, Insertion of Charts, Auto fill, Sort.

UNIT-III: (08 hrs)

MS-PowerPoint: Features of PowerPoint – Creating a Presentation - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures -Inserting Other Objects, Audio, Video - Resizing and scaling of an Object – Slide Transition – Custom Animation.

RECOMMENDED CO-CURRICULAR ACTIVITIES: (04 hrs)

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside a. the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz, Group Discussion
4. Solving MCQ's available online.
5. Suggested student hands on activities:

   - Create two folders, Rename the folder, create two files each using notepad and paint, move the files from one folder to another folder, delete a file you have created, copy and paste text within notepad.
   - Create a letter head for your college with watermark, your resume, visiting card, brochure for your college activity, organization chart for your college, any advertisement, Prepare your Class time table.
   - Prepare your mark sheet, Prepare your class time table, Prepare a salary bill for an organization, Sort the bill as per the alphabetical order of the names, Get online weather data and analyze it with various charts.
   - Create a PowerPoint presentation for a student seminar.

REFERENCE BOOKS:

1. Working in Microsoft Office – Ron Mansfield - TMH.
2. MS Office 2007 in a Nutshell –Sanjay Saxena – Vikas Publishing House.
3. Excel 2020 in easy steps-Michael Price – TMH publications

Guidelines to the Paper Setter

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Unit No	Section-A EQ's	Section-B SAQ's
I	2	2
II	2	2
III	1	2

SECTION – A

Note: Answer any three of the following. Each one carries 10 Marks. $\qquad$ **3 x 10 = 30**

1. Essay Question from **Unit-1**
2. Essay Question from **Unit-1**
3. Essay Question from **Unit-2**
4. Essay Question from **Unit-2**
5. Essay Question from **Unit-3**

SECTION – B

NOTE: Answer any Four of the following. Each one carries 5 Marks. $\qquad$ **4 X 5 = 20**

6. Short Answer Question from **Unit-1**
7. Short Answer Question from **Unit-1**
8. Short Answer Question from **Unit-2**
9. Short Answer Question from **Unit-2**
10. Short Answer Question from **Unit-3**
11. Short Answer Question from **Unit-3**

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I B.Sc., Hon's in Computer Science under CBCS w.e.f 2023-2024
For I B.Sc., Hon's in Computer Science Major Program
Major Course-III: Problem Solving Using 'C'
SEMESTER-II

Credits -3

Course Objectives:

1. To explore basic knowledge on computers

2. Learn how to solve common types of computing problems.

3. Learn to map problems to programming features of C.

4. Learn to write good portable C programs.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand the working of a digital computer and Fundamental constructs of Programming

2. Analyze and develop a solution to a given problem with suitable control structures

3. Apply the derived data types in program solutions

4. Use the 'C' language constructs in the right way

5. Apply the Dynamic Memory Management for effective memory utilization

UNIT-I

Introduction to computer and programming: Introduction, Basic block diagram and functions of various components of computer, Concepts of Hardware and software, Types of software, Compiler and interpreter, Concepts of Machine level, Assembly level and high-level programming, Flowcharts and Algorithms

Fundamentals of C: History of C, Features of C, C Tokens-variables and keywords and identifiers, constants and Data types, Rules for constructing variable names, Operators, Structure of C program, Input /output statements in C-Formatted and Unformatted I/O

UNIT-II

Control statements: Decision making statements: if, if else, else if ladder, switch statements. Loop control statements: while loop, for loop and do-while loop. Jump Control statements: break,continue and goto.

UNIT-III

Derived data types in C:

Arrays: One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays -Declaration, Initialization and Memory representation.

Strings: Declaring & Initializing string variables; String handling functions, Character handling functions

UNIT-IV

Functions: Function Prototype, definition and calling. Return statement. Nesting of functions. Categories of functions. Recursion, Parameter Passing by address and by value. Local and Global variables.

Storage classes: automatic, external, static and register.

Pointers: Pointer data type, Pointer declaration, initialization, accessing values using pointers. Pointer arithmetic. Pointers and arrays, pointers and functions.

UNIT-V

Dynamic Memory Management: Introduction, Functions-malloc, calloc, realloc, free

Structures: Basics of structure, structure members, accessing structure members, nested structures, array of structures, structure and functions, structures and pointers.

Unions - Union definition; difference between Structures and Unions.

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

Text Books:
1. E. Balagurusamy, "Programming in ANSI C", Tata McGraw Hill, 6th Edn, ISBN-13: 978-1-25-90046-2
2. Herbert Schildt, Complete Reference with C, TMH, 4th Edn., ISBN-13: 780070411838, 2000
3. Computer fundamentals and programming in C, REEMA THAREJA, OXFORD UNIVERSITY PRESS

Reference Books:
1. E Balagurusamy, COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
2. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
3. Henry Mullish&Huubert L.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.
4. Y kanithkar, let us C BPB, 13 th edition-2013, ISBN:978-8183331630,656 pages.

GUIDELINES TO THE PAPER SETTER
BLUE PRINT

Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	2	3	Nil
II	1	2	Nil
III	1	Nil	2
IV	2	Nil	2
V	2	Nil	1

Batch 2024-2028
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.Sc., Hon's in Computer Science under CBCS w.e.f 2023-2024
For I B.Sc., Hon's in Computer Science Major Program
Major Course-III: Problem Solving Using 'C'
SEMESTER-II

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-5:	**Files:** Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.	For additional knowledge of the student.

Batch 2024-2028
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Semester End Examination Model Question Paper
Major Course-III: Problem Solving Using 'C'
SEMESTER-II

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   **5 x 4= 20 M**

1. Short Question from Unit-I.

2. Short Question from Unit-I.

3. Short Question from Unit-II.

4. Short Question from Unit-III.

5. Short Question from Unit-IV.

6. Short Question from Unit-IV.

7. Short Question from Unit-V.

8. Short Question from Unit-V.

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   **5 x 8 =40 M**

SECTION-II

9. Essay question from Unit-I.

10. Essay Question from Unit-I.

11. Essay Question from Unit-I.

12. Essay Question from Unit-II.

13. Essay Question from Unit-II.

SECTION-III

14. Essay Question from Unit-III.

15. Essay Question from Unit-III.

16. Essay Question from Unit-IV.

17. Essay Question from Unit-IV.

18. Essay Question from Unit-V.

Batch 2024-2028
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Internal Assessment Examination Model Question Paper
Major Course-III: Problem Solving Using 'C'
SEMESTER-II

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1
2. Essay Question from Unit-1.
3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1
5. Short Answer Question from Unit-1.
6. Short Answer Question from Unit-2.
7. Short Answer Question from Unit-2.
8. Short Answer Question from Unit-2.

Batch 2024-2028
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Major Course-III: Problem Solving Using 'C'
SEMESTER-II

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Quiz on computer hardware and software concepts

Evaluation Method: Objective-based quiz assessing knowledge and understanding

Unit 2:

Activity: Problem-solving using Decision-Making Statements

Evaluation Method: Correctness of decision-making logic

Unit 3:

Activity: Array and String Program Debugging

Evaluation Method: Identification and correction of errors in code

Unit 4:

Activity: Pair Programming Exercise on Functions

Evaluation Method: Collaboration and Code Quality

Unit 5:

Activity: Structured Programming Assignment

Evaluation Method: Appropriate use of structures and nested structures

Batch 2024-2028
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For I B.Sc., Hon's in Computer Science Major program
Course-III: Problem Solving Using 'C'
SEMESTER-II

Credits -1

List of Experiments

1. A. Write a program to calculate simple & compound interest

   B. Write a C program to interchange two numbers.

2. Find the biggest of three numbers using C.

3. Write a c program to find the sum of individual digits of a positive integer.

4. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.

5. Write a c program to check whether a number is Armstrong or not.

6. Write a c program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

7. Write a c program that implements searching of given item in given list

8. Write a c program that uses functions to perform the following:

   a). Addition of two matrices; b). Multiplication of two matrices;

9. Write a program for concatenation of two strings.

10. Write a program for length of a string with and without String Handling functions

11. Write a program to demonstrate Call by Value and Call by Reference mechanism

12. Write a Program to find GCD of Two numbers using Recursion

13. Write a c program to perform various operations using pointers.

14. Write a c program to read data of 10 employees with a structure of 1.employee id 2.aadar no, 3.title, 4.joined date, 5.salary, 6.date of birth, 7.gender, 8.department.

15. Write a Program to demonstrate dynamic arrays using Dynamic Memory Management functions

Practical break up of marks:

```
1. Procedure/Steps -      10 Marks
2. Execution -            20 Marks
3. Practical Record -     10 Marks
4. Viva -                 10 Marks
                          ---------------
Total    -                50 Marks
                          ---------------
```

Batch 2024-2028
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Minor Course-I: Problem Solving Using 'C'
SEMESTER-II

Credits -3

Course Objectives:

1. To explore basic knowledge on computers

2. Learn how to solve common types of computing problems.

3. Learn to map problems to programming features of C.

4. Learn to write good portable C programs.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand the working of a digital computer and Fundamental constructs of Programming

2. Analyze and develop a solution to a given problem with suitable control structures

3. Apply the derived data types in program solutions

4. Use the 'C' language constructs in the right way

5. Apply the Dynamic Memory Management for effective memory utilization

UNIT-I

Introduction to computer and programming: Introduction, Basic block diagram and functions of various components of computer, Concepts of Hardware and software, Types of software, Compiler and interpreter, Concepts of Machine level, Assembly level and high-level programming, Flowcharts and Algorithms

Fundamentals of C: History of C, Features of C, C Tokens-variables and keywords and identifiers, constants and Data types, Rules for constructing variable names, Operators, Structure of C program, Input /output statements in C-Formatted and Unformatted I/O

UNIT-II

Control statements: Decision making statements: if, if else, else if ladder, switch statements. Loop control statements: while loop, for loop and do-while loop. Jump Control statements: break,continue and goto.

UNIT-III

Derived data types in C:

Arrays: One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays -Declaration, Initialization and Memory representation.

Strings: Declaring & Initializing string variables; String handling functions, Character handling functions

UNIT-IV

Functions: Function Prototype, definition and calling. Return statement. Nesting of functions. Categories of functions. Recursion, Parameter Passing by address and by value. Local and Global variables.

Storage classes: automatic, external, static and register.

Pointers: Pointer data type, Pointer declaration, initialization, accessing values using pointers. Pointer arithmetic. Pointers and arrays, pointers and functions.

UNIT-V

Dynamic Memory Management: Introduction, Functions-malloc, calloc, realloc, free

Structures: Basics of structure, structure members, accessing structure members, nested structures, array of structures, structure and functions, structures and pointers.

Unions - Union definition; difference between Structures and Unions.

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Reference Books:
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2. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
3. Henry Mullish&Huubert L.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.
4. Y kanithkar, let us C BPB, 13 th edition-2013, ISBN:978-8183331630,656 pages.

GUIDELINES TO THE PAPER SETTER
BLUE PRINT

Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	2	3	Nil
II	1	2	Nil
III	1	Nil	2
IV	2	Nil	2
V	2	Nil	1

Batch 2024-2028
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Minor Course-I: Problem Solving Using 'C'
SEMESTER-II

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-5:	**Files:** Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.	For additional knowledge of the student.

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Semester End Examination Model Question Paper
Minor Course-I: Problem Solving Using 'C'
SEMESTER-II

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   **5 x 4= 20 M**

1. Short Answer Question from Unit-I.

2. Short Answer Question from Unit-I.

3. Short Answer Question from Unit-II.

4. Short Answer Question from Unit-III.

5. Short Answer Question from Unit-IV.

6. Short Answer Question from Unit-IV.

7. Short Answer Question from Unit-V.

8. Short Answer Question from Unit-V.

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   **5 x 8 =40 M**

SECTION-II

9. Essay Question from Unit-I.

10. Essay Question from Unit-I.

11. Essay Question from Unit-I.

12. Essay Question from Unit-II.

13. Essay Question from Unit-II.

SECTION-III

14. Essay Question from Unit-III.

15. Essay Question from Unit-III.

16. Essay Question from Unit-IV.

17. Essay Question from Unit-IV.

18. Essay Question from Unit-V.

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Minor Course-I: Problem Solving Using 'C'
SEMESTER-II

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1

2. Essay Question from Unit-1.

3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1

5. Short Answer Question from Unit-1.

6. Short Answer Question from Unit-2.

7. Short Answer Question from Unit-2.

8. Short Answer Question from Unit-2.

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Minor Course-I: Problem Solving Using 'C'
SEMESTER-II

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Quiz on computer hardware and software concepts

Evaluation Method: Objective-based quiz assessing knowledge and understanding

Unit 2:

Activity: Problem-solving using Decision-Making Statements

Evaluation Method: Correctness of decision-making logic

Unit 3:

Activity: Array and String Program Debugging

Evaluation Method: Identification and correction of errors in code

Unit 4:

Activity: Pair Programming Exercise on Functions

Evaluation Method: Collaboration and Code Quality

Unit 5:

Activity: Structured Programming Assignment

Evaluation Method: Appropriate use of structures and nested structures

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For I B.Sc., Hon's in Computer Science Minor program
Minor Course-I: Problem Solving Using 'C'
SEMESTER-II

Credits -1

List of Experiments

1. A. Write a program to calculate simple & compound interest

   B. Write a C program to interchange two numbers.

2. Find the biggest of three numbers using C.

3. Write a c program to find the sum of individual digits of a positive integer.

4. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.

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6. Write a c program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

7. Write a c program that implements searching of given item in given list

8. Write a c program that uses functions to perform the following:

   a). Addition of two matrices; b). Multiplication of two matrices;

9. Write a program for concatenation of two strings.

10. Write a program for length of a string with and without String Handling functions

11. Write a program to demonstrate Call by Value and Call by Reference mechanism

12. Write a Program to find GCD of Two numbers using Recursion

13. Write a c program to perform various operations using pointers.

14. Write a c program to read data of 10 employees with a structure of 1.employee id 2.aadar no, 3.title, 4.joined date, 5.salary, 6.date of birth, 7.gender, 8.department.

15. Write a Program to demonstrate dynamic arrays using Dynamic Memory Management functions

Practical break up of marks:

```
1. Procedure/Steps -        10 Marks
2. Execution -              20 Marks
3. Practical Record -       10 Marks
4. Viva -                   10 Marks
                           ---------------
Total    -                  50 Marks
                           ---------------
```

Batch 2024-2028
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.Sc., (Computer Science Major) under CBCS w.e.f A.Y 2023-2024
For I B.Sc., Hon's in Computer Science Major Program
Major Course-IV: Digital Logic Design
SEMESTER-II

Credits -3

Course Objectives

To familiarize with the concepts of designing digital circuits.

