

M.C.A. THIRD YEAR DEGREE EXAMINATION, DEC 200__.

Paper I – ARTIFICIAL INTELLIGENCE

Time: Three hours

Maximum: 75 Marks

SECTION A - (3 x 15 =45 marks)

Answer any THREE of the following.

1. What is water-jug problem? Write down the production rules for the water-jug problem.
2. Trace and Explain the Constraint satisfaction procedure solving the following crypt arithmetic problem.

$$\begin{array}{r} \text{S E N D} \\ + \text{M O R E} \\ \hline \text{M O N E Y} \end{array}$$

3. Discuss briefly different approaches to knowledge representation.
4. Discuss about Matching and Indexing.
5. What is expert system and explain about expert system shells in detail.

SECTION B - (5 x 5 = 25 marks)

Answer any FIVE of the following.

6. How do you define a problem as a state space search? Explain.
7. Describe A* Algorithm.
8. Explain about Best-first search.
9. Discuss about representation of simple facts in logic.
10. What is resolution? Explain with the help of an example.
11. Compare and Contrast forward Vs Backward reasoning.
12. Explain in brief about logics for non-atomic reasoning.
13. Explain about Knowledge Acquisition.

SECTION C - (5 x 1 = 5 marks)

Answer ALL of the following.

14. What is Artificial Intelligence?
15. Write the advantages of BFS.
16. What do you mean by State Space Search?
17. What is HILL Climbing?
18. Define Memory Organization.

M.C.A. THIRD YEAR DEGREE EXAMINATION, MAY 200__.

Paper II – CRYPTOGRAPHY & NETWORK SECURITY

Time: Three hours

Maximum: 75 Marks

SECTION A - (3 x 15 =45 marks)

Answer any THREE of the following.

1. Explain the following in brief:
 - (a) Substitution Technique
 - (b) Differential and Linear Crypt Analysis
2. (a) Discuss about Groups, Rings and Fields.
(b) Explain about AES cipher.
3. Discuss about Triple DES with one example.
4. Discuss about RSA algorithm.
5. (a) Discuss about Digital Signatures.
(b) Explain various Firewall design Principals.

SECTION B - (5 x 5 = 25 marks)

Answer any FIVE of the following.

6. Explain about ROTOL Machines.
7. Discuss about Differential and Linear Crypt analysis.
8. Discuss about Polynomial Arithmetic.
9. Explain about RC4 stream cipher.
10. Write a note on Digital Signature.
11. Discuss about Intruders.
12. Write about Authentication protocol.
13. Discuss Password Management with one example.

SECTION C - (5 x 1 = 5 marks)

Answer ALL of the following.

14. What are the Basic functions used in Encryption algorithms.
15. List three classes of Polynomial arithmetic.
16. What is the Key size for Blowfish?

17. What is a one-way function?
18. What is a Honeypot?

(DMCA 303)

M.C.A. THIRD YEAR DEGREE EXAMINATION, MAY 200__.

Paper III – EMBEDDED SYSTEMS

Time: Three hours

Maximum: 75 Marks

SECTION A - (3 x 15 =45 marks)

Answer any THREE of the following.

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 – static RAM
 - c. Static RAM
4. Discuss about Arbitration.
5. Write about communication among processes.

SECTION B - (5 x 5 = 25 marks)

Answer any FIVE of the following.

6. Write a note on IC technology.
7. Discuss about RT – level combinational components.
8. Write about Interrupts.
9. Discuss about UART.
10. Write about Flash memory.
11. Discuss about Multilevel bus architecture.
12. Write a note on simple digital camera.
13. Explain about monitors.

SECTION C - (5 x 1 = 5 marks)

Answer ALL of the following.

14. Define an Embedded system.
15. Define NVRAM
16. Define Bluetooth.
17. Define FSM.

18. Define Real time system.

(DMCA 304)

M.C.A. SECOND YEAR DEGREE EXAMINATION, MAY 200__.

Paper IV – DATA MINING TECHNIQUES

Time: Three hours

Maximum: 75 Marks

SECTION A - (3 x 15 =45 marks)

Answer any THREE of the following.

1. (a) Write about various Data Mining Tasks.
(b) Describe the four components of Data Mining Algorithms.
2. Write about the CART algorithm for building tree classification.
3. Explain the scoring Models with different Complexities.
4. Explain the following classification Models:
 - (i) Tree Models.
 - (ii) Nearest Neighbour Models.
 - (iii) The Naïve Bayer Model.
5. Explain the concept of generalized linear Models.

SECTION B - (5 x 5 = 25 marks)

Answer any FIVE of the following.

6. Explain the illustration of dual roles of probability and statistics in data analysis.
7. Describe the types of measurements in data analysis.
8. Explain the vector space algorithm for text retrieval.
9. Describe the general classes of distribution and density Models.
10. Distinguish between predictive score functions and Descriptive Score functions.
11. Explain about Branch and Bound Method.
12. Describe the features of Hierarchical clustering.
13. Explain about projection pursuit regression.

SECTION C - (5 x 1 = 5 marks)

Answer ALL of the following.

14. Define Uncertainty in data.
15. Define Score function.
16. Define cluster Analysis.
17. Define Perception.

18. Define Regression.

(DMCA 305)

M.C.A. THIRD YEAR DEGREE EXAMINATION, MAY 200__.

Paper V – SYSTEMS AUDITING

Time: Three hours

Maximum: 75 Marks

SECTION A - (3 x 15 =45 marks)

Answer any THREE of the following.

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.

SECTION B - (5 x 5 = 25 marks)

Answer any FIVE of the following.

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.
10. Briefly explain the functional capabilities of generalized audit software.
11. What are audit softwares? Explain their features with examples.
12. Write the overview of the effectiveness of evaluation process.
13. What is meant by compute self-efficacy? Is compute self-efficacy always likely to be a concern when assessing information system effectiveness?

SECTION C - (5 x 1 = 5 marks)

Answer ALL of the following.

14. What do you mean by auditing?
15. What are database controls used for?
16. What is output controls used for?
17. List few concurrent auditing techniques.
18. What is meant by computer self-efficacy?