

2024

**APPLIED STATISTICS IN PHYSICAL EDUCATION AND SPORTS****Paper : MPCC-201****Full Marks : 70***The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Classify the different types of variables with suitable examples. Narrate the various scales of measurement. Explain the advantages of graphical representation. 4+6+5

**Or,**

Write the advantages and disadvantages of mean and median. Calculate the mean and median from the following frequency distribution: 6+4+5

Class Interval (cm.)	Frequency
135.5-139.5	18
131.5-135.5	11
127.5-131.5	17
123.5-127.5	14
119.5-123.5	19
115.5-119.5	8
111.5-115.5	13
107.5-111.5	17
103.5-107.5	10

2. What do you understand by divergence from normality? Define and explain the term Skewness along with its types. Transform the following data into standard scores :

16	27	24	21	10	14	16
15	22	17	31	19	25	12

2+5+8**Please Turn Over**

*Or,*

‘Standard deviation’ is the most stable and reliable measure of variability— justify the statement. Compute standard deviation and 7th decile from the following sets of scores : 5+(6+4)

Class Interval	Frequency
85-90	7
79-84	9
73-78	15
67-72	14
61-66	10
55-60	8
49-54	11
43-48	10
37-42	11
31-36	18
25-30	7

3. What are Partial Correlation and Multiple Correlation? What is scatter diagram? Find the coefficient of correlation between the following two sets of scores using the Pearson’s Product Moment method. 4+3+8

Subjects	A	B	C	D	E	F	G	H	I
Test- X	15	18	22	17	19	20	16	21	14
Test- Y	40	42	50	45	43	46	41	41	38

*Or,*

Describe Z scale and T scale. A group of subjects were given an aptitude test. The mean score was 35 and SD was 3.4. One candidate secured 31. Calculate the T score of the candidate.

The following data were collected on explosive strength :

	Basketball Players	Volleyball Players
Mean	2.35	2.42
SD	0.23	0.18
No. of Subject	140	160

Test the significance of the difference between the mean scores of two groups at the 0.05 level of significance (use the t-value of 1.97 at 0.05 level). 5+3+7

4. Write notes on the following (*any two*) :

7½×2

- (a) One tailed test and two tailed test
- (b) Assumptions of Parametric and Non-parametric Tests
- (c) Properties of normal probability curve
- (d) Standard Error and level of significance.

5. Select the correct option from given alternatives for the following MCQs and write it on your answer script (*any ten*) :

1×10

(a) The positional average is

- (i) Mean
- (ii) Median
- (iii) Mode
- (iv) SD.

(b) The difference between 3rd quartile and 1st quartile is called as

- (i) Quartile Deviation
- (ii) Standard Deviation
- (iii) Average Deviation
- (iv) Inter-Quartile Range.

(c) The sum of deviations from the mean is

- (i) always equal to zero
- (ii) equal to double the mean
- (iii) always positive
- (iv) less than zero.

(d) The range of value of 'R' in case of multiple correlation is

- (i) 0 to 1
- (ii) - 1 to 0
- (iii) - 1 to + 1
- (iv) None of these.

(e) The mode is a better measure of central tendency for dealing with

- (i) Ordinal data
- (ii) Ratio data
- (iii) Nominal data
- (iv) Interval data.

(f) In case of positive skewness mean, median and mode lies in such a manner

- (i) Mean > Median > Mode
- (ii) Mode > Median > Mean
- (iii) Mean = Median = Mode
- (iv) None of these.

(g) If the distribution of scores is symmetric, the skewness (Sk) is

- (i) Sk = 0
- (ii) Sk = 1
- (iii) Sk < 1
- (iv) Sk > 1.

(h) If the variance of a sample of 20 observations is 9 then the standard deviation of the sample will be

- (i) 3
- (ii) 81
- (iii) 400
- (iv) 4.47.

**Please Turn Over**

- (i) A numerical value used as descriptive statistic for a sample withdrawn from a particular population, such as sample mean is known as
- (i) Population parameter
  - (ii) Sample parameter
  - (iii) Sample statistic
  - (iv) Population mean.
- (j) Construction of a cumulative frequency table is useful in determining the
- (i) Mean
  - (ii) Median
  - (iii) Mode
  - (iv) Standard deviation.
- (k) Which of the following scales starts with 0 at  $-3\sigma$  below the mean and ends up with 100 at  $+3\sigma$  above the mean?
- (i) Hull scale
  - (ii) Z scale
  - (iii) T scale
  - (iv) Sigma scale.
- (l) Which of the following is not a measure for dispersion?
- (i) Scatter
  - (ii) Spread
  - (iii) Regression
  - (iv) Variation.
-