18P327 (Pages: 3) Name……..

Reg. No……..

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

(Regular/Supplementary/Improvement)

(CUCSS - PG)

CC15P ES3 C15 - BIOSTATISTICS, QUANTITATIVE METHODS AND ECO - INFORMATICS

(Environmental Science)

(2015 Admission onwards)

Time : Three Hours Maximum : 36 Weightage

I. Answer ***all*** questions. Each question carries 1 weightage.

1. Expand www.
2. SQL.
3. Spatial Data.
4. TCP/IP.
5. Probability Axioms.
6. Kurtosis.
7. Population Mean.
8. Bayes' Formula.
9. Data Mining.
10. Poisson Distribution.
11. Least Squares.
12. Conditional Operators.
13. SPSS.
14. Eco-informatics.

(14 x 1 = 14 Weightage)

II. Answer any ***seven*** questions. Each question carries 2 weightage.

15. Compute the coefficient of quartile deviation.

Relative Humidity (%)	44 – 54	55 – 64	65 – 74	75 – 84	85 – 94
No. of Day	80	83	92	80	30

16. Root length (in cm) of rice plant after 7 days of germination under different mutation exposure period is given below. Test at 5% level of significance whether there is an effect of mutation on root length.

Treatment	Replication		
	I	II	III
Control	1.9	2.2	3.5
MD_1 – 5 min	2.9	3.5	3.0
MD_2 – 10 min	2.5	2.8	2.3
MD_3 – 15 min	1.5	2.0	2.2

17. Explain the procedure of chi-square test for independence. Also mention the assumptions clearly.
18. Discuss the difference between Standard Deviation and Coefficient of Variation.
19. Define correlation coefficient. Explain the formula and discuss its interpretation.
20. Distinguish between parametric and non-parametric tests.
21. Write a note on likelihood and maximum likelihood algorithms.
22. Write a note on (a) Cluster Analysis; (b) Factor Analysis; (c) PCA
23. State the probability mass function of Binomial distribution. State mean and variance of it.
24. Explain skewness. Describe the types of skewness and the relation between mean, mode and median.

(7 x 2 = 14 Weightage)

III. Write an essay on any ***two*** of the following. Each question carries 4 weightage

25. Calculate the Variance, CV, SD, Pearson's coefficient of skewness of the following:

Class	0 – 20	20 – 40	40 – 60	60 – 80	80 - 100
Frequency	35	75	100	80	50

26. With suitable diagrams, briefly explain the methods for data representation.

27. Two pepper varieties were grown in three different agroclimatic zones and their yield were measured for five years. Find the suitable test to explain that the production are affected by agroclimate zones and pepper varieties.

		Pepper Production (in MT)		
		Agroclimate Zone I (AC I)	Agroclimate Zone II (AC II)	Agroclimate Zone III (AC III)
Pepper (P1)	1	35	67	89
	2	49	63	93
	3	73	65	79
	4	73	72	55
	5	78	72	63
Pepper (PII)	1	90	78	53
	2	87	73	46
	3	86	53	48
	4	86	46	48
	5	62	40	40

28. Explain the applications of mathematic models and computational tools in wildlife conservation and management, habitat modeling and habitat suitability studies.

(2 x 4 = 8 Weightage)

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