

JK Lakshmipat University Jaipur

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Theory Examination-II (Backlog), May 2026

BCA, Semester III, 2025-2026

Roll No.....

AS1106: Statistical Computing

Time: 2.5 hours

Max. Marks: 40

Instructions to students:

1. Do not write anything other than your roll number on the question paper.
2. Use of calculator is allowed. Be Neat! Be Legible!! All the Best!!!

Q1	If the correlation coefficient is '-1', then the variables are (a) perfectly correlated (b) independent (always) (c) uncorrelated (d) perfectly negatively correlated	[1 Mark [CO3]
Q2	The measure of central tendency which is least influenced by extreme values of a distribution (a) mean (b) mode (c) median (d) All have equal impact	1 Mark [CO2]
Q3	The probability of an impossible event is (a) 1 (b) 0 (c) 0.5 (d) -1	1 Mark [CO2]
Q4	The variance of a binomial distribution is- (a) np (b) npq (c) n^2pq (d) $\sqrt{npq}$	1 Mark [CO3]
Q5	If $P(A) = 0.2$, $P(B) = 0.5$ and A and B are independent, then $P(A \cap B)$ is (a) 0.9 (b) 0.2 (c) 0.1 (d) none of the above	1 Mark [CO3]
Q6	A company manufactures 800 rechargeable batteries whose lifetimes are normally distributed with a mean of 250 hours and a standard deviation of 30 hours. (a) Find the probability that a randomly selected battery lasts less than 200 hours. (b) How many batteries are expected to last more than 280 hours?	[4 Marks] [CO2, CO3]

Q7	Explain the process involved in data collection in brief. Classify the different types of data. From the list given below, identify and categorize the variables as nominal, ordinal, discrete, or continuous: (i) Customer satisfaction level (very low, low, medium, high) (ii) Number of students present in a class (iii) Height of individuals (iv) Employee ID number	[4 Marks] [CO1]																						
Q8	The probability that a machine operates without failure on a given day is 0.8. If the machine operates without failure, the probability that production targets are achieved is 0.95. If the machine fails, the probability that production targets are still achieved is 0.25. (a) Compute the probability that the machine operates without failure and the production targets are achieved. (b) Compute the probability that the machine fails but the production targets are still achieved.	[4 Marks] [CO2, CO3]																						
Q9	Cards numbered from 1 to 80 are placed in a box. The cards are thoroughly shuffled and one card is drawn at random. What is the probability that the drawn card has (a) an odd number? (b) a number divisible by 4? (c) a number less than 20?	5 Marks [CO3]																						
Q10	The following data show the number of hours of self-studies and the marks obtained by 10 students in a statistics examination. <table border="1"><tr><td>Self-study hours</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>5</td><td>9</td><td>10</td></tr><tr><td>Marks Obtained</td><td>45</td><td>50</td><td>54</td><td>60</td><td>65</td><td>70</td><td>75</td><td>62</td><td>80</td><td>88</td></tr></table> (a) Find the correlation coefficient between hours Self-study hours and marks obtained. (b) Determine the least squares regression equation of marks obtained on hours studied. (c) Estimate the marks of a student who studies for 6.5 hours.	Self-study hours	2	3	4	5	6	7	8	5	9	10	Marks Obtained	45	50	54	60	65	70	75	62	80	88	[8 Marks] [CO4]
Self-study hours	2	3	4	5	6	7	8	5	9	10														
Marks Obtained	45	50	54	60	65	70	75	62	80	88														

Q.6

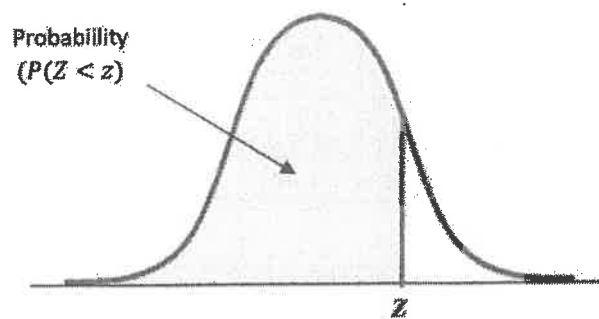
You are working as a data analyst for a food delivery company that monitors the number of orders delivered by its riders. You are interested in analyzing the weekly number of deliveries completed by a sample of riders. The number of deliveries recorded during a given week is as follows:

22, 35, 28, 40, 30, 25, 38, 45, 33, 29, 31, 36, 27, 41, 34

1. Present the given data using an appropriate **graphical representation**.
2. Compute the following statistical measures:
 - (i) Median
 - (ii) Mean
 - (iii) Standard Deviation
 - (iv) Third Quartile (Q_3)
 - (v) Fourth Decile (D_4)
 - (vi) 25th Percentile (P_{25})

Based on the above calculations, **interpret the data** in terms of Central tendency, Dispersion and Overall performance consistency of riders.

[10
Marks]
[CO1,
CO2]



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5754
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7258	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7518	0.7549
0.7	0.7580	0.7612	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7996	0.8023	0.8051	0.8079	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9430	0.9441
1.6	0.9452	0.9463	0.9474	0.9485	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9700	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9762	0.9767
2.0	0.9773	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9865	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9980	0.9980	0.9981
2.9	0.9981	0.9982	0.9983	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998	0.9998