

M. Sc. (Speech Language Pathology) Sem – I : WINTER - 2018

SUBJECT : RESEARCH METHODS, STATISTICS & EPIDEMIOLOGY

Day : Monday
Date : 03/12/2018

W-2018-3693

Time : 10.00 AM TO 01.00 PM
Max. Marks : 80

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the parts A and B should be written on **SEPARATE** answer books.

**PART – A
(RESEARCH & EPIDEMIOLOGY)**

- Q.1** Attempt any **TWO** out of **THREE** : **(2 x 15 = 30)**
- a) Explain in detail method of observation and measurement in research.
 - b) Explain in detail study designs in epidemiology : cohort studies, case control studies, cross sectional studies, clinical trials.
 - c) Explain randomization and concepts related to randomized control trials.
- Q.2** Attempt any **FOUR** out of **FIVE** : **(4 x 5 = 20)**
- a) Ethical guidelines in research.
 - b) Ratios scale
 - c) Principles of experimental design.
 - d) Various types of research reports.
 - e) Level of evidence for experimental design.

**PART – B
(STATISTICS)**

- Q.3** Attempt any **TWO** out of **THREE**: **(2 x 10 = 20)**
- a) i) Define probability. Explain theorems of probability. In throwing of dice if event defined is sum on the uppermost face of the dice then:
 - 1) Find probability of getting sum 11.
 - 2) Find probability of getting sum 7.ii) Write short note on 'ANOVA'.
 - b) i) What is utility of scatter diagram? Calculate correlation and regression coefficient to show association between the following 2 variables.

x	2.0	3.0	4.5	5.0	6.0	7.0	7.5	8.5	9.5	10.0
y	1.5	2.0	3.5	3.5	3.5	4.0	3.0	4.5	4.5	5.0

- ii) Distinguish between parametric and non parametric test of significance.

P.T.O.

- c) i) On the assumption that IQ's are normally distributed in the population with mean 100 and SD of 15 what percent of cases fall.
- a) above 135 IQ b) above 120 IQ
 c) below 90 IQ d) between 75 and 125 IQ.
- ii) Explain the terms Skewness, Kurtosis, multiple correlation, level of significance, Type I error, Type II error.

Q.4 Attempt any **TWO** out of **THREE**: **(2 x 5 = 10)**

- a) Let the marks in biostatistics obtained by 25 students of a certain class is given in the table below compute median and quartiles.

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	3	4	9	7	2

- b) Explain properties of normal distribution.
- c) Attack rates among the vaccinate and unvaccinated against measles are given below. Prove protective value of vaccination by χ^2 test.

	Attacked	Not Attacked	
Vaccinated	10	90	100
Unvaccinated	26	74	100
	36	164	200

* * *