Course Outcomes

Upon successful completion of the course, the students will be able to,

1. Understand how to Convert numbers from one radix to another radix and perform arithmetic operations.

2. Simplify Boolean functions using Boolean algebra and k- maps

3. Design adders and subtractors circuits

4. Design combinational logic circuits such as decoders, encoders, multiplexers and demultiplexers.

5. Use flip flops to design registers and counters.

UNIT – I

Number Systems: Binary, octal, decimal, hexadecimal number systems, conversion of numbers from one radix to another radix, 1's complement and 2's complement methods, signed binary numbers, addition and subtraction of unsigned and signed numbers, weighted and un-weighted codes.

UNIT – II

Logic Gates and Boolean Algebra: NOT, AND, OR, universal gates, X-OR and X-NOR gates, Boolean laws and theorems, complement and dual of a logic function, canonical and standard forms, two level realization of logic functions using universal gates, minimizations of logic functions (POS and SOP) using Boolean theorems, K-map (up to four variables), don't care conditions.

UNIT – III

Combinational Logic Circuit-1: Design of half adder, full adder, half subtractor, full subtractor, ripple adders and subtractors, ripple adder / subtractor.

UNIT – IV

Combinational Logic Circuits-2: Design of decoders, encoders, priority encoder, multiplexers, demultiplexers, higher order decoders, demultiplexers and multiplexers, realization of Boolean functions using decoders, multiplexers.

UNIT – V

Sequential Logic Circuits: Classification of sequential circuits, latch and flip-flop, RS- latch using NAND and NOR Gates, truth tables, RS, JK, T and D flip-flops, truth and excitation tables, conversion of flip- flops, flip-flops with asynchronous inputs (preset and clear). Design of registers, shift registers, bidirectional shift registers, universal shift register, design of ripple counters, synchronous counters and variable modulus counters.

Text Books:

1. M. Morris Mano, Michael D Ciletti, "Digital Design", 5th edition, PEA.

Reference Books:

1. Kohavi, Jha, "Switching and Finite Automata Theory", 3rd edition, Cambridge.

2. Leach, Malvino, Saha, "Digital Principles and Applications", 7th edition, TMH.

3. 3. Roth, "Fundamentals of Logic Design", 5th edition, Cengage.

GUIDELINES TO THE PAPER SETTER
BLUE PRINT

Unit No.	Section – I SAQ's	Section-II EQ's	Section-III EQ's
I	1	3	--
II	2	2	--
III	2	--	2
IV	2	--	2
V	1	--	1

Batch 2024-2028
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.Sc., Hon's in Computer Science under CBCS w.e.f A.Y 2023-2024
For I B.Sc., Hon's in Computer Science Major Program
Semester End Examination Model Paper
Major Course-IV: Digital Logic Design
SEMESTER-II

Time: 3 Hours   **Max.Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   5 x 4= 20 M

1. Short Question from Unit-I
2. Short Question from Unit-II.
3. Short Question from Unit-II.
4. Short Question from Unit-III.
5. Short Question from Unit-III.
6. Short Question from Unit-IV.
7. Short Question from Unit-IV.
8. Short Question from Unit-V.

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   5 x 8 =40 M

SECTION-II

9. Essay Question from Unit-I.
10. Essay Question from Unit-I.
11. Essay Question from Unit-I.
12. Essay Question from Unit-II.
13. Essay Question from Unit-II.

SECTION-III

14. Essay Question from Unit-III.
15. Essay Question from Unit-III.
16. Essay Question from Unit-IV.
17. Essay Question from Unit-IV.
18. Essay Question from Unit-V.

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Major Course-IV: Digital Logic Design
SEMESTER-II

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1
2. Essay Question from Unit-1.
3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1
5. Short Answer Question from Unit-1.
6. Short Answer Question from Unit-2.
7. Short Answer Question from Unit-2.
8. Short Answer Question from Unit-2.

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SEMESTER-II

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: JAM (Just a Minute) Session: Explaining Radix Conversion

Evaluation Method: Communication Skills and Knowledge Presentation

Unit 2:

Activity: Boolean Algebra Assignment

Evaluation Method: Assignment Completion and Correctness

Unit 3:

 Activity: Hands-on Lab

Activity: Building Adder and Subtractor Circuits

Evaluation Method: Lab Performance and Correctness of Circuit Implementation

Unit 4:

Activity: Group Discussion: Applications of Decoders, Encoders, Multiplexers

Evaluation Method: Participation and Critical Thinking

Unit 5:

Activity: Quiz on Flip-Flops and Register-Counter Design

Evaluation Method: Quiz Performance and Knowledge Retention

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SEMESTER-II

Credits -1

List of Experiments

The laboratory work can be done by using physical gates and necessary equipment or simulators.

Simulators: https://sourceforge.net/projects/gatesim/ or https://circuitverse.org/ or any free opensource simulator

1. Introduction to digital electronics lab- nomenclature of digital ICs, specifications, study of the data sheet, concept of Vcc and ground, verification of the truth tables of logic gates using TTL ICs.

2. Implementation of the given Boolean functions using logic gates in both SOP and POS forms

3. Realization of basic gates using universal gates.

4. Design and implementation of half and full adder circuits using logic gates.

5. Design and implementation of half and full subtractor circuits using logic gates.

6. Verification of stable tables of RS, JK, T and D flip-flops using NAND gates.

7. Verification of stable tables of RS, JK, T and D flip-flops using NOR gates.

8. Implementation and verification of Decoder and encoder using logic gates.

9. Implementation of 4X1 MUX and DeMUX using logic gates.

10. Implementation of 8X1 MUX using suitable lower order MUX.

11. Implementation of 7-segment decoder circuit.

12. Implementation of 4-bit parallel adder.

13. Design and verification of 4-bit synchronous counter.

14. Design and verification of 4-bit asynchronous counter.

Practical break up of marks:

```
1. Procedure/Steps -        10 Marks
2. Execution -              20 Marks
3. Practical Record -       10 Marks
4. Viva -                   10 Marks
                           ---------------
Total    -                 50 Marks
                           ---------------
```

Batch 2024-2028
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.Sc., Hon's (Computer Science Major) under CBCS w.e.f A.Y. 2023-2024
For all I B.Sc./B.Com./B.A./BCA/BBA/B.Voc/ Life Sciences Major and Minor Programs
DIGITAL LITERACY
SKILL COURSE
SEMESTER-II

Course Duration: 30 Hours	**Credits -2**

Course Objectives:

By undergoing the Digital Literacy course, one should acquire basic knowledge on Computer and he/she is able to

CO1: Perform operations on the computer

CO2: Access the Internet and finding information of interest

CO3: Register for an E-mail account and operating it

CO4: Make bill payments and use other applications of Internet

CO5: Create, edit and format documents using a word processor

Unit-1: Operate the elements of a computer and performing operations on the computer

Operate the elements of a computer including power cord, power switch, network connecting cable, USB ports, Mouse operations, Keyboard operations, interface icons, GUI elements, Editing options, perform operations including switching on the computer, logging in, locating a file, opening a file, printing a document, storing a file with proper extension, creating a folder/ sub folder in a volume on hard disk and desktop, shifting files from one folder to another, shutting off the computer

Unit-2: Access the Internet to browse information and E-mail operation

Access the Internet, use a search engine, find information on the topic of interest, register for a web-based E-mail account, access E-mail with attachments, reply to an E-mail, forward an E-mail and delete an E-mail message

Unit-3: Make bill payments, other applications using Internet and word processing

Make utility bill payments, booking bus/train tickets, bank transactions, personal transactions, job search through employment portals, mobile/DTH recharge, word processing basics, creating, editing and formatting of text, saving and printing of word document

Prescribed readings:

1. Appreciation of Digital Literacy Handbook published by Department of Electronics & Information Technology, Ministry of Communications & Information Technology, Government of India

Web Resources:

1. https://youtu.be/b2X_j5Bz-VM

2. https://youtu.be/jln3-P6L2ro

3. https://youtu.be/cfDisqUMIvw

4. https://youtu.be/3h_PyURcdrc

5. https://youtu.be/EqN0LBcydBg

Note: Digital Literacy course should be taught by blending the practical demonstration of concepts with hands-on experience by learners using desktop/laptop computer and mobile handset device

GUIDELINES TO THE PAPER SETTER

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Unit No.	Section-I EQ's	Section-II SAQ's
I	2	2
II	2	2
III	1	2

Batch 2024-2028
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
I B.Sc., Hon's (Computer Science Major) under CBCS w.e.f A.Y. 2023-2024
For all I B.Sc./B.Com./B.A./BCA/BBA/B.Voc/ Life Sciences Major and Minor Programs
DIGITAL LITERACY
SKILL COURSE
SEMESTER-II

Time: 2 Hours   **Max. Marks: 50**

SECTION – I

Note: Answer any three of the following. Each one carries 10 Marks.   3 x 10 = 30 M

1. Essay Question from **Unit-1**
2. Essay Question from **Unit-1**
3. Essay Question from **Unit-2**
4. Essay Question from **Unit-2**
5. Essay Question from **Unit-3**

SECTION – II

Note: Answer any Four of the following. Each one carries 5 Marks.   4 X 5=20 M

6. Short Answer Question from **Unit-1**
7. Short Answer Question from **Unit-1**
8. Short Answer Question from **Unit-2**
9. Short Answer Question from **Unit-2**
10. Short Answer Question from **Unit-3**
11. Short Answer Question from **Unit-3**

Batch 2023-2027
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
II B.Sc., (Computer Science Major) under CBCS w.e.f A.Y 2024-2025
For II B.Sc., Hon's in Computer Science Major Program
Major Course-V: Object Oriented Programming using Java
SEMESTER-III

Credits -3

Course Objectives

To introduce the fundamental concepts of Object-Oriented programming and to design &implement object-oriented programming concepts in Java.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Understand the basic concepts of Object-Oriented Programming and Java Program Constructs

2. Implement classes and objects and analyze Inheritance and Dynamic Method Dispatch

3. Demonstrate various classes in different packages and can design own packages

4. Manage Exceptions and Apply Threads

5. Create GUI screens along with event handling

UNIT-I

OOPs Concepts and Java Programming: Introduction to Object-Oriented concepts, procedural and object-oriented programming paradigm

Java programming: An Overview of Java, Java Environment, Java features, Java Program Structure , JVM, Data types, Variables, constants, scope and life time of variables, operators, type conversion and casting, Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format(), Control Statements: Branching statements:-if, if-else, nested- if, switch; looping statements: for loop, while loop and do-while loop

UNIT-II

Arrays, Command Line Arguments, Strings-String Class Methods

Classes & Objects: Creating Classes, declaring objects, Methods, parameter passing, static fields and methods, Vectors, wrapper classes, Constructors, and 'this' keyword, overloading methods and access specifiers

Inheritance: Inheritance hierarchies (types of inheritances), super and subclasses, member access rules, 'super' keyword, Preventing inheritance: final classes and methods, the object class and its methods;

Polymorphism: Dynamic binding, method overriding, abstract classes and methods;

UNIT-III

Interface: Interfaces VS Abstract classes, defining an interface, implement interfaces, accessing implementations through interface references, extending interface;

Packages: API Packages, Defining, creating and accessing a package, understanding CLASSPATH, importing packages.

Exception Handling: Error and types of errors, Benefits of exception handling, the classification of exceptions, exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally, rethrowing exceptions, exception specification, built in exceptions, creating own exception sub classes

UNIT-IV

Multithreading: Differences between multiple processes and multiple threads, thread states, thread life cycle, creating threads, interrupting threads, thread priorities, synchronizing threads, inter thread communication.

Stream based I/O (java.io) – The Stream classes-Byte streams and Character streams, Reading console Input and Writing Console Output, File class, Reading and writing Files, The Console class, Serialization

UNIT-V

GUI Programming with Swing - Introduction, MVC architecture, components, containers. Understanding Layout Managers - Flow Layout, Border Layout, Grid Layout, Card Layout, GridBag Layout.

Event Handling - The Delegation event model- Events, Event sources, Event Listeners, Event classes, Handling mouse and keyboard events, Adapter classes, Inner classes, Anonymous Inner classes.

Text Books:

1. Java The complete reference, 9th edition, Herbert Schildt, McGraw Hill.

2. Understanding Object-Oriented Programming with Java, updated edition, T.Budd, Pearson Education.

Reference Books:

1. Cay S. Horstmann, "Core Java Fundamentals", Volume 1, 11 th Edition, Prentice Hall, 2018.

2. Paul Deitel, Harvey Deitel, "Java SE 8 for programmers", 3rd Edition, Pearson, 2015.

3. S. Malhotra, S. Chudhary, Programming in Java, 2nd edition, Oxford Univ. Press

GUIDELINES TO THE PAPER SETTER
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Unit No.	Section – I SAQ's	Section-II EQ's	Section-III EQ's
I	Nil	3	Nil
II	2	2	Nil
III	2	Nil	2
IV	2	Nil	2
V	2	Nil	1

Batch 2023-2027
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For II B.Sc., Hon's in Computer Science Major Program
Major Course-V: Object Oriented Programming using Java
SEMESTER-III

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-1:	Java features, Java Program Structure , JVM,	For basic knowledge of the student.
2.	Unit-2:	Vectors, wrapper classes,	For additional Knowledge
3.	Unit-3:	API Packages, Error and types of errors,	For additional knowledge

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For II B.Sc., Hon's in Computer Science Major Program
Major Course-V: Object Oriented Programming using Java
Semester End Examinations Model Paper
SEMESTER-III

Time: 3 Hours   Max. Marks: 60

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   5 x 4= 20 M

1. Short Question from Unit-II
2. Short Question from Unit-II.
3. Short Question from Unit-III.
4. Short Question from Unit-III.
5. Short Question from Unit-IV.
6. Short Question from Unit-IV.
7. Short Question from Unit-V.
8. Short Question from Unit-V.

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   5 x 8 =40 M

SECTION-II

9. Essay question from Unit-I.
10. Essay Question from Unit-I.
11. Essay Question from Unit-I.
12. Essay Question from Unit-II.
13. Essay Question from Unit-II.

SECTION-III

14. Essay Question from Unit-III.
15. Essay Question from Unit-III.
16. Essay Question from Unit-IV.
17. Essay Question from Unit-IV.
18. Essay Question from Unit-V.

