

(DMCA 301)

Assignment-I
M.C.A. DEGREE EXAMINATION, JUNE 2022.
Third Year
ARTIFICIAL INTELLIGENCE
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. (a) Given two water jugs of 4 liters and 3 liters capacities Neither has any measuring mark on it. There is pump that can be used to fill the jugs. How can you get exactly 2 liters of water into 4-liter jugs and also construct state space tree.
(b) State and explain about different AI characteristics.
2. Explain about Best — First search algorithm with example.
3. (a) Write a procedure to convert well – formed — form into clause form.
(b) Explain Bayesian network with suitable example.
4. Illustrate Justification Truth Maintenance System with example.
5. What is Expert System? Discuss various components of expert system architecture
6. State and explain about 8 - puzzle problem
7. Differentiate DFS and BFS.
8. Write about means–ends analysis with robot navigation problem.
9. Explain about procedural and declarative knowledge.

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Assignment-2
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Third Year
ARTIFICIAL INTELLIGENCE
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Write about partitioned semantic net with example.
2. State and explain unification algorithm
3. Describe the default reasoning and closed world assumption.
4. Write about common sense ontologies
5. Give any two applications of AI.
6. Define Heuristic search.
7. Define resolution.
8. Give the limitations of hilt climbing.
9. Define rule based system.

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Assignment-I
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Third Year
CRYPTOGRAPHY AND NETWORK SECURITY
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. What are the various block cipher design principles? Explain how different cryptographic algorithms use Feistel Cipher Structure?
2. With a neat diagram explain how encryption and decryption are done using Blowfish algorithm?
3. Explain Diffie - Hellman key exchange algorithm
4. Explain RSA algorithm in detail with suitable example.
5. (a) Describe the process involved in digital signatures. Explain about different digital signatures.
(b) State and explain different classification of firewalls.
6. Explain the model of network security.
7. Encrypt the message "Exam" using the Hill cipher with the key $K = \begin{vmatrix} 9 & 4 \\ 5 & 7 \end{vmatrix}$.
8. Explain DES key generation process in detail.
9. What is symmetric key cryptography? What are the challenges of symmetric key cryptography?

Assignment-2

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Third Year

CRYPTOGRAPHY AND NETWORK SECURITY

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

1. Write a short note on Message Authentication Code.
2. Differentiate between hashing and encryption. What are the practical applications of hashing?
3. Describe the firewall design principle.
4. Explain about signature based Intrusion Detection Systems.
5. Define steganography.
6. Compare transposition ciphers with substitution cipher.
7. What are the advantages of Key Distribution?
8. Define linear cryptanalysis
9. What is digital certificate?

(DMCA 303)

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Third Year
EMBEDDED SYSTEMS
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Explain about the embedded system design technologies in detail.
2. Explain about Timers, counters and watchdog timers.
3. Explain about SRAM, DRAM and RAM variances in detail.
4. Explain about the Peripheral to memory transfer with DMA.
5. Explaining about the designing Close Loop Control System.
6. Explain about the common characteristics of embedded systems in details.
7. Explain about the Creating the controller's FSM.
8. Explain about the application specific Instruction-set Processors.
9. Explain about the Serial Transmission Using UARTs

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EMBEDDED SYSTEMS
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Explain about Flash Memory.
 2. Explain about Multilevel bus architectures.
 3. Explain about State charts language.
 4. Explain about Mutual Exclusion.
 5. What is nMOS?
 6. What is the Target processor?
 7. What is Cache-replacement policy
 8. Explain about Infrared communication.
 9. What is Real-time systems?
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Assignment-I
M.C.A. DEGREE EXAMINATION, JUNE 2022.
Third Year
DATAMINING TECHNIQUES
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. (a) What is data transformation? Explain various data transformation methods.

(b) Describe data visualization techniques with example.
2. What is decision tree induction? Write Basic algorithm for inducing a decision tree from training tuples.
3. (a) Write about gradient based methods for optimizing the smooth functions.

(b) Describe the score functions for predictive models.
4. Write about multilayer perceptron for regression and classification with neat sketch.
5. Discuss different ways to organizing the data into databases and data warehouse.
6. Describe the architecture of typical data mining system.

7. What are the desirable properties of good estimators?
8. Describe the joint probabilistic model for unordered categorical data.
9. Describe various kinds of association rules.

(DMCA 304)

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Third Year
DATAMINING TECHNIQUES
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Write about vector space algorithm for text retrieval.
2. What are the requirements for clustering?
3. Describe the score functions for descriptive models.
4. Describe various OLAP operations.
5. What is meant by missing value?
6. Define perceptron.
7. What is Manhattan distance?
8. Define data visualization.
9. What are the index structures?

(DMCA 305)

Assignment-I
M.C.A. DEGREE EXAMINATION, JUNE 2022.
Third Year
SYSTEMS AUDITING
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. What is internal control? Explain the components of internal control.
2. State and explain about various programming management controls.
3. Discuss various issues in data entry screen design.
4. Explain about different concurrent auditing techniques.
5. Explain the model of factors affecting the information system effectiveness.
6. Explain effect of computer on auditing.
7. Describe various steps in an audit.
8. Write about entity relationship and relational model integrity constraints.
9. Write about physical component control and Line error controls in communications.

(DMCA 305)

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SYSTEMS AUDITING
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. State and explain different phases of programming development life cycle.
2. Write about black box testing and white box testing.
3. Write about utility software's.
4. What are the determinants of Judgement performance?
5. Define subsystem factoring.
6. Define Bayesian model.
7. Define error propagation code.
8. What is network security?
9. What is meant by system effectiveness?