S–6665	Sub. Code
	23MCE1C1

M.Sc. DEGREE EXAMINATION, APRIL 2025.

First Semester

Computer Science

ANALYSIS AND DESIGN OF ALGORITHMS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is geometric problems?

2. Write short note on Searching.

3. Brief the concept of multiplication of large integers.

4. Define - Dijkstra's algorithm.

5. Define - Dynamic programming.

6. Write short note on Warshall's algorithm.

7. Mention the term of promising.

8. What is optimal solution?

9. What do you mean by intractable?

10. State the term of np hard problems.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define – O-notation. Explain in detail.

Or

(b) Explain the concept of general plan for analyzing the time.

12. (a) Brief the concept of prim's algorithm.

Or

(b) Explain the concept of Kruskal's is algorithm.

13. (a) Discuss in detail about memory functions in dynamic programming.

Or

(b) Explain the concept of computing a binomial coefficient.

14. (a) Describe the concept of Hamiltonian circuit problem.

Or

(b) Explain the concept of four queen's problem.

15. (a) Write short note on non deterministic polynomial.

Or

(b) Discuss in detail about approximation algorithm for the knapsack problem.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the worst case, best case and average case of the analysis of algorithm.

17. Describe the concept of convex Hull problem.

18. Discuss in detail about Floyd's algorithm for the all pairs shortest paths problem.

19. Explain the concept of traveling salesman problem.

20. Define P and NP Problems. Explain in detail.

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S–6666

Sub. Code
23MCE1C2

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Science

OBJECT ORIENTED ANALYSIS AND DESIGN

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is generalisation?
2. Define the term associations.
3. Write short note on functional modeling.
4. What do you mean by events?
5. State the uses of user object attributes.
6. Write short note on identify events.
7. What is sub systems?
8. Brief the concept of processes and tables.
9. Give a note on target object.
10. Define the term inheritance.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the concept of object oriented development.

Or

(b) Illustrate the use of grouping constructs.

12. (a) Demonstrate the use of nested state diagram with suitable example.

Or

(b) Brief the features of a data flow diagram.

13. (a) Write down the advantages of object oriented analysis.

Or

(b) Discuss in detail about state transition diagram with example.

14. (a) Explain the concept of system design.

Or

(b) Write short note on subsystems to tasks.

15. (a) Briefly explain the one way associations in object design.

Or

(b) Mention the uses of dynamic model explain in detail.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the concept of object modeling techniques.

17. Explain the concept of relation of functional to object models.

18. Describe the automated teller machine example.

19. What is handling boundary condition? Explain in detail.

20. Explain the concept of design optimization object design.

S–6667

Sub. Code
23MCE1C3

M.Sc. DEGREE EXAMINATION, APRIL 2025.

First Semester

Computer Science

PYTHON PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Algorithm?

2. Write short note on Augmented Assignment operations.

3. Mention the uses of data encryption.

4. Define the term list.

5. What is polymorphism?

6. State the term class.

7. Mention the uses of migrate commands.

8. What do you mean by blog?

9. Write short note on get ( ) method.

10. Define the term URL.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Illustrate the concept of string concatenation with example.

Or

(b) Brief the concept of mixed mode Arithmetic and type conversions.

12. (a) Explain the concept of slicing for substrings.

Or

(b) Summarizes in detail about problem decomposition.

13. (a) Why we can use comparison methods. Explain.

Or

(b) Write short note on GUI, event driven programming.

14. (a) Briefly explain designing the blog data schema.

Or

(b) How to create an isolated python environment? Explain.

15. (a) Describe creating list and detail views in Query set.

Or

(b) How to Adding URL patterns for your news in Dhango? Explain.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What is looping statement? Compare for loop statement and while loop statement with example.

17. Define – Recursive function. Describe tracing a recursive function.

18. Explain the concept of Inheritance Hierarchies and modeling.

19. How to adding your models to the administration site? Explain.

20. Discuss in detail about adding pagination to your blog.

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S–6668

Sub. Code
23MCE1E1

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Science

Elective : ADVANCED SOFTWARE ENGINEERING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What does industrial strength of Software refers?

