Maheshtala College
Internal Examination–2021
B.Sc. Mathematics (Honours)
Paper–CC14

Date: 05.07.2021

Time 11:30AM-12:30PM **Full Marks 10**

Choose the correct alternative and justify your answer
(1 mark for correct answer and 1 mark for justification).

Answer all questions : [$5 \times 2 = 10$]

1. If $f(x) = x^2 - 117 = 0$, then the iterative formula for Newton Raphson method is given by

   (a) $x_{n+1} = \frac{1}{4}\left[x_n + \frac{117}{x_n}\right]$

   (b) $x_{n+1} = \frac{1}{2}\left[x_n + \frac{117}{2x_n}\right]$

   (c) $x_{n+1} = \frac{1}{2}\left[x_n + \frac{117}{x_n}\right]$

   (d) $x_{n+1} = \frac{1}{2}\left[2x_n + \frac{117}{x_n}\right]$

   . 2

2. The convergence of which of the following method depends on initial assumed value?

   (a) False position
   (b) Euler method
   (c) Newton Raphson method
   (d) Gauss-Seidel method

   2

3. The equation $f(x) = x^3 + 4x + 1 = 0$. Considering the initial approximation at $x = 1$, then the value of x_1 is given as—.

   (a) 1.67
   (b) 1.87
   (c) 1.86
   (d) 1.85

   2

4. Find the value of $\left(\frac{\Delta^2}{E}\right) x^3$.

   (a) $3x$
   (b) $6x + 1$
   (c) $6x$
   (d) 6

   2

5. Find the number of significant figure in V_A w.r.t. V_T where $V_A = 0.05411$ and $V_T = 0.05418$.

   (a) 2
   (b) 3
   (c) 4
   (d) 5

   2