

B TECH
(SEM VII) THEORY EXAMINATION 2017-18
ARTIFICIAL INTELLIGENCE

Time: 3 Hours**Total Marks: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 10 = 20**

- a. What are Goals of AI?
- b. What is Turing test?
- c. Define uniformed search.
- d. Write a short note on horizon effect.
- e. List various schemes of knowledge representation.
- f. Define inference.
- g. List out performance measure for learning.
- h. What are the types of nodes in decision tree.
- i. Write down some applications of pattern recognition.
- j. What are the types of neural networks?

SECTION B**2. Attempt any three of the following: 10 x 3 = 30**

- a. Define the role of the machine intelligence in the human life.
- b. Prove that breadth first search and depth first search are the special cases of best first search.
- c. Explain the conversion procedure of given formula into normal form.
- d. Illustrate decision trees technique using a suitable example.
- e. Discuss the classification approach of pattern recognition.

SECTION C**3. Attempt any one part of the following: 10 x 1 = 10**

- (a) Describe the role of computer vision in artificial intelligence.
- (b) Describe the role of artificial intelligence in natural language processing.

4. Attempt any one part of the following: 10 x 1 = 10

- (a) How branch and bound techniques could be used to find the shortest path solution to the travelling salesman problem. Discuss.
- (b) Solve the following CSP problem of crypt arithmetic.

Problem:

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MONEY

5. Attempt any one part of the following: 10 x 1 = 10

- (a) Define Hidden Markov model (HMM). Illustrate how HMMs are used for speech recognition.
- (b) Prove that following sentence is valid:
"If prices fall then sell increases. If sell increases then John makes the whole money. But john doesn't make the whole money. Therefore, prices do not fall."

6. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Describe statistical learning model in detail.
- (b) Write short notes on:
 - (i) Discrete model/ maximum – likelihood parameter learning.
 - (ii) Continuous model.

7. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Write a note on Linear Discriminant Analysis (LDA).
- (b) Explain how PCA is used in pattern recognition. Describe parameter estimation methods in pattern recognition.

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