

Series B

Reg. No. :

Name:

Sixth Semester B.Sc Degree (CCSS-Regular) Examination, May 2014

Core Course in Statistics: 6B14STA- Practical Using R

Time: 3 Hours

Max Weightage: 30

All questions carry a weightage of Five

Unit I

Answer any **one** question

1. Generate a random sample of 100 from Chi-Square distribution with 1 degree of freedom. Obtain box plot and qq plot . Test for normality using KS test and make your interpretations.
2. Find the mean, median, mode and standard deviation of the following data.

Class	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency	60	140	110	150	120	100	90

(Wt. 1x5=5)

Unit II

Answer any **two** questions

3. In a hospital the following observations were obtained on two groups of patients.

Number of patients	10	15
Mean	80	70
Sd	18	22

Find 95% confidence interval of difference of means under the assumption that the characteristics under consideration follow normal distributions with common variance.

4. Random samples drawn from two countries gave the following data relating to heights of adult males

	Country A	Country B
Mean height in inches	67.42	67.25
Standard deviation	2.58	2.5
No. in Samples	1000	1200

- (i) Is the difference between the means significant?
- (ii) Is the difference between the variances significant?
5. In 120 throws of a single die, the following distribution of faces was observed
- | | | | | | | |
|------------|----|----|----|----|----|----|
| Faces: | 1 | 2 | 3 | 4 | 5 | 6 |
| Frequency: | 30 | 25 | 18 | 10 | 22 | 15 |
- Test the hypothesis that the faces have equal probability.
6. Use the sign test to see if the difference between the number of days until collection of an account receivable before and after a new collection policy.
- | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|
| Before: | 67 | 24 | 57 | 55 | 63 | 54 | 56 | 63 | 33 | 43 |
| After: | 70 | 38 | 58 | 56 | 58 | 67 | 68 | 72 | 42 | 38 |

(Wt. 2x5=10)

Unit III

Answer any **two** questions

7. The yields in quintals for paddy crop of 40 villages are given below
120, 140, 115, 220, 150, 122, 210, 162, 230, 238, 245, 244, 184, 205, 125, 239, 147, 243, 140, 172, 159, 258, 170, 257, 247, 142, 172, 166, 230, 185, 232, 208, 191, 181, 203, 218, 154, 173, 186, 197.
- (iii) Select simple random samples (WR and WOR) of size 20 units and estimate the average yield along with their standard errors on the basis of selected units.
- (iv) Set up 95% confidence interval for the population mean.
8. Below are given the yields in 4 different varieties of coconut trees.

Varieties	Yield					
1	740	745	840	660	762	
2	745	650	758	664	754	720
3	788	579	652	720		
4	778	684	738	820	774	

Write ANOVA table and test whether varieties of coconut trees are significant or not.

9. The following data represent the number of units produced by 4 different machines. Examine whether the machines differ significantly in their average production.
- | | | | | | | |
|------------|----|----|----|----|----|----|
| Machine A: | 44 | 46 | 34 | 43 | 48 | |
| Machine B: | 38 | 40 | 36 | 42 | 45 | 36 |
| Machine C: | 47 | 52 | 44 | 46 | | |
| Machine D: | 49 | 36 | 53 | 32 | 33 | 39 |

10. Given the values of sample means and range for 10 samples of size 5 each. Draw mean and range charts and comment on the state of control.

Sample No.	1	2	3	4	5	6	7	8	9	10
Mean:	43	49	37	44	45	37	51	46	43	47
Range:	5	6	5	7	7	4	8	6	4	6

(Wt. 2x5=10)

Unit IV

Answer any **one** question

11. Calculate Fisher's ideal index number from the following data. Does it satisfy the Time and Factor reversal tests.

Commodity	Quantity	Price	Quantity	price
A	50	6	56	10
B	100	2	120	2
C	60	4	60	6
D	30	10	24	12
E	40	8	36	12

12. Height of fathers and sons are given below. Find the regression equations and hence find the height of son when the height of father is 70 inches.

Father:	71	68	66	67	70	71	70	73	72	65	66
Son:	69	64	65	63	65	62	65	64	66	59	62

(Wt. 1x5=5)