

Seat No. **MAR-APR 2025 SUMMER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Artificial Intelligence****Sub. Code: 83859/83994****Day and Date: MAY ,08-05-2025****Total Marks: 70****Time: 10:30 AM To 01:00 PM****Instructions: 1. All questions are compulsory
2. Figures to the right indicate full marks****Special Inst.: Question No. 1 is Compulsory.****Q1) Solve the following MCQs. (1 Marks Each)****[14]**

- i. First expert system was MYCIN, in which year diagnosed bacterial infections of blood and suggested treatments?
A. 1974
B. 1994
C. 1997
D. 1980
- ii. A _____ is represented by a directed graph, nodes represent search state and paths represent the operators applied to change the state.
A. problem space
B. node relation
C. direction
D. solution
- iii. _____ involves conditioning on *everything the agent* knows about a particular situation.
A. Posterior probability
B. prior probability
C. conditional probability
D. None of the above
- iv. A _____ decreases the complexity of a search at a cost.
A. end node
B. graph
C. directed graph
D. tree
- v. To build a system to solve a particular problem, we need to:
A. Define the problem
B. Analyse the problem
C. Isolate the agent

- D. Option A & B
- vi.** A hidden Markov model (HMM) is an augmentation of the Markov chain to include observations.
A. True
B. False
C. Both
D. None on the above
- vii.** The output of ML is target value defined in the _____.
A. available data
B. training data
C. test data
D. predicted data
- viii.** The problem of _____ is to determine a state based on past and future observations.
A. filtering
B. monitoring
C. smoothing
D. Both A & B
- ix.** _____ deals with supervised learning problems that involve predicting a class label.
A. Regression
B. Classification
C. Supervised Hypothetical
D. None of the above
- x.** With _____, the learner is not told which actions to take, but instead must discover which actions yield the most reward by trying them.
A. Reinforcement Learning
B. Supervised Learning
C. Unsupervised Learning
D. Machine Learning
- xi.** Machine Learning is a field of science that deals with getting computer programming knowledge through experience and predicting the output.
A. True
B. False
C. Not confirmed
D. None of the above
- xii.** Q-learning is a _____ method which does not require the agent to learn the transitional model.
A. Direct Utility Estimation

- B. Adaptive Dynamic Programming
- C. TD learning
- D. Active Learning

xiii. Python is a scripting language.

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

xiv. As python can run on a wide variety of hardware platforms and has the same interface on all platforms, it is said to be _____.

- A. Portable
- B. Interactive
- C. Extendable
- D. Scalable All the above

Q2) 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. What are the problem solving techniques in blind search strategies? [7]
- c. Explain Bayes Rule with proper example. [7]

Q3) Solve any 2 of the following (7 Marks Each). [14]

- a. Write short note on [7]
 - A. Evolution of AI
 - B. Applications of AI
- b. What is problem space in artificial intelligence? [7]
- c. What are the steps in a MDP process? [7]

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

- a. Write short note on [7]
 - A. Supervised Learning,
 - B. Unsupervised Learning.
- b. What is adaptive dynamic programming in artificial intelligence? [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 is the difference between passive and active reinforcement learning? [7]
- b. What do you mean by temporal difference learning? How does it work? Explain with an example? [7]
- c. Explain important inbuilt libraries of Python: matplotlib, nltk with examples. [7]

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