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Internal Assessment Examination Model Question Paper
Course-V: Object oriented Programming using Java
SEMESTER-II

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1
2. Essay Question from Unit-1.
3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1
5. Short Answer Question from Unit-1.
6. Short Answer Question from Unit-2.
7. Short Answer Question from Unit-2.
8. Short Answer Question from Unit-2.

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Course-V: Object Oriented Programming using Java
SEMESTER-III

Credits -3

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Quiz on Object-Oriented Programming Concepts and Java Constructs

Evaluation Method: Quiz Performance and Knowledge Retention

Unit 2:

Activity: Object-Oriented Programming Assignment: Class Implementation

Evaluation Method: Assignment Completion and Correctness

Unit 3:

Activity: Hands-on Lab Activity: Creating and Using Custom Java Packages

Evaluation Method: Lab Performance and Correctness of Code Implementation

Unit 4:

Activity: Case Study Discussion on where multi-threading is crucial

Evaluation Method: Critical thinking, problem-solving, and presentation skills.

Unit 5:

Activity: GUI design contest using Java Swings

Evaluation Method: GUI design, Visual appearance and user friendliness, usability, and adherence to event handling principles.

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Course-V: Object Oriented Programming using Java
SEMESTER-III

Credits -1

List of Experiments

1. Write a Java program to print Fibonacci series using for loop.

2. Write a Java program to calculate multiplication of 2 matrices.

3. Create a class Rectangle. The class has attributes length and width. It should have methods that calculate the perimeter and area of the rectangle. It should have read Attributes method to read length and width from user.

4. Write a Java program that implements method overloading.

5. Write a Java program for sorting a given list of names in ascending order.

6. Write a Java program that displays the number of characters, lines and words in a text file.

7. Write a Java program to implement various types of inheritance
   i. Single ii. Multi-Level iii. Hierarchical iv. Hybrid

8. Write a java program to implement runtime polymorphism.

9. Write a Java program which accepts withdraw amount from the user and throws an exception "In Sufficient Funds" when withdraw amount more than available amount.

10. Write a Java program to create three threads and that displays "good morning", for every one second, "hello" for every 2 seconds and "welcome" for every 3 seconds by using extending Thread class.

11. Write a Java program that creates three threads. First thread displays "OOPS", the second thread displays "Through" and the third thread Displays "JAVA" by using Runnable interface.

12. Implement a Java program for handling mouse events when the mouse entered, exited, clicked, pressed, released, dragged and moved in the client area.

13. Implement a Java program for handling key events when the key board is pressed, released, typed.

14. Write a Java swing program that reads two numbers from two separate text fields and display sum of two numbers in third text field when button "add" is pressed.

15. Write a Java program to design student registration form using Swing Controls. The form which having the following fields and button SAVE

Form Fields are: Name, RNO, Mailid, Gender, Branch, Address

Practical break up of marks:

```
1. Procedure/Steps -        10 Marks
2. Execution -              20 Marks
3. Practical Record -       10 Marks
4. Viva -                   10 Marks
                           ---------------
Total    -                  50 Marks
                           ---------------
```

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For II B.Sc., Hon's in Computer Science Major Program
Major Course-VI: Data Structures Using 'C'
SEMESTER-III

Credits -3

Course Objectives:

1. To introduce the fundamental concept of data structures and to emphasize the importance of various data structures in developing and implementing efficient algorithms.

Course Outcomes:

Upon Successful completion of the course, a student will be able to:

1. Understand various Data Structures for data storage and processing.

2. Realize Linked List Data Structure for various Operations.

3. Analyze step by step and develop algorithms to solve real world problems by implementing Stacks, Queues Data Structures.

4. Understand and implement various searching and sorting techniques.

5. Understand the Non-Linear Data Structures such as Binary Trees and Graphs.

UNIT-I

Basic Concepts: Pointers and dynamic memory allocation, Algorithm-Definition and characteristics, Algorithm Analysis-Space Complexity, Time Complexity, Asymptotic Notation.

Introduction to Data structures: Definition, Types of Data structure, Abstract Data Types (ADT), Difference between Abstract Data Types, Data Types, and Data Structures.

Arrays-Concept of Arrays, Single dimensional array, Two dimensional array, Operations on arrays with Algorithms (searching, traversing, inserting, deleting).

UNIT-II

Linked List: Concept of Linked Lists, Representation of linked lists in Memory, Comparison between Linked List and Array, Types of Linked Lists - Singly Linked list, Doubly Linked list, Circularly Singly Linked list, Circularly Doubly Linked list.

Implementation of Linked List ADT: Creating a List, Traversing a linked list, Searching linked list, Insertion and deletion into linked list (At first Node, Specified Position, Last node), Application of linked lists.

UNIT-III

Stacks: Introduction to stack ADT, Representation of stacks with array and Linked List, Implementation of stacks, Application of stacks - Polish Notations - Converting Infix to Post Fix Notation - Evaluation of

Post Fix Notation - Tower of Hanoi, Recursion: Concept and Comparison between recursion and Iteration.

Queues: Introduction to Queue ADT, Representation of Queues with array and Linked List, Implementation of Queues, Application of Queues Types of Queues- Circular Queues, De-queues, Priority Queue.

UNIT-IV

Searching: Linear or Sequential Search, Binary Search and Indexed Sequential Search.

Sorting: Selection Sort, Bubble Sort, Insertion Sort, Quick Sort and Merge Sort.

UNIT-V

Trees-Basic Terminology-Types of Trees in Data Structure-Binary Trees: Concept of Non- Linear Data Structures, Introduction to Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Applications of Binary Tree.
Graphs: Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Minimum spanning trees, Traversal of Graphs (DFS, BFS), Application of Graphs.

Text Books:

1. Horowitz and Sahani, "Fundamentals of Data Structures", Galgotia Publications Pvt Ltd Delhi India.

2. A.K. Sharma, Data Structure Using C, Pearson Education India.

3. "Data Structures Using C" Balagurusamy E. TMH.

Reference Books:

1. "Data Structures through C", Yashavant Kanetkar, BPB Publications.
2. Rajesh K. Shukla, "Data Structure Using C and C++" Wiley Dreamtech Publication.
3. Lipschutz, "Data Structures" Schaum's Outline Series, Tata Mcgraw-hill Education (India)Pvt. Ltd.
4. Michael T. Goodrich, Roberto Tamassia, David M. Mount "Data Structures and Algorithms in C++", Wiley India.

GUIDELINES TO THE PAPER SETTER
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Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	2	3	NIL
II	2	2	NIL
III	3	NIL	2
IV	NIL	NIL	2
V	1	NIL	1

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For II B.Sc., Hon's in Computer Science Major Program
Major Course-VI: Data Structures Using 'C'
SEMESTER-III

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-5	Trees-Basic Terminology-Types of Trees in Data Structure	For Basic knowledge of the student.
2.	Unit-5	Minimum Spanning Trees	For additional knowledge

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Major Course-VI: Data Structures Using 'C'
SEMESTER-III

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   **5 x 4= 20 M**

1. Short Question from Unit-I
2. Short Question from Unit-I
3. Short Question from Unit-II
4. Short Question from Unit-II
5. Short Question from Unit-III
6. Short Question from Unit-III
7. Short Question from Unit- III
8. Short Question from Unit- V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   **5 x 8 =40 M**

SECTION-II

9. Essay question from Unit-I
10. Essay Question from Unit-I
11. Essay Question from Unit-I
12. Essay Question from Unit- II
13. Essay Question from Unit- II

SECTION-III

14. Essay Question from Unit-III
15. Essay Question from Unit-III
16. Essay Question from Unit- IV
17. Essay Question from Unit- IV
18. Essay Question from Unit-V

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Internal Assessment Examination Model Question Paper
Major Course-VI: Data Structures Using 'C'
SEMESTER-II

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1

2. Essay Question from Unit-1.

3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1

5. Short Answer Question from Unit-1.

6. Short Answer Question from Unit-2.

7. Short Answer Question from Unit-2.

8. Short Answer Question from Unit-2.

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Major Course-VI: Data Structures Using 'C'
SEMESTER-III

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Algorithm analysis exercises.

Evaluation Method: Programming Assignment and Correctness.

Unit 2:

Activity: Presentations on real-life applications of linked lists.

Evaluation Method: Presentation skills or reports.

Unit 3:

Activity: Role-playing activities for stack operations.

Evaluation Method: Problem-solving skills, communication and collaboration abilities.

Unit 4:

Activity: Sorting algorithm analysis and comparison activities.

Evaluation Method: Performance analysis and presentation.

Unit 5:

Activity: Case Study on Applications of Graphs.

Evaluation Method: Critical thinking, problem-solving, and presentation skills.

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Major Course-VI: Data Structures Using 'C'
SEMESTER-II

Credits -1

List of Experiments

1. Write a program to read 'N' numbers of elements into an array and also perform the following operation on an array

a. Add an element at the beginning of an array

b. Insert an element at given index of array

c. Update an element using a values and index

d. Delete an existing element

2. Write Program to implement Single Linked List with insertion, deletion and traversal operations

3. Write Program to implement Circular doubly Linked List with insertion, deletion and traversal operations

4. Write Programs to implement the Stack operations using an array

5. Write a program using stacks to convert a given infix expression to postfix.

6. Write Programs to implement the Stack operations using Linked List.

7. Write Programs to implement the Queue operations using an array.

8. Write Programs to implement the Queue operations using Linked List.

9. Write a program for Binary Search Tree Traversals.

10. Write a program to search an item in a given list using the following Searching Algorithms

    a. Linear Search b. Binary Search.

11. Write a program for implementation of the following Sorting Algorithms

    a. Bubble Sort b. Insertion Sort c. Quick Sort

Practical break up of marks:

```
1. Procedure/Steps -        10 Marks
2. Execution -              20 Marks
3. Practical Record -       10 Marks
4. Viva -                   10 Marks
                           --------------
Total    -                  50 Marks
                           --------------
```

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II B.Sc., Hon's in Computer Science under CBCS w.e.f 2024-2025
For II B.Sc., Hon's in Computer Science Major Program
Major Course-VII: Computer Organization
SEMESTER-III

Credits -3

Course Objectives

To familiarize with organizational aspects of memory, processor and I/O.

Course Outcomes

Upon successful completion of the course, the students will be able to

1. Identify different types of instructions

2. Differentiate between micro-programmed and hard-wired control units.

3. Analyse the performance of hierarchical organization of memory.

4. Summarize different data transfer techniques.

5. Demonstrate arithmetic operations on fixed- and floating-point numbers and illustrate

   concepts of parallel processing.

UNIT – I

Register Transfer Language and Micro Operations: Introduction- Functional units, computer registers, register transfer language, register transfer, bus and memory transfers, arithmetic, logic and shift micro-operations, arithmetic logic shift unit.

Basic Computer Organization and Design: Instruction codes, instruction cycle.

Register reference instructions, Memory – reference instructions, input – output and interrupt.

UNIT – II

CPU and Micro Programmed Control: Central Processing unit: Introduction, instruction formats, addressing modes. Control memory; address sequencing, design of control unit - hard wired control, micro programmed control.

UNIT – III

Memory Organization: Memory hierarchy, main memory, auxiliary memory, associative memory, cache Memory and mappings.

UNIT – IV

Input-Output Organization: Peripheral Devices, input-output interface, asynchronous data transfer, modes of transfer- programmed I/O, priority interrupt, direct memory access, Input – Output Processor (IOP).

UNIT – V

Computer Arithmetic and Parallel Processing: Data representation- fixed point, floating point, addition and subtraction, multiplication and division algorithms.

Parallel Processing-Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline.

Text Books:

1. M. Moris Mano, "Computer Systems Architecture", 3rd edition, Pearson/ PHI.

Reference Books:

1. Carl Hamacher, ZvonksVranesic, SafeaZaky, "Computer Organization", 5th edition,McGraw Hill.

2. William Stallings, "Computer Organization and Architecture", 8th edition, Pearson/PH

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Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	Nil	3	Nil
II	2	2	Nil
III	2	Nil	2
IV	2	Nil	2
V	2	Nil	1

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Major Course-VII: Computer Organization
SEMESTER-III

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.			For additional knowledge of the student.

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Major Course-VII: Computer Organization
Semester End Examinations Model Paper
SEMESTER-III

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   5 x 4= 20 M

1. Short Question from Unit-II
2. Short Question from Unit-II
3. Short Question from Unit-III
4. Short Question from Unit-III
5. Short Question from Unit-IV
6. Short Question from Unit-IV
7. Short Question from Unit- V
8. Short Question from Unit-V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   5 x 8 =40 M

SECTION-II

9. Essay question from Unit - I
10. Essay Question from Unit - I
11. Essay Question from Unit - I
12. Essay Question from Unit - II
13. Essay Question from Unit - II

SECTION-III

14. Essay Question from Unit - III
15. Essay Question from Unit - III
16. Essay Question from Unit - IV
17. Essay Question from Unit - IV
18. Essay Question from Unit -V

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Major Course-VII: Computer Organization
SEMESTER-II

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1

2. Essay Question from Unit-1.

3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1

5. Short Answer Question from Unit-1.

6. Short Answer Question from Unit-2.

7. Short Answer Question from Unit-2.

8. Short Answer Question from Unit-2.

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Major Course-VII: Computer Organization
SEMESTER-III

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1: Activity: Quiz competition on micro-operations.

Evaluation Method: Accuracy and speed in answering quiz questions.

Unit 2: Activity: Instruction Format Puzzle: Solving a puzzle to decode and understand instruction formats.

Evaluation Method: Accuracy and speed in completing the puzzle.

Unit 3: Activity: Memory Hierarchy Poster: Creating informative posters or info graphics on memory hierarchy.

Evaluation Method: Clarity of information, presentation and creativity of visual design.

Unit 4: Activity: I/O Troubleshooting Challenge

Evaluation Method: problem identification, feasibility of proposed solutions, and clarity of explanations.

Unit 5: Activity: Case Study on Parallel processing architecture.

Evaluation Method: Understanding of parallel processing concepts and architectures

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Major Course-VII: Computer Organization
SEMESTER-III

List of Experiments

1. Implement a C program to convert a Hexadecimal, octal, and binary number to decimal number vice versa.

2. Implement a C program to perform Binary Addition & Subtraction.

3. Implement a C program to perform Multiplication of two binary numbers.

4. Implement arithmetic micro-operations using logic gates.

5. Implement logic and shift micro-operations using logic gates.

6. Implement a C program to perform Multiplication of two binary numbers (signed) using Booth's Algorithms.

7. Implement a C program to perform division of two binary numbers (Unsigned) using restoring division algorithm.

8. Implement a C program to perform division of two binary numbers (Unsigned) using non-restoring division algorithm.

9. Write assembly language code for A+B*(C-D) using various instruction formats in MASM or any open-source assembler.

10. Write assembly language code for A+B*C using various addressing modes in MASM or any open-source assembler.

Practical break up of marks:

1. Procedure/Steps -	10 Marks
2. Execution -	20 Marks
3. Practical Record -	10 Marks
4. Viva -	10 Marks

Total -	50 Marks

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For II B.Sc., Hon's in Computer Science Major Program
Major Course-VIII: Operating Systems
SEMESTER-III

Credits -3

Course Objectives

To gain knowledge about various functions of an operating system like memory management, process management, device management, etc.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Demonstrate knowledge and comprehension of operating system functions.

