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Question Paper Code : 21323

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Seventh Semester

Instrumentation and Control Engineering

CS 2461 / CS 812 – APPLIED SOFT COMPUTING

(Common to Eighth Semester Electronics and Instrumentation Engineering)

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw a neuron model with output and input function.

2. Compare biological neuron and artificial neuron.

3. Define feedback networks.

4. Why continuous function is used in neuro model?

5. What do you mean by classical set?

6. Define any one fuzzy rule with an example.

7. Mention various components of Neuro fuzzy system.

8. What are the functions used in Fuzzy logic control?

9. List the operators used in genetic algorithm.

10. Define Gradient search.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Compare and contrast between feed forward network and feedback network. (6)

(ii) Explain the architecture of feed forward network in detail with its real application. (10)

Or

(b) (i) Write the merits and demerits of Feed back networks. (6)

(ii) Explain the components of Artificial neuron in detail. (10)

12. (a) (i) Write note on continuous time network. (6)

(ii) Discuss the usage of neuro controller for inverted pendulum with it's characteristics. (10)

Or

(b) Explain in detail the working principle of Hopefield networks. Mention the merits and it's characteristics.

13. (a) (i) Explain sugeno fuzzy model in detail with neat example. (8)

(ii) Explain various de-fuzzification methods in detail. (8)

Or

(b) (i) Discuss any two fuzzy membership function in detail. (8)

(ii) Develop fuzzy membership function on the real line for the fuzzy number three using the following shapes. Assume your own institution. (Symmetric triangle and Trapezoid)

14. (a) Explain in detail the home heating system with using fuzzy logic control with neat diagram. (16)

Or

(b) Explain the overview of neuro fuzzy system. (16)

15. (a) (i) Compare and contrast between gradient search and non-gradient search. (6)

(ii) Explain any five operators in genetic algorithm with their role and example. (10)

Or

(b) Explain any two algorithms and five operators used in evolutionary programming in detail with an example. (16)
