

M. Sc. (Audiology) Sem – I : WINTER - 2018
SUBJECT : RESEARCH METHODS, STATISTICS AND EPIDEMIOLOGY

Day : Monday
Date : 03/12/2018

W-2018-3698

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) Answer to both the parts A and B should be written in **SEPARATE** answer book.

PART – A (RESEARCH AND EPIDEMIOLOGY)

Q.1 Attempt **ANY TWO** of the following. **(2 x 15 = 30)**

- a) Explain in detail importance of research publication in terms of meta-analysis and systematic review.
- b) Describe in detail the criteria for characterizing the casualty of association in respect to epidemiology.
- c) Explain in detail Evidence based practice.

Q.2 Attempt **ANY FOUR** of the following. **(4 x 5 = 20)**

- a) Biases and consequences in published literature.
- b) Level of evidence for non-experimental design.
- c) Positive and non-positive likelihood ratios.
- d) Informal research design. (any one)
- e) Experimental research.

PART - B - STATISTICS

Q.3 Attempt **ANY TWO** of the following. **(2 x 10 = 20)**

- a)
 - i) Define probability and also state two theorems of probability.
 - ii) Two events are mutually exclusive $P(A)=\frac{1}{5}$ and $P(B)=\frac{1}{3}$ find the probability that a) either A and B occur b) Both A and B occur c) Neither A & B will occur.
- b)
 - i) Distinguish between paired and unpaired t-test.
 - ii) The hourly wages 1000 workmen are normally distributed around a mean of Rs. 70 and with SD of Rs. 5. Estimate the number workers whose hourly wages will be a) between Rs. 69 and 72 b) more than Rs. 75 c) less than Rs. 63.
- c)
 - i) A sample of heights of 6400 Englishmen has mean of 67.85 inches and a SD 2.56 inches while sample of height of 1600 Austrians has a mean of 68.55 inches and SD of 2.52 inches. Do the dates indicate that Austrians are on the average taller than Englishmen?
 - ii) Nine students selected at random obtained the following scores

Scores in quantitative reasoning test	27	64	27	45	50	32	41	47	34
Scores in verbal reasoning test	37	54	33	66	42	29	33	49	30

Test whether the belief that the student possess the two abilities in different degree is justified

P.T.O.

Q.4 Attempt **ANY TWO** of the following.

(2 x 5 = 10)

- a) Write short note on 'ANOVA'.
- b) Explain 'Mann-Whitney' U-test.
- c) From a certain no. of schools in Delhi, a sample of 500 students studying in classes IX and X was taken. These students were evaluated in terms of their academic achievement and participation in co-curricular activities. Their IQ's were also tested. The correlation among these three variables was obtained and recorded as follows.

$$r_{12} = 0.18, \quad r_{23} = 0.70, \quad r_{13} = 0.60$$

Find out the independent correlation between the main variables – academic achievement and participation in co-curricular activities.

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