2021

APPLIED STATISTICS IN PHYSICAL EDUCATION AND SPORTS

MPCC- 201

Full marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answer in their own words

as far as practicable.

Answer all the questions

1. a) What do you mean by Statistics?
   b) Discuss the importance of Applied Statistics in the field of Physical Education and Sports.
   c) Classify variables with suitable examples. 3+7+5

Or,

a) Why is standard deviation the most reliable measure of variability?
b) Calculate standard deviation from the set of scores: 3, 9, 8, 11, 9
c) Calculate Median and P_{15} from the following frequency distribution :

Class	45 – 49	50 – 54	55 – 59	60 – 64	65 – 69	70 – 74	75 - 79
Frequency (f)	6	4	9	12	7	5	3

4+ 4+(4+ 3)

2. a) What is Normal Probability Curve?
   b) Describe the properties of Normal Probability Curve.
   c) If the distribution of score X is normal with Mean 60 and SD 5, find the percentage of scores lying above 80. 2+4+9

Or,

a) Describe divergence from normality in detail.
b) Explain the terms 'level of significance' and 'degree of freedom'. 7+ (4+4)

3. a) What is Correlation?
   b) What are the various types of Correlation?
   c) Write down the uses of Partial Correlation.
   d) In a certain examination 10 students obtained the following marks in Mathematics and Physics. Find Spearman's Rank Correlation Coefficient.

Student Roll No.	1	2	3	4	5	6	7	8	9	10
Marks in Math	90	30	82	45	32	65	40	88	73	66
Marks in Physics	85	42	75	68	45	63	60	90	62	58

2+4+3+6

Please Turn Over

Or,

a) Write down the properties of Correlation Coefficient.
b) What is Multiple Correlation and what are its uses?
c) Find the value of Product Moment Correlation coefficient from the following table:

Subject	Age (X)	Glucose Level (Y)
1	43	99
2	21	94
3	25	103
4	42	95
5	57	87
6	59	105

3+4+8

4. **Write notes on (any two)**   2x7.5
   a) Standard Error of mean
   b) Parametric and Non-Parametric test and their assumptions
   c) Use of ANOVA and ANCOVA
   d) t-test and interpretation of the results.

5. **Answer the MCQs from below by choosing the correct option and writing the answer on your script (any ten):**   10x1

   a) If Mean = 25.45, Median = 29.45 and σ = 5 then Skewness of the data will be:
      i)   -4.2
      ii)   4.2
      iii) 2.4
      iv)   -2.4

   b) Of the following statements about multiple correlations-
      A. It ranges from -1.00 to 1.00 only
      B. It ranges from 0 to 1.00 only
      C. It ranges from -3 to +3 only
      D. It ranges from -1.00 to 0 only

   -the correct one(s) is/are:

      i)   Only B
      ii)   A, C & D
      iii) C & D
      iv)   A & C

Please Turn Over

c) Variability is the degree of difference between each individual score and the central tendency. Estimates of variability are:

    i)   Range & Standard deviation
    ii)   Mean & Standard deviation
    iii)   Skewness & Range
    iv)   Mean & Quartile deviation.

d) α (alpha) probability indicates:

    i)   Level of significance
    ii) Magnitude of type II error
    iii) Standard error
    iv) None of these.

e) If all the scores in an examination cluster around the mean, the dispersion is said to be:

    i)   Small
    ii)   Large
    iii)   Normal
    iv)   Symmetrical.

f) The sum of deviations of values from their mean, m, is always:

    i)   m
    ii)   0
    iii)   2m
    iv) $\pm$ m

g) Statistical test of the significant of discrepancy between observed and expected result is provided by:

    i)   ANOVA
    ii) ANCOVA
    iii) t- test
    iv) Chi square test.

h) Rejecting the null hypothesis when it is true is known as:

    i)   Type- I error
    ii) Type-II error
    iii) Type- III error
    iv) Testing error.

i) What is the full form of SPSS?

    i)   Statistical Programme for the Social sciences
    ii) Statistical Package for the Social sciences
    iii) Statistical Programme for the Social study
    iv) Statistical Package for the Social study.

j) If the performance of a 25 volleyball player and 25 basketball players is to be compared using t-test what would be its degree of freedom (*df*)?

      i)   52
      ii)   51
      iii) 48
      iv) 49

k) t-test was founded by:

      i)   Pearson
      ii)   Fisher
      iii) Spearman
      iv) Gosset

l) The median of the scores 29, 32, 30, 27, 30, 28, 31 and 33 is:

      i)   31
      ii)   30
      iii) 29
      iv) 28

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