

- B) Answer any one of the following: (4 M)**
1. Explain SMPS and write its 2 Advantages and 2 disadvantages.
 2. Write Derived gates Definition , Symbol, Truth Table and Boolean Equation.

- Q 4) A) Answer any two of the following: (6 M)**
1. Explain the construction of Paper capacitor with suitable diagram.
 2. What is Flip Flop? State different types with their Truth table and logic symbol.
 3. Explain Working Principal of Turns Ratio.

- B) Answer any one of the following: (4 M)**
1. Compare in between CMOS family and TTL family.
 2. Explain Transistor as a Switch with suitable diagram.

- Q 5) A) Answer any two of the following: (10 M)**
1. If a capacitor of $7\mu\text{f}$ is charged through a resistance of $3\text{M}\Omega$ and through 10V battery then Find RC Time Constant.
 2. In a transistor circuit if emitter current is 10mA and base current is 2mA find collector current , α and β .
 3. A transformer has Turns ration 5:1 and if secondary voltage is 40V/50Hz. Find the primary voltage and frequency of supply.

OR

- Q 5) B) Answer any two of the following: (10 M)**
1. A power transformer has 100 turns of primary and 5 turns of secondary, calculate
 - a) Secondary voltage if primary voltage is 120V and
 - b) Frequency of secondary if primary voltage is 50 HZ.
 2. Define the term RC Time constant and write the formulas for calculating capacitance in Parallel and capacitance in series with example.
 3. Find the value of carbon resistors by using colour code method.
 - a) Green Black Yellow Silver
 - b) Red Red Gold Gold