

# RAMAKRISHNA MISSION VIDYAMANDIRA

Belur Math, Howrah – 711 202

## ADMISSION TEST – 2014

### ECONOMICS (Honours)

Date : 23-06-2014

Full Marks : 50

Time : 01.30 p.m – 03.30 p.m

1. Write an essay on : ‘Your impression about the recent general election in India.’ [20]
  
2. Answer the following questions : [6×5]
  - a) Show that the equation  $|Z+1|=|Z-1|$ , (where  $Z$  is a complex number) represents an equation of a line in the complex plane.
  - b) Prove that,  $\frac{1}{\log_a(bc)+1} + \frac{1}{\log_b(ca)+1} + \frac{1}{\log_c(ab)+1} = 1$ .
  - c) Let  $A = \{1, 2, \{1, 3\}\}$ ,  $B = \{2, 3, \{1, 3\}\}$  and  $C = \{1, 3, \{1, 2\}\}$ . Then  $[(A \cup B) \cap C] = ?$
  - d) Let,  $A = [1 \quad 4 \quad 7]$  and  $B = \begin{bmatrix} 2 \\ 3 \\ 1 \end{bmatrix}$  be two matrices of order  $1 \times 3$  and  $3 \times 1$  respectively then compute the matrices  $AB$  and  $BA$ .
  - e) If  $A$  be matrix which satisfies the equation  $x^2 - 5x + 6 = 0$ , then find the inverse of  $A$  i.e.  $A^{-1}$  in terms of  $A$ . In particular if  $A = \begin{bmatrix} 2 & 0 \\ 1 & 3 \end{bmatrix}$  then  $A^{-1} = ?$
  - f) Consider the function  $f : [-1, 1] \rightarrow \mathbb{R}$  defined by,  $f(x) = x^2$ . Find the points at which the function attains its maximum and minimum.