



NB-9534 Seat No. _____

Third Year B. Physiotherapy Examination
January – 2017
Biostatistics & Research Methodology

Time : 2 Hours]

[Total Marks : 50

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

1 Write comprehensive notes on any **Two** of the following : **20**

(a) What is data ?

Write briefly about Qualitative and Quantitative data, giving suitable examples.

(b) What are the different types of Epidemiological studies?

Discuss the salient features of Case Control Studies.

(c) What is sampling?

Discuss giving relevant examples, the various methods of sampling used in Biostatistics.

2 Calculate any **Two** of the following : **10**

(a) Determine if there is any association between wearing an helmet and suffering a head injury from the following data

Group	Suffered from Head injury	Did not suffer from head injury	Total
Used helmet	20	80	100
Did not use helmet	26	74	100
Total	46	154	200

$$\chi^2 = 3.84 \text{ at } df. = 1 \text{ and } P = 0.05 \text{ level}$$

- (b) Systolic Blood Pressure of 9 normal persons were recorded. They were then given 2 M1. of a hypotensive drug and the blood pressure was recorded again. Did the injection lower the blood pressure?

Serial No.	BP before injection	BP after injection
1	122	120
2	121	118
3	120	115
4	115	110
5	126	122
6	130	130
7	120	116
8	125	124
9	128	125

T at 8 Df at P = 0.05 level = 2.31

- (c) (i) Calculate the mean, median and mode from the following data
55, 25, 15, 35, 45, 50, 15, 35, 30, 45, 20, 35, 15, 35
- (c) (ii) Construct a frequency distribution table of the weight (in Kg.) of 48 students of third year of Bachelor of Physiotherapy
50, 61, 70, 71, 63, 34, 75, 80, 45, 56, 57, 58, 60, 62, 72, 78, 48, 50, 63, 64, 67, 52, 53, 54, 55, 56, 57, 70, 71, 72, 73, 64, 65, 66, 67, 62, 63, 65, 52, 60, 54, 56, 58, 57, 61, 81, 82, 80

- 3** Write in two-three sentences any five of the following : **10**
- (a) Cohort
(b) Epidemiology
(c) Normal curve
(d) Epidemic
(e) Matching
(f) Errors in study

4 Write the most appropriate **Single** answer in the below mentioned MCQs. **10**

- (1) Study to find the linear relation between 2 variables without knowing value of either is known as
 - (A) Standard Deviation
 - (B) Variance
 - (C) Coefficient of regression
 - (D) Coefficient of correlation

- (2) The purpose of double blinding in clinical trials is to
 - (A) Avoid subject bias
 - (B) Achieve comparability between study and control groups
 - (C) Avoid observer bias
 - (D) Avoid subject and observer bias

- (3) The following are measures of statistical averages EXCEPT
 - (A) Arithmetic Mean
 - (B) Mode
 - (C) Standard deviation
 - (D) Median

- (4) Blood groups are an example of which type of data?
 - (A) Nominal
 - (B) Ordinal
 - (C) Ratio
 - (D) Interval

- (5) The following is true about prevalence and incidence:
 - (A) Both are rates
 - (B) Prevalence is a rate but incidence is not
 - (C) Incidence is a rate but prevalence is not
 - (D) None of the above

- (6) To test the association between Risk factor and disease, which of the following is the WEAKEST study design?
- (A) Case control study
 - (B) Ecological study
 - (C) Cross sectional study
 - (D) Cohort study
- (7) The major purpose of randomization in clinical trials is to :
- (A) Facilitate double blinding
 - (B) Help ensure the subjects are representative of general population
 - (C) Ensure groups are comparable on general characteristics
 - (D) Reduce selection bias in allocation to treatment
- (8) Several studies have shown that 95% cases of Lung cancer are due to cigarette smoking. It is a measure of
- (A) Incidence rate
 - (B) Relative Risk
 - (C) Attributable Risk
 - (D) Absolute Risk
- (9) Specificity of a screening test is the ability of a test to detect
- (A) True Positive
 - (B) True Negative
 - (C) False Negative
 - (D) False Positive
- (10) A measure of location which divides the distribution in the ratio of 3:1 is
- (A) Median
 - (B) First Quartile
 - (C) Third Quartile
 - (D) Mode