CBCS SCHEME

USN | | | | | | | | | | 21CS752

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Introduction to AI and ML

Time: 3 hrs.   Max. Marks: 100

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Define Artificial Intelligence. Explain turning test approach in defining artificial intelligence. **(10 Marks)**

b. State the relationship between Agent and Environment. Explain with suitable example. **(10 Marks)**

OR

2 a. What do you mean by PEAS description? Explain the description with an Automated Taxi driver? **(10 Marks)**

b. Explain Model-Based Reflex Agent with a neat sketch. **(10 Marks)**

Module-2

3 a. Explain Breadth First Search Algorithm with suitable example. **(10 Marks)**

b. Explain Depth First Search Algorithm. Write the Traverse path for given binary tree.

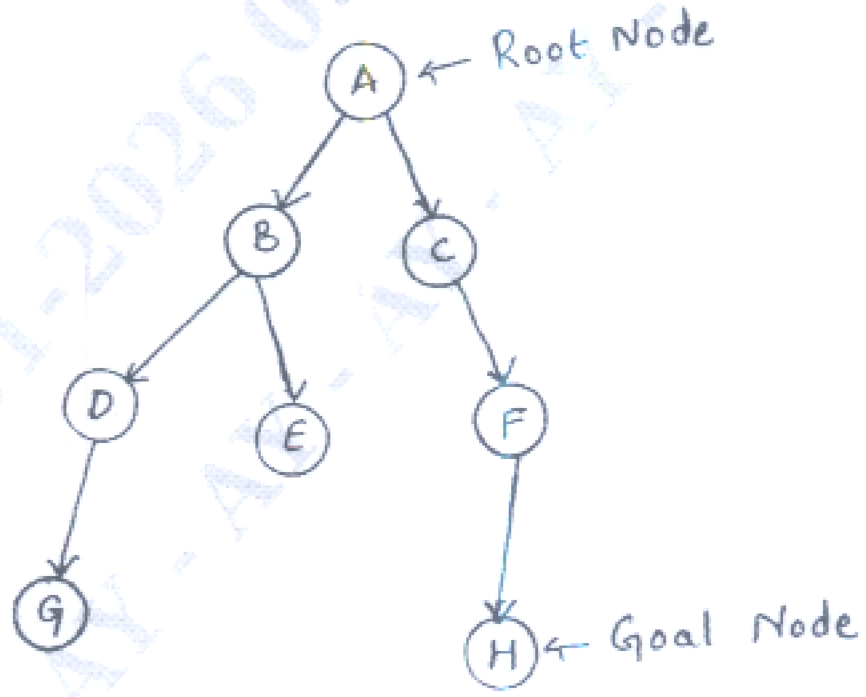

Fig.Q3(b) **(10 Marks)**

OR

4 a. Explain Best First Search Algorithm (Greedy Search) with suitable example. **(10 Marks)**

b. Explain A* - star search algorithm. Give its advantages and limitations. **(10 Marks)**

Module-3

5 a. Differentiate between supervised learning and unsupervised learning. (10 Marks)
b. List the application of machine learning. (10 Marks)

OR

6 a. Define Data Analytics. Explain the four types of data analytics. (10 Marks)
b. Explain the Framework for big data analysis. (10 Marks)

Module-4

7 a. Solve the following set of equations using Gaussian elimination method.
$2x_1 + 4x_2 = 6$
$4x_1 + 3x_2 = 7$. (10 Marks)
b. Find Lower and Upper Triangular Matrix for given matrix

$$A = \begin{bmatrix} 1 & 2 & 4 \\ 3 & 3 & 2 \\ 3 & 4 & 2 \end{bmatrix}.$$ (10 Marks)

OR

8 a. Write the difference between instance based learning and model-based learning. (10 Marks)
b. Explain K-Nearest Neighbor learning algorithm. (10 Marks)

Module-5

9 a. Write the advantages and limitations of ANN-Artificial Neural Networks. (10 Marks)
b. Give the applications of Artificial Neural Networks – ANN. (10 Marks)

OR

10 a. Write a note on Biological Neurons. (10 Marks)
b. Write a note on Challenges of Artificial Neural Network. (10 Marks)

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