

M.A. Semester-II Examination, 2015
Education
Paper : EDN- 224
(Application of Statistics in Educational Research)

Time : Three Hours

Full Marks : 40

Questions are of value as indicated in the margin.

Answer all questions.

1. Define Normal Probability Curve. Given three test items 1,2 and 3 passed by 50%, 40% and 30% respectively, of a large group. On the assumption of normality of a distribution, what percentage of this group must pass test item 4 in order for it to be as much more difficult than 3 as 2 is same difficult than 1? Discuss the causes of Non-normality of a curve. 1+5+2=8

OR

State six major characteristics of NPC? Given a distribution of scores with a mean 50 and S.D 10. If we may assume the normality of the distribution then find :

- (i) The middle 70% of cases, (ii) The percentage of cases lie between 35 to 75,
(iii) The percentage of cases that exceed 65. 4+3+1=8
2. (a) How does significance of a Mean differ from significance difference between Means? 2
(b) In a Moral Judgement Test, the Mean and the SD of a group of 198 school students were 23.58 and 3.29. How far the sample Mean is dependable? 6

OR

What is Tetrachoric (r_t) and phi-coefficient (ϕ). Two items X and Y are part of a test of 100 items. Item X is passed by 100 and failed by 125 students in a group of 225. Item Y is passed by 135 and failed by 90 in the same sample. Find the correlation between X and Y. 2+6=8

	Item - X	
	Failed	Passed
Item Y Passed	50	85
Failed	75	15

3. (a) What are Type-I and Type - II errors.
(b) An Interest Test is administered to eight boys in a Science class and to 10 boys in a Language class. Is the Mean difference between the two groups significant at .05 level? 2+6=8

Vocational class (scores)	19	30	25	14	29	35	15	16		
Language class (Scores)	14	27	21	13	31	25	12	28	11	12

OR

- (a) Why ANOVA is a more preferable statistic than a t-test?
(b) In an experiment on breeding of peas a research obtained the following data: The theory predicts the proportions of beans, in four groups A, B, C, and D should be 9 : 3 : 3 : 1. In an experiment among 1600 beans the numbers in four groups were 882, 313, 287 and 118. Does the experiment result support the genetic theory? (Test at .05 level).

P.T.O.

4. Answer **any four** questions from the following :

4×3=12

- (a) Descriptive and inferential statistics
- (b) Skewness and Kurtosis
- (c) What do you mean by 'levels of significance' and 'confidence intervals'?
- (d) Distinguish between one-tailed and two-tailed tests of significance.
- (e) Functions of CPU
- (f) What are the statistics you as researcher use for analysis of qualitative data and quantitative data.

5. Choose the most appropriate alternative for the following items :

- (i) Which one of the following is not a parametric test?
 - (a) Chi-square test of independence
 - (b) F-test
 - (c) t-test
 - (d) Multiple correlation
- (ii) Degrees of Freedom for testing t-test between two correlated Means are
 - (a) $(N_1 - 1) + (N_2 - 1)$
 - (b) $N - 1$
 - (c) $N - 2$
 - (d) $(N_1 - 1) \times (N_2 - 1)$
- (ii) $P = ??$

$$(a) 1 - \frac{6\epsilon D}{N(N^2 - 1)} \quad (b) 1 - \frac{6\epsilon D^2}{N(N^2 - 1)} \quad (c) 1 - \frac{6\epsilon D}{N(N - 1)} \quad (d) 1 - \frac{6\epsilon D}{N^2(N - 1)}$$

(iii) In case of Normal Probability Curve, skewness =

- (a) 0 (b) 1 (c) $0 < sk < 1$ (d) .263