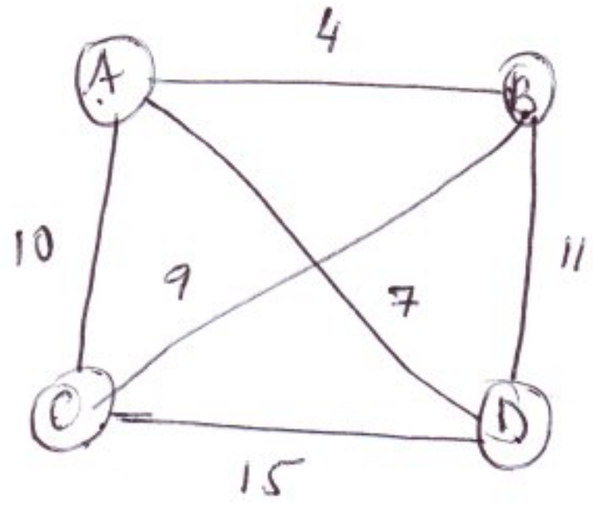
PROBLEM SHEET - 14

NAME : AISHWARYA. L
NUMBER : 677324

(1) (a)



(b) $A \to B \to D \to C$: $4 + 11 + 15 = 30$

$A \to C \to D \to B$: $10 + 15 + 11 = 36$

$A \to C \to B \to D$: $10 + 9 + 11 = 30$

$A \to B \to C \to D$: $4 + 9 + 15 = 28$

$A \to D \to C \to B$: $7 + 15 + 9 = 31$

$A \to D \to B \to C$: $7 + 11 + 9 = 27$ → shortest path

(2) (a) $2 \to 3 \to 5 \to 1 = 1 + 6 + 7 = 14$

$5 \to 1 \to 4 = 7 + 5 = 12$

3) (a) $U_{xx} + U_{yy} = 1$

- PDE → 2nd order, linear, non-homogeneous, static
- B.C : Periodic (circle)
- BCP
- Central difference scheme.

(b) $5U_{xx} - 2U_x + U^2 = 2x$

- ODE, 2nd order, homogeneous, non-linear.
- BC : Periodic
- Initial value Problem
- Euler implicit method

(3)(c) $2u_t + x \cdot u_x = 0$

- PDE, homogenous, 1st order, time evolution
- BC: Dirichlet's B.C
- IVP
  - Euler Implicit Method / F.T.C.S.