

Seat No. : _____

N17-131
November-2014
B.Sc., Sem.-V
305 : Statistics
(Statistics Using R)

Time : 3 Hours]

[Max. Marks : 70

- Instructions :** (1) **All** questions are compulsory.
(2) **All** questions carry equal marks.

1. (a) Write a short note of R.

OR

- (a) Explain R preliminaries in detail.
(b) Explain different methods of data input in R.

OR

- (b) Explain R as a calculator.

2. (a) Compute mean, median and mode for the following data :

Height	145-150	150-155	155-160	160-165	165-170	170-175	175-180	180-185
No. of Men	4	6	28	58	64	30	5	5

OR

- (a) Prepare frequency distribution for the following data:

170 151 154 160 158 154 171 156 160 157 160 157 148 165 158 159 155 151 152
161 156 164 156 163 174 153 170 149 166 154 166 160 160 161 154 163 164 160
148 162 167 165 158 158

- (a) The following data relates to lives of 400 light bulbs. Draw “less than” and “more than” type ogive curves on the same graph paper.

Life of bulb	600-699	700-799	800-899	900-999	1000-1099
No. of bulbs	85	77	124	78	36

- (b) A group of 25 people was surveyed to find their soft-drink preference. The categories of soft-drink used in survey were limca, coca-cola pepsi and mangola. The data are :

3, 4, 1, 1, 3, 4, 3, 3, 1, 3, 2, 1, 2, 1, 2, 3, 2, 3, 1, 1, 1, 1, 4, 3, 1

Represent the data by (1) bar plot of frequencies (2) bar plot of proportions.

OR

- (b) Represent the following data by subdivided bar plot.

Year	Arts	Science	Commerce
1995	2810	890	560
1996	3542	1423	765
1997	4209	1745	1000
1998	5783	2098	1200
1999	6534	2745	1500

3. (a) Obtain probability distribution of X, where X is no of head or tail showing when a coin is rolled. Simulate random sample of sizes 100, 300, 400 and 500 respectively.

OR

- (a) A lot of 50 chickens consists of 6 females. If 3 chickens are selected at random without replacement, plot the probability distribution and cumulative distribution function of number of female chickens in the sample.
- (b) Fit a binomial distribution for the following data. Also compute expected frequencies.

x	0	1	2	3	4	5	6	7	8	9
f	6	20	28	12	8	6	0	0	0	0

OR

- (b) Fit a Poisson distribution for the following data. Also compute expected frequencies.

x	0	1	2	3	4	5
f	13	24	30	18	7	8

4. (a) Fit a normal distribution for the following data and test the goodness of fit.

Class Interval	13.20-20.90	20.90-28.60	28.60-36.30	36.30-44.00	44.00-51.70	51.70-59.40	59.40-67.10	67.10-74.80	74.80-82.50	82.50-90.20
Frequency	2	10	16	37	43	39	29	13	6	5

OR

The following data gives two sets of the pair of variables (Y1,X1) and (Y2,X2), find mean and variance of X1 and Y2. Also draw scatter plots of (Y1,X1) and (Y2,X2).

Y1	X1	Y2	X2
8.04	10	9.14	10
6.95	8	8.14	8
7.58	13	8.74	13
8.56	9	8.77	9
8.33	11	9.26	11
4.26	14	8.10	14
10.84	6	6.13	6
4.82	4	3.10	4
5.68	12	9.13	12
7.24	7	7.26	7
8.81	5	4.78	5

- (b) Carry out one way classification of the following data :

Fat 1	Fat 2	Fat 3	Fat 4
64	78	75	25
72	91	93	66
68	97	78	49
77	82	71	64
56	85	63	70
95	77	76	68

OR

Simulate one random sample each from normal (1,1) and exp(1) distributions. Draw box plots and qq normal plots to judge whether the parent populations are normal.

5. Answer the following:
1. Write two uses of R.
 2. Explain matrix function with example in R.
 3. 3, 4, 5, 7, 8, 2, 2, 3, 4, 4, 4 find mode using R function.
 4. $X = 2\ 3\ 4\ 5\ 6\ 7\ 8\ 9$ and $f = 1\ 2\ 4\ 6\ 5\ 7\ 8\ 5$. Prepare table using appropriate function.
 5. Write any two in built function of R.
 6. Explain C function with example.
 7. Explain rep function with example.
-

Seat No. : _____

N17-131
November-2014
B.Sc., Sem.-V
305 : Statistics
(Statistical Ecology)

Time : 3 Hours]

[Max. Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) Each question carries equal marks.

1. (a) Explain logistic growth model with reference to Ecology. 7

OR

Explain Gompertz's model and also state its uses.

- (b) Give scope and properties of exponential model. 7

OR

Define the term Ecology. State different fields where ecology is applied from statistical view point.

2. (a) State probability density function of Log Normal distribution. State applications of Geometric distribution to Ecology. 7

OR

State probability density function of Normal distribution and also state its applications to ecology. How normal and Log normal distribution differ from each other ?

- (b) Write short note on : Poisson Forest and Regular Spatial Pattern 7

OR

Explain the procedure of calculating Simpson's Index.

3. (a) What is biodiversity ? Give measures to protect it. 7

OR

Explain :

- (1) Force Mortality
- (2) Stable Population
- (3) Stationary Population

- (b) Explain in detail : (Any **one**) 7

- (i) Life Table
- (ii) Write a note on Leslie Matrix

OR

With reference to Ecology, discuss the role of biodiversity.

4. (a) What is Shannon's index ? Explain the procedure of calculating it. 7

OR

Explain exponential model. Give its various applications with regards to Ecology.

- (b) Give the relationship among various terms used in mortality table. 7

OR

State different capture-recapture models in the literature of statistical Ecology and also explain any one of them.

5. Answer the following in brief :

14

- (1) Give two names of smoothing process.
 - (2) How will you interpret the linear growth model ?
 - (3) Define closed population.
 - (4) Give two limitations of exponential distribution.
 - (5) State scope and limitations of Gompertz's model.
 - (6) State uses of log normal distribution.
 - (7) State uses of Simpson's index.
-

