DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS

SCHEME AND SYLLABUSOF EXAMINATION FOR

Bachelor (Honours/Honours with Research) of Computer Applications

Duration4 Years (8 Semesters) w.e.f. Academic Session 2023-24

Semester–V Scheme A									
Course Code	Course Title	Credit	L:T:P:CH	Internal Marks		External Marks		Total Marks	
				Th	Pr	Th	Pr	Min	Max
Major/Core Courses									
B23-CC-A5	Artificial Intelligence	4	3:0:1:5	20	10	50	20	40	100
B23-CC-B5	Data Structures	4	3:0:1:5	20	10	50	20	40	100
B23-CC-C5	Back End Development	4	3:0:1:5	20	10	50	20	40	100
Minor/Vocational Courses									
B23- CC-M5 (V)	Data Communication and Networking	4	3:0:1:5	20	10	50	20	40	100
Multidisciplinary Courses									
Ability Enhancement Courses									
Skill Enhancement Courses									
B23-SEC9	Internship	4		0	50	0	50	40	100
Value Added Courses									
	Total	**20**	**20**						**400**

Semester–VI Scheme A

Course Code	Course Title	Credit	L:T:P:CH	Internal Marks		External Marks		Total Marks	
				Th	Pr	Th	Pr	Min	Max
Major/Core Courses									
B23-CC-A6	Computer Graphics	4	3:0:1:5	20	10	50	20	40	100
B23-CC-B6	Object Oriented Modeling wuth UML	4	3:0:1:5	20	10	50	20	40	100
B23-CC-C6	Advanced Web Development	4	3:0:1:5	20	10	50	20	40	100
Minor/Vocational Courses									
B23- CC-M6	Dot Net Framework and C#	4	3:0:1:5	20	10	50	20	40	100
B23- CC-M7 (V)	AI in Day to Day Life	4	3:0:1:5	20	10	50	20	40	100
Multidisciplinary Courses									
Ability Enhancement Courses									
Skill Enhancement Courses									
Value Added Courses									
	Total	**20**	**20**						**400**

B23-CC-A5

Artificial Intelligence

Maximum marks: 70
Time: 3 hours

External: 50
Internal: 20
Credit: 4

Course Objectives:

1. *To understand the Domain of Artificial intelligence and basics techniques used for searching*
2. *To understand different methods of knowledge representation*
3. *To understand nature and goals of Neural computing*
4. *To understand the Fuzzy Logic and Arithmetic*

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 5 parts (objective type/short-answer type questions) covering the entire syllabus and will carry 10 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 10 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting One question from each Unit.

UNIT-I

Basics of AI: Definition of AI, History, Domains AI, AI problems & State space, Some examples problems representations like Travelling Salespersons, Syntax analysis Problem, Basic issues to solve AI problems, Underlying assumptions, AI techniques, Level of model, Criteria for success, Control strategies.
Searching Techniques: DFS, BFS, Heuristic Search Techniques: Generate & Test: Hill Climbing (simple & steepest), Best first search/A*, Problem Reduction/AO*, Constraint satisfaction, Alpha-Beta pruning.

UNIT-II

Reasoning in logic : Brief revision of propositional and predicate logic. Different characterizations of reasoning. Generalized modus ponens. Resolution.
Forward and backward chaining. Knowledge Representation, Diversity of knowledge.
Inheritance hierarchies. Semantic networks. Knowledgebase ontologies. Handling uncertainty,

UNIT-III

Nature and Goals of Neural Computing: Comparison with rule-based AI. Overview of network
architectures and learning paradigms. Binary Decision Neurons, The McCullough-Pitts model.
Single-layer perceptrons and their limitations. The Multilayer Perceptron, The sigmoid output function.Hidden units and feature detectors. Training by error backpropagation. The error surface
and local minima. Generalisation, how to avoid overtraining.

UNIT-IV

Introduction to Fuzzy Logic, Classical and Fuzzy Sets: Overview of Classical Sets, Membership Function, Fuzzy rule generation.
Operations on Fuzzy Sets: Compliment, Intersections, Unions, Combinations of Operations, Aggregation Operations.
Fuzzy Arithmetic: Fuzzy Numbers, Linguistic Variables, Arithmetic Operations on Intervals; Numbers,Lattice of Fuzzy Numbers, Fuzzy Equations.
Fuzzy Logic: Classical Logic, Multivalued Logics, Fuzzy Propositions, Fuzzy Qualifiers, Linguistic Hedges.

