

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M.TECH/PRE-PHD
BRANCH: ENV.

SEMESTER : II/NA
SESSION : SP/19

SUBJECT: CE567 - ENVIRONMENTAL STATISTICS

TIME: 3.00 HOURS

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Enumerate the objective and scope of Environmental Statistics. Describe FDES. [5]
Q.1(b) Differentiate between: (i) Primary and secondary data; (ii) Frequency and Non-frequency data; (iii) Spatial, Temporal and Geospatial data [5]

- Q.2(a) The following data relate to the profits of 1000 companies: [5]

Profits(Rs.Lakhs)	No. Of companies
100-120	17
120-140	53
140-160	199
160-180	194
180-200	327
200-220	208
220-240	2

Calculate the coefficient of skewness.

- Q.2(b) The following table gives the marks secured by 60 students of a class. Calculate Mean, standard deviation and coefficient of variation. [5]

Marks	Number of students
10-20	8
20-30	12
30-40	20
40-50	10
50-60	7
60-70	3

- Q.3(a) An ambulance service claims that it takes, on the average, 8.9 minutes to reach its destination in emergency calls. To check on this claim, the agency which licenses ambulance services has then timed on 50 emergency calls, getting a mean of 9.3 minutes with a standard deviation of 1.8 minutes. At the level of significance of 0.05, discuss that it has an evidence that the figure claimed is too low. [5]

(z=1.96 at 5% level of significance)

- Q.3(b) The number of automobile accidents per week in a certain city were given as follows: [5]
12,8,20,2,14,10,15,6,9,4
Are these frequencies in agreement with the belief that accident conditions were the same during this 10 week period? Discuss it.

- Q.4(a) If $r_{12} = 0.6, r_{13} = 0.8$ and $r_{23} = -0.4$, calculate the values of $r_{12.3}, r_{13.2}, R_{1.23}, R_{3.12}$. [5]

- Q.4(b) The following table gives the monthly sales (in thousand rupees) of a certain firm in three different states by your different salesman: [5]

States	W	X	Y	Z
A	10	8	8	14
B	14	16	10	8
C	18	12	12	14

Evaluate whether the difference between sales affected by the four salesmen and difference between sales affected in three states are significant.

(F at 5% level =3.89)

- Q.5(a) Describe basic and core sets of environmental statistics with the tier system. Summarize the different components of statistical data on environmental conditions and quality. [5]
- Q.5(b) Analyze the significance of statistical components of climate change data. [5]

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