

22/05/2025 TE IT SEM-VI C-SCHEME AI & DS-I QP CODE: 10083619

(3 Hours)**[Total Marks: 80]**

N.B. (1) Question No. 1 is compulsory

(2) Attempt any three questions out of the remaining five questions

(3) Figures to the right indicate full marks

(4) Assume suitable data whenever require

- Q1 a) What are the different issues in ML algorithms? **5M**
 b) Explain PEAS descriptors. Provide PEAS descriptors for Part Picking robot **5M**
 c) Define and state effects of overfitting and underfitting. **5M**
 d) Explain goal based agents with example. **5M**
- Q2 a) Differentiate between data scientists, big data professionals and data analysts. **10M**
 b) Explain state space based problem formulation. Formulate 8 Puzzle and N Queens problem. **10M**
- Q3 a) Compare Informed and Uninformed Search algorithms. Explain working of A* algorithm with an example. Explain which category of search algorithms it belongs to. **10M**
 b) What are the different univariate plots in EDA? Explain them in detail. **10M**
- Q4 a) Consider Following data. Draw scatter plot for this data. Comment on the relationship between Observed Value 1 and Observed Value 2 based on the graph. Find Coefficient of correlation. Does this statistic confirm your observation? Explain your answer. **10M**

Experiment No.	1	2	3	4	5	6	7	8	9	10
Observed Value 1	20	10	30	15	45	40	30	35	45	30
Observed value 2	20	15	30	10	40	65	20	35	90	55

- b) Explain the working of the Hill climbing algorithm. What are issues in Hill climbing? **10M**
- Q5 a) Describe steps for developing ML applications with a labeled diagram. **10M**
 b) What are the different types of environments? Give examples. Explain the vacuum world problem with its environment. **10M**
- Q6 Write Short Note on (Any four) **20M**
 a) ANNOVA
 b) Min Max Algorithm
 c) Non graphical EDA
 d) Forward chaining based proofs
 e) Box Plot