

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1079 Roll No.

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B. Tech.

(SEM. VI) THEORY EXAMINATION 2010-11

ARTIFICIAL INTELLIGENCE

Time : 3 Hours

Total Marks : 100

Note : Attempt **all** questions.

1. Attempt any **four** parts of the following : (4×5=20)
- (a) What do you understand by Artificial Intelligence ? Explain why do we need it.
 - (b) Critically examine that Turing test is appropriate for deciding whether or not a machine can behave intelligently.
 - (c) Differentiate between breadth-first search and depth-first search.
 - (d) Why does the game playing is considered important in the study of Artificial Intelligence ?
 - (e) Write a short note on heuristic-vs-solution guaranteed Algorithms.
 - (f) Describe the role of artificial intelligence in natural language processing.

2. Attempt any **two** parts of the following :

- (a) What are the various parsing technique ? Discuss in detail.
- (b) Generate a transition networks and a semantic grammar for each of the following sentences :
 - (i) My programs are checked by Robin.
 - (ii) Thy system is not available to test my programs.
- (c) What do you understand by the transition networks of natural languages ? Explain your answer with a suitable example.

3. Attempt any **two** parts of the following :

- (a) Describe the properties of a knowledge representation system.
- (b) Show that :
 - (i) $\neg(\forall x) (P(x) \rightarrow Q(x)) \Leftrightarrow (\exists x) (P(x) \wedge \neg Q(x))$
 - (ii) $(\exists x) P(x) \wedge (\exists x) Q(x) \Leftrightarrow (\exists x) (P(x) \wedge Q(x))$
- (c) What are the advantages of a frame based knowledge representation.

4. Attempt any **two** parts of the following :

- (a) What is an expert system ? Describe the various features of an expert system.

(b) Describe MYCIN expert system.

(c) What are the applications of expert system technology ? Also describe the limitations of expert systems.

5. Write short notes on any **four** of the following :

- (a) Structured pattern recognition.
- (b) Object identification.
- (c) Speech recognition.
- (d) LISP programming language.
- (e) Supervised classification.
- (f) PROLOG language and its syntax.