## PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

## MSc DEGREE EXAMINATION DECEMBER 2018
(Third Semester)

Branch - **APPLIED MICROBIOLOGY**

## BIOSTATISTICS & RESEARCH METHODOLOGY

Time: Three Hours                                    Maximum: 75 Marks
### SECTION -A 130 Marks)
Answer **ALL** questions
**ALL** questions carry **EQUAL** Marks ( 5 x 6 = 30)

1   a Define statistics and discuss its scope, functions and limitations.
OR
   b Define classification. Explain the method of classification with suitable
      example.

2   a Daily income of ten families of a particular place is given below. Find out
      geometric mean : 85, 70, 15, 75, 500, 8, 45, 250, 40 and 36.
OR
         b Calculate mean and standard deviation of the following frequency
   distribution of marcs :

| Marks : | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
|---|---|---|---|---|---|---|---|
| No. of students : | 5 | 12 | 30 | 45 | 50 | 37 | 21 |

3   a Define correlation. Explain the methods available for finding the correlation.
OR
   b Seven students have obtained the following ranks in two subjects, namely
      Maths and Statistics. Find their rank correlation coefficient.

| Rank in Maths : | 7 | 1 | 4 | 6 | 5 | 3 | 2 |
|---|---|---|---|---|---|---|---|
| Rank in Statistics : | 5 | 1 | 2 | 3.5 | 3.7 | 7 | 6 |

4   a 1000 students at college level were graded according to their I.Q and the
      economic conditions of their homes. Find out whether there is any
      association between economic condition at home and I,Q. *($\%^2$ table value :
3.84).*

| I.Q Economic Conditions | High | Low |
|---|---|---|
| Rich | 460 | 140 |
| Poor | 240 | 160 |

OR
   b Define Binomial, Poisson and Normal distribution. State its parameter,
      mean and variance.

5   a Explain the Problem Selection and Project Design in a Research.
OR '
   b Explain the method of preparation of research Report.

From the data given below, find mean, median and mode :

| Marks : | 1-5 | 6-10 | 11-15 | 16-20 | 21-25 | 26-30 | 31-35 | 36-40 | 41-15 |
|---|---|---|---|---|---|---|---|---|---|
| No. of students : | 7 | 10 | 16 | 30 | 24 | 17 | 10 | 5 | 1 |

The following data relate to the scores obtained by 9 salesmen of a company in an intelligence test and their weekly sales in thousands rupees :

| Salesman | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| Intelligent test score | 50 | 60 | 50 | 60 | 80 | 50 | 80 | 40 | 70 |
| Weekly Sales | 30 | 60 | 40 | 50 | 60 | 30 | 70 | 50 | 60 |

i) Obtain the regression equation of sales on intelligence test scores of the salesman.

ii) If the intelligence test scores of a salesman in 65, what would be his expected weekly sales?

Two laboratories A and B carry out independent estimates of fat content in ice-cream made by a firm, A sample is taken from each batch, halved, and the separate halves sent to the two laboratories. The fat content obtained by laboratories is recorded below :

| Batch No : | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Lab. A : | 7 | 8 | 7 | 3 | 8 | 6 | 9 | 4 | 7 | 8 |
| Lab. B : | 9 | 8 | 8 | 4 | 7 | 7 | 9 | 6 | 6 | 6 |

Is there a significanct difference between the mean fat content obtained by thefwo laboratories, A and B? (table vaue : taos.isr^.lO).

Write a brief note on ISSN, ISBN, Impact Factor and Citation Index.