Suggested Readings:

1. R. Beale, T. Jackson, " *Neural Computing-an introduction*", CRC Press, 1990.
2. Stuart Russell and Peter Norvig, "*Artificial Intelligence: A Modern Approach*", Prentice-Hall, 4th edition, 2020.
3. George J. Klir and Bo Yuan, "*Fuzzy Sets and Fuzzy Logic: Theory and Applications*" Prentice Hall, 1996.
4. M. Ganesh , "*Introduction To Fuzzy Sets And Fuzzy Logic*", PHI Learning, 2006.
5. Narayanan, A., & Kapoor, S, "*AI Snake Oil: What Artificial Intelligence Can Do, What It Can't, and How to Tell the Difference*", Princeton University Press, 2024.

B23-CC-B5

Data and File Structures

Maximum marks: 70
Time: 3 hours

External: 50
Internal: 20
Credit: 4

Course Objectives:

1. *To Understand the concepts of data types, data structure like arrays, records, linked list, stacks, queues, trees and graphs and their memory representation and Applications*
2. *To learn various searching and sorting algorithms*
3. *Apply fundamental algorithmic problems including Tree traversal, graph traversal and their applications.*
4. *To understand the file system.*

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 5 parts (objective type/short-answer type questions) covering the entire syllabus and will carry 10 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 10 marks.
Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting One question from each Unit.

UNIT-I

Fundamentals of algorithm analysis: Big 'O' notations, Time and space complexity of algorithms, Elementary data structures and their applications
Arrays: ordered lists, representation of arrays, sparse matrices, linked lists: singly and doubly linked lists, stacks, queues, multiples stacks and queues, Applications: polynomial arithmetic, infix, postfix and prefix arithmetic expression conversion and evaluations.

UNIT-II

Lists, Stacks & Queues: Abstract Data Types, Representation & implementation of linked list, Doubly linked list, Circular linked lists, Stacks, array representation of stack. Applications of stacks. Queues, array representation of Queues, Circular queues, Deques, priority queues, Applications of Queues.

UNIT-III

Trees: Introduction to trees, binary trees, representation and traversal of trees, operations on binary trees, types of binary trees, threaded binary trees, B Trees, AVL Trees, Application of trees.
Graphs: Representation, traversal, connected components, shortest path and transitive closure, topological sort, activity network, critical path, path enumeration. Dijkstra's Algorithm, Floyd Warshall's Algorithm, Minimum Spanning Tree Definitions.

UNIT-IV

Searching & Sorting: searching techniques, Hash function, Hash table, Internal sort: Radixsort, Insertion sort, Exchange sort, Selection sort, Quicksort, Mergesort, Heaport, External sort: K-way mergesort, balanced mergesort.
Files: Files, Queries and sequential organization; Cylinder surface indexing, Hashed Indexed, Tree Indexing, Sequential file organizational, random file organization, Hashed file organization, Inverted files, cellular partitions.

Suggested Readings:

1. Gupta S., "*Data Structures and Algorithms*", Toronto Academic Press, 2024
2. Agate J., "*Data Structures and Algorithms*", Brilliance Publications, 2024
3. E. Horowitz and S. Sahani, "*Fundamentals of Data Structures*", Galgotia Books Pvt. Ltd, 1999.
4. Mark Allen Weiss , "*Data Structures & Algorithm Analysis in C++*", Second edition, Pearson Edition. Asia,1996.
5. A.V. Aho, J.E. Hopcroft and T.D. Ullman , "*Data Structures and Algorithms*", Original edition, Addison-Wesley, 1999, Low Priced Edition.
6. John Hubbard, "*Schaum's Outline of Data Structures with C++*", McGraw-Hill Education , 2000.

B23-CC-C5
Back End Development

Maximum marks: 70
Time: 3 hours

External: 50
Internal: 20
Credit: 4

Course Objectives:

1. *To understand Client side scripting using Java Script.*
2. *To provide an overview of Data Types and operators in Java Script.*
3. *To understand Function, flow control and dialog boxes.*
4. *To know how to deal with Regular expressions.*
5. *To provide the concept of Form handling and State management using JavaScript.*

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 5 parts (objective type/short-answer type questions) covering the entire syllabus and will carry 10 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 10 marks.
Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting One question from each Unit.

