

RAMAKRISHNA MISSION VIDYAMANDIRA

Belur Math, Howrah – 711 202

UG, ADMISSION TEST – 2023

ECONOMICS

Date : 17-07-2023

Full Marks : 50

Time: 3·00 p.m. – 4·00 p.m.

[Use a separate Answer Book for each group]

Group – A

Answer all the following questions :

[6×5=30]

1. Let $A = \{a, b, c\}$ and the relation R be defined on A as $R = \{(a, a), (b, c), (a, b)\}$ then find the minimum number of ordered pairs to be added to R to make it Reflexive, Symmetric and Transitive. [6]
2. Given $f(x) = \frac{1}{x-1}$, find the points of discontinuity of the composite function $f(f(x))$. [6]
3. If $ax^2 + 2hxy + by^2 = 1$ then show that
$$\frac{d^2y}{dx^2} = \frac{h^2 - ab}{(hx + by)^3}$$
 [6]
4. Find the area of the region bounded by the curves $x = at^2$ and $y = 2at$ between the ordinates corresponding to $t=1$ and $t=2$. [6]
5. If the letters of the word 'MOTHER' be permuted and all the words so formed (with or without meaning) is listed as in the dictionary then find the position of the word 'MOTHER' in the list. [6]

Group – B

[Essay Writing]

6. The growing trend of working remotely : How it affects the economy and what to expect in future. [20]

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