2. What is Adaptive maintenance?

3. Expand CMM and SRS.

4. Mention the types of feasibility study.

5. Name the factors contributing to the complexity of Software project.

6. Give the two Empirical cost estimation techniques.

7. List the contents of decision table.

8. Name any four risks in Software design.

9. Spell the contents of a Test Case.

10. Mention any four activities in configuration management.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write a short note on various personnel involved in SW development process.

Or

(b) Analyse that "Waterfall model produce fragile software".

12. (a) Explain various methods for requirements gathering.

Or

(b) Exemplify Axiomatic Specification.

13. (a) Give an account on LOC as a metric.

Or

(b) Analyse the advantages of Work Break-Down Structure.

14. (a) Explain the outcomes of design phase.

Or

(b) Summarize function oriented design.

15. (a) Give a brief note on levels of testing.

Or

(b) How to improve the qualities of delivered software?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail the Primary challenges for Software engineering.

17. Summarize Halstead's software science for cost estimation.

18. Discuss various levels of DFD with example.

19. Elucidate regression testing.

20. Explain requirement change control in detail.

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S–6670

Sub. Code
23MCE2C1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science

DATA MINING AND DATA WAREHOUSING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is a relational database?

2. Expand IQR.

3. Mention the key features of data ware house.

4. List the operations of OLAP.

5. Define closed item set.

6. What does information gain refers?

7. Mention the alternative terms refers clustering.

8. Expand DBSCAN.

9. List the types of dimension in a spatial data cube.

10. What is a who is server?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write about the evolution and importance of data mining.

Or

(b) Illustrate data mining primitives.

12. (a) Give an account on metadata repository.

Or

(b) Explain the design issues of online analytical mining.

13. (a) What are the ways to improve the efficiency of Aprieri algorithm?

Or

(b) Explain the basic algorithm for inducing a decision tree from training tuples.

14. (a) Exemplify categorical variables.

Or

(b) Is expectation maximization an extension of the K-means partitioning algorithm?

15. (a) What kinds of associations can be mined in multimedia data? Explain.

Or

(b) Elaborate web mining.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the strategies and techniques of data reduction.

17. Draw and explain a three tier data warehouse architecture.

18. Demonstrate FP-tree for finding frequent item sets.

19. Explain BIRCH with example.

20. Develop a strategy for finding phishing web pages.

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S–6671

Sub. Code
23MCE2C2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science

PRINCIPLES OF COMPUTER DESIGN

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. What does compiler translate?

2. Draw the transition diagram of string 'college'.

3. Mention the input and output of a parser.

4. What are all the categories of shift reduce parsing?

5. What do you meant by semantic rules?

6. Mention the Boolean operator.

7. What is the scope of symbols?

8. Name the two types of basic block optimization.

9. Give few examples of function preserving transformation.

10. Write about unreachable code in few words.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write a short note on regular expression.

Or

(b) How to minimize the number of states of a DFA? Explain

12. (a) Draw and explain the block diagram of LR parser.

Or

(b) Exemplify context free Grammar.

13. (a) Give an account on Quadruples.

Or

(b) Explain postfix translations.

14. (a) Explain error recovery in detail.

Or

(b) Summarize the information used by compiler from symbol table.

15. (a) Give a brief note on issues in code generation.

Or

(b) How to do global data flow analysis?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail about the various phases of a compiler.

17. Discuss on LL Parsing algorithm in detail.

18. Interpret that "Grammar + Semantic rule = SDT"

19. Explain Heap allocation of stack.

20. Elaborate loop optimization.

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S–6672

Sub. Code
23MCE2C3

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science

ADVANCED JAVA PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. How does Java support network programming?