UNIT-I

Introduction and overview of Java Script: Common uses of JavaScript, Overview of JavaScript Core Language Features, input and output in JavaScript.
Data Types and variables: Numbers, Strings, Booleans, Null, Objects, Arrays, type conversion, identifiers, variable declaration, implicit variable declaration, variable scope, constants.
JavaScript Operators: assignment, arithmetic, bitwise, increment/decrement, comparison, logical, ? and comma operator, typeof, Object operators, operator precedence and associativity.

UNIT–II

JavaScript Flow Control statements: if statements, switch, for loops, while loops, do-while loops, break, continue, label, return.
JavaScript Functions: Parameter passing basics, return statements, parameter passing: In and Out, Global and Local variable scope, recursive functions.
Dialog boxes: Alert dialog box, prompt dialog box, confirm dialog box

UNIT-III

Objects in JavaScript: Object creation, object destruction and garbage collection, common properties and methods, Array object, Date object, Math object, Number object, Boolean object and String object.
Regular Expressions: The need for Regular expressions, Creating Patterns, RegExp object, test( ), compile(), exec( ), RegExp Properties, String methods for Regular expressions: search(), split(), replace() , match( )
JavaScript Object Models:Object Model overview, The initial JavaScript Object Model, Accessing Document Elements by Position and by Name, Event handling, DOM Event Model. Window object.

UNIT- IV

Form Handling: The need for Form checking, Accessing Forms and Fields, Form Fields: Common input element properties, Text fields, Text Area, Buttons, Checkboxes and Radio Buttons, Select Menus, Hidden Fields, Form Validation.
State Management: Using Cookies in JavaScript for User state management, storing cookies, reading cookies, setting cookie expiry date, deleting a cookie, Cookie Limitations

Suggested Readings:

1. Flanagan, D., JavaScript: The Definitive Guide, O'Reilly Media.,2020
2. David Flanagan, "*JavaScript: The Definitive Guide: Activate Your Web Pages*", O' Reilly, 6th edition, 2011.
3. Thomas Powell, "*JavaScript: the Complete Reference*", McGraw Hill, 3rd edition, 2012.
4. Douglas Crockford, "JavaScript: The Good Parts", O' Reilly, 1st edition, 2008.
5. Deitel, Deitel, Goldberg, "*Internet & World Wide Web How To Program*", 4th Edition, Pearson Education, 2009.
   Robert. W. Sebesta, "*Programming the World Wide Web*", 4th Edition, Pearson Education, 2011.

B23- CC-M5 (V)

Data Communication and Networking

Maximum marks: 70
Time: 3 hours

External: 50
Internal: 20
Credit: 4

Course Objectives:

1. ***To understand the Computer Networks and various types.***
2. ***To provide an overview OSI and TCP/IP Models.***
3. ***To understand the Communication model and Switching.***
4. ***To provide an overview of Data Link Layer and Wireless LAN protocol.***
5. ***To understand the concept of Network layer, Routing and Scheduling.***

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 5 parts (objective type/short-answer type questions) covering the entire syllabus and will carry 10 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 10 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting One question from each Unit.

UNIT-I

Introduction to Computer Networks and its uses, Network categorization and Hardware: Broadcast and point-to-point networks, Local Area Networks (LAN), Metropolitan Area Networks (MAN), Wide Area Networks (WAN), Internetworks, Topologies, Wireless networks, Network Software: Protocols, Services, network architecture, design issues, OSI Reference model, TCP/IP Reference model, Comparison of OSI and TCP/IP Models. Introduction to Example Networks: Internet, Connection-Oriented Networks – X.25, Frame Relay, ATM.

UNIT-II

Data Communication Model, Digital and Analog data and signals, bit rate, baud, bandwidth, Nyquist bit rate, Guided Transmission Media – Twisted Pair, Coaxial cable, Optical fiber; wireless transmission – Radio waves, microwaves, infrared waves; Satellite communication. Switching: Circuit Switching, Packet Switching; Multiplexing: Frequency Division Multiplexing Time Division Multiplexing, Synchronous and Asynchronous TDM, Modems, Transmission Impairments, Manchester and Differential Manchester encoding, ADSL Versus Cable.

