

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****1154 B.Tech. CBCS****Sub. Name: Artificial Intelligence****Sub. Code: 83859/83994****Day and Date: Monday ,08-12-2025****Total Marks: 70****Time: 02:30 PM To 05:00 PM**

- Instructions:**
- 1. All questions are compulsory**
 - 2. Assume suitable data wherever necessary and mention it boldly**
 - 3. Figures to the right indicate full marks**

Q1) Solve following MCQ.**[14]**

- i. _____ is an application/applications of Artificial Intelligence.
- Expert Systems
 - Gaming
 - Vision Systems
 - All of the above
- ii. AI systems aim to _____ intelligent problem solving.
- Identify
 - Mimic
 - Show
 - prove
- iii. First expert system was MYCIN, in which year diagnosed bacterial infections of blood and suggested treatments?
- 1974
 - 1994
 - 1997
 - 1980
- iv. One kind of goal-based agent called a _____.
- problem-solving agent
 - problem defining agent
 - goal defining agent
 - clearing agent
- v. A problem is defined by its ' _____ ' and their ' _____ '.
- actors, relations
 - agents, workers
 - elements, relations
 - roots, leaf nodes

- vi. A state space consists of a representation of the _____ can be in.
- A. states the system
 - B. state of the actor
 - C. state of the problem
 - D. A & C
- vii. What is used for probability theory sentences?
- A. Conditional logic
 - B. Logic
 - C. Extension of propositional logic
 - D. None of the mentioned
- viii. Bayesian Networks is also known as _____.
- A. Bayes network
 - B. Bayes net,
 - C. Belief network, or decision network
 - D. All the above
- ix. The output of ML is target value defined in the _____.
- A. available data
 - B. training data
 - C. test data
 - D. predicted data
- x. _____ problems are supervised learning problems that involve predicting a numerical label.
- A. Regression
 - B. Classification
 - C. Supervised
 - D. Hypothetical
- xi. A _____ describes a class of problems where an agent operates in an environment and must *learn* to operate using feedback.
- A. Supervised Learning
 - B. Reinforcement Learning
 - C. Unsupervised Learning
 - D. Machine Learning
- xii. In _____ an agent executes a **sequence of trials or runs** (continue until the agent reaches the terminal state)
- A. Direct Utility Estimation
 - B. Adaptive Dynamic Programming(ADP)
 - C. Temporal Difference Learning (TD)
 - D. Active Learning

xiii. Python is a _____ scripting language.

- A. high-level
- B. interpreted,
- C. interactive and object-oriented
- D. All the above

xiv. From inbuilt libraries of Python take one out.

- A. NumPy,
- B. SciPy,
- C. Matplotlib and nltk,
- D. SimplerAI

Q2) 2. Solve any 2 of the following (7 Marks each). **[14]**

a. What do you understand about Artificial Intelligence? Give some real-world applications of AI. **[7]**

b. Write short note on **[7]**
A. Types of Environments in AI
B. Alpha-beta pruning in AI?

c. What do you mean by partially observable MDPs? **[7]**

Q3) 3. Solve any 2 of the following (7 Marks each). **[14]**

a. What is a knowledge based system? What are the different components of a knowledge-based system? **[7]**

b. What are the types of blind search? What are blind search techniques? **[7]**

c. What are the steps in a MDP process? **[7]**

Q4) Solve any 2 of the following (7 Marks each). **[14]**

a. Explain different Forms of machine Learning **[7]**

b. What is the difference between passive and active reinforcement learning? **[7]**

c. Explain important inbuilt libraries of Python NumPy, SciPy with examples **[7]**

Q5) Solve any 2 of the following (7 Marks each). **[14]**

a. What are Expert Systems? Explain Stages in the development of an Expert System. **[7]**

b. How does Q-learning work?

[7]

c. Write short Note on:

[7]

i. Google AI,

ii. Swift AI,

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (83994) Artificial Intelligence Part 4 SEM 7

2] (1154) B.Tech. CBCS (83859) Artificial Intelligence Part 4 SEM 7