2. Analyze different process scheduling algorithms and apply them to manage processes and threads effectively

3. Create strategies to prevent, detect, and recover from deadlocks, and design solutions for inter-process communication and synchronization problems.

4. Compare and contrast different memory allocation strategies and evaluate their effectiveness

5. Evaluate disk scheduling algorithms while implementing OS security measures

UNIT- I

What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems– Simple batch system, Multiprogramming Systems, Time Sharing Systems; Operating Systems for Personal Computers, Workstations and Hand-held Devices, Process Control & Real time Systems, Open-source operating system.

UNIT- II

Kernel, User Mode and Kernel mode, System call and types of system calls, System Programs, System View of the Process and Resources, Process, Process states, and Process Control Block, Process Abstraction, Process Hierarchy, Threads, Threading Issues, Thread Libraries; Process Scheduling- Non-Preemptive Scheduling Algorithms: First Come First Serve and Shortest job First; Pre-emptive Scheduling Algorithms: Priority scheduling and Round Robin scheduling.

UNIT III

Process Management: Deadlock, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock, Deadlock Handling Approaches: Deadlock Prevention, Deadlock Avoidance and Deadlock Detection and Recovery.

Concurrent and Dependent Processes, Critical Section, Semaphores, Methods for Inter process Communication; Process Synchronization, Classical Process Synchronization Problems: Producer-Consumer, Reader-Writer.

UNIT IV

Memory Management: Physical and Virtual Address Space; Memory Allocation Strategies –Fixed and - Variable Partitions, Paging, Segmentation, Virtual Memory: Demand Paging, Copy-on-write, Page Replacement, Page Replacement algorithms: First in First out (FIFO), Optimal Page Replacement and Least recently used; allocation of frames, Thrashing.

UNIT V

File and I/O Management, OS security: File concepts, File Operations, File access methods: Sequential access and Direct access, File Allocation methods: Contiguous allocation, Linked allocation and Indexed allocation; Directory Structure, Device Management, Pipes, Buffer, Shared Memory, Disk Scheduling algorithms: FCFS, SSTF, SCAN, CSCAN

Security Policy mechanism, protection, authentication and internal access authorization.

Text Books

1. Operating System Principles by Abraham Silberschatz, Peter Baer Galvin and Greg Gagne (7th Edition) Wiley India Edition.

Reference Books

1. Operating Systems: Internals and Design Principles by Stallings (Pearson)
2. Operating Systems by J. Archer Harris (Author), Jyoti Singh (Author) (TMH)

GUIDELINES TO THE PAPER SETTER

BLUE PRINT

Unit No.	Section–I SAQ's	Section-II EQ's	Section-III EQ's
I	Nil	3	Nil
II	2	2	Nil
III	2	Nil	2
IV	2	Nil	2
V	2	Nil	1

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For II B.Sc., Hon's in Computer Science Major Program
Major Course-VIII: Operating Systems
SEMESTER-III

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-1:	Open-Source Operating systems.	For better understanding of the topic
2.	Unit-2:	Types of system calls, Process, Process States, Process Control Block	For better understanding of the topic
3.	Unit-4:	Demand Paging, Copy-on-write, Page Replacement, Page Replacement algorithms: First in First out (FIFO), Optimal Page Replacement and Least recently used; allocation of frames, Thrashing.	For better understanding of the topic
4.	Unit-5:	File concepts, File access methods: Sequential access and Direct access Security Policy mechanism, protection, authentication and internal access authorization	Add to impart in depth knowledge on the specific topics

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Major Course-VIII: Operating Systems
Semester End Examinations Model Paper
SEMESTER-III

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   5 x 4= 20 M

1. Short Question from Unit-II
2. Short Question from Unit-II
3. Short Question from Unit- III
4. Short Question from Unit- III
5. Short Question from Unit-IV
6. Short Question from Unit-IV
7. Short Question from Unit- V
8. Short Question from Unit-V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   5 x 8 =40 M

SECTION-II

9. Essay question from Unit-I
10. Essay Question from Unit-I
11. Essay Question from Unit-I
12. Essay Question from Unit-II
13. Essay Question from Unit-II

SECTION-III

14. Essay Question from Unit-III
15. Essay Question from Unit-III
16. Essay Question from Unit-IV
17. Essay Question from Unit-IV
18. Essay Question from Unit-V

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For II B.Sc., Hon's in Computer Science Major Program
Internal Assessment Examination Model Question Paper
Major Course-VIII: Operating Systems

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1

2. Essay Question from Unit-1.

3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1

5. Short Answer Question from Unit-1.

6. Short Answer Question from Unit-2.

7. Short Answer Question from Unit-2.

8. Short Answer Question from Unit-2.

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SEMESTER-III

Credits -3

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Case Study on a specific Operating System: highlighting its functions and key features.

Evaluation Method: Case study presentation, depth of understanding of operating system functions, and ability to articulate key concepts.

Unit 2:

Activity: Comparison Poster on Scheduling Algorithms

Evaluation Method: Assessment of posters based on content accuracy, clarity of information, visual presentation, and ability to convey key insights.

Unit 3:

Activity: Assignment on Dead Lock prevention techniques

Evaluation Method: Understanding, Completion and report.

Unit 4:

Activity: Debate on various Memory allocation schemes

Evaluation Method: Debate arguments, ability to counter opposing viewpoints, logical reasoning, and presentation skills.

Unit 5:

Activity: Comparative study of various disk scheduling algorithms using real world datasets

Evaluation Method: Analysis methodology, accuracy of results, and presentation of findings and conclusions.

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SEMESTER-III

Credits -1

List of Experiments:

1. Illustrate the LINUX commands

a) pwd	d) grep	g) rm
b) mkdir	e) chmod	h) cp
c) rmdir	f) ls	

2. Write a program to calculate average waiting time and turn around time of each process using the following CPU Scheduling algorithm for the given process schedules.

a) FCFS	c) Priority
b) SJF	d) Round Robin

3. Simulate MVT and MFT memory management techniques

4. Write a program for Bankers Algorithm for Dead Lock Avoidance

5. Implement Bankers Algorithm Dead Lock Prevention.

6. Write a program to simulate Producer-Consumer problem.

7. Simulate all Page replacement algorithms.

a) FIFO	c) LFU
b) LRU	d) Optimal

8. Simulate Paging Techniques of memory management

9. Simulate the following disk scheduling algorithms

a) FCFS	c) SCAN
b) SSTF	d) CSCAN

Practical break up of marks:

```
1. Procedure/Steps -     10 Marks
2. Execution -           20 Marks
3. Practical Record -    10 Marks
4. Viva -                10 Marks
                         --------------
Total    -               50 Marks
                         --------------
```

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For II B.Sc., Hon's in Computer Science Minor Program
Minor Course-II: Object Oriented programming Using Java
SEMESTER-III

Credits -3

Course Objectives

To introduce the fundamental concepts of Object-Oriented programming and to design & implement object-oriented programming concepts in Java.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Understand the basic concepts of Object-Oriented Programming and Java Program Constructs.

2. Implement classes and objects and analyze Inheritance and Dynamic Method Dispatch

3. Demonstrate various classes in different packages and can design own packages.

4. Manage Exceptions and Apply Threads

5. Create GUI screens along with event handling

UNIT-I

OOPs Concepts and Java Programming: Introduction to Object-Oriented concepts, procedural and object-oriented programming paradigm

Java programming: An Overview of Java, Java Environment, Data types, Variables, constants, scope and life time of variables, operators, type conversion and casting, Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format(), Control Statements

UNIT-II

Arrays, Command Line Arguments, Strings-String Class Methods

Classes & Objects: Creating Classes, declaring objects, Methods, parameter passing, static fields and methods, Constructors, and 'this' keyword, overloading methods and access

Inheritance: Inheritance hierarchies, super and subclasses, member access rules, 'super' keyword, preventing inheritance: final classes and methods, the object class and its methods; Polymorphism: Dynamic binding, method overriding, abstract classes and methods;

UNIT-III

Interface: Interfaces VS Abstract classes, defining an interface, implement interfaces, accessing implementations through interface references, extending interface;

Packages: Defining, creating and accessing a package, understanding CLASSPATH, importing packages.

Exception Handling: Benefits of exception handling, the classification of exceptions, exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and

finally, rethrowing exceptions, exception specification, built in exceptions, creating own exception sub classes.

UNIT-IV

Multithreading: Differences between multiple processes and multiple threads, thread states, thread life cycle, creating threads, interrupting threads, thread priorities, synchronizing threads, inter thread communication.

Stream based I/O (java.io) – The Stream classes-Byte streams and Character streams, Reading console Input and Writing Console Output, File class, Reading and writing Files, The Console class, Serialization

UNIT-V

GUI Programming with Swing- Introduction, MVC architecture, components, containers.

Understanding Layout Managers - Flow Layout, Border Layout, Grid Layout, Card Layout, Grid Bag Layout.

Event Handling- The Delegation event model- Events, Event sources, Event Listeners, Event classes, Handling mouse and keyboard events, Adapter classes, Inner classes, Anonymous Inner classes.

Text Books:

1. Java The complete reference, 9th edition, Herbert Schildt, McGraw Hill.

2. Understanding Object-Oriented Programming with Java, updated edition, T. Budd, Pearson Education.

Reference Books

1. Cay S. Horstmann, "Core Java Fundamentals", Volume 1, 11 th Edition, Prentice Hall, 2018.

2. Paul Deitel, Harvey Deitel, "Java SE 8 for programmers", 3rd Edition, Pearson, 2015.

3. S. Malhotra, S. Chudhary, Programming in Java, 2nd edition, Oxford Univ. Press.

GUIDELINES TO THE PAPER SETTER

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Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	Nil	3	Nil
II	2	2	Nil
III	2	Nil	2
IV	2	Nil	2
V	2	Nil	1

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Minor Course-II: Object Oriented Programming Using Java
SEMESTER-III

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-1:	Java features, Java Program Structure , JVM,	For basic knowledge of the student.
2.	Unit-2:	Vectors, wrapper classes,	For additional Knowledge
3.	Unit-3:	API Packages, Error and types of errors,	For additional knowledge

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Minor Course-II: Object Oriented Programming Using Java
Semester End Examinations Model Paper
SEMESTER-III

Time: 3 Hours   Max. Marks: 60

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   5 x 4= 20 M

1. Short Question from Unit-II

2. Short Question from Unit-II

3. Short Question from Unit- III

4. Short Question from Unit- III

5. Short Question from Unit- IV

6. Short Question from Unit- IV

7. Short Question from Unit- V

8. Short Question from Unit-V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   5 x 8 =40 M

SECTION-II

9. Essay question from Unit-I

10. Essay Question from Unit-I

11. Essay Question from Unit-I

12. Essay Question from Unit-II

13. Essay Question from Unit-II

SECTION-III

14. Essay Question from Unit -III

15. Essay Question from Unit -III

16. Essay Question from Unit-IV

17. Essay Question from Unit-IV

18. Essay Question from Unit-V

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Internal Assessment Examination Model Question Paper
Minor Course-II: Object Oriented Programming Using Java

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1
2. Essay Question from Unit-1.
3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1
5. Short Answer Question from Unit-1.
6. Short Answer Question from Unit-2.
7. Short Answer Question from Unit-2.
8. Short Answer Question from Unit-2.

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SEMESTER-III

Credits -3

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Quiz on Object-Oriented Programming Concepts and Java Constructs

Evaluation Method: Quiz Performance and Knowledge Retention

Unit 2:

Activity: Object-Oriented Programming Assignment: Class Implementation

Evaluation Method: Assignment Completion and Correctness

Unit 3:

Activity: Hands-on Lab Activity: Creating and Using Custom Java Packages

Evaluation Method: Lab Performance and Correctness of Code Implementation

Unit 4:

Activity: Case Study Discussion on where multi-threading is crucial

Evaluation Method: Critical thinking, problem-solving, and presentation skills.

Unit 5:

Activity: GUI design contest using Java Swings

Evaluation Method: GUI design, Visual appearance and user friendliness, usability, and adherence to

event handling principles.

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Minor Course-II: Object Oriented Programming Using Java Lab
SEMESTER-III

Credits -1

List of Experiments

1. Write a Java program to print Fibonacci series using for loop.

2. Write a Java program to calculate multiplication of 2 matrices.

3. Create a class Rectangle. The class has attributes length and width. It should have methods that calculate the perimeter and area of the rectangle. It should have read Attributes method to read length and width from user.

4. Write a Java program that implements method overloading.

5. Write a Java program for sorting a given list of names in ascending order.

6. Write a Java program that displays the number of characters, lines and words in a text file.

7. Write a Java program to implement various types of inheritance

    i. Single ii. Multi-Level iii. Hierarchical iv. Hybrid

8. Write a java program to implement runtime polymorphism.

9. Write a Java program which accepts withdraw amount from the user and throws an exception "In Sufficient Funds" when withdraw amount more than available amount.

10. Write a Java program to create three threads and that displays "good morning", for every one second, "hello" for every 2 seconds and "welcome" for every 3 seconds by using extending Thread class.

11. Write a Java program that creates three threads. First thread displays "OOPS", the second thread displays "Through" and the third thread Displays "JAVA" by using Runnable interface.

12. Implement a Java program for handling mouse events when the mouse entered, exited, clicked, pressed, released, dragged and moved in the client area. Implement a Java program for handling key events when the key board is pressed, released, typed.

13. Write a Java swing program that reads two numbers from two separate text fields and display sum of two numbers in third text field when button "add" is pressed.

14. Write a Java program to design student registration form using Swing Controls. The form which having the following fields and button SAVE

    Form Fields are: Name, RNO, Mailid, Gender, Branch, Address.

