PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2022
(Second Semester)

Branch – **COSTUME DESIGN AND FASHION**

RESEARCH METHODOLOGY AND STATISTICS

Time: Three Hours   Maximum: 50 Marks

SECTION-A (5 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (5 x 1 = 5)

1   The design which deals with the method of selecting items to be observed is known as
(i) sampling design   (ii) operational design
(iii) statistical design   (iv) operational design

2   The scale which represents the actual amount of variables is called
(i) ordinal scale   (ii) ratio scale
(iii) nominal scale   (iv) interval scale

3   When the data set has outliers, the appropriate average used is
(i) mean   (ii) mode
(iii) median   (iv) coefficient of variation

4   The parameters of binomial distribution are
(i) p and q   (ii) n and q
(iii) n, p and q   (iv) n and p

5   The test used to test the randomness of a sample is
(i) run test   (ii) sign test
(iii) Mann-Whitney test   (iv) none of the above

SECTION - B (15 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks   (5 x 3 = 15)

6   a   What is secondary data? Give examples.
OR
    b   What is the purpose of research?

7   a   Classify the following data by taking class interval as 15-19,20-24,25-29 and so on.
        30 42 30 54 40 48 15 17 5142 25 41
        30 27 42 36 28 26 37 54 44 31 36 40
        36 22 30 31 19 48 16 42 32 21 22 46
        33 41 21
OR
    b   Draw histogram for the following data.

Variable	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	8	15	18	30	16	12	6

8   a   Explain Spearman's rank correlation coefficient.
OR
    b   Find the median of the data set 5, 6, 11, 59,

9   a   State addition theorem and multiplication theorems of probability.

OR

    b   A coin was tossed 400 times and the head turned up 216 times. Test the hypothesis that the coin is unbiased.

10   a   Write test statistic used in Chi-square test of independence of attributes.

OR

    b   Write the ANOVA table in one way classification.

SECTION -C (30 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 6 = 30)

11   a   Explain the significance of Research.

OR

    b   Explain the different methods of random sampling methods.

12   a   Discuss the four types of measurement scales.

OR

    b   Represent the following data by a pie-diagram.

Items	Expenditure (Rs)
Food	170
Clothing	50
Rent	60
Education	30
Otheres	50

13   a   From the following information, find the standard deviation of X and Y
$\sum X = 235, \sum Y = 250, \sum X^2 = 6750, \sum Y^2 = 6840, N = 10.$

OR

    b   The ranking of 10 students in two subjects are as follows:

R1	6	5	3	10	2	4	9	7	8	1
R2	3	8	4	9	1	6	10	7	5	2

Find the rank correlation coefficient.

14   a   Explain the two types of errors in testing of significance.

OR

    b   Two samples of 100 electric bulbs each has means 1500 and 1550, standard deviations 50 and 60 repectively. Can it be concluded that two brands differ significantly at 1% level of significance.

15   a   Two research workers classified some people in income groups on the basis ofsampling studies. Their results are as follows:

Investigators	Income groups			Total
	Poor	Middle	Rich	
A	160	30	10	200
B	140	120	40	300
Total	300	150	50	500

Show that the sampling technique of atleast one research worker is defective.

OR

    b   The following is an arrangement of 25 men and 15 women lined up to purchasetrain tickets.
M WW MMM W MM W M WM WWW MMM W MM WWW MMMMMM WWW MMMMMM
Test for randomness at 5 per cent level of significance.

Z-Z-Z   END