

**RAMAKRISHNA MISSION VIDYAMANDIRA**

Belur Math, Howrah – 711 202

**UG ADMISSION TEST – 2025**

**ECONOMICS**

Date : 23-06-2025

Full Marks: 50

Time: 03:00 p.m. – 4:00 p.m.

**[Use a separate Answer Book for each group]**

**Group – A**

Answer all the following questions:

[6×5]

1. If  $f(x) = \frac{1}{x} [\log(1+ax) - \log(1-bx)]$  is not defined at  $x=0$ , what value is to be assigned to  $f(0)$  so that  $f(x)$  will be continuous at  $x=0$ ?
2. Let  $y = 2\log_3 x - e^{2\log x} + e^{2+x}$  find  $\frac{dy}{dx}$ .
3. If  $f(x) = \left(\frac{a+x}{b+x}\right)^{a+b+2x}$ ; prove that  $f'(0) = \left[2\log\frac{a}{b} + \frac{b^2 - a^2}{ab}\right] \left(\frac{a}{b}\right)^{a+b}$ .
4. Find the value of  $\int \frac{x - \sqrt{x}}{x + \sqrt{x}} dx$  ( $x > 0$ ).
5. How many even numbers greater than 300 can be formed with the digits 1,2,3,4 and 5 if no repetitions are allowed?
6. There are  $n$  points in a plane of which no three are collinear. Find the number of (i) straight lines and (ii) triangles formed from joining the points.

**Group – B**

**[Essay Writing]**

7. Write an essay in English on the topic given below. Your writing should be clear, well-structured, and must not exceed 300 words. [20]

India is at an important stage in its economic journey. The country has made strong progress in many areas, but it still faces several major challenges. In your essay, explain some of India's key economic achievements, describe the difficulties it is currently dealing with, and discuss the opportunities that could support India's future growth and development.