R7362	Sub. Code
	551301

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Computer Science

DIGITAL IMAGE PROCESSING

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **All** the questions.

1. What is meant by random noise?

2. Specify about RGB color model.

3. How can a point be detected?

4. Mention the role of KL transform.

5. Define zero-crossing.

6. What are sobel operators?

7. What is compression ratio and relative data redundancy?

8. Define compression ratio.

9. State watershed line.

10. Define boundary descriptors.

Part B (5 × 5 = 25)

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

11. (a) Explain about Pseudo-color image processing.

Or

(b) Write notes on various applications of digital Image processing.

12. (a) Describe about the significance of spatial domain filters.

Or

(b) Illustrate image enhancement techniques.

13. (a) How edge detection is done using first and second order derivatives. Discuss.

Or

(b) Explain Canny edge detection method.

14. (a) Write notes on Wavelet transform based coding.

Or

(b) Elucidate MRFM based compression method.

15. (a) Describe image segmentation based on color.

Or

(b) Discuss the Gray-scale morphology.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elucidate the fundamental steps involved in digital image processing with the neat diagram.

17. Describe the smoothing and sharpening spatial filters.

18. Write notes on edge detection process in image segmentation.

19. Discuss how image information measurement plays significant role in computing coding efficiency in DIP.

20. Elucidate dilation, erosion, image opening and closing operations in morphological image processing with suitable examples.

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R7363	Sub. Code 551302

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Computer Science

INTERNET OF THINGS

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is meant by loT platform?

2. Differentiate loT and M2M.

3. Define Communication model of loT

4. State loT Topology.

5. Point out the significance of SCADA protocol.

6. What is CoAP?

7. Mention about two pillars of the Web.

8. What is the role of Cloud Middleware?

9. State the four real time applications of loT.

10. Define smart Grid

Part B (5 × 5 = 25)

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

11. (a) Illustrate the loT architecture with neat diagram.

Or

(b) Write notes on design guidelines for Internet of Things.

12. (a) Explain design of IOT architecture.

Or

(b) Describe the challenges and issues in RFID system..

13. (a) Elucidate the importance of M2M and WSN Protocols.

Or

(b) Explain Modbus protocol.

14. (a) Illustrate WoT Portals and Business Intelligence.

Or

(b) Write notes on the role of Cloud Providers and Systems

15. (a) Describe IOT based Smart Traffic Management system.

Or

(b) Discuss the application of IOT in e-health care system.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elucidate YANG loT Platforms Design Methodology with neat diagrams.

17. Illustrate about Functional View, Information View, Deployment and Operational View of lOT reference architecture.

18. Describe 6 low PAN architecture with suitable diagrams.

19. Illustrate the security, privacy and trust in IOT-data-platforms for smart cities.

20. Discuss data Synchronization techniques in loT

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R7364	Sub. Code
	551303

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Computer Science

MACHINE LEARNING

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. Brief on relational inductive bias.

2. Explain heuristic junction of A * search.

3. State the parameters in a perceptron network.

4. Explain the techniques for assessing the performance of machine learning models.

5. Explain Bayes rule in probability.

6. Differentiate K means and EM.

7. Explain sample complexity in machine learning.

8. Write the use of radial basis functions.

9. Briefly discuss FOCL algorithm with example.

10. Write the reinforcement problem characteristics.

Part B (5 × 5 = 25)

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

11. (a) Illustrate candidate elimination algorithm with example.

Or

(b) Describe id3 algorithm for decision tree learning with example.

12. (a) Explain multi-layer perceptron model.

Or

(b) State the algorithm and operators of genetic algorithm.

13. (a) Discuss Markov Chain Monte Carlo methods in detail.

Or

(b) Ram is getting married tomorrow, at an outdoor ceremony in the desert. In recent years, it has rained only 5 days each year. Unfortunately, the weatherman has predicted rain for tomorrow. When it actually rains, the weatherman correctly forecasts rain 90% of the time. When its doesn't rain, he incorrectly forecasts rain 10% of the time. What is the probability that it will rain on the day of Ram's wedding?

14. (a) Brief on KNN properties.

Or

(b) Discuss Case Based Reasoning (CBR) cycle.

15. (a) Explain the strategies for learning a single rule.

Or

(b) Describe off policy reinforcement learning algorithm.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Analyse the perspectives and issues in machine learning.

17. Illustrate the steps and pseudo-code for a Genetic algorithm.

18. Explain Gibbs sampling algorithm for sampling conditional distributions of variables.

19. Analyse the justifiable constraints for K-NN as a lazy learner.

20. Explain Sequential Covering Algorithm (Learning Prepositional Rules)

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R7365	Sub. Code
	551563

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Computer Science

Elective :IV-CLOUD COMPUTING

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define: Cloud Computing.

2. Distinguish between Public and Private cloud.

3. What is Iaas?

4. What are the features of Google App. Engine?

5. What is execution Virtualization?

6. Define: VPN.

7. What is Load balancing?

8. Write any two advantages of relational (SQL) approach.

9. What is CSA?

10. What is data security in Cloud?

Part B (5 × 5 = 25)

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

11. (a) What are the characteristics of Cloud computing? Explain.

Or

(b) Describe in short: Service oriented computing.

12. (a) Write short notes on Vmware.

Or

(b) Explain about Content delivery services.

13. (a) What are the different types of Clouds? Explain.

Or

(b) Write a short note on Cloud servers.

14. (a) Explain: Design consideration for developing Cloud applications.

Or

(b) Describe: Design methodologies for IaaS service model.

15. (a) What is the use of key management in Cloud security? Explain.

Or

(b) Write a note on Cloud computing in health care.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What are major distributed computing technologies led to cloud computing? Explain.

17. Brief about Amazon web services.

18. What are the characteristics of virtualization? Explain its pros and cons

19. Discuss: Reference architecture for cloud computing.

20. Brief about Streaming protocols.

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R7366	Sub. Code
	551569

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Computer Science

Elective – V : ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. Differentiate Breadth First Search and Depth First Search.

2. Explain ridge.

3. Define a knowledge base.

4. What are the basic components of prepositional logic?

5. Discuss fuzzy sets.

6. What is Bayesian network?

7. What are the different types of planning?

8. Differentiate problem solving and planning.

9. What is meta knowledge?

10. List the characteristic features of expert system.

Part B (5 × 5 = 25)

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

11. (a) Explain informed search strategies with an example.

Or

(b) Illustrate simulated annealing hill climbing search techniques.

12. (a) Explain resolution in predicate logic with suitable example.

Or

(b) Consider the following sentences :

- John like all kinds of food
- Apples are food
- Chicken is food
- Anything any one eats and isn't killed by is food
- Bill eats peanuts and is still alive.

Translate these sentences into formulae in predicate logic.

13. (a) Discuss forward chaining algorithm with example.

Or

(b) Explain Dempster-Shafer theory.

14. (a) Brief on strips.

Or

(b) Discuss learning with macro-operators.

15. (a) Explain the role of expert system.

Or

(b) Explain the strategies for knowledge acquisition.

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

Answer any **three** questions.

16. Analyse Constraint Satisfaction problem with an algorithm for solving a Crypt arithmetic problem.

17. Illustrate Iterative deepening algorithm.

18. Discuss Bayesian Theory and Bayesian Network.

19. Explain the components of a planning system.

20. Explain Rule-based expert system architecture.

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