

M.P.Ed - 511

2023

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) Why is Statistics important in Physical Education?
- (b) What are parametric and non-parametric statistics?
- (c) Numbers of students who appeared and passed in an examination in five successive years are given below. Draw a suitable diagram to display the data. 4+4+7

Year	2015	2016	2017	2018	2019
No. Appeared	60	55	65	70	75
No. Passed	55	45	50	65	70

Or,

- (a) What is a frequency distribution? What are class width and class boundary?
- (b) Following data are the scores of 1-min. sit-up test, performed by 50 B.P.Ed. students in an entrance test. Construct a frequency distribution table with this data that has seven classes.

18	20	21	27	29	30	39	32	21	24
19	30	32	19	34	44	33	54	51	25
24	29	18	37	38	49	18	51	47	48
19	34	44	33	29	18	29	18	37	38
29	18	37	38	19	34	44	33	38	49

2+3+10

- 2. (a) Following is the distribution of marks obtained by 70 students in an examination.

Marks	31-40	41-50	51-60	61-70	71-80	81-90
No. of Students	8	12	15	14	13	8

- (i) Calculate average marks obtained by a student.
- (ii) Calculate standard deviation to show the variability of marks obtained.
- (b) Show the sample space for tossing two fair coin flips.

Please Turn Over

(c) Calculate Karl Pearson's coefficient of skewness from the following data.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of Students	7	6	9	8	10	7	5

(3+4)+2+6

Or,

- Write the characteristics of Normal probability curve.
- Calculate z-score and t-score of 58 and 73 of a distribution, when mean and Standard deviation of the said distribution is 68 and 2.50.
- When is t-score calculated instead of z-score?
- What is degree of freedom? 5+6+2+2

- Write the meaning of correlation. How do you interpret positive and negative correlation? Write expression for Product-moment correlation co-efficient.
 - In calculating Rank correlation coefficient, $\sum D^2 = 45$; $n = 10$. Find r .
 - Calculated t-value = 2.25 and tabulated t-value = 2.059 at 0.05 level of significance with 25 degree of freedom: Interpret the result. (2+4+3)+4+2

Or,

- What is Rank correlation?
- Find the rank correlation coefficient :

Marks in Test I:	66	68	70	55	64	60	75	63	62	72
Marks in Test II:	72	63	80	58	68	59	75	62	60	70

- Write the meaning and types of regression. 3+9+3

- Write short notes on following (**any two**) : 7½×2

- Student's t-test
- Measures of Central Tendency
- ANOVA test
- Chi-square test.

- Answer the following MCQs by selecting the correct option and writing the same on your answer script (**any ten**) : 1×10

- Class intervals of the type 30-49, 50-59, 60-69, 70-79 represent
 - Inclusive type
 - Exclusive type
 - Open-end type
 - None of these.

- (b) Data that can be classified according to 1st, 2nd, 3rd are measured on what scale?
- (i) Nominal
 - (ii) Ratio
 - (iii) Ordinal
 - (iv) Interval.
- (c) If z-score is -1 , what will be the t-score?
- (i) 45
 - (ii) -40
 - (iii) 40
 - (iv) Cannot be determined.
- (d) 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) The middle value when data are arranged in ascending order.
- (e) 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.
- (f) If agility of 59 footballers and 47 cricketers is to be compared using t-test, what would be its degree of freedom (df)?
- (i) 106
 - (ii) 104
 - (iii) 105
 - (iv) 107.
- (g) If we compare the fitness ability of volleyball players and basketball players, then which type of t-test could be used for analysis?
- (i) One sample t-test
 - (ii) Paired t-test
 - (iii) Independent sample t-test
 - (iv) Dependent sample t-test.
- (h) What is the median value of the numbers 5, 9, 6, 4, 2, 3, 8?
- (i) 6
 - (ii) 4.5
 - (iii) 5
 - (iv) 4.
- (i) The first quartile divides a frequency distribution in the ratio:
- (i) 4 : 1
 - (ii) 1 : 4
 - (iii) 3 : 1
 - (iv) 1 : 3
- (j) The standard deviation of the six observations 5, 5, 5, 5, 5, 5 is
- (i) 5
 - (ii) 0
 - (iii) 0.5
 - (iv) 1.