

PD-391
(563) M.Sc. COMPUTER SCIENCE (THIRD SEMESTER)
Examination Dec.-2020
Compulsory/Optional
Group-
Paper-III

Name/Title of Paper- SOFT COMPUTING

Time: Three hours

Maximum Marks-80

Minimum Passing Marks-...

Note: Answer from both the section as directed.

SECTION-A

1. Choose the correct answer all from the following: 1X10

(a) Which of the following is associated with fuzzy logic?

- I. Crisp set logic
- II. Many-valued logic
- III. Two-valued logic
- IV. Binary set logic

(b) A Fuzzy logic is an extension to the Crisp set, which handles the Partial Truth.

- I. True
- II. False

(c) _____ is used for probability theory sentences

- I. Logic
- II. Extension of propositional logic
- III. Conditional logic
- IV. None of the above

(d) Where can we use the Bayes rule?

- I. To increase the complexity.
- II. To decrease the complexity.
- III. To solve queries
- IV. To answer the probabilistic query

(e) Who is known as the -Father of AI"?

- I. Fisher Ada
- II. Alan Turing
- III. John McCarthy
- IV. Allen Newell

(f) The application/applications of Artificial Intelligence is/are

- I. Expert Systems
- II. Gaming
- III. Vision Systems
- IV. All of the above

(g) Which of the given language is not commonly used for AI?

- I. LISP
- II. PROLOG
- III. Python

IV. Perl

(h) The component of an Expert system is _____.

- I. Knowledge Base
- II. Inference Engine
- III. User Interface
- IV. All of the above

(i) A neuro software can be defined as:

- I. A powerful and easy neural network
- II. A software that is used to analyze neurons
- III. Software utilized by a neurosurgeon
- IV. A software aimed to assist experts in the real world

(j) In LISP, the addition of 5+8 is entered as _____.

- I. 5+8
- II. 5 add 8
- III. 5+8=
- IV. (+5 8)

2. Answer the following questions:

2X5

- (a) Write different tools of soft computing.
- (b) What is a neural network?
- (c) Write operations of Fuzzy Sets.
- (d) Define crossover.
- (e) What is Neuro-Genetic?

SECTION-B

Answer all questions:

12X5

Unit-I

3. Define soft computing and explain different areas where to use soft computing applications.

OR

Differentiate different soft computing tools in brief.

Unit-II

- 4. (a) What do you understand by Supervised and unsupervised learning?
- (b) Discuss Different types of ANN.

OR

Explain the Following.

- a. Winner –take all learning rule
- b. Structure of biological neurons

Unit-III

5. Define Classical Sets & Fuzzy Sets and explain different properties of Properties of a-cuts.

OR

Explain the Following with example.

- a. Combinations of Operations
- b. Crisp & Fuzzy Relations

Unit-IV

6. Write basic Genetic Algorithm and explain its variation and applications.

OR

Explain the Following.

- a. different types of chromosomes
- b. Selection and Mutation

Unit-V

7. Write steps to Design of Neuro-Fuzzy model like ANFIS

OR

Explain the roll of MATLAB in experiments of Fuzzy-Genetic Neuro-Fuzzy-Genetic model