UNIT-III

Data Link Layer Design issues: Framing, error control, Flow Control, Error Detection and correction; Elementary Data Link Protocols, Sliding Window Protocols; Medium Access Control: Aloha, CSMA protocols, Collision free protocols, Limited Contention Protocols; Wavelength division Multiple access protocol, Wireless LAN Protocol: MACA; IEEE 802.3 Ethernet, IEEE 802.4 Token Bus; IEEE 802.5 Token ring, Binary Exponential Backoff algorithm, Digital Cellular, Radio: Global System for Mobile Communication (GSM), Code

Division Multiple Access(CDMA), Fiber Distributed Data Interface, Distributed Queue Dual Bus (DQDB).

UNIT-IV

Network Layer, Design issues , Virtual Circuit and Datagram Subnet, Routing Algorithms, Optimality principle, Shortest path Routing, Flooding , Distance Vector Routing, Link State Routing, Hierarchical Routing, Broadcast and Multi Cast Routing, Routing for Mobile hosts, Routing in Adhoc Networks,, congestion Control Algorithms, General Principals Traffic Shaping, Leaky bucket token bucket, choke packets, Load Shedding.

Suggested Readings:

1. Singh, B., " *Data Communication and Networking: Understanding Network Architecture, Design, and Management* ", BPB Publication, 1st Edition, 2024
2. Andrew S. Tanenbaum, "*Computer Networks*", Pearson, 6th Edition, 2021
3. Behrouz A Forouzan, "*Introduction to Data communications and Networking*", Tata Mc-Graw Hill, 4th Edition., 2013
4. Prakash C. Gupta, *"Data Communications and Computer Networks", PHI, 2006.*

B23-CC-A6

Computer Graphics

Maximum marks: 70
Time: 3 hours

External: 50
Internal: 20
Credit: 4

Course Objectives:

1. *To understand techniques of computer graphics.*
2. *To provide an overview of working principles of graphic devices.*
3. *To provide the working scanning algorithms.*
4. *To understand the applications of computer graphics.*
5. *To provide detail of hidden surface removal techniques.*

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 5 parts (objective type/short-answer type questions) covering the entire syllabus and will carry 10 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 10 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting One question from each Unit.

UNIT – I

Computer Graphics: Introduction, applications, Interactive computer graphics, Passive computer graphics.
Devices: Flat panel displays, Three dimensional viewing devices, Stereoscopic and virtual reality system, Joystick, Data glove, Digitizer, Image scanner, Touch panel, Light pen, Voice system.
Graphics Software: Co-ordinate representation, Graphics functions, Software standards, PHIGS workstation.
Drawing Geometry: Point, Line, DDA line drawing algorithm, Bresenham's line drawing algorithm, Properties of circle, Mid point circle drawing algorithm, Pixel addressing & Object geometry.

UNIT – II

Filled area primitive: Scan line polygon fill algorithm, Inside-Outside test, Boundary fill algorithm, Flood fill algorithm.
2-D Transformations: Translation, Rotation, Scaling, Shearing, Reflection Matrix representation & Homogenous coordinate, Composite transformation, General pivot point rotation, General fixed point scaling.

UNIT – III

2-D Viewing: View coordinate reference frame, window to viewport coordinate transformation, two dimensional viewing function, line clipping, Cohen-Sutherland line clipping algorithm, Midpoint Line Clipping Algorithm.
3-D Transformation : Translation, Rotation, Scaling, Matrix representation & Homogenous coordinate, Composite transformation, General pivot point rotation, General fixed point scaling. Parallel and Perspective Projection.

UNIT – IV

Interactive Input: Interactive Picture construction techniques, Basic positioning method, Constraints, Grids, Gravity Fields, Rubber band method, Dragging, Painting and Drawing, Virtual

reality environment.
Visible Surface Detection: Classification of visible surface detection algorithm, Depth buffer method, A-Buffer method, Scan line method, Depth sorting method.

