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Total No. of Printed Pages: 1

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**B.Sc. (IT) (Sem.: 5th)
EXPERT SYSTEMS
Subject Code: BITE1563
Paper ID: [130429]**

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt following questions:

- a. What are the applications of expert systems?
- b. Elaborate TIERES.
- c. Applications of neural expert system.
- d. What are the logic frames of expert systems?
- e. Name two types of expert systems.
- f. What is the purpose of semantic nets in knowledge representation?
- g. How do Fuzzy Expert Systems handle uncertainty?
- h. Why is studying existing expert systems important for novice developers?
- i. What distinguishes Real-Time Expert Systems from traditional expert systems?
- j. Differentiate between conceptualization and formalization.

Section – B

(5 marks each)

- Q2. Outline the expert system development process, highlighting each phase with significance.
- Q3. Illustrate with examples how frames are used for knowledge representation in expert systems, emphasizing their structure and utilization.
- Q4. Evaluate the impact of domain experts' involvement in the knowledge elicitation process.
- Q5. Compare and contrast the planning approaches for developing different types of expert systems, such as rule-based, neural, and fuzzy expert systems?
- Q6. Discuss the significance of studying existing expert systems in the development process.

Section – C

(10 marks each)

- Q7. Outline the components of an expert system and their interdependencies, explaining how each component contributes to the system's overall functionality. Provide real-world examples to illustrate the role of each component.
- Q8. Compare and contrast Neural Expert Systems with rule-based expert systems.
- Q9. Choose one existing expert system (e.g., TIERES, As Mycin, AM) and provide a detailed analysis of its architecture, knowledge representation techniques used, and its effectiveness in solving problems within its domain.