

Time : 40 minutes

12.12.2023

Max marks : 12

Attempt all questions.

Q1 Are the following valid functions? Justify.

i) $y = x^2 + 5$

ii) $y = \sqrt{x^2 + 5}$

(3)

Q2 a) Graph the function $y = -x^2 + 3x - 6$ (3)

b) A firm earns £100 for 10 years and the rate of interest is 10% p.a. What would be the present discounted value of the total earnings of 10 years? (3)

Q3 Find the domain and range of the following functions

i) $f(x) = \frac{1}{\sqrt{x-2}}$

ii) $f(x) = 5 + |x-3|$

(3)