LGS GROUP OF COLLEGES

Stats ICS – (XII) CODE= 7866 **3rd Monthly**

Class: I.C.S Part II Session: 2024 - 2025

Subject: STATISTICS	**Name:**	**Roll No:**
Time: 1 Hours	**Objective Type**	**Marks = 35**

SECTION-I OBJECTIVE TYPE

Q# 1 Note: Four possible answers A, B, C and D to each question are given. The choice which you think is correct; fill that circle in front of that question within the answer-book. Cutting or filling two or more circles will result in zero mark in that question. **(7 x 1 = 7)**

i	The value of chi-square is always	
	A. negative	B.zero
	C. non-negative	D. less then zero
ii	The eye colour of 100 men is	
	A. Attribute	B. Quantitative variable
	C. Variable	D. None of these
iii	The shape of χ^2 distribution is	
	A. Symmetrical	B. Negative skewed
	C. Positively skewed	D. Meso kurtic
iv	If $\frac{6\sum d^2}{n(n^2-1)}$ is zero then value of r_s is	
	A. 0.5	B. -1
	C. 0	D. 1
v	The total area under the curve of a chi-square distribution is:	
	A. 1	B. $-\infty \; to \; 0$
	C. $0 \; to \; \infty$	D. $-\infty \; to \; +\infty$
vi	If the two attributes A and B have a perfect negative association, then the yates co-efficient of association is equal to	
	A. $+1$	B. 0.87
	C. -1	D. -0.83
vii	For a contingency table of order $r \times c$, the number of the degrees of freedom is equal to	
	A. rc	B. $(r-1)c$
	C. $(c-1)r$	D. $(r-1)(c-1)$

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Section-II: SUBJECTIVE TYPE (PART – I)

Q2. Attempt any eight questions. **(8 x 2 = 16)**

i. Differentiate between a variable and an attribute.
ii. Explain rank correlation, with formula.
iii. The coefficient of rank correlation of marks by 8 students in two subjects was found to be 0.19. Find $\sum d^2$.
iv. Define dichotomy.
v. Define the independence of attributes with example.
vi. Define the chi-square statistic.
vii. If there are 144 A's and 384 B's in 1024 observations, how many AB's and αB will there be A and B being independent.
viii. If $(A) = 20, (B) = 10, n = 40$, find (AB) if A and B are independent.
ix. What are the properties of rank correlation?

SECTION – II
(3X 4 = 12)

Attempt all questions

Q.3 The following table shows the number of hours studied (X) by a random sample of ten students and their grades in the examination (Y) , calculate the Spearman's rank correlation coefficient r_s

X	8	5	11	13	10	5	18	15	2	8	
Y	56	44	79	72	70	54	94	85	33	65	

Q.4 Find χ^2 and test whether the attributes are independence at $\alpha = 0.5$

attributes	A_1	A_2	A_3
B_1	215	325	60
B_2	135	175	90

Q.5 The ranks of the same 10 students in Mathematics and Economics were as follows: (1,6), (2,5), (3,1), (4,4), (5,2), (6,7), (7,8), (8,10), (9,3), (10,9); the two numbers within brackets denoting the rank of the same students in Mathematics and Economics respectively. Calculate the rank correlation coefficient for proficiencies of this group in two subjects.