2. Define Multithreading in Java.

3. What is Remote Method invocation (RMI) in Java?

4. Define Java Space and its use in distributed computing.

5. What is a prepared statement in JDBC and why it used?

6. What is meant by Multimedia data base in Java?

7. Give the methods in Servlet Life Cycle.

8. Define cookies in Java Servlet.

9. What is Internationalization in Java?

10. Give the difference between Servlet and JSP.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write a short notes on life cycle of thread.

Or

(b) Briefly explain the key components of the Java Programming.

12. (a) What is remote object activation? Explain it.

Or

(b) Explain the concept of object serialization.

13. (a) Give the importance of JDBC in web applications.

Or

(b) Write a short notes in JDBC drivers types.

14. (a) Write a short notes on servlet package in Java.

Or

(b) Write a simple JSP program to display user name and password.

15. (a) How to creak JAR File? Explain.

Or

(b) Write a short notes on reflection in Java.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the different types of event handling mechanism in Java.

17. Discuss how Java Spaces can be used to build distributed application with example.

18. Explain the JDBC architecture with neat diagram.

19. Discuss the life cycle of a Java Servlet in detail.

20. Explain the components and architecture of Swing Frame Work in Java.

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S–6673

Sub. Code
23MCE2E1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science

Elective : ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List down the application of AI.

2. How AI works?

3. Define ridge.

4. What are the issues in knowledge representation?

5. What is meant by forward - chaining rule?

6. Define predicate logic.

7. Write down the importance of hybrid cloud.

8. What is machine learning?

9. What is the use of instance - based algorithms?

10. Define clustering.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write down the depth-first search algorithm.

Or

(b) Solve travelling salesman problem.

12. (a) List down the steps involved in Best-First algorithm.

Or

(b) Write a short note on simple hill climbing.

13. (a) Compare procedural with declarative knowledge.

Or

(b) How natural deduction works?

14. (a) Compare big data with data mining.

Or

(b) Write a note on evolution of machine learning.

15. (a) List down the steps in the machine learning cycle.

Or

(b) Write a short note on linear regression.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail about problems with AI.

17. Outline the concept of problem reduction.

18. Elaborate an logic programming.

19. Explain the role of data mining and statistics with machine learning.

20. Discuss about types of machine learning algorithm.

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S–6674

Sub. Code
23MCE2E2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science

Elective – BLOCK CHAIN TECHNOLOGIES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define data integrity.

2. What is the main difference between a blockchain and a traditional database?

3. Name one security issue associated with blockchain technology.

4. Define the term "blockchain network".

5. Name any two cryptocurrencies.

6. How distributed ledger works?

7. How inflation affects the economy?

8. What is cryptocurrency regulation?

9. Write down the key properties of blockchain technology.

10. What is industry 4.0?

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a note on the concept of distributed ledger technology.

Or

(b) Discuss shortly on the major benefits of using blockchain for identity verification.

12. (a) What is distributed consensus in the context of blockchain?

Or

(b) Describe the mining mechanism in blockchain.

13. (a) Write a note on the evolution of cryptocurrency.

Or

(b) How cryptocurrency works in the real work?

14. (a) Explain the process of exchanging cryptocurrency.

Or

(b) Discuss the principles of crypto economics.

15. (a) Explain the opportunities of implementing blockchain technology in industry 4.0.

Or

(b) Write a note on the challenges of using blockchain in healthcare management.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Examine the various blockchain platforms available today.

17. Compare and contrast blockchain 1.0 and blockchain 2.0.

18. Write a detailed note on symmetric key cryptography.

19. Analyze the role of cryptocurrencies in the global economy.

20. Discuss the role of blockchain in enhancing data management in industry 4.0.

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S–6675

Sub. Code
23MCE3C1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science

DIGITAL IMAGE PROCESSING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Digital Image processing?

2. What is the relationship between pixels in an image?

3. What is image enhancement in the spatial domain?

4. What is the purpose of sharpening spatial filter?

5. Define the noise model in image restoration.

6. What is geometric transformation?

7. Differentiate between error-free compression and lossy compression.

8. What is the fundamental principle behind image compression model?

9. What is image segmentation?

10. What is the purpose of thresholding?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short notes on the main components of image processing.

