

motion.

- an expression for the transverse displacement of the string at any time during the subsequent displacement by a distance b transversely and the string is released from rest in this position. Find 2. A tightly stretched string of length L is fastened at both ends. The midpoint of the string is displaced the displacement of any point on the string at a distance of λ from one end at time t . displacing the string into the form $y = k(x - x^2)$ from which it is released at time $t=0$. Find 1. A string is stretched and fastened at two points $x = 0$ and $x = l$ apart. Motion is started by

PART-B

$$u_t = \alpha^2 u_{xx}$$

15. Write all variable separable solutions of the one dimensional heat equation solve the problem.

14. State the governing equation for one dimensional heat equation and necessary condition to respectively. Find the steady state temperature distribution of rod. 13. A rod 20 cm long with insulated sides has its ends A and B kept at 30°C and 90°C

$$u_{xx} + u_{yy} = 0$$

12. What are the possible solution for Laplace equation

11. Classify the PDE $\partial^2 u_{xx} - 2xyu_{xy} + \partial^2 u_{yy} + 2u_x - 3u_y = 0$

from rest.

10. What is the general solution of a string of length L whose end point are fixed and which start

9. In the one dimensional heat equation $u_t = c^2 u_{xx}$ What is c^2 conditions.

given by $y(x, 0) = y_0 \sin^3 \left(\frac{\pi x}{L} \right)$ If it is released from rest in the position, write the boundary

8. A tightly stretched string with fixed end points $x = 0$ and $x = l$ is initially in a position through a height h and the string is released from rest, write the initial conditions.

7. If the ends of a string of length L are fixed and the midpoint of the string is drawn aside

6. Classify the partial differential equation $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$

5. What is meant by steady state condition in one dimensional heat flow?

4. Given three possible solutions of two dimensional steady state heat flow equations are kept at 0°C and the others at 100°C

3. Write the boundary conditions for the following problem: A rectangular plate is bounded by the line $x=0, y=0, x=a$ and $y=b$. Its surfaces are insulated. The temperature along $x=0$ and $y=0$

2. What is the steady state heat equation in two dimensional Cartesian form?

1. Write down all the possible solution of one dimensional heat flow equation $U_t = U_{xx}$

PART-A

UNIT: III(APPLICATION OF PDE)

Subject : TPD

Year : 2016-2017

Sub code : MA6351