Exam.Code:0932
Sub. Code: 6765

1059

B.E. (Electronics and Communication Engineering)
Eighth Semester
Elective: IV & V
EC-815: Artificial Intelligence

Time allowed: 3 Hours Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) Define the terms Agent and Agent program?

b) Give PEAS description of the task environment for an automated taxi.

c) What is the difference between informed and uninformed search techniques?

d) In A* algorithm the algorithm is said to be admissible if_____.

e) Define the term Modus Ponens with example.

f) What is partial order planning?

g) Draw a truth table for the conjunction of propositions P and Q.

h) State the Bayes theorem

i) What is predicate logic?

j) Differentiate between supervised and unsupervised learning. (10x1)

UNIT – I

II. a) What do you mean by intelligence? What essential abilities one should possess for intelligence?

b) What is an agent? Discuss about the various kinds of agents and their properties with neat diagram.

c) What is Turing test? How it is performed? (4,3,3)

III. a) Given an unmarked 4 litre jug filled with water and an empty unmarked 3 litre jug. How can one obtain precisely 2 litre water in 3 litre jug? Water may either be discarded or poured from one jug to another or fill with water pump. Create rules, termination conditions and solution for a production system to solve the Water Jug Problem.

b) Explain Breadth first search and depth first search algorithms with example. (2x5)

P.T.O.

IV. a) Write Mini-max Search algorithm for two players. How use of alpha and beta cut-offs will improve performance?

b) Analyse different planning approaches and compare them based on their application. (2x5)

UNIT – II

V. a) What do you understand by Expert system? Explain various components of expert system with example.

b) Briefly explain semantic network. Make semantic network of following statements:

Tom is a ginger coloured cat owned by John. Tom caught a bird. (2x5)

VI. a) Describe Forward & Backward chaining rule system using suitable examples in both category.

b) Consider the following axioms:

i) If a triangle is equilateral then it is isosceles.
ii) If a triangle is isosceles then two sides AB and AC are equal.
iii) If AB and AC are equal then angle B and angle C are equal.
iv) ABC is an equilateral triangle.

a) Represent these facts in predicate logic.
b) Use resolution to prove: "Angle B is equal to angle C". (2x5)

VII. Write short note on the following:-

a) Natural Language Processing
b) Unification algorithm
c) Applications of AI in E-Commerce
d) Decision tree expert system (10)

x-x-x