Or

(b) Briefly explain about the elements of visual perception.

12. (a) Write a short notes on the concept of histogram equalization.

Or

(b) Briefly explain the role of gray level transformation.

13. (a) Write a short notes on the use of inverse filtering.

Or

(b) Briefly explain the linear filtering techniques.

14. (a) Write a short notes on basic elements of information theory relevant to image compression.

Or

(b) Briefly explain the key components of an image compression model.

15. (a) Give the importance of edge detection.

Or

(b) Write a short notes on advantages of region - based segmentations.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the fundamentals steps in digital image processing with examples.

17. Describe the process of histogram equalization in detail.

18. Explain the model of the image degradation / restoration process and its components.

19. Discuss the fundamentals of image compression and its need.

20. Explain segmentation by morphological watersheds in detail.

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S–6676

Sub. Code
23MCE3C2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science

CLOUD COMPUTING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List two advantages of cloud computing.

2. What is meant by "Collaboration in cloud computing"?

3. What is the primary purpose of collaborating on schedule?

4. Mention one tool used for managing projects in the cloud.

5. Define task management.

6. Give an example of a cloud-based word processing tool.

7. What is web mail?

8. What is online groupware?

9. Give an example of a photo sharing community.

10. List one advantage of using cloud storage.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the concept of collaboration in cloud computing.

Or

(b) Describe the process of developing cloud services.

12. (a) How can cloud computing benefit community projects and initiatives?

Or

(b) Explain how cloud computing can be utilized for managing project schedules.

13. (a) Explain the benefits of using cloud services for calendar collaboration.

Or

(b) Explain the importance of contact management in cloud collaboration.

14. (a) Explain the process of creating and managing groups on social networks.

Or

(b) Describe the key features of online groupware and their benefits.

15. (a) Describe the purpose and benefits of online book marketing services.

Or

(b) Explain how photo sharing communities foster collaboration and creativity.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe in detail the steps involved in developing a cloud computing service, including planning, implementation and deployment.

17. Discuss the significance of "computing for everyone" and how it impacts digital inclusion.

18. Explore the impact of cloud services on contact management and how they facilitate seamless collaboration.

19. Describe in detail the evaluation criteria for selecting on instant messaging tool for a business.

20. Analyze the advantages and potential drawbacks of cloud storage for business.

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S–6677

Sub. Code
23MCE3C3

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science

DATA SCIENCE AND ANALYTICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the key challenges in handling big data?

2. Give the role of Data Scientist in the Data Science Process.

3. Define Machine learning.

4. What is the purpose of the Data Analytics life cycle?

5. What are the different graphical user interfaces available in R?

6. Define clustering and mention one real-world application on it.

7. What is classification in Machine Learning?

8. What are Association Rules in Data Mining?

9. Define Term Frequency – Inverse Document Frequency.

10. What are the key steps in text analysis?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the major components of the Data Science Process.

Or

(b) How does data science help businesses make data-driven decisions?

12. (a) Explain the difference between supervised, unsupervised and reinforcement learning.

Or

(b) What are the common challenges faced during the Data Analytics Process?

13. (a) Explain the process of data import and export in R with examples.

Or

(b) Discuss different techniques for visualizing a single variable in R.

14. (a) Explain the working of the decision Tree algorithm with an example.

Or

(b) How can we evaluate the performance of a decision tree model?

15. (a) Explain the assumptions of linear regression and its Applications.

Or

(b) Describe the process of representing text data for analysis.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the impact of Data Science in various industries like health care, finance and e-commerce.

17. Explain the data analytics life cycle in detail with a real-world application.

18. Perform a step-by-step k-means analysis using R and explain the results.

19. Explain Association Rule mining in detail and discuss its applications in market basket analysis.

20. Explain the complete text analysis process from collecting new text to categorizing documents by topics, with examples.

