PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019
(First Semester)

Branch - **COMPUTER SCIENCE**

SOFT COMPUTING

Time: Three Hours Maximum: 75 Marks

SECTION-A HO Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 x 1 = 10)

1 MIQ means_____ .
(i) Machine intelligence quotient (ii) Machine information quotient
(iii) Machine intellectual quotient (iv) Machine imitation quotient

2 The Human brain is a collection of more than 10 Billion interconnected

(i) Dendrites (ii) Neurons
(iii) Plasticity (iv) Synapses

3 The nodes of the input layer are_____ , meaning they do not modify the data.
(i) Active (ii) Acyclic
(iii) Passive (iv) Recurrent

4 If a neuron receives an input from another neuron, and if both are highly active, the weight between the neurons should be strengthened by rule.
(i) Kohonen's leaning (ii) Hop field law
(iii) Delta (iv) Hebb's

5 In genetic Algorithms, the term_____ typically refers to a candidate solution to a problem, often encoded as a bit string.
(i) Chromosome (ii) Genome
(iii) Diploid (iv) Mutation

6 The algorithm stops if there is no improvement in the objective function for a sequence of consecutive generations of length_____ .
(i) Elapsed time (ii) Stall generations
(iii) Maximum generations (iv) Stall time limit

7 Fuzzy logic based automatic train operation control system at_____ .
(i) Denmark (ii) Japan
(iii) Hitachi (iv) United States

8 A B = B A and A B = B A is ' laws.
(i) Associative (ii) Distributive
(iii) Absorption (iv) Commutative

9 _____ °f an individual depends on his own intelligence and understanding about the domain.
(i) Intuition (ii) Inference
(iii) Rank Ordering (iv) Genetic Algorithm

Cont...

10 _____ defines the membership functions of the fuzzy sets used in the fuzzy rules.
(i) Decision-making (ii) Database
(iii) Fuzzification (iv) Defuzzification

SECTION - B *(25* Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 5 = 25)

11 a Flow do artificial neuron nets model the brain? Discuss with diagram.
OR
b Clarify with example neural networks differ from traditional computing systems.

12 a Elucidate in brief neural network architectures.
OR
b Translate in detail advantages and disadvantages of neural networks.

13 a Justify in brief the fundamentals of genetic algorithms.
OR
b Point out in detail encoding in genetic algorithms with example.

14 a Clear up various methods used in Crisp sets used in Fuzzy logic with examples.
OR
b Rephrase with examples various operations on Fuzzy sets.

15 a Illuminate different crisp relations with example.
OR
b Demonstrate various fuzzy relations with example.

SECTION -C (40 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 8 = 40)

16 a Demonstrate with neat diagram modeling an artificial neuron.
OR
b Illustrate with example major components of an artificial neuron.

17 a Analyze in brief learning technologies in neural networks with diagram.
OR
b Explicate with examples application areas of neural networks.

18 a Paraphrase GA operators in genetic algorithm with example.
OR
b Describe in detail advantages, limitations and applications of genetic algorithm.

19 a Show by examples various types of membership functions used in fuzzy logic.
OR
b Illuminate unique properties of fuzzy sets with examples.

20 a Enumerate fuzzy IF-THEN RULES with examples.
OR
b Elucidate with examples applications areas of Fuzzy logic.

Z-Z-Z END