Practical break up of marks:
```
1. Procedure/Steps -      10 Marks
2. Execution -            20 Marks
3. Practical Record -     10 Marks
4. Viva -                 10 Marks
                          ---------------
Total    -                50 Marks
                          ---------------
```

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For all II B.Sc./B.Com./B.A./BCA/BBA/B.Voc/ Life Sciences Major and Minor Programs
INFORMATION AND COMMUNICATION TECHNOLOGY
SKILL COURSE
SEMESTER-III

Course Duration: 30 Hours   **Credits -2**

Objectives:

This course aims at acquainting the students with basic ICT tools which help them in their day to day and life as well as in office and research.

Course outcomes:

After completion of the course, student will be able to;

1. Understand the literature of social networks and their properties.
2. Explain which network is suitable for whom.
3. Develop skills to use various social networking sites like twitter, flickr, etc.
4. Learn few GOI digital initiatives in higher education.
5. Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research.
6. Get acquainted with internet threats and security mechanisms.

SYLLABUS:

UNIT-I: (08 hrs)

Fundamentals of Internet: What is Internet?, Types of Networks, Network topologies, Internet applications, Internet Addressing – Entering a Web Site Address, URL–Components of URL, Searching the Internet, Browser–Types of Browsers, Introduction to Social Networking: Twitter, Tumblr, LinkedIn, Facebook, flickr, Skype, yahoo, YouTube, WhatsApp .

UNIT-II:(08 hrs)

E-mail: Definition of E-mail -Advantages and Disadvantages –User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management. Searching WWW – search engines and examples;

G-Suite: Google drive, Google documents, Google spread sheets, Google Slides and Google forms.

UNIT-III:(10 hrs)

Overview of Internet security, E-mail threats and secure E-mail, Viruses and antivirus software, Firewalls, Cryptography, Digital signatures, Copyright issues.

What are GOI digital initiatives in higher education? (SWAYAM, SwayamPrabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, eacharya, e-Yantra and NPTEL).

RECOMMENDED CO-CURRICULAR ACTIVITIES: (04 hrs)

(Co-curricular activities shall not promote copying from textbook or from others work and

shall encourage self/independent and group learning)

1. Assignments(in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)

2. Student seminars (on topics of the syllabus and related aspects (individual activity))

3. Quiz and Group Discussion

4. Slip Test

5. Try to solve MCQ's available online.

6. Suggested student hands on activities :
   a. Create your accounts for the above social networking sites and explore them, establish a video conference using Skype.
   b. Create an Email account for yourself- Send an email with two attachments to another friend. Group the email addresses use address folder.
   c. Register for one online course through any of the online learning platforms like NPTEL, SWAYAM, Alison, Codecademy, Coursera. Create a registration form for your college campus placement through Google forms.

Reference Books :

1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e – By Raymond Greenlaw and Ellen Hepp, Publishers : TMH

2. Internet technology and Web design, ISRD group, TMH.

3. Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.

GUIDELINES TO THE PAPER SETTER

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Unit No.	Section-I EQ's	Section-II SAQ's
I	2	2
II	2	2
III	1	2

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INFORMATION AND COMMUNICATION TECHNOLOGY
SKILL COURSE
SEMESTER-III

Time: 2 Hours   **Max. Marks: 50**

SECTION – I

Note: Answer any three of the following. Each one carries 10 Marks.   3 x 10 = 30 M

1. Essay Question from **Unit-1**

2. Essay Question from **Unit-1**

3. Essay Question from **Unit-2**

4. Essay Question from **Unit-2**

5. Essay Question from **Unit-3**

SECTION – II

Note: Answer any Four of the following. Each one carries 5 Marks.   4 X 5=20 M

6. Short Answer Question from **Unit-1**

7. Short Answer Question from **Unit-1**

8. Short Answer Question from **Unit-2**

9. Short Answer Question from **Unit-2**

10. Short Answer Question from **Unit-3**

11. Short Answer Question from **Unit-3**

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INFORMATION AND COMMUNICATION TECHNOLOGY
SKILL COURSE
SEMESTER-III

Course Duration: 30 Hours   **Credits -2**

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-1	Types of Networks, Network topologies	For basic knowledge of the student.
2.	Unit-2	Searching WWW, Search engines and examples	For additional knowledge of the student

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For II B.Sc., Hon's in Computer Science Major Program
Course-IX: Database Management Systems
SEMESTER-IV

Credits -3

Learning Objectives:

To familiarize with concepts of database design

Learning Outcomes: On successful completion of the course, students will be able to

1. Differentiate between database systems and file based systems

2. Design a database using ER model

3. Use relational model in database design

4. Use SQL commands for creating and manipulating data stored in databases.

5. Write PL/SQL programs to work with databases.

UNIT- I

Overview of Database Management System: Introduction to data, information, database, database management systems, file-based system, Drawbacks of file-Based System, database approach, Classification of Database Management Systems, advantages of database approach, Various Data Models, Components of Database Management System, three schema architecture of data base, costs and risks of database approach.

UNIT - II

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, Classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and specialization, IS A relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, advantages of ER modeling.

UNIT - III

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC), Functional dependencies and normal forms upto 3rd normal form.

UNIT - IV

Structured Query Language: Introduction, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Join Operation, Set Operations, View, Sub Query.

UNIT - V

PL/SQL: Introduction, Shortcomings of SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Procedure, Function, Database Triggers, Types of Triggers.

Text Books:

1. Operating System Principles by Abraham Silberschatz, Peter Baer Galvin and GregGagne (7th Edition) Wiley India Edition.

Reference Books

1. Database Management Systems by Raghu Ramakrishnan, McGraw-Hill

2. Principles of Database Systems by J. D. Ullman

3. Fundamentals of Database Systems by R. Elmasri and S. Navathe

4. SQL: The Ultimate Beginners Guide by Steve Tale.

GUIDELINES TO THE PAPER SETTER

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Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	1	3	Nil
II	2	2	Nil
III	1	Nil	2
IV	2	Nil	2
V	2	Nil	1

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Course-IX: Database Management Systems
SEMESTER-IV

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
3.	Unit-5:	**Transaction Management and Concurrency Control:** What is transaction, Transaction properties, Transaction management with SQL, Transaction Log, Concurrency control, Concurrency control with locking Methods: Database, Table, Page, row and field level locks; Two phase locking to ensure serializability; Deadlock, Database Recovery Management: Deferred-Write Technique;	For additional knowledge of the student.

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Course-IX: Database Management Systems
Semester End Examinations Model Paper
SEMESTER-IV

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   **5 x 4= 20 M**

1. Short Question from Unit-I
2. Short Question from Unit-II
3. Short Question from Unit- II
4. Short Question from Unit- III
5. Short Question from Unit- IV
6. Short Question from Unit- IV
7. Short Question from Unit- V
8. Short Question from Unit-V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   **5 x 8 =40 M**

SECTION-II

9. Essay question from Unit-I
10. Essay Question from Unit-I
11. Essay Question from Unit-I
12. Essay Question from Unit-II
13. Essay Question from Unit-II

SECTION-III

14. Essay Question from Unit-III
15. Essay Question from Unit-III
16. Essay Question from Unit- IV
17. Essay Question from Unit- IV
18. Essay Question from Unit-V

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Internal Assessment Examination Model Question Paper
Course-IX: Database Management Systems

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1

2. Essay Question from Unit-1.

3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1

5. Short Answer Question from Unit-1.

6. Short Answer Question from Unit-2.

7. Short Answer Question from Unit-2.

8. Short Answer Question from Unit-2.

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II B.Sc., Hon's in Computer Science under CBCS w.e.f 2024-2025
For II B.Sc., Hon's in Computer Science Major Program
Course-IX: Database Management Systems
SEMESTER-IV

Credits -3

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Seminar Presentation on Database Management Systems

Evaluation Method: Depth of research, clarity of explanations, ability to address questions and engage the audience.

Unit 2:

Activity: Case Study on EER model

Evaluation Method: Identification of inheritance relationships, effective use of generalization and specialization, and adherence to constraints.

Unit 3:

Activity: Exercise on Normalization: Assign students a set of unnormalized tables and have them normalize the tables to third normal form

Evaluation Method: Normalized table designs, identification of functional dependencies, adherence to normalization rules, and elimination of anomalies.

Unit 4:

Activity: Competition on SQL Query Writing

Evaluation Method: Query correctness, efficiency, proper use of SQL commands, ability to handle complex scenarios, and creativity in query formulation.

Unit 5:

Activity: Peer Review of PL/SQL code

Evaluation Method: Peer evaluation of code quality, adherence to coding standards, proper use of language elements, and logic.
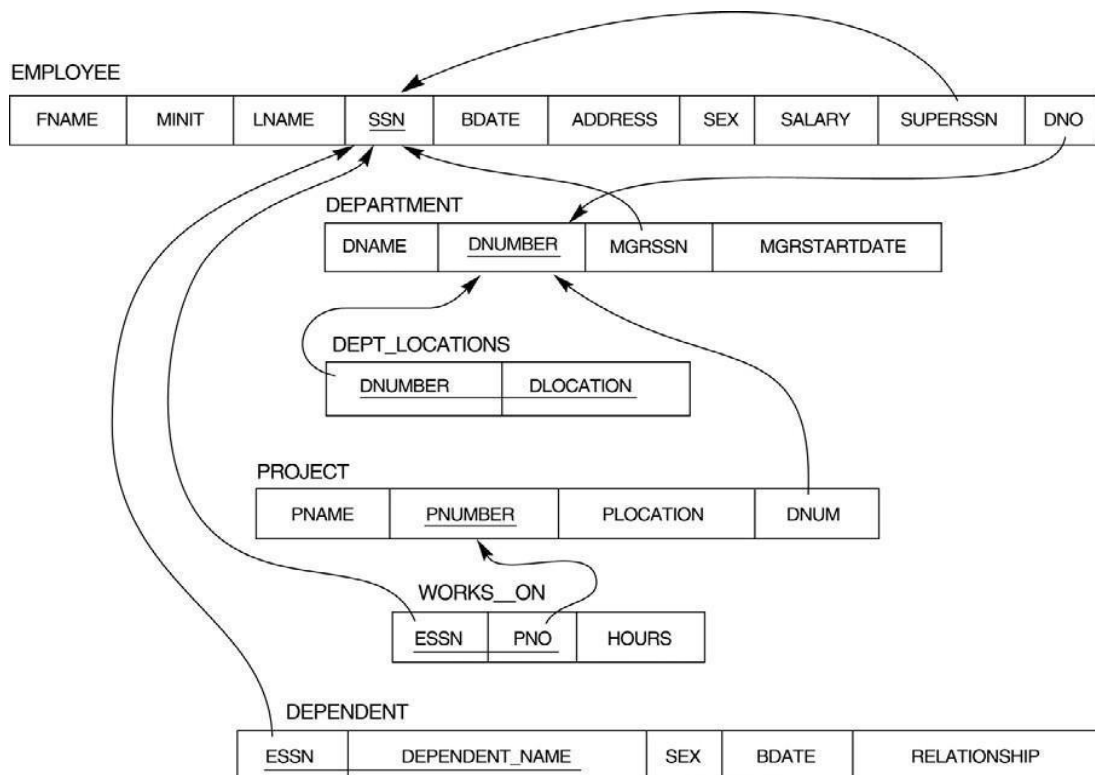
Batch 2023-2027
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
II B.Sc., Hon's in Computer Science under CBCS w.e.f 2024-2025
For II B.Sc., Hon's in Computer Science Major Program
Course-IX: Database Management Systems
SEMESTER-IV

Credits -1

List of Experiments:

1. Draw ER diagram for hospital administration

2. Creation of college database and establish relationships between tables

3. Relational database schema of a company is given in the following figure.

Relational Database Schema – COMPANY

Questions to be performed on above schema

1. Create above tables with relevant Primary Key, Foreign Key and other constraints

2. Populate the tables with data

3. Display all the details of all employees working in the company.

4. Display ssn, lname, fname, address of employees who work in department no 7.

5. Retrieve the Birthdate and Address of the employee whose name is 'Franklin T. Wong'

6. Retrieve the name and salary of every employee

7. Retrieve all distinct salary values

8. Retrieve all employee names whose address is in 'Bellaire'

9. Retrieve all employees who were born during the 1950s

10. Retrieve all employees in department 5 whose salary is between 50,000 and

60,000(inclusive)

11. Retrieve the names of all employees who do not have supervisors

12. Retrieve SSN and department name for all employees

13. Retrieve the name and address of all employees who work for the 'Research' department

14. For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.

15. For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.

16. Retrieve all combinations of Employee Name and Department Name

17. Make a list of all project numbers for projects that involve an employee whose last name is 'Narayan' either as a worker or as a manager of the department that controls the project.

18. Increase the salary of all employees working on the 'Product X' project by 15%. Retrieve employee name and increased salary of these employees.

19. Retrieve a list of employees and the project name each works in, ordered by the employee's department, and within each department ordered alphabetically by employeefirst name.

20. Select the names of employees whose salary does not match with salary of any employee in department 10.

21. Retrieve the employee numbers of all employees who work on project located in Bellaire, Houston, or Stafford.

22. Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary. Display with proper headings.

23. Find the sum of the salaries and number of employees of all employees of the 'Marketing' department, as well as the maximum salary, the minimum salary, and the average salary in this department.

24. Select the names of employees whose salary is greater than the average salary of all employees in department 10.

25. Delete all dependents of employee whose ssn is '123456789'.

26. Perform a query using alter command to drop/add field and a constraint in Employee table

PRACTICAL BREAK UP OF MARKS:

1. Procedure/Steps -   10 Marks
2. Execution -   20 Marks
3. Practical Record -   10 Marks
4. Viva -   10 Marks

   Total   50 Marks

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Course-X: Object Oriented Software Engineering
SEMESTER-IV

Credits -3

Course Objective:

To introduce Object-oriented software engineering (OOSE) - which is a popular technical approach to analyzing, designing an application, system, or business by applying the object- oriented paradigm and visual modeling.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand and apply the fundamental principles of Object-Oriented Programming (OOP) concepts and Unified Modeling Language (UML) basics, in the development of software solutions.

2. Analyze and specify software requirements, develop use cases and scenarios, apply object- oriented analysis and design (OOAD) principles

3. Familiar with the concept of test-driven development (TDD) and its practical implementation

4. Analyze and Evaluate Software Maintenance and Evolution Strategies

5. Apply Advanced Object-Oriented Software Engineering Concepts

UNIT-I

Introduction to Object-Oriented Programming: Overview of software engineering, Introduction to Object-Oriented Programming (OOP) concepts (classes, objects, inheritance, polymorphism), Unified Modelling Language (UML) basics, Introduction to software development process and software development life cycle (SDLC).

