$Maths.(Hons)$
(Mid Term: DSE - II)

Full Marks: 15. **Time : $1\frac{1}{2}$ $hrs.$**

Answer any three questions.

1. Define Partial ordered set with an example. 5.

2. For a Boolean algebra B, prove that,
   $x \vee (x \wedge y) = x$ & $x \wedge (x \vee y) = x$. 5.

3. For a Boolean algebra B, prove that,
   $x \wedge (y - z) = (x \wedge y) - (x \wedge z), \quad \forall\, x, y, z \in B$ 5.

4. Construct circuits (i) $(x \vee y) \wedge Z$
   (ii) $x \wedge y \wedge z$
   (iii) $x \vee y \vee z$ 5.

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