



RG-9534

Seat No. _____

Third Year B. Physiotherapy Examination

February - 2019

Biostatistics & Research Methodology

Time : 2 Hours]

[Total Marks : 50

- Instructions :** (1) All questions are compulsory.
(2) Figures to the right indicate the marks of the question

- 1 Write comprehensive notes on any **two** of the following : **20**
- (a) Graphical presentation of qualitative data
 - (b) What are the different types of epidemiological studies. Describe salient features of cohort studies
 - (c) Enumerate various tests of significance used for quantitative data. Describe the application of unpaired t test
- 2 Calculate any **two** of the following : **10**
- (a) A research project was conducted to study the association between severity of disease and blood group 'O'. Out of total 1500 patients studied, 540 were having 'O' blood group and remaining 960 were having other than 'O' -blood group. Total 110 patients were found to be suffering from severe disease of which 51 were having 'O' blood group. Give your comments on the association between severity of disease and type of blood group by applying χ^2 test.

$$\left(\chi^2 = 3.84 \text{ at } df = 1, P = 0.05, \chi^2 = 5.41 \text{ at } df = 1, P = 0.02 \right)$$

- (b) In a group of 10 diabetics, blood sugar values were taken (in mg%) before and after giving a hypoglycaemic drug. Comment whether the drug can significantly reduce the blood sugar level. (at $df = 9$ critical t value is 2.26 at $P = 0.05$)

Patient No	Blood sugar (in mg%)	
	Before	After
1	180	120
2	170	120
3	210	160
4	220	150
5	310	200
6	220	180
7	180	160
8	170	170
9	210	200
10	180	140

- (c) Protein intake per day for 100 families is given below. Calculate Mean and SD from these data.

Protein intake (Gms / Day)	No. of families
15 - 25	5
25 - 35	10
35 - 45	25
45 - 55	30
55 - 65	20
65 - 75	5
75 - 85	5
<i>Total</i>	100

- 3 Write in two-three sentences on any **five** of the following : 10
- (a) Matching
- (b) Standard error
- (c) Sampling

- (d) Odds ratio
- (e) Correlation coefficient
- (f) Z score

4 Write the most appropriate single answer in the below mentioned MCQs : **10**

- (1) Which of the following measure of central tendency tends to be most influenced by an extreme score?
 - (A) Median
 - (B) Mean
 - (C) Mode
 - (D) None of the above
- (2) Colour of the eyes is an example of which type of data?
 - (A) Nominal
 - (B) Ordinal
 - (C) Interval
 - (D) Ratio
- (3) Which of the following does not show median ?
 - (A) 50th Percentile
 - (B) 2nd Quartile
 - (C) 5th Decile
 - (D) 3rd Quintile
- (4) Suppose the score of biostatistics exam. is normally distributed with a mean of 34 and the standard deviation of 5. Among the following which interval includes approximately 95% of the scores?
 - (A) 29 to 39
 - (B) 24 to 44
 - (C) 32 to 36
 - (D) 14 to 54
- (5) Which of the following is probability sampling technique ?
 - (A) Convenient sampling
 - (B) Snow ball sampling
 - (C) Simple random sampling
 - (D) Purposive sampling

- (6) To estimate prevalence of a disease which of the following studies design is most appropriate :
- (A) Cross sectional
 - (B) Case control
 - (C) Randomised control trial
 - (D) Cohort
- (7) Sensitivity of a screening test is the ability of a test to detect :
- (A) True Positive
 - (B) True Negative
 - (C) False Positive
 - (D) False Negative
- (8) Which of the following graphs shows correlation between 'two quantitative data ?
- (A) Histogram
 - (B) Bar diagram
 - (C) Scatter diagram
 - (D) Frequency curve
- (9) A normal distribution curve depends upon
- (A) Mean and Sample size
 - (B) Range and Mean
 - (C) Mean and Median
 - (D) Mean and SD
- (10) In a study difference in mean cholesterol between two groups was compared. Which of the following test would give its significance ?
- (A) Chi square test
 - (B) Unpaired t test
 - (C) Paired t test
 - (D) None of the above