UNIT-II

Requirements Analysis and Design: Requirements analysis and specification, Use cases and scenarios, Object-oriented analysis and design (OOAD), Design patterns, UML modelling techniques (class diagrams, sequence diagrams, state machine diagrams, activity diagrams)

UNIT-III

Software Construction and Testing: Software construction basics, Object-oriented design principles, Object-oriented programming languages (Java, C++, Python), Software testing basics (unit testing, integration testing, system testing), Test-driven development (TDD)

UNIT-IV

Software Maintenance and Evolution: Software maintenance basics, refactoring techniques Software version control, Code review and inspection, Software evolution and reengineering

UNIT-V

Advanced Topics in Object-Oriented Software Engineering: Model-driven engineering (MDE), Aspect-oriented programming (AOP), Component-based software engineering (CBSE), Service- oriented architecture (SOA), Agile software development and Scrum methodologies.

Text Book(s)

1. An Introduction to Object-Oriented Analysis and Design and the Unified Process, 3rd Edition, Craig Larman, Prentice-Hall.

2. Programming in Java by Sachin Malhotra, Oxford University Press

Reference Books

1. Requirements engineering: processes and techniques, G.Kotonya and, I.Sommerville, 1998, Wiley

2. Design Patterns, E.Gamma, R. Helm, R. Johnson, and J. Vlissides

3. The Unified Modeling Language Reference Manual, J. Rumbaugh, I.Jacobson and G. Booch, Addison Wesley.

GUIDELINES TO THE PAPER SETTER

BLUE PRINT

Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	Nil	3	Nil
II	2	2	Nil
III	2	Nil	2
IV	2	Nil	2
V	2	Nil	1

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Course-X: Object Oriented Software Engineering
SEMESTER-IV

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.			For additional knowledge of the student.

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Course-X: Object Oriented Software Engineering
Semester End Examinations Model Paper
SEMESTER-IV

Time: 3 Hours   Max. Marks: 60

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   5 x 4= 20 M

1. Short Question from Unit-II
2. Short Question from Unit-II
3. Short Question from Unit- III
4. Short Question from Unit- III
5. Short Question from Unit-. IV
6. Short Question from Unit-. IV
7. Short Question from Unit- V
8. Short Question from Unit-V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   5 x 8 =40 M

SECTION-II

9. Essay question from Unit-I
10. Essay Question from Unit-I
11. Essay Question from Unit-I
12. Essay Question from Unit-II
13. Essay Question from Unit-II

SECTION-III

14. Essay Question from Unit- III
15. Essay Question from Unit-III
16. Essay Question from Unit- IV
17. Essay Question from Unit- IV
18. Essay Question from Unit-V

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For II B.Sc., Hon's in Computer Science Major Program
Internal Assessment Examination Model Question Paper
Course-X: Object Oriented Software Engineering

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1

2. Essay Question from Unit-1.

3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1

5. Short Answer Question from Unit-1.

6. Short Answer Question from Unit-2.

7. Short Answer Question from Unit-2.

8. Short Answer Question from Unit-2.

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Course-X: Object Oriented Software Engineering
SEMESTER-IV

Credits -3

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1: Activity: Group Activity: Design and implement a small OOP project

Evaluation Method: Presentation evaluation rubric, Project evaluation based on OOP principles.

Unit 2: Activity: Use Case Scenario Presentation & Peer Activity: Review and provide feedback on each other's use case diagrams

Evaluation Method: Presentation evaluation rubric, Peer feedback assessment.

Unit 3: Activity: Poster Presentation: Illustrate TDD principles and benefits

Evaluation Method: Poster presentation evaluation

Unit 4: Activity: Peer Activity: Analyze and discuss different maintenance strategies

Evaluation Method: Peer discussion participation evaluation

Unit 5: Activity: Seminar on Design Patterns

Evaluation Method: Depth of research, clarity of explanations, ability to address questions and engage the audience

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Course-X: Object Oriented Software Engineering
SEMESTER-IV

Credits -1

Suggested Software Tools: StarUML/UMLGraph/Topcased/Umberollo/ArgoUML/ Eclipse IDE, Visual Paradigm for UML/Rational Software Architect/Any other Open Source Tool.

List of Experiments:

Select domain of interest (e.g. College Management System) and identify multi-tier software application to work on (e.g. Online Fee Collection). Analyze, design and develop this application using OOSE approach:

1. Develop an IEEE standard SRS document. Also develop risk management and project plan (Gantt chart).

2. Understanding of System modeling: Data model i.e. ER – Diagram and draw the ER Diagram with generalization, specialization and aggregation of specified problem statement

3. Understanding of System modeling: Functional modeling: DFD level 0 i.e. Context Diagram and draw it

4. Understanding of System modeling: Functional modeling: DFD level 1 and DFD level 2 and draw it.

5. Identify use cases and develop the use case model.

6. Identify the business activities and develop an UML Activity diagram.

7. Identity the conceptual classes and develop a domain model with UML Class diagram.

8. Using the identified scenarios find the interaction between objects and represent them using UML Interaction diagrams.

9. Draw the state chart diagram.

10. Identify the user interface, domain objects, and technical services. Draw the partial layered, logical architecture diagram with UML package diagram notation.

11. Implement the technical services layer.

12. Implement the domain objects layer.

13. Implement the user interface layer.

14. Draw component and deployment diagrams

PRACTICAL BREAK UP OF MARKS:

1.	Procedure/Steps -	10 Marks
2.	Execution -	20 Marks
3.	Practical Record -	10 Marks
4.	Viva -	10 Marks

	Total	50 Marks

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For II B.Sc., Hon's in Computer Science Major Program
Course-XI: Data Communication and Computer Networks
SEMESTER-IV

Credits -3

Course Objectives

To provide students with a comprehensive understanding of networking principles, protocols, and technologies, enabling them to design, analyze, and evaluate efficient and reliable network solutions.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Understand and apply network applications, hardware, software, and reference models for network communication.

2. Design and analyze data link layer protocols, multiple access protocols, and wireless LAN technologies.

3. Design routing algorithms, congestion control algorithms, and evaluate network layer protocols for internetworking.

4. Analyze transport service, transport protocols, and evaluate UDP and TCP in the internet.

5. Understand and evaluate application layer protocols, including DNS, email, WWW, and network management protocols.

UNIT-I

INTRODUCTION: Network applications, network hardware, network software, reference models: OSI, TCP/IP, Internet, Connection oriented network - X.25, frame relay.

THE PHYSICAL LAYER: Theoretical basis for communication, guided transmission media, wireless transmission, the public switched telephone networks, mobile telephone system.

UNIT-II

THE DATA LINK LAYER: Design issues, error detection and correction, elementary data link protocols, sliding window protocols, example data link protocols - HDLC, the data link layer on the internet.

THE MEDIUM ACCESS SUBLAYER: Channel allocations problem, multiple access protocols, Ethernet, Data Link Layer switching, Wireless LAN, Broadband Wireless, Bluetooth.

UNIT-III

THE NETWORK LAYER: Network layer design issues, routing algorithms, Congestion control algorithms, Internetworking, the network layer in the internet (IPv4 and IPv6), Quality of Service.

UNIT-IV

THE TRANSPORT LAYER: Transport service, elements of transport protocol, SimpleTransport Protocol, Internet transport layer protocols: UDP and TCP.

UNIT-V

THE APPLICATION LAYER: Domain name system, electronic mail, World Wide Web: architectural overview, dynamic web document and http.

APPLICATION LAYER PROTOCOLS: Simple Network Management Protocol, File Transfer Protocol, Simple Mail Transfer Protocol, Telnet.

Text Book(s)

1. S. Tanenbaum (2003), Computer Networks, 4th edition, Pearson Education/ PHI, New

Delhi, India

Reference Books

2. Behrouz A. Forouzan (2006), Data communication and Networking, 4th Edition, Mc Graw-Hill, India.

3. Kurose, Ross (2010), Computer Networking: A top down approach, Pearson Education, India.

GUIDELINES TO THE PAPER SETTER

BLUE PRINT

Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	Nil	3	Nil
II	2	2	Nil
III	2	Nil	2
IV	2	Nil	2
V	2	Nil	1

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Course-XI: Data Communication and Computer Networks
SEMESTER-IV

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.			For additional knowledge of the student.

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Course-XI: Data Communication and Computer Networks
Semester End Examinations Model Paper
SEMESTER-IV

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   **5 x 4= 20 M**

1. Short Question from Unit-II
2. Short Question from Unit-II
3. Short Question from Unit- III
4. Short Question from Unit- III
5. Short Question from Unit-. IV
6. Short Question from Unit-. IV
7. Short Question from Unit- V
8. Short Question from Unit-V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   **5 x 8 =40 M**

SECTION-II

9. Essay question from Unit-I
10. Essay Question from Unit-I
11. Essay Question from Unit-I
12. Essay Question from Unit-II
13. Essay Question from Unit-II

SECTION-III

14. Essay Question from Unit- III
15. Essay Question from Unit-III
16. Essay Question from Unit- IV
17. Essay Question from Unit- IV
18. Essay Question from Unit-V

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II B.Sc., Hon's in Computer Science under CBCS w.e.f 2024-2025
For II B.Sc., Hon's in Computer Science Major Program
Internal Assessment Examination Model Question Paper
Course-XI: Data Communication and Computer Networks

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1

2. Essay Question from Unit-1.

3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1

5. Short Answer Question from Unit-1.

6. Short Answer Question from Unit-2.

7. Short Answer Question from Unit-2.

8. Short Answer Question from Unit-2.

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Course-XI: Data Communication and Computer Networks
SEMESTER-IV

Credits -3

Unit 1: Activity: Hands-on exercises to configure network applications

Evaluation Method: Practical skills in configuring network applications, hardware, and software.

Unit 2: Activity: Protocol Design and Simulation using simulation tools like NS-3 or Cisco Packet Tracer.

Evaluation Method: Students' ability to design and simulate data link layer protocols and multiple

access protocols

Unit 3: Activity: Guest Lectures and Workshops on routing algorithms, congestion control, and network

layer protocols.

Evaluation Method: Students' participation and understanding demonstrated in guest lectures and

workshop

Unit 4: Activity: Network Monitoring and Traffic Analysis using tools like Wireshark

Evaluation Method: Understanding of transport protocols through their analysis of network traffic and

identification of UDP and TCP behavior

Unit 5: Activity: Group Projects on Network Application Development

Evaluation Method: Group Project Presentations

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Course-XI: Data Communication and Computer Networks
SEMESTER-IV

Credits -1

List of Experiments:

1. Understanding various network tools in Windows and Linux

2. Study different types of Network devices and Cables

3. Building a Local Area Network

4. Concept of Network IP Address

5. Introduction to Network Simulator – Packet Tracer (PT)

6. Configuration of a Router using Packet Tracer

7. Implementation of a Network using Packet Tracer

8. Implementation of Static Routing using Packet Tracer

9. Implementation of RIP using Packet Tracer

10. Implementation of OSPF using Packet Tracer

11. Implement DNS using packet tracer

12. Implementation of a VLAN using Packet Tracer

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For II B.Sc., Hon's in Computer Science Minor Program
Course-3: Database Management Systems
SEMESTER-IV

Credits -3

Learning Objectives:

To familiarize with concepts of database design

Learning Outcomes: On successful completion of the course, students will be able to

1. Differentiate between database systems and file based systems

2. Design a database using ER model

3. Use relational model in database design

4. Use SQL commands for creating and manipulating data stored in databases.

5. Write PL/SQL programs to work with databases.

UNIT- I

Overview of Database Management System: Introduction to data, information, database, database management systems, file-based system, Drawbacks of file-Based System, database approach, Classification of Database Management Systems, advantages of database approach, Various Data Models, Components of Database Management System, three schema architecture of data base, costs and risks of database approach.

UNIT - II

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, Classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and specialization, IS A relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, advantages of ER modeling.

UNIT - III

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC), Functional dependencies and normal forms upto 3rd normal form.

UNIT - IV

Structured Query Language: Introduction, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Join Operation, Set Operations, View, Sub Query.

UNIT - V

PL/SQL: Introduction, Shortcomings of SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Procedure, Function, Database Triggers, Types of Triggers.

Text Books:

1. Operating System Principles by Abraham Silberschatz, Peter Baer Galvin and GregGagne (7th Edition) Wiley India Edition.

Reference Books

1. Database Management Systems by Raghu Ramakrishnan, McGraw-Hill
2. Principles of Database Systems by J. D. Ullman
3. Fundamentals of Database Systems by R. Elmasri and S. Navathe
4. SQL: The Ultimate Beginners Guide by Steve Tale.

GUIDELINES TO THE PAPER SETTER

BLUE PRINT

Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	1	3	Nil
II	2	2	Nil
III	1	Nil	2
IV	2	Nil	2
V	2	Nil	1

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Course-3: Database Management Systems
SEMESTER-IV

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-5:	**Transaction Management and Concurrency Control:** What is transaction, Transaction properties, Transaction management with SQL, Transaction Log, Concurrency control, Concurrency control with locking Methods: Database, Table, Page, row and field level locks; Two phase locking to ensure serializability; Deadlock, Database Recovery Management: Deferred-Write Technique;	For additional knowledge of the student.

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Course-3: Database Management Systems
Semester End Examinations Model Paper
SEMESTER-IV

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   5 x 4= 20 M

1. Short Question from Unit-I
2. Short Question from Unit-II
3. Short Question from Unit- II
4. Short Question from Unit- III
5. Short Question from Unit- IV
6. Short Question from Unit- IV
7. Short Question from Unit- V
8. Short Question from Unit-V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.

Each one carries 8 marks.   5 x 8 =40 M

SECTION-II

9. Essay question from Unit-I
10. Essay Question from Unit-I
11. Essay Question from Unit-I
12. Essay Question from Unit-II
13. Essay Question from Unit-II

SECTION-III

14. Essay Question from Unit-III
15. Essay Question from Unit-III
16. Essay Question from Unit- IV
17. Essay Question from Unit- IV
18. Essay Question from Unit-V

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Internal Assessment Examination Model Question Paper
Course-3: Database Management Systems

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1
2. Essay Question from Unit-1.
3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1
5. Short Answer Question from Unit-1.
6. Short Answer Question from Unit-2.
7. Short Answer Question from Unit-2.
8. Short Answer Question from Unit-2.

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SEMESTER-IV

Credits -3

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Seminar Presentation on Database Management Systems

Evaluation Method: Depth of research, clarity of explanations, ability to address questions and engage the audience.

Unit 2:

Activity: Case Study on EER model

Evaluation Method: Identification of inheritance relationships, effective use of generalization and specialization, and adherence to constraints.

