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63/2 (SEM-3) EDN 3.2

2021

(held in 2022)

EDUCATION

(Theory Paper)

Paper Code : EDN - 3.2

(Statistics in Education)

Full Marks - 80

Time - Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions in brief: $2 \times 5 = 10$

(a) Define correlation.

(b) What do you mean by standard error?

(c) Given $M = 48$, $S.D = 8$ for a distribution, convert a z score of the value 0.625 into a raw score.

[Turn over

(d) What is goodness-of-fit?

(e) What do you mean by positive and negative skewness?

2. Answer the following questions : $5 \times 4 = 20$

(a) Enumerate the major properties of Normal Probability Curve.

(b) Find out the combined SD of the following distribution :

Mean

$$M_1 = 60 \text{ and } M_2 = 50$$

SD

$$\sigma_1 = 8 \text{ and } \sigma_2 = 8$$

Size of the group

$$N_1 = 20 \text{ and } N_2 = 120$$

(c) Mention the salient features of chi-square test.

(d) What do you mean by coefficient of correlation? State its three uses.

3. Answer any two of the following : $10 \times 2 = 20$

(a) Elucidate the applications of NPC in solving different problems. 10

(b) Compute the correlation of the following two tests by product moment method and interpret the result. $8 + 2 = 10$

Set X	19	29	24	24	16	56
Set Y	32	24	42	54	42	67

Set X	22	32	18	24
Set Y	58	57	49	87

(c) What is contingency table? The mothers of two hundred adolescents (some of them were graduates and others non-graduates) were asked whether they agreed or disagreed on a certain aspect of adolescent behaviour. Ascertain the fact that the attitudes of these mothers are related to their being graduates or non-graduates from the following data : $2 + 8 = 10$

Mothers	Agree	Disagree
Graduate mothers	38	12
Non-graduate mothers	84	66

4. Answer the following questions : $15 \times 2 = 30$

- (a) Distinguish between one-tailed and two-tailed tests. Two groups of 10 students each got the following scores on the attitude scale :

Group I	10	9	8	7	7	8	6	5	6	4
Group II	9	8	6	7	8	8	11	12	6	5

Compute the Means for both groups and the significance of the difference between the two means.

$$5+10=15$$

Or

What is ANOVA? Differentiate between Parametric and Non-parametric test and discuss the steps involved in the application of ANOVA for testing the difference between groups for one way.

$$2+6+7=15$$

- (b) In a study, the effectiveness of the methods, memorization was to be determined. For this purpose, three groups of 10 students each randomly selected from class 7 of a school were taken and each group was made to adopt a particular method of memorization.

In the end, the performance was tested. The number of nonsense syllables correctly recalled by the students of these groups is presented below :

Group I	12	10	11	11	8	10	7	9	10	6
Group II	14	8	19	15	10	11	13	12	9	12
Group III	8	11	13	9	7	5	6	8	7	10

Apply ANOVA for testing the significance of the difference between group means and interpret the result.

$$15$$

Or

Explain the assumptions underlying ANCOVA and mention its uses and limitations.

$$6+5+4=15$$