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Total No. of Printed Pages: [01]

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BCA-MCA Dual Degree (Semester – 5th)

ARTIFICIAL INTELLIGENCE

Subject Code: BCMC527

Paper ID: [18340121]

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 the following:

- a. Define Artificial Intelligence and list criteria for success?
- b. Explain problem spaces and search algorithms in AI?
- c. Describe rule-based expert system architecture?
- d. Compare procedural and declarative knowledge in representation.
- e. Name basic parsing techniques in Natural Language Processing (NLP)?
- f. Describe the issues and challenges in knowledge representation?
- g. Explain semantic analysis in understanding natural language?
- h. Define forward and backward reasoning in knowledge representation?
- i. Describe components and functioning of a production system in AI?
- j. Discuss knowledge acquisition and validation in expert system building?

Section – B

(5 marks each)

- Q2. Explain the criteria for success in Artificial Intelligence (AI) techniques?
- Q3. Describe the process of Natural Language Generation (NLG) and its significance in AI systems.
- Q4. Explain the role of control knowledge in AI systems and how it contributes to decision-making processes.
- Q5. Discuss the architecture of rule-based expert systems and how they handle uncertainty compared to non-production system architectures?
- Q6. Describe the process of updating the cost estimates and backtracking in the AO algorithm.

Section – C

(10 marks each)

- Q7. Explain the AO algorithm in constraint satisfaction problems and compare it with other search algorithms in AI.
- Q8. Discuss advancements in semantic analysis and representation in modern Natural Language Processing (NLP) systems?
- Q9. Describe the methods and tools used for knowledge acquisition and validation in expert systems.