Unit 3:

Activity: Exercise on Normalization: Assign students a set of unnormalized tables and have them normalize the tables to third normal form

Evaluation Method: Normalized table designs, identification of functional dependencies, adherence to normalization rules, and elimination of anomalies.

Unit 4:

Activity: Competition on SQL Query Writing

Evaluation Method: Query correctness, efficiency, proper use of SQL commands, ability to handle complex scenarios, and creativity in query formulation.

Unit 5:

Activity: Peer Review of PL/SQL code

Evaluation Method: Peer evaluation of code quality, adherence to coding standards, proper use of language elements, and logic.
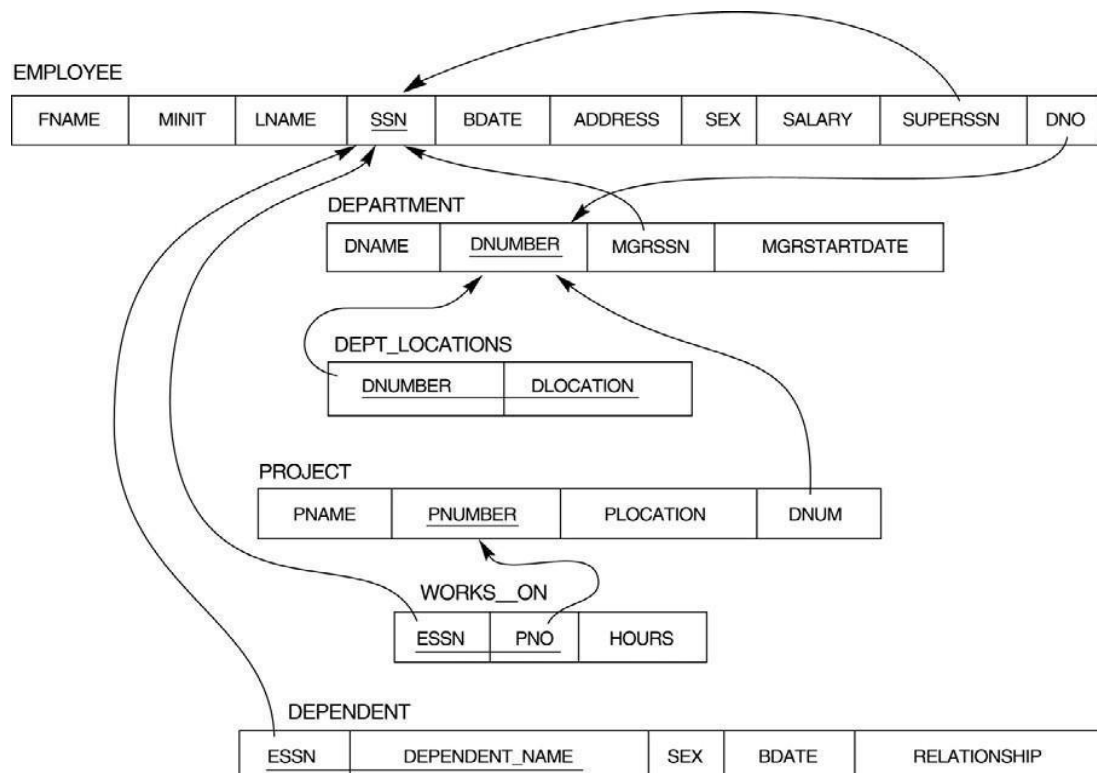
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For II B.Sc., Hon's in Computer Science Minor Program
Course-3: Database Management Systems
SEMESTER-IV

Credits -1

List of Experiments:

1. Draw ER diagram for hospital administration

2. Creation of college database and establish relationships between tables

3. Relational database schema of a company is given in the following figure.

Relational Database Schema – COMPANY

Questions to be performed on above schema

1. Create above tables with relevant Primary Key, Foreign Key and other constraints

2. Populate the tables with data

3. Display all the details of all employees working in the company.

4. Display ssn, lname, fname, address of employees who work in department no 7.

5. Retrieve the Birthdate and Address of the employee whose name is 'Franklin T. Wong'

6. Retrieve the name and salary of every employee

7. Retrieve all distinct salary values

8. Retrieve all employee names whose address is in 'Bellaire'

9. Retrieve all employees who were born during the 1950s

10. Retrieve all employees in department 5 whose salary is between 50,000 and

60,000(inclusive)

11. Retrieve the names of all employees who do not have supervisors

12. Retrieve SSN and department name for all employees

13. Retrieve the name and address of all employees who work for the 'Research' department

14. For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.

15. For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.

16. Retrieve all combinations of Employee Name and Department Name

17. Make a list of all project numbers for projects that involve an employee whose last name is 'Narayan' either as a worker or as a manager of the department that controls the project.

18. Increase the salary of all employees working on the 'Product X' project by 15%. Retrieve employee name and increased salary of these employees.

19. Retrieve a list of employees and the project name each works in, ordered by the employee's department, and within each department ordered alphabetically by employeefirst name.

20. Select the names of employees whose salary does not match with salary of any employee in department 10.

21. Retrieve the employee numbers of all employees who work on project located in Bellaire, Houston, or Stafford.

22. Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary. Display with proper headings.

23. Find the sum of the salaries and number of employees of all employees of the 'Marketing' department, as well as the maximum salary, the minimum salary, and the average salary in this department.

24. Select the names of employees whose salary is greater than the average salary of all employees in department 10.

25. Delete all dependents of employee whose ssn is '123456789'.

26. Perform a query using alter command to drop/add field and a constraint in Employee table

PRACTICAL BREAK UP OF MARKS:

5. Procedure/Steps -   10 Marks
6. Execution -   20 Marks
7. Practical Record -   10 Marks
8. Viva -   10 Marks

   Total   50 Marks

Batch 2023-2027
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
II B.Sc., Hon's in Computer Science under CBCS w.e.f 2024-2025
For II B.Sc., Hon's in Computer Science Minor Program
Course-4: Object Oriented Software Engineering
SEMESTER-IV

Credits -3

Course Objective:

To introduce Object-oriented software engineering (OOSE) - which is a popular technical approach to analyzing, designing an application, system, or business by applying the object- oriented paradigm and visual modeling.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand and apply the fundamental principles of Object-Oriented Programming (OOP) concepts and Unified Modeling Language (UML) basics, in the development of software solutions.

2. Analyze and specify software requirements, develop use cases and scenarios, apply object- oriented analysis and design (OOAD) principles

3. Familiar with the concept of test-driven development (TDD) and its practical implementation

4. Analyze and Evaluate Software Maintenance and Evolution Strategies

5. Apply Advanced Object-Oriented Software Engineering Concepts

UNIT-I

Introduction to Object-Oriented Programming: Overview of software engineering, Introduction to Object-Oriented Programming (OOP) concepts (classes, objects, inheritance, polymorphism), Unified Modelling Language (UML) basics, Introduction to software development process and software development life cycle (SDLC).

UNIT-II

Requirements Analysis and Design: Requirements analysis and specification, Use cases and scenarios, Object-oriented analysis and design (OOAD), Design patterns, UML modelling techniques (class diagrams, sequence diagrams, state machine diagrams, activity diagrams)

UNIT-III

Software Construction and Testing: Software construction basics, Object-oriented design principles, Object-oriented programming languages (Java, C++, Python), Software testing basics (unit testing, integration testing, system testing), Test-driven development (TDD)

UNIT-IV

Software Maintenance and Evolution: Software maintenance basics, refactoring techniques Software version control, Code review and inspection, Software evolution and reengineering

UNIT-V

Advanced Topics in Object-Oriented Software Engineering: Model-driven engineering (MDE), Aspect-oriented programming (AOP), Component-based software engineering (CBSE), Service- oriented architecture (SOA), Agile software development and Scrum methodologies.

Text Book(s)

1. An Introduction to Object-Oriented Analysis and Design and the Unified Process, 3rd Edition, Craig Larman, Prentice-Hall.

2. Programming in Java by Sachin Malhotra, Oxford University Press

Reference Books

1. Requirements engineering: processes and techniques, G.Kotonya and, I.Sommerville, 1998, Wiley

2. Design Patterns, E.Gamma, R. Helm, R. Johnson, and J. Vlissides

3. The Unified Modeling Language Reference Manual, J. Rumbaugh, I.Jacobson and G. Booch, Addison Wesley.

GUIDELINES TO THE PAPER SETTER

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Unit No.	Section –I SAQ's	Section-II EQ's	Section-III EQ's
I	Nil	3	Nil
II	2	2	Nil
III	2	Nil	2
IV	2	Nil	2
V	2	Nil	1

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Course-4: Object Oriented Software Engineering
SEMESTER-IV

Credits -3

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.			For additional knowledge of the student.

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II B.Sc., (Computer Science Major) under CBCS w.e.f A.Y 2024-2025
For II B.Sc., Hon's in Computer Science Minor Program
Course-4: Object Oriented Software Engineering
Semester End Examinations Model Paper
SEMESTER-IV

Time: 3 Hours   **Max. Marks: 60**

SECTION-I

Note: Answer any five questions. Each one carries 4 marks.   **5 x 4= 20 M**

1. Short Question from Unit-II
2. Short Question from Unit-II
3. Short Question from Unit- III
4. Short Question from Unit- III
5. Short Question from Unit-. IV
6. Short Question from Unit-. IV
7. Short Question from Unit- V
8. Short Question from Unit-V

Note: Answer Any Five Questions by choosing at least two from Section-II and Section-III.
Each one carries 8 marks.   **5 x 8 =40 M**

SECTION-II

9. Essay question from Unit-I
10. Essay Question from Unit-I
11. Essay Question from Unit-I
12. Essay Question from Unit-II
13. Essay Question from Unit-II

SECTION-III

14. Essay Question from Unit- III
15. Essay Question from Unit-III
16. Essay Question from Unit- IV
17. Essay Question from Unit- IV
18. Essay Question from Unit-V

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II B.Sc., Hon's in Computer Science under CBCS w.e.f 2024-2025
For II B.Sc., Hon's in Computer Science Minor Program
Internal Assessment Examination Model Question Paper
Course-4: Object Oriented Software Engineering

Time: 1:30 Hours   **Max. Marks: 28**

SECTION-A

NOTE: ANSWER ANY TWO OF THE FOLLOWING.   **2 X 8=16 M**

1. Essay Question from Unit-1

2. Essay Question from Unit-1.

3. Essay Question from Unit-2.

SECTION-B

NOTE: ANSWER ANY THREE OF THE FOLLOWING.   **3 X 4 = 12M**

4. Short Answer Question from Unit-1

5. Short Answer Question from Unit-1.

6. Short Answer Question from Unit-2.

7. Short Answer Question from Unit-2.

8. Short Answer Question from Unit-2.

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Course-4: Object Oriented Software Engineering
SEMESTER-IV

Credits -3

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1:

Activity: Group Activity: Design and implement a small OOP project

Evaluation Method: Presentation evaluation rubric, Project evaluation based on OOP principles.

Unit 2:

Activity: Use Case Scenario Presentation & Peer Activity: Review and provide feedback on each other's use case diagrams

Evaluation Method: Presentation evaluation rubric, Peer feedback assessment.

Unit 3:

Activity: Poster Presentation: Illustrate TDD principles and benefits

Evaluation Method: Poster presentation evaluation

Unit 4:

Activity: Peer Activity: Analyze and discuss different maintenance strategies

Evaluation Method: Peer discussion participation evaluation

Unit 5:

Activity: Seminar on Design Patterns

Evaluation Method: Depth of research, clarity of explanations, ability to address questions and engage the audience

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Course-4: Object Oriented Software Engineering
SEMESTER-IV

Credits -1

Suggested Software Tools: StarUML/UMLGraph/Topcased/Umberollo/ArgoUML/ Eclipse IDE, Visual Paradigm for UML/Rational Software Architect/Any other Open Source Tool.

List of Experiments:

Select domain of interest (e.g. College Management System) and identify multi-tier software application to work on (e.g. Online Fee Collection). Analyze, design and develop this application using OOSE approach:

1. Develop an IEEE standard SRS document. Also develop risk management and project plan (Gantt chart).

2. Understanding of System modeling: Data model i.e. ER – Diagram and draw the ER Diagram with generalization, specialization and aggregation of specified problem statement

3. Understanding of System modeling: Functional modeling: DFD level 0 i.e. Context Diagram and draw it

4. Understanding of System modeling: Functional modeling: DFD level 1 and DFD level 2 and draw it.

5. Identify use cases and develop the use case model.

6. Identify the business activities and develop an UML Activity diagram.

7. Identity the conceptual classes and develop a domain model with UML Class diagram.

8. Using the identified scenarios find the interaction between objects and represent them using UML Interaction diagrams.

9. Draw the state chart diagram.

10. Identify the user interface, domain objects, and technical services. Draw the partial layered, logical architecture diagram with UML package diagram notation.

11. Implement the technical services layer.

12. Implement the domain objects layer.

13. Implement the user interface layer.

14. Draw component and deployment diagrams

PRACTICAL BREAK UP OF MARKS:

5.	Procedure/Steps -	10 Marks
6.	Execution -	20 Marks
7.	Practical Record -	10 Marks
8.	Viva -	10 Marks

	Total	50 Marks

Batch 2022-2025
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
III B.Sc. (Computer Science): V Semester under CBCS w.e.f 2022-2023
Web Interface Designing Technologies
THEORY PAPER – VI (A)
SEMESTER-V

I. Learning Outcomes: Students after successful completion of the course will be able to:

1. Understand and appreciate the web architecture and services.
2. Gain knowledge about various components of a website.
3. Demonstrate skills regarding creation of a static website and an interface to dynamic website.
4. Learn how to install word press and gain the knowledge of installing various plug-into use in their websites.

II. Syllabus: (Total Hours: 90 including Teaching, Lab, and Field training, Unit tests etc.)

Unit – I: (10 hours)

HTML: Introduction to web designing, difference between web applications and desktop applications, introduction to HTML, HTML structure, elements, attributes, headings, paragraphs, styles, colours, HTML formatting, Quotations, Comments, images, tables, lists, blocks and classes, HTML CSS, HTML frames, file paths, layout, symbols, HTML responsive.

Unit – II (10 hours)

HTML forms: HTML form elements, input types, input attributes, HTML5, HTML graphics, HTML media – video, audio, plug INS, you tube.

HTML API'S: Geo location, Drag/drop, local storage, HTML SSE.

