



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)

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))

(3)

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.