Suggested Readings:

1. Donald Hearn, M. Pauline Baker , *"Computer Graphics C Version"*, Pearson, 2nd Edition.
2. Newman and Sproull, *"Principal of Interactive Computer Graphics"*, Tata Mc Graw Hill,2nd Edition.
3. P.K. Bhatia, "*Computer Graphics*", I.K. Interanational Publisher, 3rd Edition.
4. Zhigang Xiang, *"Computer Graphics"*, Tata Mc Graw Hill, 2006.
   Foley James, *"Computer Graphics Principles and Practice"*, Pearson Education, 3rd Edition.

B23-CC-B6

Object Oriented Modeling with UML

Maximum marks: 70
Time: 3 hours

External: 50
Internal: 20
Credit: 4

Course Objectives:

1. *To understand the basics of modeling and its components.*
2. *To provide the detail of state model and it's working.*
3. *To understand the steps followed for system design.*
4. *To understand various interaction models with reference to UML design.*

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 5 parts (objective type/short-answer type questions) covering the entire syllabus and will carry 10 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 10 marks.
Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting One question from each Unit.

UNIT-I

Introduction: Object-Orientation, Object Oriented Methodology, Modeling,
Class Modeling: Object, Class, Value & Attributes, Operation & Method, Link & Association, Association Classes, Qualified association, Multiplicity, Association end name, Ordering, Bag &Sequences, Generalization & Inheritance, Uses of Generalization.

UNIT-II

Advance Class Modeling: Advanced Object & Class Concepts, N-Array association, Aggregation, Abstract Class, Multiple Inheritance, Metadata.
State Modeling: Events, States, Transition & Conditions, State Diagram, State Diagram Behavior.
Advanced State Modeling: Nested State Diagram, Nested States, Signal Generalization, Concurrency.

UNIT-III

System Design: Overview, Estimating Performance, Making a reuse plan, Breaking a system into subsystems, Identifying Concurrency, Allocation of subsystem, Management of data storage, Handling global resources, Choosing a software control strategy, Handling boundary conditions, Setting trade-off priorities.

UNIT-IV

Interaction Modeling:
Use Case Models: Actors, Use case, Use case diagram, Guidelines for use case diagram.
Sequence Model: Scenarios, Sequence Diagrams, Guidelines for Sequence model.
Activity Model: Activities, Branches, Initiation & Termination, Concurrent Activities, Executable Activity Diagram, Guidelines for Activity diagram.
Case Study: Working of ATM with reference to implementation of basic structure, advanced structure, and functionality.

Suggested Readings:

1. Michael Blaha, James Rumbaugh, *"Object Oriented Modeling and Design with UML"*, Pearson Education, 2011.
2. Michael R Blaha, James R Rumbaugh, *"Object Oriented Modeling and Design with UML, UML2"*, Pearson, 2007.
3. Daminni Grover, *"Object Oriented Analysis and Design with UML"*, I. K International Publishing House, 1st edition, 2012.
4. Martin Fowler, *"UML Distilled"*, Pearson Education Inc., 2018.
5. Mike O'Docherty, *"Object Oriented Analysis And Design Understanding System Development with UML 2.0"*, Wiley Dreamtech, 2005.

B23-CC-C6

Advanced Web Development

Maximum marks: 70
Time: 3 hours

External: 50
Internal: 20
Credit: 4

Course Objectives:

1. *To provide the understanding of core features and applications of Angular JS.*
2. *To give an idea of Directives and built-in Filters.*
3. *To understand modules, scopes and Services of Angular JS.*
4. *To provide an overview of Node.JS modules and Node Package Manager.*
5. *To understand the concept of Event handling and database connectivity in Node.js*

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 5 parts (objective type/short-answer type questions) covering the entire syllabus and will carry 10 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 10 marks.
Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting One question from each Unit.

UNIT-I

AngularJS - Overview: Need of Angular JS, Applications of Angular JS, Core features, MVC Architecture
Directives: ng-app, ng-init, ng-model, ng-bind, ng-repeat, Directive Lifecycle, Binding Controls to Data, Matching Directives, Angular Expressions
Built in Filters, Using Angular JS Filters. Role of Controller, Controllers and Modules, Nested Controllers, Using Filters in Controllers

UNIT-II

Introduction to Angular JS Modules, Working with Angular forms, Model Binding Forms, Updating Models with a twist.
Scope, Scope Lifecycle, Scope Inheritance, Scope and Controllers, Rootscope, Scope Broadcasting.
Dependency Injection, Creating Services, Factory Service and Provider.

