

Total No. of Questions : 4]

SEAT No. :

P909

[Total No. of Pages : 3

[5315]-606

T.Y.B.Sc.

STATISTICS (Principal) (Paper - VI)

ST - 346 (C) : Statistical Computing Using "R" Software
(2008 Pattern) (Semester - IV)

Time : 2 Hours]

[Max. Marks : 40

Instructions to the candidates:-

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Each question is to be solved using R software installed on your computer.
- 4) Attach computer printout of your work to the answer book supplied to you.

Q1) Attempt each of the following:

[1 each]

- a) Draw a random sample of size 8 from a $P(m=2.5)$.
- b) Create a data frame of student name and marks obtained in one subject for 4 students.
- c) Find mode of the following observations:
12, 16, 28, 23, 25, 27, 25, 19, 24, 25.
- d) Draw spike plot of the following data:

x	:	1	3	6	8	9
f	:	8	10	12	7	5
- e) Simulate an experiment of tossing a die 70 times and prepare its frequency distribution.
- f) Let $X \sim B(n = 9, p = 0.6)$, find $P(X < 5)$ and $P(X \geq 4)$.
- g) Create a vector x of observations 12, 34, 25, 36, 48, 56, 28, 47. From x vector, create vector y containing elements of x greater than 40.
- h) Draw a SRSWR of size 2 from a population of 5 units.
- i) Access data CO2 and obtain its summary statistics.
- j) Let $X \sim N(7, 4^2)$, compute $P(-5 < X < 12)$.

P.T.O.

Q2) Attempt any two of the following:

[5 each]

- a) Following are the data on the time in minutes required to fill the bottles by two machines A and B:

A : 8.1, 4.8, 3.9, 7.6, 8.2, 8.4, 6.9, 7.1

B : 3.9, 4.9, 7.5, 8.1, 8.3, 7.2, 5.8, 6.3

Can we conclude that average time required by two machines is same, test at 5% l.o.s.?

- b) Represent the following data by a simple bar diagram:

Year	1995	1996	1997	1998	1999
Profits (lakh Rs.)	7.5	6.8	8.2	6.4	8.5

- c) A die is tossed 60 times with the following results:

Number On the upper face	1	2	3	4	5	6
Frequency	8	13	11	12	7	9

Compute mean deviation about mean.

Q3) Attempt any two of the following:

[5 each]

- a) Compute geometric mean and harmonic mean for the following data:

x: 0-5 5-10 10-15 15-20 20-25

f: 8 12 15 10 5

- b) Draw ogive curves for the following data:

Wage (in Rs.)	200-300	300-400	400-500	500-600	600-700
No. of workers	12	40	36	18	14

- c) Fit a Poisson distribution to the following data and find the expected frequencies:

X	0	1	2	3	4	5	6	7
f	301	170	102	67	52	25	8	1

Q4) Attempt any one of the following:

- a) i) Calculate coefficient of variation for the following data:

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	12	18	21	16	8	5

- ii) Draw a pie chart for the following data:

Commodity	Food	Clothing	Housing	Education	Misc.
Expenses (%)	30	15	15	20	20

[6+4]

- b) i) Carry out two way ANOVA for the following data of yield (in kgs):

	Manures		
Fertility	I	II	III
F1	13.5	15.2	14.7
F2	14.6	15.8	13.9
F3	15.8	14.4	13.2
F4	12.2	12.6	14.4

- ii) Compute Karl Pearson's coefficient of correlation and comment.

x	2	5	7	8	9
y	8	13	18	20	21

[7+3]

