Roll No. ....

97609

BCA 1st Semester (Re-appear) Examination–December, 2013

MATHEMATICS-II

Paper BCA-103

Time : 3 hours ***Max. Marks : 75***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Attempt any **five** questions. All questions carry equal marks.

1. (a) There are 210 members in a club, 100 of them drink tea and 65 drink tea but not coffee. Find

(i) How many drink coffee ?

(ii) How many drink coffee but not tea ?

(b) If R is an equivalence relation on a set A, show that R^{-1} is also an equivalence relation on A.

(b) Solve the following equations by using Cramer's rule :

$x + 2y + 3z = 6$, $2x + 4y + z = 7$, $3x + 2y + 9z = 14$

6. (a) If the pth term of an A.P. is q and qth term is p, prove that the rth term is $p + q - r$.

(b) The A.M. between two numbers is 34 and their G.M. is 16. Find the numbers.

7. (a) How many words can be formed from the letters of the word DAUGHTER :

(i) taking all the letters together

(ii) beginning with D

(iii) Beginning with D and ending with R

(iv) vowels being always together

(b) Find the coefficient of x^4 in the expression of

$$\left(x^4 + \frac{1}{x^3}\right)^{15}$$

8. (a) Show that

$\frac{1}{7}(2\hat{i}+3\hat{j}+6\hat{k}), \frac{1}{7}(3\hat{i}-6\hat{j}+6\hat{k}+2\hat{k})$ and

are mutually perpendicular un

(b) $F=\left(y\frac{\partial f}{\partial z}-z\frac{\partial f}{\partial y}\right)i+\left(z\frac{\partial f}{\partial x}-x\frac{\partial f}{\partial z}\right)j+\left(x\frac{\partial f}{\partial y}-\right.$

Prove that

(i) $F = r \times \nabla f$

(ii) $F.r = 0$.
