

(FOR THE CANDIDATES ADMITTED  
DURING THE ACADEMIC YEAR 20 22 ONLY)

22PCS3E1

REG.NO.

**N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI**  
**END-OF-SEMESTER EXAMINATIONS : NOVEMBER-2023**  
**M.SC COMPUTER SCIENCE(SF)** **MAX. MARKS: 50**  
**SEMESTER III** **TIME : 3 HOURS**

**PART - III**

**22PCS3E1 – ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

**SECTION – A**

**(10 X 1 = 10 MARKS)**

**ANSWER THE FOLLOWING QUESTIONS.**

**(K1)**

1. Which of the following is a component of Artificial Intelligence?  
a) Learning b) Training c) Designing d) Puzzling
2. "In AI systems, Knowledge can be represented in two ways. What are these two ways?  
i) Machine Logic ii) Predicate Logic iii) Propositional Logic iv) Compound Logic"  
a) i and ii b) i and iii c) ii and iii d) iii and iv
3. How do you represent "All dogs have tails"?  
a)  $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$   
b)  $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$   
c)  $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$   
d)  $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
4. In a rule-based system, procedural domain knowledge is in the form of \_\_\_\_\_  
a) production rules b) rule interpreters c) meta-rules d) control rules
5. What is the name of the computer program that simulates the thought processes of human beings?  
a) Human logic b) Expert reason c) Expert system d) Personal information

**ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES**

**(K2)**

6. Who is father of AI?
7. Which is the most straightforward approach for planning algorithm?
8. What is a heuristic function?
9. List out the three types of machine learning?
10. How do you choose the root node while constructing a decision tree?

**SECTION – B**

**(5 X 3 = 15 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)**

11. a) Explain problem spaces in AI.  
**(OR)**  
b) Discuss the Issues in design of search.
12. a) What are the techniques used for knowledge representation in AI? Explain.**(OR)**  
b) Explain the concept of Fuzzy logic in AI?

13. a) Define predicate logic and explain how to represent simple facts in logic?

(OR)

b) Explain the resolution in Predicate logic

14. a) Discuss the white space analysis in machine learning.

(OR)

b) Discuss the Complexity of Bias Variance Tradeoff?

15. a) What is Support vector machine? Explain

(OR)

b) Explain the basic concept of Deep learning.

### SECTION – C

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.(K4 (Or) K5)

16. a) Explain the importance of various AI Techniques.

(OR)

b) Describe Heuristic Search Techniques.

17. a) How are rule-based systems assigned the certainty factors and how do you calculate certainty factors in AI?

(OR)

b) List the approaches used in knowledge representation in AI.

18. a) Describe computable functions and predicates.

(OR)

b) Briefly explain the Procedural Vs Declarative knowledge with example.

19. a) What are the machine learning algorithms? Explain its features.

(OR)

b) Discuss the procedure of Nearest Neighbour Methods.

20. a) How to Construct Decision Tree Explain with example.

(OR)

b) Discuss how to Implementation of classification algorithm for problems in financial domain.

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