Roll No. _____

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7E7043

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B. Tech. VII Sem. (Main/Back) Exam., Nov. – Dec. - 2017
Electrical & Electronics Engineering
7EX3A Artificial Intelligence Techniques
EE, EX

Time: 3 Hours

Maximum Marks: 80
Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five** questions, selecting one question from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.

(Mentioned in form No. 205)

1. NIL _____

2. NIL _____

UNIT-I

Q.1 What is "Artificial Intelligence (AI) and Artificial Technique"? Briefly explain how AI technique can be represented. List out some of the task domain of AI [16]

OR

Q.1 How AI is related with engineering stream? Justify it with suitable examples. What engineering fields are related with AI and what are their role in AI? [16]

UNIT-II

Q.2 (a) How to define a problem as state space search? Discuss with the help of an example. [8]

(b) Discuss the control strategies with example. [8]

Q.2 Define the following problems:

    (a) The Monkey & Bananas problem   [4]

    (b) 7 – Bridges problem   [4]

    (c) Cryptarithmatic   [4]

    (d) 8 – Puzzle problem   [4]

UNIT-III

Q.3 (a) Explain the major application areas of neural networks.   [8]

    (b) Explain the different types of artificial neural network of architectures.   [8]

OR

Q.3 (a) Explain the back propagation or error in multilayer neural networks.   [8]

    (b) What is perception differentiate single and multilayer neural network?   [8]

UNIT-IV

Q.4 Explain the back propagation algorithm. What are the two different passes of back prorogation algorithm?   [16]

OR

Q.4 (a) Describe :

        (i) Supervised learning   [4]

        (ii) Unsupervised learning   [4]

    (b) Explain Kohonen's self organizing map in detail.   [8]

UNIT-V

Q.5 (a) Describe concepts & coding for genetic algorithm. [8]

  (b) Write short note (any four) : [2×4=8]

   (i) Scaling & fitness

   (ii) Mutation

   (iii) Reproduction

   (iv) Population

   (v) Crossover

OR

Q.5 Describe fuzzy logic concepts. Also describe fuzzy controllers and discuses various

types of membership functions. [16]