CC-H-CC-T-11

PARTRIAL DIFFERENTIAL EQUATION

Answer the following.   10

1. (i) Solve the Cauchy Problem
$$u_{tt} - c^2 u_{xx} = 0, x \in R, t > 0$$
$$u(x,0) = f(x), u_t(x,0) = g(x), x \in R$$

   (ii) Use the above to solve the following
$$u_{tt} = 4u_{xx}, x \in R, t > 0$$
$$u(x,0) = \sin x, u_t(x,0) = \cos x, x \in R$$

$$6 + 4$$

CC-H-CC-T-12

GROUP THEORY-II

Answer the following.   10

1. Define simple group. Using odd test justify the group of order 22 is simple or not? Show that a group of order 30 contains a normal subgroup of order 15. $1 + 1 + 3$

2. State Cauchy's theorem. State and prove Sylow's second theorem.

$$2 + 3$$

CC-H-DSE-T-01

LINEAR PROGRAMMING

Answer the following.   10

1. Solve the following Transportation problem using North-West corner method

<div align="center">Destinations</div>

		D_1	D_2	D_3	D_4	Supply(a_i)
	S_1	7	10	14	8	30
Sources	S_2	7	11	12	6	40
	S_3	5	8	15	9	30
Demand (b_j)		20	20	25	35	

CC-H-DSE-T-02

PROBABILITY & STATISTICS

Answer the following.   10

4. Find the Mean and Median of a Normal Distribution.   5 + 5