(DMCA 301)

ASSIGNMENT-1

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

ARTIFICIAL INTELLIGENCE
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. What is meant by state space approach? Illustrate state space search with suitable example.

2. Discuss means–ends analysis with robot navigation problem.

3. Translate the following sentence into predicate form:
   (a) Roses are Red and Violets are Blue.
   (b) All dogs are Mammals.
   (c) Some program have Bugs.
   (d) All Pompeians died when the volcano erupted in 79 A.D.
   (e) All the indoor games are easy.

4. Illustrate Justification Truth Maintenance System (JTMS) with ABC murder story.

5. State and explain common sense ontologies with suitable example.

6. Describe various AI domain tasks.

7. Describe any five problem characteristics.

8. Explain the features of AO* algorithm.

9. Differentiate procedural and declarative knowledge.

ASSIGNMENT-2

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

ARTIFICIAL INTELLIGENCE
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Explain unification algorithm.

2. What is matching? List down different matching techniques.

3. Write about case based reason with example.

4. Briefly explain about expert system shell.

5. Define production system.

6. What is heuristic function?

7. Define natural deduction.

8. What is resolution?

9. What is an expert system?

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(DMCA302)

ASSIGNMENT-1

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

CRYPTOGRAPHY AND NETWORK SECURITY
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Explain about Fermat's and Euler's theorems.
2. Discuss about DES in detail.
3. Describe the steps in message digest generation in secure hash algorithm in detail.
4. Explain about digital signature algorithm with example.
5. Explain about PGP message generation and reception.
6. Differentiate active and passive attack. Which attack is related to confidentiality?
7. Explain about network security model with neat diagram.
8. What are the principle elements of public key crypto systems?
9. Define S/MIME? What are the elements of MIME?

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ASSIGNMENT-2

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

CRYPTOGRAPHY AND NETWORK SECURITY
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Compare SHA–1 and MD5 algorithms.

2. What is MAC? Describe the functioning of MAC.

3. Draw the IP security authentication header.

4. Perform encryption and decryption using RSA algorithm for the following.

   p = 7, q = 11, e = 17 and M = 8.

5. Define firewall.

6. Define public key and private key.

7. Define trusted system.

8. Define virus.

9. Define message digest.

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(DMCA 303)

ASSIGNMENT-1

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

EMBEDDED SYSTEMS
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Discuss about optimizing custom single? Purpose processor design.
2. Discuss about Application specific instruction set processors.
3. Explain the following:
   (a) Dynamic RAM
   (b) Pseudo
   (c) Static RAM
4. Discuss about Arbitration.
5. Write about communication among processes.
6. Write a note on IC technology.
7. Discuss about RT? Level combinational components.
8. Write about Interrupts.
9. Discuss about UART.

(DMCA 303)

ASSIGNMENT-2

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

EMBEDDED SYSTEMS
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Write about Flash memory.
2. Discuss about Multilevel bus architecture.
3. Write a note on simple digital camera.
4. Explain about monitors.
5. Define an Embedded system.
6. Define NVRAM.
7. Define Bluetooth.
8. Define FSM.
9. Define Real time system.

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ASSIGNMENT-1

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

DATA MINING TECHNIQUES
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. What is principal component analysis? Explain.
2. Explain apriori algorithm for association rule mining.
3. Explain scoring models with different complexities.
4. Discuss the hierarchical clustering algorithm.
5. Explain index structures.
6. What are the tools used displaying more than two variables? Explain.
7. Explain about statistical inference.
8. Explain pattern structures for strings.
9. Explain about systematic search and search heuristics.

ASSIGNMENT-2

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

DATA MINING TECHNIQUES
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Explain logistics discriminant analysis.
2. Explain artificial neural networks.
3. Compare OLAP and OLTP?
4. Explain the generalized linear models.
5. What is scatter plot matrix?
6. Define meta data.
7. Define optimization.
8. What is data ware house?
9. What is regression?

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ASSIGNMENT-1

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

SYSTEMS AUDITING

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

1. What are the four major objectives of information systems auditing? Briefly explain the meaning of each one of them.

2. Explain in detail about Security Management Controls.

3. Explain with examples about boundary controls.

4. Briefly explain the functional capabilities of generalized audit software.

5. Explain with example about the different steps undertaken when evaluating an information system to assess its effectiveness.

6. Identify four types of risks that auditors faced. Briefly explain the nature of each.

7. Explain in detail about Quality assurance management Controls.

8. Briefly define what is meant by a security program. What are the eight major steps that must be undertaken during the conduct of a security program?

9. Briefly explain the function that channel access controls perform with in the communication subsystem.

ASSIGNMENT-2

M.C.A. DEGREE EXAMINATION, MAY/JUNE -2025

Third Year

SYSTEMS AUDITING

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

1. Briefly explain the functional capabilities of generalized audit software.

2. What are audit software's? Explain their features with examples.

3. Write the overview of the effectiveness of evaluation process.

4. What is meant by compute self-efficacy? Is compute self-efficacy always likely to be a concern when assessing information system effectiveness?

5. What do you mean by auditing?

6. What are database controls used for?

7. What is output controls used for?

8. List few concurrent auditing techniques.

9. What is meant by computer self-efficacy?

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