(DMCA301)

ASSIGNMENT - 1

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

ARTIFICIAL INTELLICENCE

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. (a) What is Tic-Tac-Toe problem? Construct state space tree for this problem.

   (b) Explain depth first search (DFS) and breadth first search (BFS) with suitable example. Why is 'depth limited search' necessary in DFS?

2. Illustrate Hill climbing search technique with suitable example? Explain the term local maxima and plateau associated with it.

3. Discuss about different knowledge representation issues.

4. What is symbolic reasoning? How to implement symbolic reasoning with Justification Truth Maintenance System (JTMS).

5. (a) Discuss knowledge acquisition and validation techniques.

   (b) What are well formed formulae? What are steps involved to convert well — formed — formula to clause form.

6. What is AI? Give any four applications of AI.

7. Explain AO* algorithm with suitable example.

8. Solve the following Crypt Arithmetic Problem: SEND + MORE = MONEY.

9. Describe Unification theorem with example.

(DMCA301)

ASSIGNMENT - 2

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

ARTIFICIAL INTELLICENCE

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Represent the fact that "Sourav is taller than Sachin" with the help of semantic net.
2. Differentiate declarative and procedural knowledge
3. Explain Bayesian network with suitable example.
4. Write note expert system shell.
5. Define heuristic function.
6. Define frame.
7. Define AND–OR graph.
8. Define inferential adequacy.
9. Define expert system.

(DMCA302)

ASSIGNMENT - 1

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

CRYPTOGRAPHY AND NETWORK SECURITY

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. What are the various block cipher design principles? Explain how different cryptographic algorithms using Fiestel Cipher Structure?

2. Explain four passes of MD5 message digest algorithm.

3. Explain Encryption and decryption in RSA algorithm. Also discuss various attacks on RSA.

4. Give a neat sketch to explain the concept of Secured Hash Algorithm (SHA).

5. What is a Firewall? Explain its design principles and types with example.

6. Describe in detail about Conventional Encryption Model.

7. What are the advantages of steganography comparing with cryptography?

8. Briefly explain Diffie-Hellman key exchange.

9. Explain Euler's totient function.

(DMCA302)

ASSIGNMENT - 2

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

CRYPTOGRAPHY AND NETWORK SECURITY

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Differentiate linear and differential crypto-analysis.
2. Explain the triple DES scheme with two keys.
3. What are the requirements of Authentication?
4. Write about Password Management.
5. Define Message Authentication Code.
6. What is public key cryptography?
7. Give the strength of DES algorithm.
8. What is intruder?
9. Define the Caesar cipher.

(DMCA303)

ASSIGNMENT - 1

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

EMBEDDED SYSTEMS

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Discuss about the design challenge – optimizing design metrics of Embedded Systems.
2. Discuss about Application-specific instruction-set processors.
3. Discuss about OTP ROM, EPROM, EEPROM and Flash memory.
4. Explain about Microprocessor interfacing with interrupts and Direct memory access.
5. Discuss about Finite-state machines with datapath model
6. Explain Design productivity gap.
7. Discuss about Basic combinational logic design
8. Explain about Timers, counters, and watchdog timers.
9. Explain about Testing and debugging of an Embedded System.

(DMCA303)

ASSIGNMENT - 2

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

EMBEDDED SYSTEMS

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain about Static RAM.
2. Explain about Bluetooth.
3. Discuss about the Communication among processes.
4. Explain about Concurrent processes.
5. What is Optimizing the FSMD?
6. What is Piplelining?
7. What is Non-volatile RAM?
8. What is IRDA?
9. What is Dataflow model?

(DMCA304)

ASSIGNMENT - 1

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

DATA MINING TECHNIQUES

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

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

   (b) Describe data visualization techniques with example.

2. (a) Explain in detail Constraint Based Frequent Pattern mining.

   (b) Summarize on Classification using frequent Patterns.

3. (a) Categorize various kinds of Association Rules with examples.

   (b) How to represent Frequent Itemset in compact format?

4. (a) State Bayes theorem. How can it be applied for data classification?

   (b) With example explain Bayesian belief network.

5. Discuss different ways to organizing the data into databases and data warehouse.

6. List the challenges of outlier detection.

7. Discuss in detail about data integrity preprocessing.

8. Explain apriori base approach for mining frequent patterns.

9. Describe various kinds of association rules.

(DMCA304)

ASSIGNMENT - 2

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

DATA MINING TECHNIQUES

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. How will you apply FP growth algorithm in Data mining?
2. What do you meant by Agglomerative Clustering?
3. Explain the terms Binning and Regression.
4. Compare OLTP and OLAP system.
5. How can we handle missing values?
6. Define association and correlations. Define data visualization.
7. Define perceptron.
8. Define prediction and description models.
9. Define Datamart.

(DMCA305)

ASSIGNMENT - 1

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

SYSTEMS AUDITING

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. What characteristics of computer systems often lead to high costs being incurred because of computer – system errors?

2. Discuss in detail about the components of internal controls that should be established in an organisation.

3. Why is encryption an important means of protecting the integrity of data passing over public communication lines? Is encryption also useful as a means of protecting data passing over private communication lines?

4. Explain the functions of the boundary sub-system. Give two components that perform basic activities in the boundary subsystem.

5. What purposes might auditors seek to achieve in using generalized audit software to examine the quality of data maintained on an application system files? Discuss.

6. What does an efficiency data processing system accomplish? Explain.

7. Why Information systems controls are needed? Discuss.

8. What are the keys a public-key cryptosystem uses?

9. How should a screen be organized for direct entry of input data?

(DMCA305)

ASSIGNMENT - 2

M.C.A. DEGREE EXAMINATION, MARCH 2023

Third Year

SYSTEMS AUDITING

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. What are the functional capabilities of expert system?
2. What is a passive attack on a communication network?
3. What is the sequence of steps most likely will be used in an efficiency evaluation study?
4. What control problems arises with spooling software? Explain.
5. Information system efficiency.
6. Management controls.
7. Phases of system development process.
8. Input validation cheeks.
9. Audit risks.