



**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
(An Autonomous Institute From A.Y. 2022-23)

InSem Examination-II Summer 2025	
Exam Seat No.:	
Academic Year:2024-2025	Semester:IV
Class: SY	Program: B.Tech
Branch Code: MEC	Pattern:2023
Name of Course: Machine Intelligence	Course Code:2305216
Max. Marks:30	Duration: 1.15 Hrs.

**Instructions:** Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 01 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome of the Question/sub-question.

**Marks CO**

**Question No. 1**

- 1 a) Differentiate Supervised Learning, Unsupervised Learning, and Reinforcement Learning. (7) CO1

**Question No. 2**

- 2 a) What is planning in Artificial Intelligence, and how does it help in decision-making? (4) CO1  
2 b) Explain the Symbolic AI and Sub-symbolic AI. (4) CO1

**Group OR**

- 2 c) Explain the Cybernetics and brain simulation approach of AI. (4) CO1  
2 d) What is learning in AI system? Discuss different learning techniques. (4) CO1

**Question No. 3**

- 3 a) A company monitors machine performance using temperature (T) over 5 time intervals as below (7) CO3

Temperature ( $^{\circ}$ C)	48	45	45	44	49
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Using statistical feature extraction, compute the following:

Mean, Median, Mode ,Variance , Standard Deviation , Range , Skewness , Kurtosis and IQR.

**Question No. 4**

- 4 a) Describe the key components of a Decision Tree with a neat sketch, and discuss its importance along with its limitations in handling different datasets (8) CO3

**OR**

- 4 b) How does PCA help in improving machine learning model performance? Explain the steps involved in performing PCA on a dataset. (8) CO3

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