

Seat No. : _____

ND-143

November-2021

B.Sc., Sem.-V

303 : Statistics

(Statistics in Psychology and Education)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) There are **two** sections in this question paper.
 - (2) **All** questions in Section – I carry equal marks.
 - (3) Attempt any **THREE** questions from Section – I.
 - (4) Section – II is compulsory.
 - (5) Figures to the right indicate full marks of the questions/sub-questions.

Section – I

1. (a) Describe in brief, the need of scaling and state different scaling methods available. 7
- (b) Explain in brief T- Score. Also state important points that are essential to obtain T- Score. 7
2. (a) Write a note on Stanine Score. 7
- (b) What is percentile Rank Scaling ? State advantages and disadvantages of percentile rank scaling. 7
3. (a) Explain in detail “discriminating value of an item”. 7
- (b) Describe the procedure to check validity of a test item using biserial correlation co-efficient. 7
4. (a) State different forms of item analysis of Criterion Reference Test. Also describe in detail Criterion Reference Test. 7
- (b) Explain method of Item Objective Congruence Index in detail. 7

5. (a) “In Psychology and Education Reliable Test Score is important.” Explain the significance of this statement. 7
- (b) For reliability of a test score in usual notations, prove that $r_{tt} = 1 - \frac{S_e^2}{S_{t0}^2}$. 7
6. (a) In usual notation for reliability index, prove that $r_{0t} = \sqrt{r_{tt}}$. 7
- (b) Write a short note on “Test – Retest Method”. 7
7. (a) Describe in brief, validity of a Test. 7
- (b) What are different types of validity ? Explain in brief, Content Validity. 7
8. (a) State difference between reliability and validity of a test. 7
- (b) The reliability co-efficient of test is 0.82 and co-efficient of correlation of the test X_1 with criterion is 0.70. If the test is lengthened three times, obtain the correlation with criterion. 7

Section – II

9. Answer any **EIGHT** questions from following :
 - (1) What is Psychometrics ?
 - (2) In Stanine Score, normal curve is divided into how many parts ?
 - (3) Define distractor.
 - (4) If biserial correlation co-efficient of an item is 0.23, state the nature of an item.
 - (5) For a specific test item, if percentage value of R_U and R_L are 50 and 32 respectively, then obtain difficulty value, D_V .
 - (6) State the range of discriminating value.
 - (7) With respect to reliability of test score, write Spearman - Brown Prophecy formula.
 - (8) What is reliability co-efficient ?
 - (9) If the test or its criterion or both are not reliable, correlation co-efficient between them _____. [Select an appropriate word : decrease, increases]
 - (10) Validity of a test increases by increasing the length of a test. Do you agree ?