Roll No……..….. **Total No. of Printed Pages: 1**
Total No. of Questions: [09]

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.