



RAN-2411001103040001

B.Sc. (I.T.) (Sem.-III) Examination November - 2025 Fundamental Of Electronics - MDC

Time: 2 Hours]

[Total Marks: 50

સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book

Seat No.:

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Student's Signature

- Q.1. Answer the following questions. 10**
- Q.1. A. Define the following terms [Any Five] 05**
1. "permeability"
 2. "Electromagnetic Induction"
 3. "Power"
 4. "frequency"
 5. "current"
 6. "Magnetic flux density"
- Q.1. B. Answer following questions [Any Five] 05**
1. What color represents 34700 ohm resistance value of resistor?
 2. What is the usage of filter in Electronics circuit?
 3. What is the difference between NPN and PNP transistors?
 4. What happens when current is flow form Light Emitting diode in Forward-biased condition?
 5. What is capacitor?
 6. What is the difference between a multiplexer and demultiplexer?
- Q.2. Answer the following questions in detail 16**
- Q.2. A. Answer the following questions in detail [Any Two] 10**
1. Write short note on MOSFET.
 2. What is capacitor? Explain Different types of Capacitor in detail
 3. what is variable resistor? Explain Serial connection of resistor concept in detail with necessary circuit diagram and equations.
- Q.2. B. Answer the following questions in brief [Any Two] 06**
1. Describe NOR gate in detail.
 2. Explain how resistance value can be calculated from the resistor color code?
 3. Draw parallel input serial output shift register circuit diagram.
- Q.3. Answer the following questions in detail 16**
- Q.3. A. Answer the following questions in detail [Any Two] 10**
1. Explain Full wave rectifier circuit diagram and waveform in detail.
 2. What is universal gate? Explain why NOR gate is considered as universal?
 3. Draw NAND gate based circuit and truth table for JK Flipflop and explain it in detail.

- Q.3. B. Answer the following questions in brief [Any Two] 06**
1. Draw circuit diagram and Truth Table for "1 of 16 decoder".
 2. Explain bubbled AND gate.
 3. Write short note on voltage regulator.
- Q.4. Answer the following questions in detail 08**
- Q.4. A. Draw and explain mod-16 synchronous up counter circuit with the help of necessary Timing diagram and Truth table. 05**
- OR**
- Q.4. A. Explain Exclusive - OR (EX-OR) gate and OR gate in detail. 05**
- Q.4. B. what is the relationship between current, voltage, and resistance according to Ohm's Law? 03**
- OR**
- Q.4. B. Describe how Karnaugh map is useful to find simplest Boolean equation from given truth table 03**

Input			Output
A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0
