**H.T No**

**Regulations:**

**A15**



**Sreenidhi Institute of Science and Technology**

(An Autonomous Institution)

**Code No: 5H214 Date: 16-Dec-2020 (FN)**

**B.Tech I-Year II-Semester External Examination, Nov/Dec - 2020 (Supplementary)**

**Mathematics for Biotechnology - I (BT)**

**Time: 2 Hours Max.Marks:75**

***Note: a****) No additional answer sheets will be provided.*

*b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.*

*c) Missing data can be assumed suitably.*

**ANSWER ANY 5 OUT OF 8 QUESTIONS. EACH QUESTION CARRIES 15 MARKS.**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | a) | Solve | [8M] |
|  | b) | Solve the differential equation (ycosx + siny + y)dx + (secx + xcosy + x)dy = 0. | [7M] |
|  |  |  |  |
| 2. |  | Solve (D2 + 3D + 2)y = e-x + Cos x. | [15M] |
|  |  |  |  |
| 3. | a) | Solve the partial differential equation | [8M] |
|  | b) | Solve the partial differential equation | [7M] |
|  |  |  |  |
| 4. | a) | Find the Fourier series to represent f(x) = x2 – 2 in -2 ≤ x ≤ 2. | [8M] |
|  | b) | Find the half range sine series of f(x) = ax + b in 0 < x < 1. | [7M] |
|  |  |  |  |
| 5. | a) | Find | [8M] |
|  | b) | Find | [7M] |
|  |  |  |  |
| 6. |  | Using Laplace transform solve (D2 + 9)y=6Cos 3t where y(0)=2 and y1(0)=0. | [15M] |
|  |  |  |  |
| 7. |  | Apply the method of variation of parameters to solve Cosec x | [15M] |
|  |  |  |  |
| 8. | a) | Find the Laplace transform of the triangular wave of period 2a given by | [8M] |
|  | b) | Using Convolution theorem, find | [7M] |

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