UNIT-III

Introduction to Node.gs, REPL Terminal, Node.js Modules, Module Types, Core Modules, Local Modules, Module Experts
Node Packet Manager (NMP), Installing Packages Locally, Adding dependency in Packages, Installing Packages Globally, Updating packages. Creating Web Server, Handling http requests, sending requests.
Buffers, Streams, Files, reading, writing, updating files, synchronous and asynchronous.

UNIT-IV

Events in Node JS, significance of the events, writing own events, Event Emitter class, inhering events.
Express framework to create web applications: Configuring Routes, Working with Express. How to serve Static HTML pages to the browser, and serving other file formats and restricting certain files.
Database Connectivity: MySQL Database, Creating Connection, Creating database and tables, Insert, Select, Delete , Update records.

Suggested Readings:

1. Ruebbelke L., "*Angular JS in Action*", Manning Publications, 2015.
2. Sandro Pasquali, Kevin Faaborg, "*Mastering Node.js*", Packt Publishing Limited, 2017
3. Dhruti Shah,"*Node .Js*", BPB Publications, 1st edition, 2018.
4. Seshadri S., Green B., "*Angular JS Up and Running*", O'Reilly, 2014.
5. Jim R. Wilson, "*Node.js the Right Way*", O'Reilly, 2013.
6. Alex Young, Bradley Meck, Mike Cantelon, Tim Oxley, Marc Harter, T.J. Holowaychuk, Nathan Rajlich , "*Node.js in Action*", Dreamtech Press; 2nd edition, 2017.

B23- CC-M7 (V)
AI in Day to Day Life

Maximum marks: 70
Time: 3 hours

External: 50
Internal: 20
Credit: 4

Course Objectives:

1. *To understand the concept of Artificial Intelligence.*
2. *To know about various applications of AI.*
3. *To get familiar with AI Applications.*
4. *To understand AI and Its Ethical Usage in Day to Day Life.*

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 5 parts (objective type/short-answer type questions) covering the entire syllabus and will carry 10 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 10 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting One question from each Unit.

UNIT-I

What is AI? Basic concepts explained simply, AI vs. Human Intelligence, AI in historical and philosophical context, AI narratives in literature, cinema, and media.

Everyday applications: social media, recommendation systems, digital assistants; AI in governance: smart cities, predictive policing, e-governance, AI in education, healthcare, media, and cultural heritage; Social acceptance and resistance to AI

UNIT-II

AI in language and translation (Google Translate, ChatGPT); AI and creative industries (art, music, film, journalism); AI and cultural preservation (digitization, archives); Changing nature of human communication with AI

Bias and discrimination in AI, Privacy, surveillance, and data ethics, Algorithmic fairness and accountability, Philosophical debates: Can machines be moral?

UNIT-III

Impact on jobs and future of work, Automation in service and knowledge industries, Inequality: AI-rich vs. AI-poor societies, Global perspectives on AI-driven development

AI in legal decision-making and judiciary, Intellectual property and AI-generated content, International policies and AI governance (EU, India, US, China), Regulation, responsibility, and accountability of AI systems

UNIT-IV

AI in elections and political campaigns (microtargeting, deepfakes), AI, propaganda, and misinformation; Surveillance states vs. digital freedoms, AI and geopolitics (global competition in AI)

Human–AI collaboration: augmentation vs. replacement, AI in addressing social challenges (climate change, health crises, education gaps), Risks of AGI (Artificial General Intelligence), Imagining futures: utopian vs. dystopian AI

Reference Books:

1. Data, A. (2025). *Zenith: Mastering AI for Everyday Life and Work.* Rupa Publications.
   This is a practical guide by Indian innovator Dr. Ajay Data, showing how to apply AI tools in daily routines and work, grounded in the Indian context
2. Pandey, J. (2023). *AI Made Simple: A Beginner's Guide to Artificial Intelligence in Everyday Life*. Pothi Books.
3. Dandotiya, A. S., Gupta, S. K., Dandotiya, N., & Sharma, P. (2024). *AI in Everyday Life: Transforming Society* (1st ed.). Navi International Book Publication House.