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S–6678	Sub. Code
	23MCE3E1

M.Sc. DEGREE EXAMINATION, APRIL 2025.

Third Semester

Computer Science

Elective : NETWORK SECURITY AND CRYPTOGRAPHY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. State the design criteria of block cipher.

2. What is brute force attack?

3. What is message authentication?

4. Define hash function.

5. What is koreros realm?

6. Define IP Security.

7. What is Intrusion Detection?

8. Define Virus.

9. What is Steganography?

10. Define Water marking.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about the Security Attacks.

Or

(b) Briefly write short notes on Blow fish.

12. (a) Discuss about the key management of public key encryption in detail.

Or

(b) Enumerate on digital signatures.

13. (a) Explain the format of X 509 Certificate.

Or

(b) Elucidate on S/MIME message types.

14. (a) Elucidate about SSL / TLS Protocol.

Or

(b) Enumerate briefly on Password Security.

15. (a) Elucidate about Security Audit.

Or

(b) Explain about Quantum Cryptography.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Enumerate the Classical Encryption technique with symmetric cipher Model.

17. Explain RSA Algorithm in detail with example?

18. Discuss about the operational Description of PGP?

19. Elucidate secure Electronic Transaction with neat diagram?

20. Discuss about the features of water marking in detail and state its uses.

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S–6680

Sub. Code
23MCE4C1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science

DISTRIBUTED OPERATING SYSTEM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A ($10 \times 2 = 20$)

Answer **all** questions.

1. Give an example of a distributed computing system.

2. How does a distributed operating system differ from a network operating system?

3. What is message passing in distributed system?

4. What is process addressing?

5. Define RPC.

6. What is meant for stub generation?

7. What is a consistency model in DSM?

8. Define thrashing.

9. Give two desirable features of a distributed file system.

10. Define file sharing semantics.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) List and explain any three advantages of using distributed computing system.

Or

(b) What are the issues in designing distributed computing system?

12. (a) Discuss the main issues in PC message passing.

Or

(b) Explain the process of encoding and decoding in message passing.

13. (a) Discuss the importance of transparency in RPC.

Or

(b) Explain the challenges and methods of server management in RPC.

14. (a) Discuss the design and implementation issues of distributed shared memory.

Or

(b) What are the benefits and challenges of heterogeneous DSM?

15. (a) Discuss three desirable features of a DFS and their importance.

Or

(b) Compare and contrast different file caching schemes used in DFS.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail the various models of distributed computing system with examples.

17. Analyze the role of synchronization in message passing, including the challenges and solutions.

18. Describe the special types of remote procedure calls and their applications in different scenarios.

19. Discuss in detail the general architecture of a distributed shared memory, including the key components and their functions.

20. Analyze different file models and file accessing models in distributed file system.

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S–6681

Sub. Code
23MCE4C2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science

ARTIFICIAL NEURAL NETWORKS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write down the benefits of neural networks.

2. Draw the structural organisation of levels in the brain.

3. What is the purpose of optimization?

4. Define function signals.

5. What happens in the convergence phrase?

6. What is the role of hidden neurons?

7. Define state space.

8. Write down the general characteristics of neuro-dynamic models.

9. Tell about feature selection.

10. How SVM works?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Describe about boltz-mann learning.

Or

(b) Write a note on memory-based learning.

12. (a) Summarize back-propagation algorithm.

Or

(b) Draw the architectural graph of a multilayer perceptron with two hidden layers.

13. (a) Tell about limitations of back-propagation learning.

Or

(b) Write a short note on adaptive pattern classification.

14. (a) How Gibb's sampling works?

Or

(b) Describe shortly about additive model.

15. (a) Solve asymptotic stability theorem.

Or

(b) Write a short note on Kernel-based PCA.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Outline the different classes of network architecture.

