AF-3582

M.Sc. (Final)
Term End Examination, 2017-18

COMPUTER SCIENCE

Paper - III

Artificial Intelligence and Expert System

Time : Three Hours] [*Maximum Marks* : 100
[*Minimum Pass Marks* : 36

Note : Answer any **two** parts from each question. All questions carry equal marks.

1. (*a*) What do you understand by Artificial Intelligence (AI) ? Write about the history of AI.

(*b*) What is state-space search ? Explain with suitable example.

(*c*) Differentiate informed search with uninformed search. Also write one algorithm of any of these two categories.

2. (*a*) (*i*) Differentiate procedural knowledge with declarative knowledge.

(*ii*) Differentiate forward reasoning with backward reasoning.

(*b*) What are the various knowledge representation techniques ? Explain any one of them.

(*c*) Represent the following facts into predicate logic :

(*i*) Marcus was a man

(*ii*) All men are mortal

(*iii*) It is now 1990

(*iv*) Marcus was born in 40 A.D.

(*v*) Apples are fruit

3. (*a*) What is LISP and PROLOG ? Write the features of these two.

(*b*) Write LISP program to convert Centigrade temperature into Fahrenheit.

(*c*) Write the output of following LISP statements :

(*i*) (Cons ‘a ‘ (b c))

(*ii*) (reverse ‘(a (b c) d))

(*iii*) (member ‘b ‘ (a b d))

(*iv*) (Car ‘(a b c))

(*v*) (append ‘(a (b c)) ‘ (d e))

4. (*a*) Write the steps in natural language processing.

(*b*) Write a short note on Semantic analysis.

(*c*) Write about hierarchical planning and partial order planning.

5. (*a*) Draw the architecture of Expert System and explain its components.

(*b*) Explain about knowledge acquisition and validation techniques.

(*c*) Write a short note on Black Board Architecture.

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