RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

FIRST YEAR [BATCH 2017-20]

B.A./B.Sc. SECOND SEMESTER (January – June) 2018

Mid-Semester Examination, March 2018

Date : 16/03/2018 **STATISTICS (General)**

Time : 11 am – 12 noon Paper : II Full Marks : 25

[Use a separate Answer Book <u>for each group</u>]

Group – A

(*Answer <u>any three</u> questions*) [3×5]

1. Define the correlation ratio (e_{yx}). Prove that $r_{xy}^2 \le e_{yx}^2 \le 1$. [2+3]

2. Define the correlation index. Prove that the value of correlation index increases according as the degree of the polynomial increases. [2+3]

3. Explain with example the difference between multiple correlation and partial correlation. [5]

4. Derive the formula of multiple regression for three variables X_1, X_2 and X_3. [5]

Group – B

(*Answer <u>any two</u> questions*) [2×5]

5. Let the probability-mass function f be positive on, and only on, non-negative integers 0, 1, ... Given that $f(x) = \frac{\lambda}{x} f(x-1)$, for x = 1, 2, ...
   Determine f.

6. Find the maximum term in the expansion of $\left(\frac{1}{3}+\frac{2}{3}\right)^6$.

7. Prove the memory-less property of Exponential distribution.

———— × ————