



# RAN-2403000502049005

F.Y.B.Sc.(NCF-NEP) (Sem.-II) Examination April - 2026

ELEC-MDC (Electronics) Combinational Circuit Design

[ Total Marks: 25 ]

|                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                 |                      |                      |                      |                      |                      |                      |
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| <p><b>સૂચના : / Instructions</b></p> <p>(1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.<br/>Fill up strictly the above details on your answer book</p> | <p>Seat No.:</p> <table border="1"> <tr> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </table> <div style="border: 1px solid black; height: 80px; margin-top: 10px;"></div> <p style="text-align: center;">Student's Signature</p> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/>                                                                                                                                      | <input type="text"/>                                                                                                                                                                                                                                                                                                                                                            | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |                      |                      |

- Q.1. One word or short answer (Any 5) 05**
1. Define combinational logic circuit.
  2. Name the standard forms of Boolean expression.
  3. What is meant by redundant groups?
  4. What is PRESET and CLEAR in a flip-flop?
  5. What is register?
  6. What is a ripple counter?
- Q.2. Answer (any 2) 10**
1. Explain the procedure for grouping of cells in Karnaugh map.
  2. Design a binary to gray conversion combinational circuit.
  3. Explain full adder circuit in detail.
- Q.3. Answer (any 2) 10**
1. Discuss R-S flip-flop.
  2. What do you understand by a bidirectional shift register? Explain its operation.
  3. Draw and explain 4-bit Up counter.