2021
MATHEMATICS – GENERAL
SEMESTER-6
INTERNAL ASSESSMENT
Full Marks: 10

The figures in the margin indicate full marks .
Symbols and notations used here carry their usual meaning.
Candidates are required to give their answers in their own words as far as practical.

Course: DSE-B2

Choose the correct alternative: 5x2=10

1. The sequence of functions $\sum_{n=0}^{\infty} f_n \ \ where\ f_n(x) = \frac{nx}{1+n^2x^2}, x \in (0,3)$ is
   (a) Uniform convergent (c) not pointwise convergent
   (b) Pointwise convergent but not uniform convergent (d) none of these

2. The series $(1-x) + x(1-x) + x^2(1-x) + \cdots$ is
   (a) Convergent uniformly on [0, 1] (c) not uniformly convergent on [0, 1]
   (b) Not pointwise convergent (d) none of these

3. The radius of convergence of the power series $x + \frac{(2!)^2}{4!}x^2 + \frac{(3!)^2}{6!}x^3 + \cdots + \frac{(n!)^2}{(2n)!}x^n + \cdots$ is
   (a) 1 (b) 2 (c) 3 (d) 4

4. In the Fourier series expansion of an even function, which of the following is true
   (a) $a_n = 0$ (b) $b_n = 0$ (c) $a_0 = 0$ (d) None of the above

5. Laplace Transform of e^{-2t} is
   (a) $\frac{1}{2s}$ (b) s+2 (c) $\frac{1}{s+2}$ (d) $2s$