April 2025
B.A./B.Sc.
Sixth Semester
CORE – 13
COMPUTER SCIENCE
Course Code: CSC 6.11
(Artificial Intelligence)

Total Mark: 70   *Pass Mark: 28*
Time: 3 hours

Answer <u>five</u> *questions, taking* <u>one</u> *from each unit.*

UNIT–I

1   (a)   Define artificial intelligence. How does it differ from natural intelligence?   1+5=6
     (b)   Discuss the different approaches to artificial intelligence (AI).
           8

2   (a)   What do you understand by intelligent agents? Explain the structure of intelligent agents.   2+5=7
     (b)   Discuss the application of AI in any field using appropriate example.   7

UNIT–II

3   (a)   Explain state space of a problem using the water jug problem (WJP).   8
     (b)   What is a search technique or search strategy? What are the criteria for a search strategy?   2+4=6

4   (a)   Explain problem characteristics in AI.   7
     (b)   Which search technique(s) can be used in GPS navigation system? Explain one search technique (algorithm) using an example.   1+6=7

UNIT–III

5   (a)   What is the purpose of knowledge representation in AI? Explain the knowledge cycle in AI.   2+4=6

(b) Discuss resolution process using an example.   8

6   (a) Why do we need different techniques for representing knowledge in AI?   4

    (b) Explain logic representation in AI using a suitable example.   10

UNIT–IV

7   (a) Define uncertainty. What are the sources of uncertainty?   2+2=4

    (b) How is monotonic reasoning different from non-monotonic reasoning?   4

    (c) Explain default reasoning.   6

8   (a) What is a truth maintenance system (TMS)? What is the role of TMS as a problem solver module?   1+5=6

    (b) What do you understand by conditional probability and Bayesian probabilistic inference? Explain the application of Baye's rule AI.   2+2+4=8

UNIT–V

9   (a) What is natural language processing (NLP)? Why do we need NLP in artificial intelligence?   2+2=4

    (b) Discuss the steps involved in NLP.   10

10   (a) What is parsing? Differentiate between top-down parsing and bottom-up parsing.   1+6=7

    (b) Explain context-free grammar (CFG) using an example.   7

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