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Question Paper Code	12990
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M.E./M.Tech - DEGREE EXAMINATIONS, NOV/DEC 2024

Second Semester

Industrial Safety Engineering

20PISPC205 – MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE FOR INDUSTRIAL SAFETY

Regulation - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

	Marks	K- Level	CO
1. Define Artificial Intelligence.	2	K1	CO1
2. List the steps in performing a state-space search.	2	K1	CO1
3. Differentiate propositional & predicate logic.	2	K2	CO2
4. Mention the frame manipulation primitives.	2	K1	CO2
5. Define Non monotonic reasoning.	2	K1	CO3
6. Brief on Bayesian networks with an example.	2	K1	CO3
7. Mention the role of semantic analysis in NLP.	2	K2	CO4
8. List any two NLP systems.	2	K1	CO4
9. Define Inductive Bias.	2	K1	CO5
10. List the characteristic features of an expert system.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Differentiate on the classification and regression in machine learning.	13	K2	CO1
OR			
b) Explain in detail the properties of task environments.	13	K2	CO1
12. a) Explain in detail the following with examples (i) Recursive Best First Search (RBFS) (ii) Heuristic Functions	13	K2	CO2
OR			
b) Discuss the process of the Supervised Learning Model.	13	K2	CO2
13. a) Elaborate the process of feature subset selection in detail.	13	K2	CO3
OR			

b) With an example describe the steps involved in the knowledge engineering process. 13 K2 CO3

14. a) Explain the process of inducing decision trees from examples. 13 K3 CO4

OR

b) Detail the method of assessing the performance of a learning algorithm. Draw a learning curve for the decision tree algorithm. 13 K3 CO4

15. a) Discuss in detail about ambiguity and disambiguation. 13 K2 CO5

OR

b) Draw the schematic of a machine translation and explain for an example problem. 13 K2 CO5

PART - C (1× 15 = 15 Marks)

16. a) List the various architectures of Neural Networks. Describe each of them in detail. 15 K3 CO6

OR

b) Explain the application of machine learning tools in an industrial safety environment with illustrations. 15 K3 CO6