JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

M.Tech (EE) -I Semester

COURSE CODE (CREDITS): 14M31CE111 MAX. MARKS: 15

COURSE NAME: STATISTICS FOR ENVIRONMENTAL ENGINEERS

COURSE INSTRUCTOR: Mr. Chandra Pal Gautam MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory.*
(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems
(c) Use of calculator is allowed

Q.No	Question	Marks
Q1	(i) Explain why the arithmetic mean is highly sensitive to extreme values (outliers) in a dataset, while the median remains robust. Provide a brief practical scenario where using the median would be preferable to the mean. (ii) Why is the standard deviation generally preferred over variance when descriptive statistics are reported in a final research paper or engineering report? (iii) An environmental engineer monitors the **Particulate Matter ($PM_{2.5}$)** concentrations ($\mu g/m^3$) at a roadside monitoring station over 9 consecutive days. The recorded values are: **28, 35, 42, 35, 50, 62, 35, 48, 55** Find the **mean**, **median**, and **mode** of this air quality dataset.	5
Q2	A wastewater treatment plant measures the **Chemical Oxygen Demand (COD)** levels (mg/L) from 50 different industrial effluent samples. The grouped frequency distribution is shown below: **COD Range (mg/L) Number of Samples** 100 – 200 8 200 – 300 12 300 – 400 15 400 – 500 10 500 – 600 5 Calculate the **mean**, **median**, and **mode** for this grouped wastewater data.	5
Q3	An environmental safety study measures the **noise emissions** (in decibels, dBA) from a municipal solid waste incinerator. The grouped frequency distribution of 40 noise sample logs is shown below: **Noise Level Range (dBA) Number of Logs** 70 – 74 4 74 – 78 10 78 – 82 16 82 – 86 8	5

	86 – 90 2 Treating this data as a sample, calculate: 1. Mean Deviation from the median 2. Sample Variance 3. Standard Deviation	

FINAL EXAMINATION-AUG-2015