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Total No. of Questions : 09] [Total No. of Pages : 02

Paper ID [IT312]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Sem. - 6th)

EXPERT SYSTEM (IT - 312)

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A

Q1) *(10 × 2 = 20)*

a) Name various components of an expert system.

b) What are the main domain exploration methods?

c) Name the types of problems solved by the existing expert systems.

d) Name the implementation tools for the expert systems.

e) What are fuzzy expert systems?

f) How does the rules in PROLOG differ general production system rules?

g) Why is it important that the Expert system is able to explain the why and how questions related to a problem solving session?

h) What the importance of real-time expert system?

i) What are semantic nets?

j) What do you understand by expert system shell?

Section - B

(4 × 5 = 20)

Q2) Consider a simple fully connected neural network containing three input nodes and single output node. The inputs of the network are eight possible binary patterns 000,001,...,111. Find weights w_i, for which the network can differentiate between the inputs by producing 3 distinct outputs.

Q3) What is a partitioned semantic net. Construct a partitioned semantic net for the following statements?

(a) The dog bit the mail carrier.

(b) Every dog has bitten every mail carrier.

Q4) With a block diagram. Explain a simple model of an Expert system architecture.

Q5) Write suitable example and explain advantages of script based representation over semantic net.

Q6) Explain sensor data capturing technique in detail.

Section - C

(2 × 10 = 20)

Q7) Discuss various learning, planning and exploration methods in Expert systems.

Q8) Explain various Expert system implementation tools and their suitability to particular application.

Q9) Explain various knowledge representation techniques.