BCF-9534 Seat No. _____

Third Year B. Physiotherapy Examination
January – 2016
Biostatistics and Research Methodology

Time : **2** Hours]   [Total Marks : **50**

Instructions :
(1) Figures to the right indicate full marks.
(2) Use of calculator is permitted.

1   Write comprehensive notes on any TWO of   (10×2=20)
    the following :
    (a) Experimental studies
    (b) Various Sampling methods
    (c) t-test.

2   Calculate any TWO of the following examples :   (5×2=10)
    (a) The weights of 10 children of Malnutrition on admission
        and at discharge from hospital were as mentioned below :
        Prove whether the gain in weight is statistically
        significant ?
        (t_8=2.31 t_9=2.26, t_{20}=2.09, t_{19}=2.09, t_{18}=2.08 at p 0.05
        level)

Sr	Wt. on admission (in kg)	Wt. at the time of discharge (in kg)
1	5.8	7.1
2	5.3	6.2
3	4.9	6.1
4	4.6	5.5
5	4.7	5.3
6	5.9	7.4
7	5.6	6.6
8	6.6	7.2
9	4.5	5.6
10	5.8	7.0

(b) Calculate the mean and SD of systolic blood pressures (in mmHg) of 13 patients.

112, 124, 156, 140, 134, 140, 120, 126, 156, 120, 128, 130, 144

(c) In a vaccine trial, out of 200 persons vaccinated with Seasonal Influenza vaccine, 19 developed Influenza within a year. 200 persons from the same area, who were not vaccinated and among them 29 developed Influenza within a year. Prove, whether vaccination is statistically significantly protecting from Influenza or not ?

3 Write in two-three sentences of any FIVE of the following : 10
(a) Rate
(b) Perfect negative correlation
(c) Median
(d) Type I error
(e) Characteristics of normal curve
(f) Qualitative data.

4 Write most appropriate single answer in below mentioned 10 MCQs.
(1) If the mean is 100 and SD is 10 in a sample, then 95% samples will fall in which of the following ranges ?
(a) 80 to 120   (b) 90 to 110
(c) 95 to 105   (d) 100 to 200

(2) In a statistical analysis what is used to mention the dispersion of data ?
(a) Mode
(b) Range
(c) Standard error of mean
(d) Geometric mean

(3) Proportions in graphical methods can be shown in :
(a) Map diagram   (b) Pie chart
(c) Simple Bar diagram   (d) Histogram

(4) Degree of freedom in 4 by 2 contingency table is :
  (a) 1   (b) 2
  (c) 3   (d) 4

(5) Significant 'p' value is :
  (a) 0.001   (b) 0.005
  (c) 0.05   (d) 0.01

(6) Food poisoning after attending a party is an example of :
  (a) Point source epidemic   (b) Continuous epidemic
  (c) Propagated Epidemic   (d) Slow epidemic

(7) Analytical study where population is the unit of study is :
  (a) Cross sectional study   (b) Case-control study
  (c) Ecological study   (d) Cohort study

(8) Incidence rate is calculated from :
  (a) Cohort study   (b) Case control study
  (c) Cross sectional study   (d) Ecological study

(9) Scatter diagram shows :
  (a) Trend of event with passage of time
  (b) Relationship between two variables
  (c) Most commonly occurring value and mean
  (d) Difference between the highest and lowest value

(10) Correlation coefficient ranges from :
  (a) –1 to 0   (b) –1 to 1
  (c) 0 to 1   (d) –0.5 to 0.5

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