201605

May, 2019

B.Tech. (CE/IT) - VI SEMESTER

ARTIFICIAL INTELLIGENCE & EXPERT SYSTEM
(CE-310-C)

Time : 3 Hours]   [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*

2. *Answer any four questions from Part-B in detail.*

3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) Define two working definition of expert system with the help of example.   (1.5)

   (b) What are the general features of an expert systems?   (1.5)

   (c) What is the role of knowledge engineering in expert system?   (1.5)

   (d) Draw Partitioned net for the following?

   Every dog bite a particular constable.   (1.5)

(e) Is 'MYCIN' use a frame system to represent mathematical concept? Explain in brief how? (1.5)

(f) What are the approaches used for knowledge representation? (1.5)

(g) What do you understand by expert system shells? (1.5)

(h) Limitations of 1st generation expert system. (1.5)

(i) What are the applications of Expert System. (1.5)

(j) What are the challenges issues in designing of a good interface design in an expert system? Explain with example. (1.5)

PART-B

2. (a) Differentiate between Expert System and Conventional software program. (5)

(b) Give the technical details of any real time expert system with its architecture and its implementation. Also differentiate between hard and soft real time expert system. (10)

3. (a) Describe the case study of DENDRAL. (10)

(b) Draw the semantic net for the following given statements. Scooter is a two wheeler and it is a moving vehicle. Vehicle needs an engine, a fuel system to sustain the engine running, an electric System for its lights, horn and breaks. (5)

4. (a) What are the five stages of Expert System development? Also make neat diagram for it. (10)

(b) Explain different knowledge acquisition sources used for developing an ES. (5)

5. (a) Read the following statements and represent them in FOPL.

1. All Punjabi are Indians.

2. Everyone dislikes someone.

3. A Man can not live more than 120 years.

4. Once a man is died, he is dead for all coming time.

5. Every natural number is an Integer. (5)

(b) Explain Rule based expert system architecture in detail? Also differentiate between Rule Base and Non Rule Base Expert System. (10)

6. (a) How an expert system is differ from neural network. Draw the basic architecture of Neural Expert System. (10)

(b) Differentiate between Knowledge based system and Expert system. (5)

7. (a) Explain and Draw neat and clean diagram for expert system development life cycle. (5)

(b) What are frames? Why it is useful? Also design the Thematic Role Frame for the following set of statements:

(i) The bell was taken out of town by Rahul by car for a day for Simran.

(ii) Robbie made coffee for Suzie through the Percolator in the kitchen. (5)

(c) Give two examples of Fuzzy Expert System. (5)

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