CSS: CSS home, introduction, syntax, colours, back ground, borders, margins, padding, height/width, text, fonts, icons, tables, lists, position, over flow, float, CSS combinators, pseudo class, pseudo elements, opacity, tool tips, image gallery, CSS forms, CSS counters, CSS responsive.

Unit – III (10 hours)

Client side Validation: Introduction to JavaScript - What is DHTML, JavaScript, basics, variables, string manipulations, mathematical functions, statements, operators, arrays, functions. Objects in JavaScript - Data and objects in JavaScript, regular expressions, exception handling. DHTML with JavaScript **-** Data validation, opening a new window, messages and confirmations, the status bar, different frames, rollover buttons, moving images.

Unit – IV (10 hours)

Word press: Introduction to word press, servers like wamp, bitnami etc., installing and configuring word press, understanding admin panel, working with posts and pages, using editor, text formatting with shortcuts, working with media-Adding, editing, deleting media elements, working with widgets, menus.

Unit – V (10 hours)

Working with themes: Installing Themes, Activating a Theme, Manually Uploading a Theme, Deleting

a Theme; User and user roles and profiles.

Working with Links: Linking to Another Website, Opening a Link in a New Tab, Linking to a Page Within Your Site, Editing & Removing Links;

Word Press Plug-ins: About Word Press Plug-ins, Installing a Word Press Plug-in, Updating Plug-ins. Customizing the site, changing the appearance of site using CSS, protecting word press website from hackers.

References:

1. Chris Bates, Web Programming Building Internet Applications, Second Edition,Wiley (2007)
2. Paul S.Wang Sanda S. Katila, an Introduction to Web Design plus Programming, Thomson (2007).
3. Head First HTML and CSS, Elisabeth Robson, Eric Freeman, O'Reilly Media Inc.
4. An Introduction to HTML and JavaScript: for Scientists and Engineers, David R. Brooks. Springer, 2007
5. Schaum's Easy Outline HTML, David Mercer, Mcgraw Hill Professional.
6. Word press for Beginners, Dr.Andy Williams.
7. Professional word press, Brad Williams, David damstra, Hanstern.
8. Web resources:
   a. http://www.codecademy.com/tracks/web
   b. http://www.w3schools.com
   c. https://www.w3schools.in/wordpress-tutorial/
   d. http://www.homeandlearn.co.uk
9. Other web sources suggested by the teacher concerned and the college librarian including reading material.

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Unit no	Essay Questions	Short Answer Questions
I	3 (Section-A)	1 (Section-C)
II	2 (Section-A)	2 (Section-C)
III	3 (Section-B)	2 (Section-C)
IV	1 (Section-B)	2 (Section-C)
V	1 (Section-B)	1 (Section-C)

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Web Interface Designing Technologies
THEORY PAPER – VI (A)
SEMESTER-V

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-5:	**Working with themes:** Installing Themes, Activating a Theme, Manually Uploading a Theme, Deleting a Theme; **Working with Links:** Linking to Another Website , Opening a Link in a New Tab, Linking to a Page Within Your Site , Editing & Removing Links; **Word Press Plug-ins:** About Word Press Plug-ins, Installing a Word Press Plug-in, Updating Plug-ins.	For better understanding of the students.

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Web Interface Designing Technologies
THEORY PAPER – VI (A)
SEMESTER-V

Time: 3 Hours   **Max. Marks: 75**

NOTE: 1. Answer Any FIVE Questions by choosing at least two from Section-A and Section-B
**   2. Each one carries 10 marks.**

                                                                                  5X10=50

SECTION-A

1. Essay Question from Unit-I

2. Essay Question from Unit-I

3. Essay Question from Unit-I

4. Essay Question from Unit-II

5. Essay Question from Unit-II

SECTION-B

6. Essay Question from Unit-III

7. Essay Question from Unit-III

8. Essay Question from Unit-III

9. Essay Question from Unit-IV

10. Essay Question from Unit-V

SECTION-C

Note: 1. Answer any FIVE questions from the following.
**   2. Each one Carries 5 Marks.**

                                                                                  5X5=25

11. Short Answer Question from Unit-I

12. Short Answer Question from Unit-II

13. Short Answer Question from Unit-II

14. Short Answer Question from Unit-III

15. Short Answer Question from Unit-III

16. Short Answer Question from Unit-IV

17. Short Answer Question from Unit-IV

18. Short Answer Question from Unit-V

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Web Interface Designing Technologies
THEORY PAPER – VI (A)
SEMESTER-V

PRACTICAL SYLLABUS

I. Learning Outcomes:

On successful completion of this practical course, student shall be able to:

1. Create a basic website with the help of HTML and CSS.

2. Acquire the skill of installing word press and various plug-ins of Word press.

3. Create a static website with the help of Word press.

4. Create an interface for a dynamic website.

5. Apply various themes for their websites using Word press.

II. Practical (Laboratory) Syllabus: *(30 hrs.)*

HTML and CSS:

1. Create an HTML document with the following formatting options:

   (a) Bold, (b) Italics, (c) Underline, (d) Headings (Using H1 to H6 heading styles), (e) Font (Type, Size and Color), (f) Background (Colored background/Image in background), (g) Paragraph, (h) Line Break, (i) Horizontal Rule, (j) Pre tag

2. Create an HTML document which consists of:

   (a) Ordered List (b) Unordered List (c) Nested List (d) Image

3. Create a Table with four rows and five columns. Place an image in one column.

4. Using "table" tag, align the images as follows:

5. Create a menu form using html.

6. Style the menu buttons using css.

7. Create a form using HTML which has the following types of controls:

(a)Text Box (b) Option/radio buttons (c) Check boxes (d) Reset and Submit buttons

8. Embed a calendar object in your web page.

9. Create an applet that accepts two numbers and perform all the arithmetic operations on them.

10. Create nested table to store your curriculum.

11. Create a form that accepts the information from the subscriber of a mailing system.

12. Design the page as follows:
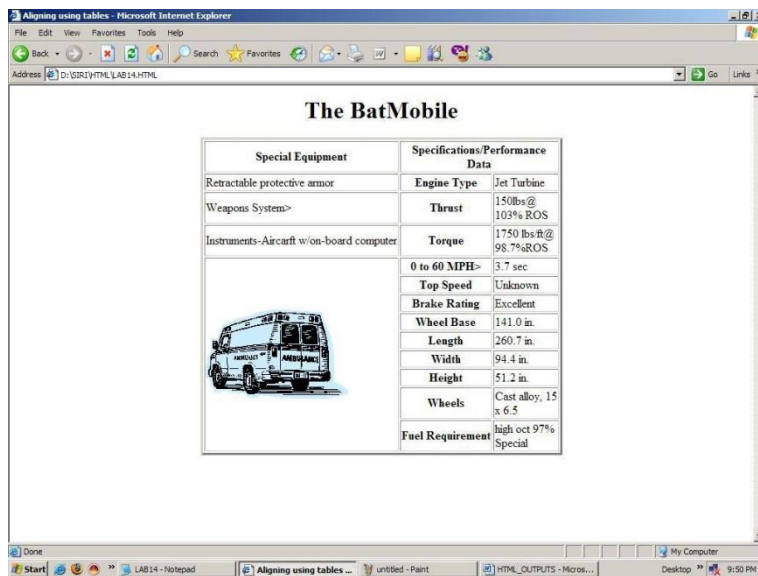
13. Create a help file as follows:

14. Create a webpage containing your bio data (assume the form and fields).

15. Write a html program including style sheets.

16. Write a html program to layers of information in web page.

17. Create a static webpage.

Word press:

18. Installation and configuration of word press.

19. Create a site and add a theme to it.

20. Create a child theme

21. Create five pages on COVID – 19 and link them to the home page. .

22. Create a simple post with featured image.

23. Add an external video link with size 640 X 360.

24. Create a user and assign a role to him.

25. Create a login page to word press using custom links

26. Create a website for your college.

PRACTICAL BREAK UP OF MARKS:

1. Procedure/Steps -   10 Marks

2. Execution -   20 Marks

3. Practical Record -   10 Marks

4. Viva -   10 Marks

    Total   50 Marks

Batch 2022-2025
SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
III B.Sc. (Computer Science): V Semester under CBCS w.e.f 2022-2023
Web Applications Development using PHP & MYSQL
THEORY PAPER – VII (A)
SEMESTER-V

I. Learning Outcomes:

Students after successful completion of the course will be able to:

1. Write simple programs in PHP.
2. Understand how to use regular expressions, handle exceptions, and validate data using PHP.
3. Apply In-Built functions and Create User defined functions in PHP programming.
4. Write PHP scripts to handle HTML forms.
5. Write programs to create dynamic and interactive web based applications using PHPand MYSQL.
6. Know how to use PHP with a MySQL database and can write database driven web pages.

Unit-1: (10 hours)

The Building blocks of PHP: Variables, Data Types, Operators and Expressions, Constants.

Flow Control Functions in PHP: Switching Flow, Loops, Code Blocks and Browser Output.

Working with Functions: What is function?, Calling functions, Defining Functions, Returning the values from User-Defined Functions, Variable Scope, Saving state between Function calls with the static statement, more about arguments.

Unit-2: (10 hours)

Working with Arrays: What are Arrays? Creating Arrays, Some Array-Related Functions.

Working with Objects: Creating Objects, Object Instance Working with Strings,

Dates and Time: Formatting strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP.

Unit-3: (10 hours)

Working with Forms: Creating Forms, Accessing Form Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, and Working with File Uploads.

Working with Cookies and User Sessions: Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsetting Variables, Using Sessions in an Environment with Registered Users.

Unit-4: (10 hours)

Working with Files and Directories: Including Files with inclue(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from Files, Writing or Appending to a File, Working with Directories, Open Pipes to and from Process Using popen(),

Running Commands with exec(), Running Commands with system() or passthru().

Working with Images: Understanding the Image-Creation Process, Necessary Modifications to PHP, Drawing a New Image, Getting Fancy with Pie Charts, Modifying Existing Images, Image Creation from User Input

Unit-5: (10 hours)
MySQL: Introduction – Setting up account – Starting & terminating MySQL – Writing your own SQL programs – Record Selection Technology – Working with strings –Date & Time – Sorting Query Results.

Interacting with MySQL using PHP: MySQL Versus MySQLi Functions; Connecting to MySQL with PHP, Working with MySQL Data, Creating an Online Address Book: Planning and Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.

References

1.Julie C. Meloni, SAMS Teach yourself PHP MySQL and Apache, PearsonEducation (2007).
2.Steven Holzner , PHP: The Complete Reference, McGraw-Hill
3.Robin Nixon, Learning PHP, MySQL, JavaScript, CSS & HTML5, Third EditionO'reilly, 2014
4.Xue Bai Michael Ekedahl, The web warrior guide to Web Programming, Thomson(2006).
5.Web resources:
- http://www.codecademy.com/tracks/php
- http://www.w3schools.com/PHP
- http://www.tutorialpoint.com

6.Other web sources suggested by the teacher concerned and the college librarian including reading material.

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Unit no	Essay Questions	Short Answer Questions
I	3 (Section-A)	Nil (Section-C)
II	2 (Section-A)	2 (Section-C)
III	2 (Section-B)	2 (Section-C)
IV	2 (Section-B)	2 (Section-C)
V	1 (Section-B)	2 (Section-C)

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SRI Y.N.COLLEGE (AUTONOMOUS): NARSAPUR
III B.Sc. (Computer Science): V Semester under CBCS w.e.f 2022-2023
Web Applications Development using PHP & MYSQL
THEORY PAPER – VII (A)
SEMESTER-V

ADDITIONAL INPUTS

S.No	Topics Reviewed	Topics Added	Justification
1.	Unit-5:	**MySQL:** Introduction – Setting up account – Starting & terminating MySQL – Writing your own SQL programs – Record Selection Technology – Working with strings –Date & Time – Sorting Query Results.	For better understanding of the Subject.

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Web Applications Development using PHP & MYSQL
THEORY PAPER – VII (A)
SEMESTER-V

Time: 3 Hours   **Max. Marks: 75**

NOTE: 1. Answer Any FIVE Questions by choosing at least two from Section-A and Section-B
      2. Each one carries 10 marks.

                                                                5X10=50

SECTION-A

1. Essay Question from Unit-1.

2. Essay Question from Unit-1.

3. Essay Question from Unit-1.

4. Essay Question from Unit-2.

5. Essay Question from Unit-2.

SECTION-B

6. Essay Question from Unit-3.

7. Essay Question from Unit-3.

8. Essay Question from Unit-4

9. Essay Question from Unit-4.

10. Essay Question from Unit-5.

SECTION-C

Note: 1. Answer any FIVE questions from the following.
      2. Each one Carries 5 Marks.

                                                                5X5=25

11. Short Answer Question from Unit-2.

12. Short Answer Question from Unit-2

13. Short Answer Question from Unit-3.

14. Short Answer Question from Unit-3.

15. Short Answer Question from Unit-4.

16. Short Answer Question from Unit-4.

17. Short Answer Question from Unit-5.

18. Short Answer Question from Unit-5.

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III B.Sc. (Computer Science): V Semester under CBCS w.e.f 2022-2023
Web Applications Development using PHP & MYSQL
THEORY PAPER – VII (A)
SEMESTER-V

PRACTICAL SYLLABUS

I. **Practical (Laboratory) Syllabus**: *(30 hrs.)*

1. Write a PHP program to Display "Hello"
2. Write a PHP Program to display the today's date.
3. Write a PHP program to display Fibonacci series.
4. Write a PHP Program to read the employee details.
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
8. Create Website Registration Form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
9. Write PHP script to demonstrate passing variables with cookies.
10. Write a program to keep track of how many times a visitor has loaded the page.
11. Write a PHP application to add new Rows in a Table.
12. Write a PHP application to modify the Rows in a Table.
13. Write a PHP application to delete the Rows from a Table.
14. Write a PHP application to fetch the Rows in a Table.
15. Develop an PHP application to implement the following Operations

    i. Registration of Users.

    ii. Insert the details of the Users.

    iii. Modify the Details.

    iv. Transaction Maintenance.
    - a) No of times Logged in
    - b) Time Spent on each login.
    - c) Restrict the user for three trials only.
    - d) Delete the user if he spent more than 100 Hrs of transaction.
16. Write a PHP script to connect MySQL server from your website.
17. Write a program to read customer information like cust-no, cust-name, item- purchased, and mob-no, from customer table and display all these information in table format on output screen.
18. Write a program to edit name of customer to "Kiran" with cust-no =1, and to delete record with cust-no=3.
19. Write a program to read employee information like emp-no, emp-name, designation and salary from EMP table and display all this information using table format in your website.
20. Create a dynamic web site using PHP and MySQL