Roll No. ....

BCA–203(O)

B. C. A. (Second Semester)
EXAMINATION, 2015

(Old Course)

Paper Third

MATHEMATICAL FOUNDATIONS IN COMPUTER SCIENCE–II

Time : Three Hours]   [*Maximum Marks : 75*

Note : Section A is compulsory. Attempt any *seven* questions from Section B and one question from Section C.

Section—A

1. Find four HARMONIC MEAN between 2 and 1/8.   5
2. If s be the sample space and A be an experiment. Prove that :   6

$$P(A) + P\left(\overline{A}\right) = 1$$

3. Find the MEDIAN of the following values of a variable : 7

   30, 5, 21, 42, 13, 10, 27, 33, 17, 8

Section—B

4. What is the chance that a leap year selected at random will have not 53 Mondays ?   6
5. Find Geometric Mean of :   6

   8, 64, 512, 4096, 32768

6. Find Arithmetic Mean of the comulative frequency distribution : 6

Variable	Cumulative frequency
1	2
2	11
3	20
4	27
5	30

7. Find standard deviation of the following data : 6

x	f
4	6
8	4
9	7
13	4

8. Derive a formula for line of Regression, y on x axis. 6

9. Define the terms : 2 each
   (a) Histogram
   (b) Frequency polygon
   (c) Bar chart

10. What do you mean by Ogive ? Draw more than and less than Ogive for the given data : 6

Class	Frequency
5—10	95
10—15	41
15—20	17
20—25	52
25—30	10

11. Four persons are chosen from a group containing 4 men, 3 women and 2 children. Find the chance that exactly two of them will be men. 6

12. Write a short note on F-TEST. 6

Section—C

13. (a) Two dices are thrown randomly. What is the probability to get the sum 7, if one dice must have 2 ? 7

   (b) If x, y and z are three independent events, then prove it : 8

   $$P(X \cap Y \cap Z) = P(X) \cdot P\left(\frac{Y}{X}\right) \cdot P\left(\frac{Z}{X \cap Y}\right)$$

14. Find the coefficient of correlation between the values of X and Y : 15

X	Y
1	9
2	8
3	10
4	12
5	11
6	13
7	14
8	16
9	15