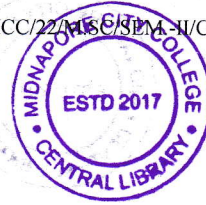


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MCC/22/MSC/SEM-IV/COS/1



PG (CBCS)
M.SC Semester- II Examination, 2023
COMPUTER SCIENCE
PAPER: COS 203
(ARTIFICIAL INTELLIGENT & SOFT COMPUTING)

Full Marks: 40

Time: 2 Hours

The figures in the right-hand margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Write the answer for each unit in separate sheet

M1: ARTIFICIAL INTELLIGENT

GROUP-A

1. Answer any **TWO** from the following questions: 2×2=4
- What is Artificial Intelligence?
 - What do you mean by reinforcement learning?
 - Write the structure of an AI Agent.
 - What is Time and space complexity?
 - What is an Adversarial Search?

GROUP-B

2. Answer any **TWO** from the following questions: 2×4=8
- Describe two real-world applications of AI.
 - What is knowledge representation in AI. What are the type of knowledge in AI?
 - What are the advantages of AI. Specify its drawbacks.
 - Describe Learning agent.

GROUP-C

3. Answer any **ONE** from the following questions: 1×8=8
- Describe different features of Agent Environment in AI.
 - Describe different types of AI.

(P.T.O)



(2)

M2: SOFT COMPUTING**GROUP-A**

4. Answer any **TWO** from the following questions: 2×2=4
- Write the sigmoid function in artificial neural networks.
 - What are the membership functions in fuzzy logic?
 - What do you mean by Backpropagation?
 - What is a *mutation* in genetic algorithm?

GROUP-B

5. Answer any **TWO** from the following questions: 2×4=8
- Differentiate between fuzzification and defuzzification.
 - What do you mean by Perceptron? Explain with a proper diagram.
 - Compare the Single-Point and Two-Point crossover.
 - What are the differences between supervised and unsupervised learning?

GROUP-C

6. Answer any **ONE** from the following questions: 1×8=8
- Compute Max-min composition of following relation in fuzzy logic

$$\bar{R} = \begin{matrix} & y_1 & y_2 \\ x_1 & [0.7 & 0.6] \\ x_2 & [0.8 & 0.3] \end{matrix} \quad \bar{S} = \begin{matrix} & z_1 & z_2 & z_3 \\ y_1 & [0.8 & 0.5 & 0.4] \\ y_2 & [0.1 & 0.6 & 0.7] \end{matrix}$$

- Explain Rule base structure identification-nero-fuzzy controls system.
