

2019

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. (a) What do you mean by statistics?
 (b) Describe the uses of statistics in the field of physical education.
 (c) Define data and describe its various types.
 (d) State the Merits of Standard Deviation.

3+5+4+3

Or,

- (a) Use this data set : 10, 20, 30, 40, 50 and
 (i) Find the Standard Deviation.
 (ii) Add 5 to each value and then find the Standard Deviation.
 (b) Draw a histogram for the following data :

Marks	Number of Students
21 - 30	6
31 - 40	15
41 - 50	22
51 - 60	31
61 - 70	17
71 - 80	9

8+7

2. (a) What do you understand by probability?
 (b) Find the sample space for rolling two dice.
 (c) Calculate Karl–Pearson's coefficient of skewness for the following data.
 25, 15, 23, 40, 27, 25, 23, 25, 20
 (d) What is Degree of freedom?

3+4+5+3

Please Turn Over

Or,

- (a) What are the uses / application of Normal Curve?
 (b) Briefly summarize the characteristics of normal probability curve.
 (c) Convert the raw scores of 39 and 58 of a distribution into Z score and t score when mean and Standard Deviation of the said distribution are 46.12 and 5.80 respectively. 4+6+5

3. (a) What is coefficient of correlation?

(b) Explain the type of magnitude of correlation.

(c) Describe the uses of correlation. 4+6+5

Or,

(a) What is Rank correlation?

(b) Calculate Spearman's Coefficient of correlation between marks assigned to ten students by judges X and Y in a certain competitive test as shown below :

Marks by Judge X :	52	53	42	60	45	41	37	38	25	27
Marks by Judge Y :	65	68	43	38	77	48	35	30	25	50

(c) What is the difference between Correlation and Regression? 3+8+44. Answer *any two* questions from below : 7½×2

(a) Type-I and Type-II errors

(b) Chi-Square test

(c) Construction of norms

(d) Calculate the significance of differences in mean scores (t-ratio) of the following two independent groups and test the level of significance (at 18 df t-ratio at 0.05 level is 2.10 and at 0.01 level is 2.88)

Group-A :	65	36	48	52	29	41	39	56		
Group-B :	82	69	55	43	55	49	64	62	39	48 59 74

5. Choose and write the correct answer from the following (*any ten*) : 1×10

(a) When a distribution is positively skewed, the relationship of the mean, median and mode from left to right will be

(i) Mean, median, mode

(ii) Median, mode, mean

(iii) Mode, median, mean

(iv) Mean, mode, median.

(b) Which is not a property of the standard normal distribution?

(i) It's symmetric about the mean

(ii) it's uniform

(iii) it's bell-shaped

(iv) It's unimodal.

(c) If the lower and upper limits of a class are 10 and 40 respectively, the mid points of the class is

(i) 15.0

(ii) 12.5

(iii) 25.0

(iv) 30.0.

- (d) Class intervals of the type 30-39, 40-49, 50-59 represents
- (i) Inclusive type
 - (ii) Exclusive type
 - (iii) Open-end type
 - (iv) None.
- (e) Rank Correlation was found by
- (i) Pearson
 - (ii) Spearman
 - (iii) Galton
 - (iv) Fisher.
- (f) Data that can be classified according to colour are measured by the scale :
- (i) Nominal
 - (ii) Ratio
 - (iii) Ordinal
 - (iv) Interval.
- (g) What is another name for the ogive?
- (i) Histogram
 - (ii) Frequency polygon
 - (iii) Cumulative frequency graph
 - (iv) Pareto chart.
- (h) If Jack scored 15 on a test with a mean of 20 and a standard deviation of 5, what is his z-score?
- (i) 1.5
 - (ii) -1.0
 - (iii) 0.0
 - (iv) Cannot be determined.
- (i) A Type-I error occurs when we
- (i) reject a false null hypothesis
 - (ii) reject a true null hypothesis
 - (iii) do not reject a false null hypothesis
 - (iv) do not reject a true null hypothesis.
- (j) What is the value of the mode when all values in the data set are different?
- (i) 0
 - (ii) 1
 - (iii) There is no mode
 - (iv) It cannot be determined unless the data values are given.
- (k) In two-tailed hypothesis, the critical region is
- (i) Divided in both the tails in 1 : 4 proportion
 - (ii) Lying in right tail only
 - (iii) Lying in left tail only
 - (iv) Divided in both the tails.
- (l) If reaction time of 14 sprinters and 16 gymnasts is to be compared using t-test, what would be its df?
- (i) 28
 - (ii) 30
 - (iii) 2
 - (iv) 29.
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