

Mumbai University

November - 2018

B.Sc.IT: SEMESTER – V

(QUESTION PAPER)

[CBCS – Choice Based]

**ARTIFICIAL
INTELLIGENCE**

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NOVEMBER – 2018 | CBCS – CHOICE BASED

MUMBAI UNIVERSITY
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Time: 2 ½ Hours

Total Marks: 75

NOTE:

- (1) All questions (Q.1 to Q.5) are compulsory.
- (2) Figures on the right indicate total marks. All sub-questions carry equal marks.
- (3) Write the question numbers clearly as mentioned in the Question Paper.
- (4) Mixing of sub-questions is not allowed.
- (5) Draw diagrams and give examples whenever necessary.
- (6) Use of calculator or any other electronic gadget is not allowed.

Q.1 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is Artificial Intelligence? State its applications. (5)
- (B) Discuss Turing Test with Artificial Intelligence Approach. (5)
- (C) What are Agents? Explain how they interact with Environment. (5)
- (D) What is Rational Agent? Discuss in brief about Rationality. (5)
- (E) Explain PEAS description of Task Environment for Automated Taxi. (5)
- (F) Give comparison between Full Observable and Partially Observable Agent. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Discuss in brief the formulation of Single State problem. (5)
- (B) Give the outline of Breadth First Search Algorithm. (5)
- (C) Give the outline of Tree Search Algorithm. (5)
- (D) Explain the Mechanism of Genetic Algorithm. (5)
- (E) Explain how Transition Model is used for sensing in Vacuum Cleaner problem. (5)
- (F) Give the Illustration of 8 Queen problem using Hill Climbing Algorithm. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the working Mechanism of Min-Max Algorithm. (5)
- (B) Explain in brief about Resolution Theorem. (5)
- (C) Write a note on Kriegspiel's Partially Observable Chess. (5)
- (D) Explain in brief about Knowledge Base Agent. (5)
- (E) Explain the syntax for Propositional Logic. (5)
- (F) Write a note on Wumpus world problem. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is First Order Logic? Discuss the different elements used in First Order Logic. (5)
- (B) Explain Universal and Existential Quantifier with suitable example. (5)
- (C) Convert the following natural sentences into FOL form: (5)
 - i. Virat is cricketer.
 - ii. All batsman are cricketers.

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- iii. *Everybody speaks some language*
- iv. *Every car has wheel.*
- v. *Everybody loves somebody some time.*

- (D) What is Knowledge Engineering? Write the steps for its Execution. (5)
- (E) Give comparison between Forward Chaining and Backward Chaining. (5)
- (F) Explain in brief about Unification. (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is Planning? Explain STRIPS Operators with suitable example. (5)
- (B) Explain in brief about Partially Ordered Plan. (5)
- (C) Explain in brief about Hierarchical Planning. (5)
- (D) Write a note on Mutex Relation. (5)
- (E) What is Semantic Network? Show the Semantic representation with suitable example. (5)
- (F) Write a note on Event Calculus. (5)