



**MODEL PAPER I 2016**  
**BCA PART-I**  
**Subject: Basic Maths**

**Time: 3:00 hrs**

**M.M. 100**

**[I] Very Short type:**

**[2\*10=20]**

- Q.1 What is function?  
Q.2 Define codomain and range of a function.  
Q.3 Write condition for matrix multiplication.  
Q.4 Define symmetric matrix.  
Q.5 When roots of quadratic equation be rational?  
Q.6 define circle.  
Q.7 Write merits of Mean.  
Q.8 What is regression.  
Q.9 In how many ways can the letters of the word PENCIL be arranged so that N is always next to E ?  
Q.10 A number is selected at random from first 30 natural numbers. What is the chance that it is a multiple of either 3 or 13 ?

**[II] Short type:**

**[4\*5=20]**

- Q.1 A function  $f$  is from  $R$  to  $R$  as  $f(x)=3x^3+4$  find its inverse function.  
Q.2 Solve by using cramer rule:  
$$\begin{aligned} 2x+3y+z &= 8 \\ x+3y-z &= 4 \\ 3x-y+2z &= 7 \end{aligned}$$
  
Q.3 If one root of equation  $4x^2 - 13x = -m$  is twelve times the other. Find  $m$ .  
Q.4 Find which student is more consistent about study hours:

A	2	5	7	1	9
B	3	5	4	2	6

- Q.5 How many words containing 4 consonants and 3 vowels can be made from 12 consonants and 4 vowels, if all the letters are different ?

**[III] Long Type:**

**[ 12\*5=60]**

- Q.1 Explain step function & trigonometric functions with their graphs.  
Q.2 Solve by using matrix inverse method:  
$$2a+3b+c=8$$

$$4a+b+2c=11$$

$$3a+2b+c=8$$

Q.3 Rajat and Ramesh have 97 shirts between them. They sell at different prices but get the same amount. If Rajat sells at Ramesh's price and Ramesh sells at Rajat's price, they get Rs. 5625 and Rs. 484 respectively. How many shirt does both of them have ?

Q.4 Find all mean, median and mode for the following series:

(a)

x	3	5	6	8	9	12
f	2	4	1	4	2	3

(b)

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Students	3	5	6	3	5	4

Q.5 A bag contains 6 red, 4 white and 8 blue balls. If 3 balls are drawn at random, determine the probability p that

- (i) all are red, (ii) all are blue, (iii) 2 are white & 1 is red, (iv) at least 1 is red, (v) 1 of each color, (vi) the balls are drawn in the order red, white and blue ?