

Total No. of Questions : 10]

SEAT No. :

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[Total No. of Pages : 2

B.E. (Computer Engineering)

ARTIFICIAL INTELLIGENCE AND ROBOTICS

(2015 Pattern) (410242) (Semester - I) (End Semester)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.*
- 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) With an example explain A star algorithm. State the properties of A star algorithm. **[6]**

b) Compare and explain Depth First search and Breadth First search methods. **[6]**

OR

Q2) a) Comment on Backtracking and look ahead strategies in constraint satisfaction problems. **[6]**

b) Explain goal stack planning with an example of blocks world. **[6]**

Q3) a) What are the drawbacks of propositional logic used in representation of facts? **[6]**

b) Draw the architecture of an expert system. Explain each functional block in detail. **[6]**

OR

Q4) a) Explain the process of resolution with proper example. **[6]**

b) Describe PEAS for WUMPUS world problem. **[6]**

Q5) a) What is Artificial Neural Network? Give two applications of artificial neural networks in detail. **[6]**

b) Explain any two types of learning. **[6]**

c) Comment on the hardware components of a mobile robot. **[6]**

OR

P.T.O.

- Q6)** a) Comment on the methodologies on which laser rangefinders are based. [6]
b) Explain machine translation using natural language processing (NLP). [6]
c) Comment on sonar sensing. [6]

- Q7)** a) Explain the architecture of information retrieval system. [6]
b) Compare the various weighting functions used in pose estimation. [4]
c) Comment on vertical decomposition in robotics. [4]

OR

- Q8)** a) Explain any two sensors used in robots. [6]
b) Explain the applications of Natural Language Processing. [4]
c) Comment on how robotics can be used to design intelligent vehicles. [4]

- Q9)** a) Explain localization and comment on any two types of localization. [6]
b) Comment on the fundamental problem in robotics. [4]
c) With the help of an architecture diagram explain feed forward artificial neural network. [4]

OR

- Q10)** a) Comment on how robots can be used for mining automation. [6]
b) Comment on issues regarding natural language processing in information retrieval. [4]
c) Explain use of robots in agriculture and forestry. [4]

