PG 2nd Semester Examination, 2022 (R & B)

Subject : ITM

(Artificial Intelligence)

Paper — 1.2.1

Full Marks : 80

Time : 3 hours

Answer **all** questions

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

1. (a) Describe Production system design and explain briefly its characteristics. 8

    (b) Explain Best First Search algorithm with suitable example. 8

    Or

    (c) Write A* search algorithm. Explain with suitable example. 8

(d) What is AI ? Explain various application areas of AI.   8

2. (a) What is alpha beta pruning ?   6

(b) Write the steps for Resolution. And solve the following :   10

    (i) John likes all kind of food

    (ii) Apple and vegetable are food

    (iii) Anything anyone eats and not killed is food

    (iv) Anil eats peanuts and still alive

    (v) Harry eats everything that Anil eats. Then Prove by resolution that: John likes peanuts.

Or

(c) Explain First Order Logic (FOL) with suitable example. Write the syntax used for FOL.   8

(d) Write a Prolog program for factorial of a given number. And Find minimum maximum of two numbers using Prolog.   8

3. (a) What is a Script ? Construct a script for play in theater. 8

(b) Explain any two types of Non Production System Architecture. 8

Or

What is Rule Based Expert System Architecture ? Explain briefly. 16

4. (a) What is Learning ? Explain different types of learning in AI. 8

(b) Explain Genetic Algorithm with suitable example. 8

Or

(c) What is Natural Language Processing ? Explain different steps for NLP. 10

(d) What is HAM ? How to represent the following sentences in HAM ? 6

    (i) Sony met Rahul

    (ii) Ram is eating an apple at Nico Park

(*iii*) Sima is eating ice cream as well as chips at Gandhi Park

(*iv*) He came to me

(*v*) In a room Muna touched Lily.

5. (*a*) Define Functions in LISP. Write a Program in LISP using function to calculate the area of a circle when the radius of the circle is given as an argument. 8

(*b*) Explain List manipulating Functions in LISP. 8

Or

(*c*) Give a brief description about Array and Property list used in LISP. 8

(*d*) Write down a program to find maximum number among three numbers using recursion function in LISP. 8

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