M. P. Ed 2nd Semester Examination 2023
Applied Statistics in Physical Education and Sports
MPCC – 201

Full Marks – 70   **Time – 4 Hours**
The figures in the margin indicate full Marks.
The candidates are required to give their answers in their own words as far as practicable.
Illustrate the answer wherever necessary.

1. Explain different type of statistics with suitable example. The marks of **110** students in a Biomechanics test are as follows:
   5+4+3+3=15

Marks	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90
Frequency(f)	5	9	12	21	23	18	11	7	4

   Draw an Ogive and use it to estimate
   a. Median
   b. Number of students who obtain more than 70% marks in the test.

OR

Discuss about dependent and independent variable with suitable example. Write down the uses of median in brief. Calculate Mean and Standard Deviation from the following frequency distribution.   **3+3+9(4+5) =15**

Class	120 – 134	135 – 149	150 – 164	165 – 179	180– 195	194 – 209	210- 225
Frequency(f)	8	7	11	14	11	9	10

2. What is normal probability curve? Describe the properties of normal probability curve? If the distribution of score X is normal with Mean **72** and SD **5**, find the percentage of score lying above **80** (Critical value of Z is **44.52**).   **2+9+4=15**

OR

Discuss about the various types of Skewness and Kurtosis in detail. A candidate for a job appeared in a written test where the average score is **1026** and SD is **209**. The candidate secured **1100** scores. Calculate the T-score for the candidate.
   10+5=15

3. Explain types of correlation and magnitude of correlation in brief. Compute the rank correlation coefficient for the following data of the marks obtained by **8** students in the Commerce and Mathematics.

Marks in Commerce	15	20	28	12	40	60	20	80
Marks in Mathematics	40	30	50	30	20	10	30	60

OR

Write down the uses of multiple and partial correlation. From the following data, obtain $R_{1.23}$ and $R_{2.13}$ **3 +6 + 6 = 15**

X_1	65	72	54	68	55	59	78	58	57	51
X_2	56	58	48	61	50	51	55	48	52	42
X_3	9	11	8	13	10	8	11	10	11	7

4. What are the uses and assumption of t-test? The following data were collected from two separate groups of **65** men and **60** women, on an attitude scale.   **3+8+4=15**

	Mean	SD
Men	22.3	6.0
Women	28.1	4.5

   (a)Test the significance of the difference between the mean of two groups at the .05 level of significance. (**t=1.98 at 0.05**)

   (b) State the conclusion of the result of the experiment say?

OR

Describe level of significance and **Type I** & **Type II** error in detail. A poker-dealing machine is supposed to deal cards at random, as if from an infinite deck. In a test, you counted **1600** cards, and observed the following:

   Spades - **404**   Hearts - **420**   Diamonds - **400**   Clubs - **376**

Could it be that the suits are equally likely? Or are these discrepancies too much to be random?   **4+5+6=15**

5. Write short notes (any two)   **5×2=10**

   a) Standard error of mean   b) ANOVA and ANCOVA   c) Sampling   d) Degree of freedom