B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Eighth Semester

Branch : Computer Science and Engineering/Information Technology

CS 010 802/IT 010 803—ARTIFICIAL INTELLIGENCE (CS, IT)

[New Scheme : 2010 Admissions—Supplementary)

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. What is artificial intelligence ?

2. Why do you use AND-OR graphs ?

3. How do you represent facts in logic ?

4. What is chunking ?

5. Why do you use expert systems ?

(5 × 3 = 15 marks)

Part B

Answer all questions.
Each question carries 5 marks.

6. Explain the need of production systems.

7. Discuss the method of best first search.

8. Differentiate forward and backward chaining.

9. Describe learning with macro-operators.

10. Write a note on expert system shells.

(5 × 5 = 25 marks)

Part C

Answer any one full question from each module.
Each question carries 12 marks.

11. Explain any two search strategies in Al.   (12 marks)

Or

12 Discuss the various issues in hill climbing method.   (12 marks)

Turn over

13. Explain the MINIMAX search procedure with an example.   (12 marks)

Or

14. Discuss the constraint satisfaction problem with an example.   (12 marks)

15. Predicate logic is suitable for knowledge representation. Comment.   (12 marks)

Or

16. Explain the unification method with an example.   (12 marks)

17. Explain learning by parameter adjustment using an example.   (12 marks)

Or

18. Describe the Winston's learning program with an example.   (12 marks)

19. Discuss the concept of fuzzy logic with an example.   (12 marks)

Or

20. How do you perform reasoning with knowledge in expert systems ?   (12 marks)

                                                          (5 × 12 = 60 marks)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Eighth Semester

Branch : Information Technology

IT 010 802—CRYPTOGRAPHY AND NETWORK SECURITY (IT)

(New Scheme—2010 Admissions)

[Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. What is Euler's totient function ?

2. What are the two different types of attacks on an encryption algorithm ?

3. What are the three broad categories of applications of Public Key cryptosystems ?

4. What is the main advantage of S/MIME over PGP ?

5. What do you mean by trusted systems ?

(5 × 3 = 15 marks)

Part B

Answer all questions.
Each question carries 5 marks.

6. Use Format's little theorem find 7^{222} mod 11.

7. Write a note on triple DES.

8. Explain Elgamal cryptosystem.

9. Explain the Authentication procedure of X.509.

10. Briefly explain password management.

(5 × 5 = 25 marks)

Part C

Answer all questions.
Each question carries 12 marks.

11. Explain about Modular arithmetic and Chinese remainder theorem.

Or

12. What is the necessity for testing prime numbers? State and explain the Miller-Rabin Algorithm for testing primality.

Turn over

13. Describe the DES encryption process with suitable diagram and the strength of DES.

Or

14. Explain the following :—

    (i)   Caesar cipher ;

    (ii) Playfair cipher.

15. Discuss RSA with computations for public key cryptography. Also perform the Encryption and decryption for $p = 7$, $q = 11$, $e = 17$ and $m = 8$.

Or

16. Write a note on :

    (i)   MAC ;

    (ii) SHA.

17. Explain how the messages are generated and received by PGP.

Or

18. Write notes on Authentication header and ESP.

19. Enumerate the need for using firewalls to provide system security, Discuss about the types of firewalls.

Or

20. What is Intrusion ? How it is detected ? Explain the methods of Intrusion detection.

                                                                (5 × 12 = 60 marks)

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Eighth Semester

Branch : Computer Science and Engineering/Information Technology

SECURITY IN COMPUTING (RT)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 4 marks.

1. Differentiate between hacking and cracking.

2. Write a note on Trojan horse.

3. Explain types of holes.

4. Define authentication.

5. What are encryption and decryption ?

6. Explain cryptanalysis.

7. Write a note on firewalls.

8. Write a note on security policy.

9. Differentiate between Application level gateways and Circuit level gateways.

10. Explain security issues in databases.

(10 × 4 = 40 marks)

Part B

Answer all questions.
Each question carries 12 marks.

11. Explain polymorphic and metamorphic worms.

Or

12. Describe security services and mechanisms.

13. Explain access control and remote execution techniques in UNIX and WINDOWS.

Or

14. Explain discretional and mandatory access control.

Turn over

15. Explain RSA algorithm and prove its correctness.

Or

16. Write short notes on :
    (i) Digital Signature.
    (ii) Diffie Hellman key exchange algorithm.

17. Explain IP security architecture.

Or

18. Explain security mechanisms in JAVA.

19. Write short notes on statistical database security and MAC for multilevel security.

20. Explain SQL security model.

(5 × 12 = 60 marks)

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Eighth Semester

Branch : Computer Science and Engineering/Information Technology

ARTIFICIAL INTELLIGENCE (RT)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 4 marks.

1. What is a well-defined problem ?

2. Distinguish between BFS and DFS.

3. What is an informed search ?

4. Describe the A* algorithm.

5. What is a semantic net ? Give an example. Represent the following sentence in partitioned semantic net "The dog bit the mail carrier".

6. List out and explain any *two* state-of-art game programs.

7. What do you mean by quantifiers ? Explain. Write the following sentence in first-order logic using quantifiers "There is a person who loves everyone in the world".

8. What is modus ponens? Give example.

9. What do you meant by ADT stack in prolog ? What are the various operators used in ADT stack ?

10. How do you implement DFS in prolog ?

(10 × 4 = 40 marks)

Part B

Answer all questions.
Each question carries 12 marks.

11. Explain the application areas of AI.

Or

12. Describe Uniform cost search and Depth-limited search.

13. What is the use of heuristic function ? Explain heuristic for constraint satisfaction problem.

Or

Turn over

14. Describe the following :—

    (a) Iterative deepening.   (6 marks)

    (b) Simulated annealing.   (6 marks)

15. Briefly explain frames.

Or

16. Describe alpha-beta pruning with suitable example.

17. Describe unification with example.

Or

18. Explain the methods of forward and backward chaining.

19. Explain the following

    (a) Best-first search in prolog.   (6 marks)

    (b) ADT queue in prolog.   (6 marks)

Or

20. What is a Meta interpreter ? Explain semantic net and frames in prolog.

                                   [5 × 12 = 60 marks]