B.Tech. – VIEP – COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

 OOO57

Term-End Examination

December, 2017

BICS-021 : ARTIFICIAL INTELLIGENCE

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks.*

1. (a) Write A* algorithm. Discuss the performance of the A* algorithm when the heuristic function either underestimates or overestimates the value of states.   *5*

    (b) Discuss Breadth First search technique, with a suitable example.   *5*

2. What is a Conceptual Dependency Graph ? Give a conceptual dependency graph for the sentence, "Sanjay drove his car to University". Describe the steps required to transform the sentence to an internal dependency structure.   *10*

3. (a) What is a Semantic Net ? Construct a semantic net for the sentence : "Maya gave the red colour vase to her cousin". *5*

  (b) Discuss the role of Frames and Scripts in artificial intelligence. Give a suitable example for each. *5*

4. Draw a block diagram of Truth Maintenance System (TMS). Discuss each component of TMS. What is the role of Inference Engine in TMS ? *10*

5. Describe any *two* of the following, with a suitable example for each : *10*

  (a) Bayes Theorem

  (b) Means-Ends Analysis

  (c) Goal Stack Planning

6. (a) Explain the characteristics of a production system. *5*

  (b) Discuss the techniques used to handle uncertainty of knowledge in any artificially intelligent system. *5*

7. Discuss the role of Predicate and Propositional logic in natural language processing. Give a suitable example in support of your discussion. *10*

8. Explain the concepts of Bayesian Network in representing knowledge in an uncertain domain. *10*

9. Write the Min-Max search procedure ? Discuss the Min-Max search procedure with a suitable example. *10*

10. Discuss the learning procedure of an artificial intelligence system with a suitable block diagram. Explain the role of each component. *10*