

Total No. of Questions : 10]

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SEAT No. :

[Total No. of Pages : 2

[5670]-699

B.E. (Computer Engineering)
ARTIFICIAL INTELLIGENCE AND ROBOTICS
(2015 Course) (Semester - I) (410242) (End Sem.)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8 and Q9 or Q10.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.
- 5) Justify your answer with an example wherever necessary.

Q1) a) Illustrate the tabu search and beam search with proper example. [8]
b) What is state space search? Write an algorithm for Generate and test search method and explain it with suitable example. [6]

OR

Q2) a) Define planning. Explain goal stack planning with example. [8]
b) What are the components of rule based expert system. [6]

Q3) a) Write the short note on first order logic and second order logic. [8]
b) Explain the knowledge base system? What are the facets of knowledge? [6]

OR

Q4) a) What is the difference between blind search and heuristic search? Explain with suitable example. [8]
b) Explain the iterative deepening A* algorithm. [6]

Q5) a) What are the different states of natural language processing? Explain working of each stage. [8]
b) Explain the following : [6]

- Supervised learning.
- Unsupervised learning.
- Reinforcement learning.

OR

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Q6) a) What is ANN? Explain feed forward and feedback ANN. [8]

b) Explain any two NLP applications. [6]

Q7) a) Define the robotics and its applications. What are the hardware requirements in mobile robot? [8]

b) Explain the path planning and map representation in mobile robot. [6]

OR

Q8) a) How the horizontal and vertical decomposition is done in robot control system? [8]

b) Explain the use of following sensors : [6]

- Contact sensor.
- Biological sensor.
- Sonar and Radar.

Q9) a) What is mobile robot localization? Why it is important? How the landmark is measured in robot localization? [8]

b) Explain the following terms. [6]

- Sensorial map.
- Topological map.

OR

Q10) a) Explain the robotics in following fields [8]

- Delivery robot.
- Mining Automation.
- Domestic robot.
- Agriculture.

b) How robotics can be used to design intelligent vehicles and autonomous aircraft? [6]
