RAN-2411001103040001

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B. Sc. (I.T.) NEP (Sem. - III) Examination February - 2026

Fundamental of Electronics

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.:

Student's Signature

Q. 1 Answer the following questions. [10]

Q. 1 [A] Define the following terms [Any Five] [5]

1) "Resistance"
2) "permeability"
3) "current"
4) "one Hertz (Hz)"
5) "one Volt"
6) "amplifier"

Q. 1 [B] Answer following questions in short [Any Five] [5]

1) What color represents 15700 ohm resistance value of resistor?
2) What is the usage of Oscillator?
3) What is the difference between N-channel and P-channel MOSFETs?
4) What happens to current flow when a diode is reverse-biased?
5) What is the Boolean equation of NAND gate?
6) How is a Light Emitting Diode (LED) different from a normal diode?

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 Field Effect Transistor (FET).
2) What is the difference between a multiplexer and a demultiplexer? Explain demultiplexer with the help of necessary circuit diagram and truth table
3) Explain Demorgan's first and second theorem with example.

Q. 2 [B] Answer the following questions in brief [Any Two] [6]

1) Describe OR gate in detail.
2) What is ohm's law?
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 Parallel connection of resistor concept in detail with necessary circuit diagram and equations.
2) Explain Full wave rectifier circuit diagram and waveform in detail.
3) What is universal gate? Explain why NAND gate is considered as universal?

Q. 3 [B] **Answer the following questions in brief [Any Two]** **(06)**

1) Draw circuit diagram of decimal to BCD encoder.
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-8 up counter circuit with the help of necessary Timing diagram and Truth table. **[5]**

OR

Q. 4 [A] Write short note on Full Adder. **[5]**

Q. 4 [B] What is magnetic flux density? How does it differ from magnetic flux? **[3]**

OR

Q. 4 [B] Describe Sum of product method and Product of sum method concept using given truth table. **[3]**

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