

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024

(Fifth Semester)

Branch – STATISTICS

EDUCATIONAL & PSYCHOLOGICAL STATISTICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 _____ correlation method is used when both the variables are dichotomous and none of them can be expressed in scores.
(i) Biserial (ii) Point biserial
(iii) Tetrachoric (iv) Rank
- 2 Deviations from the mean expressed in terms of the standard deviation (σ) are called
(i) σ -scores (ii) Z-scores
(iii) Reduced scores (iv) All of these
- 3 The mean and standard deviation of Stanine scale are _____ respectively.
(i) 3 and 1.5 (ii) 5 and 1.46
(iii) 9 and 1 (iv) 1 and 0
- 4 What is the range of reliability?
(i) -1 to +1 (ii) 0 to ∞
(iii) $-\infty$ to $+\infty$ (iv) 0 to 1
- 5 The type of validity used for tests like clinical diagnosis is known as
(i) Predictive validity (ii) Concurrent validity
(iii) Content validity (iv) Construct validity

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a. Explain partial and multiple correlation coefficients.
OR
b. Calculate rank difference correlation coefficient from the following data:

Traits:	A	B	C	D	E	F
Rank by Judge X:	2	1	4	3	6	5
Rank by Judge Y:	1	2	5	6	4	3
- 7 a. Compare T-scores and Standard scores.
OR
b. State the following scoring methods:
(i) Z scores (ii) Standard scores (iii) T-scores.
- 8 a. Explain the procedure of constructing C-scale.
OR
b. Explain the steps of finding stanine score from raw scores.

Cont...

- 9 a. The reliability coefficient of a test of 50 items is 0.60. How much the test should be lengthened to raise the self-correlation to 0.90?

OR

- b. Explain briefly the important factors affecting the reliability of a test.

- 10 a. Compare reliability and validity.

OR

- b. Explain how the validity is determined by means of judgements.

SECTION -C (30 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 x 6 = 30)

- 11 a. Calculate point biserial correlation coefficient from the following information:

Students	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Test criterion(X)	25	23	18	24	23	20	19	22	21	23	21	20	21	21	22
Item analysis(Y)	1	1	0	0	1	0	0	1	1	1	0	0	1	1	1

(In item analysis, 1 = item passed, 0 = item failed)

OR

- b. Explain the procedure of calculating tetrachoric correlation with a suitable example.

- 12 a. Write about the various methods of scaling of scores on a test with their importance.

OR

- b. Find the T-scores corresponding to the test scores X for the following frequency distribution:

x	1	2	3	4	5	6	7
f	5	10	20	5	4	4	2

- 13 a. Letter grades A, B, C, D, E (A being the highest and E the lowest) are assigned by two teachers X and Y to the students of class for 'Honesty'. The following table gives the distribution of the proportion of individuals in each rating.

Honesty →	A	B	C	D	E
Teacher ↓					
X	0.10	0.15	0.50	0.20	0.05
Y	0.20	0.40	0.20	0.10	0.10

Find the numerical scores corresponding to each grade and each teacher.

- b. Discuss the concept of scaling of ratings in terms of normal probability curve.

- 14 a. Describe the different methods of obtaining the reliability coefficient.

OR

- b. The scores of 8 students in two halves of a test (odd and even numbered) are given below. Estimate the test reliability by split-half method:

Students	1	2	3	4	5	6	7	8
Score in odd no. items	65	66	67	67	68	69	70	72
Score in even no. items	67	68	65	68	72	72	69	71

- 15 a. Discuss in detail the different types of validity.

OR

- b. What does one imply by validity of a test? Explain the effect of the lengthening of a test on validity.

Z-Z-Z

END