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Name.....

Reg. No.....

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2014

(UG—CCSS)

Complementary Course—Statistics

ST 4C 04—APPLIED STATISTICS

Time : Three Hours

Maximum : 30 Weightage

I. Answer *all* questions :

1 If the coefficient of kurtosis γ_2 of a distribution is zero, the frequency curve is :

(a) Leptokurtic

(b) Platykurtic.

(c) Mesokurtic

(d) Any of these.

2 For a symmetrical distribution the coefficient of skewness :

(a) $\beta_1 = 1$.

(b) $\beta_1 = 3$.

(c) $\beta_1 = 0$.

(d) $\beta_1 = -1$.

3 Given $r_{12} = 0.6$ $r_{13} = 0.5$ and $r_{23} = 0.8$ the value of $r_{12.3}$ is :

(a) 0.4.

(b) 0.72.

(c) 0.38.

(d) 0.47.

4 If the correlation coefficient $\rho = 0$ the angle between two regression lines is :

(a) 0°.

(b) 90°.

(c) 60°.

(d) 30°.

5 The geometric mean of two regression coefficient is equal to :

(a) r.

(b) r^2.

(c) 1.

(d) None of the above.

6 The range of simple correlation coefficient is :

(a) 0 to ∞.

(b) $-\infty$ to ∞.

(c) 0 to 1.

(d) -1 to 1.

7 The component of time series which are attached to short term fluctuations :

(a) Seasonal variation.

(b) Cyclic variation.

(c) Irregular variation.

(d) All the above.

Turn over

8 Simple average method is used to calculate :

(a) Trend values. (b) Cyclic variation.

(c) Seasonal indices. (d) None.

9 The main tools of statistical quality control are :

(a) Shewhart charts. (b) Acceptance sampling plan.

(c) Both (a) and (b). (d) None of the above.

10 Chance variation in respect of quality control of a product is :

(a) Tolerable. (b) Not effecting the quality of a product.

(c) Uncontrollable. (d) All the above.

11 The trial control limits for R-chart with usual constant factors are :

(a) $UCL = D_4 R, CL = R, LCL = D_3 R.$

(b) $UCL = D_4 \bar{R}, CL = \bar{R}, LCL = D_3 \bar{R}.$

(c) $UCL = D_4 \bar{R}, CL = \bar{R}, LCL = D_4 \bar{R}$

(d) All the above.

12 Analysis of variance was introduced by :

(a) M.G. Kendall. (b) Karl Pearson.

(c) C Spearman. (d) R.A. Fisher.

(12 × ¼ = 3 weigh

II. Answer *all* questions :

13 Define skewness of a distribution.

14 What is meant by Tied Ranks ?

15 What is meant by Kurtosis ?

16 What do you mean by cyclic variation ?

17 Define multiple correlation coefficient.

18 Define ANOVA.

19 What is meant by Quality Control ?

20 Define Rank Correlation.

21 Define C chart.

(9 × 1 = 9 weightage)

II. Answer any *five* questions :—

22 Explain *np* chart.

23 What are the limitations of Statistical Quality Control ?

24 Explain three sigma limits.

25 Distinguish between partial and multiple correlation coefficient.

26 What are the advantages of moving average method.

27 What is time series ? Describe the deferent components of time series.

28 State the basic assumptions of Analysis of variance.

(5 × 2 = 10 weightage)

V. Answer any *two* questions :

29 Obtain the regression lines and correlation coefficient for the following data :

X	...	68	64	75	50	64	80	75	40	55	64
Y	...	62	58	68	45	81	60	68	48	50	70

30 (a) Explain the theoretical basis of $\bar{x}$ and R chart.

(b) Prepare $\bar{x}$ chart using the following results :

Sample No.	...	1	2	3	4	5
Average	...	2.6	2.7	2.7	2.4	2.8
Range	...	0.2	0.2	0.3	0.4	0.3

31 Explain the method of least squares. Fit a parabolic curve to the data. Estimate the percentage increase for the year 1980 :

Year	...	1975	1976	1977	1978	1979
Production	...	11.5	16.8	21.4	25.7	31.6

(2 × 4 = 8 weightage)