M. Sc. (Speech Language Pathology) (2018 Course) Sem – I :
SUMMER - 2019

SUBJECT : RESEARCH METHODS, STATISTICS & EPIDEMIOLOGY

Day : Tuesday
Date : 21/05/2019

S-2019-3967

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 methods of measurement and principles of experimental research design with suitable example. (any one formal research design)

b) Define epidemiology, its basic concepts and scope in research.

c) Explain in detail level of evidence for experimental and non-experimental design.

Q.2 Attempt any **FOUR** out of **FIVE** : **(4 x 5 = 20)**

a) Explain statistical significance.
b) Reliability and validity.
c) Ex post facto research.
d) Non probability sampling method.
e) Bibliography

PART – B
(STATISTICS)

Q.3 Attempt any **TWO** out of **THREE:** **(2 x 10 = 20)**

a) Systolic blood pressure values (x) of 4 occupations are given. Determine if there is significant difference in mean BP of 4 groups in order to assess the role of occupation in causation of BP.

Officers	Clerks	Lab Technician	Attendants
125	120	120	118
130	122	115	120
135	115	130	118
120	110	120	120
115	125	125	120
120	122	122	115
130	120	115	125
135	120	126	120
140	126	118	115
135	120	115	125

P.T.O.

b) **i)** Compute the partial correlation coefficient between height and weight by partialling out the third variable age given:
The Correlation between height and weight = 0.80
The correlation between weight and age = 0.50
The correlation between height and age = 0.60

ii) In order to determine the effect of certain oral contraceptive on weight gain 9 healthy females were weighed prior to start of its use and again at the end of 3 months period.

Initial Weight	Weight after 3 months
48	49.2
56.4	57.2
52.0	56.0
60.0	58.0
54.0	56.0
56.0	57.2
48.0	47.2
56.0	56.4
56.0	52.8

Is there a sufficient evidence to conclude that females experienced gain in weight following 3 months of the oral contraceptive use?

c) **i)** Given a normal distribution with mean of 50 and SD of 15.

a) What percent of the cases will lie between the scores of 47 and 60?

b) What percent of cases will lie between 40 and 47?

c) What percent of the group is expected to have scores greater than 68?

ii) Write short note on 'Chi-square test of independence.

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

a) Calculate mean and coefficient of variation of the following observation on weight in g of children aged 18 to 21 months.

8, 5, 10, 10, 9	6, 8, 8, 10, 8	6, 8, 10, 10, 7
9, 9, 8, 10, 9	10, 5, 9, 8, 9	8, 6, 9, 6, 9

b) Write short note on 'Normal Distribution'.

c) Explain the terms; standard error, Null hypothesis, level of significance, Type I error, confidence limits.

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