

FIRST YEAR M.A.S.L.P. : SUMMER - 2018
SUBJECT: STATISTICS & RESEARCH METHODS

Day: **Wednesday**
Date: **13/06/2018**

S-2018-3543

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) Draw neat diagrams **WHEREVER** necessary.
- 4) Answer each section in the respective answer sheet only.
- 5) Answer written in the inappropriate answer sheets will not be assessed in any case.

SECTION - A

Q.1 A) Attempt any TWO out of A, B and C.

- i) Memory capacity of 10 students was tested before and after training. State whether training was effective or not from the following scores. **(05)**

Before training	12	14	11	8	7	10	3	0	5	6
After training	15	16	10	7	5	12	10	2	3	8

- ii) Write a short note on 'Testing of hypothesis'? Distinguish between parametric and non-parametric test of significance. **(05)**

In a sample 1000 item, the mean weight and standard deviation are 50 and 4 kg respectively. Assuming distribution to be normal find the number of items weighting between 40 and 70 kg.

- iii) The following table gives information about 'Exercise' and 'Gender'. Check whether there is association between 'Exercise' and 'Gender'. (use 5% level of significance) **(05)**

	Exercise	Do not Exercise
Male	100	60
Female	50	90

- B) i) Explain discrete and continuous random variable with example. **(05)**

In a certain trivariate distribution.

$$r_{12} = 0.7, \quad r_{23} = r_{31} = 0.6.$$

Find partial correlation co-efficient $r_{12.3}$.

- ii) Find out regression co-efficient of Y on X and X on Y on the basis of the following data: **(05)**

$$\sum x = 50, \bar{X} = 5, \sum y = 60, \bar{Y} = 6, \sum xy = 350 \text{ Variance } X = 4, \text{ variance } Y = 9.$$

P. T. O.

- iii) Write a short note on paired and unpaired t-test. (05)

From the following frequency distribution of 100 students in a particular examination compute median marks.

Marks	0-20	20-40	40-60	60-80	80-100
No. of Students	5	12	32	40	11

Also obtain median graphically.

- c) i) The first earning of management students from 5 different universities and 3 class ranking at that level are given below. Test at 5% level of significance that the mean are identical (10)

- a) For university population
b) For class ranking population

Class rank	1	2	3	4	5
Top	20	18	16	14	12
Middle	19	16	13	12	10
Bottom	18	14	10	10	8

- ii) If two dice are thrown. What is the probability that the sum of the numbers on the dice is: (05)
a) greater than 8 and b) neither 7 nor 11.

- Q.2 Attempt any **TWO** out of **THREE**: (10)

- a) During the 10 weeks of session the marks obtained by two candidates, Ramesh and Suresh taking the computer programme course are given below:

Ramesh	58	59	60	54	65	66	75	69	52
Suresh	87	89	78	71	73	84	66	56	46

- i) Who is better scorer Ramesh or Suresh?
ii) Who is more consistent?"
- b) Write short note on measure of dispersion. (05)
- c) Define probability and state two theorems of probability. (05)

SECTION-B

- Q.3 Attempt any **TWO** out of **THREE**: (30)

- a) Explain the meaning and significance of research design and describe some of the important research design used in experimental hypothesis testing research.
- b) What is testing of hypothesis? Explain how it is useful for illustrating research problem with 2 examples.
- c) Explain in detail factor analysis with a suitable example and point out its merits and limitations.

- Q.4 Attempt any **TWO** out of **THREE**: (10)

- a) Explain tests reliability in the research
b) Significance of report writing
c) Any two sampling methods