17. Discuss on least-mean-square algorithm.

18. Illustrate the concept of learning vector quantization.

19. Describe about hop field model.

20. Discuss on SVM for pattern recognition.

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S–6682

Sub. Code
23MCE4E1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science

Elective : PARALLEL PROCESSING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. Define the term 'granularity' in parallel processing

2. What is task parallelism?

3. What is a tightly coupled system?

4. Define interconnected network

5. Tell about data parallelism

6. What is meant by shared address space?

7. Give an example of a design issue commonly encountered in parallel algorithms

8. Define parallel efficiency

9. What is memory arbitration?

10. How shared variables work?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Describe latency and throughput in parallel computing system.

Or

(b) Discuss shortly on the types of parallelism.

12. (a) Differentiate tightly coupled system from loosely coupled system.

Or

(b) Describe the structure and characteristics of a ring topology.

13. (a) Compare and contrast message passing and shared address space models.

Or

(b) Explain the significance of granularity in parallel programming.

14. (a) Explain the divide and conquer approach in parallel algorithm design.

Or

(b) Discuss the concept of complexity in parallel algorithms.

15. (a) Write a note on cache coherence.

Or

(b) Explain the function of a shared bus in multiprocessor system.

Part C (3 × 10 = 30)

Answer any t**hree** questions.

16. Discuss the major issues in parallel processing.

17. Explain in detail on the advantages and disadvantages of various network topologies.

18. Discuss the principles of parallel programming.

19. Analyze the performance measures and complexities associated with parallel algorithms.

20. Discuss in detail the architecture and working of multiport systems in shared memory multiprocessor systems.

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S–6683

Sub. Code
23MCE4E2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science

Elective : CYBER SECURITY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. What is Malware?
2. What is Cyber Security?
3. State the major issues on WLAN
4. Define E–Mail
5. State the role of law enforcement officers
6. What is Incident Response?
7. Define Digital Evidence
8. What is an IP Address?
9. What is Computer Forensics?
10. What is Reporting?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Enumerate on the need of Digital Signatures

Or

(b) Elucidate about the Cyber Security initiatives in India.

12. (a) Briefly explain the browsing guidelines for Social Networking sites.

Or

(b) Explain about how to communicate securely with a smart phone.

13. (a) Discuss about the role as a Cyber Crime investigator.

Or

(b) Explain about the computer Analysis for the hacker defender program.

14. (a) Brief about the Digital Evidence seizure methodology.

Or

(b) Explain how to conduct Cyber Investigation.

15. (a) Discuss about the phases of Digital Forensics.

Or

(b) Write short notes on Cyber Crime Prevention.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elucidate a global prespective on Cyber Crime.

17. Elaborate about the Smart Phone Security guidelines.

18. Elaborate about Post Mortem versus live forensics.

19. Discuss about Interpersonal Communication.

20. Elaborate on the crime targeted at a government agency.

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S–6684

Sub. Code
23MCE4S1

M.Sc. DEGRE E EXAMINATION, APRIL 2025

Fourth Semester

Computer Science

ROBOTICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List down the components of robotics.

2. Define locomotive mechanisms.

3. How sensors help to make robotics work better?

4. Tell about Sensors.

5. What is GPS?

6. Define Lidar and Radar.

7. What is the purpose of image compression?

8. Recall planner sensors.

9. Write down some applications of robotics.

10. What are all the challenges in using continuous are welding?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss on Artificial Intelligence in robotics.

Or

(b) Write a note on sensory devices.

12. (a) How rotational motion works in robotics?

Or

(b) Explain forward and reverse kinematics.

13. (a) Write a short note on the various robotic applications related to localizations and mapping.

Or

(b) Outline the IR based localizations.

14. (a) List down the various representation of images with short notes.

Or

(b) Write a note on object recognition.

15. (a) Outline the challenges and consideration in material handling robotics.

Or

(b) Discuss shortly on the spot welding robotics.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Elaborate on the current robotic applications.

17. Discuss the purpose of proximity and distance measuring sensors.

18. Describe about localization in robotics.

19. Summarize robotic vision systems.

20. Assess the importance of aerial robots in the field of mining and exploration works.

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