

Register Number :

Name of the Candidate :

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B.E. DEGREE EXAMINATION, 2003

(FOURTH SEMESTER)

(ELECTRONICS & INSTRUMENTATION)

EIEC - 403 . DIGITAL ELECTRONICS

May]

[Time : 3 Hours

Maximum : 60 Marks

UNIT - I

1. (a) Convert all 4-bit binary code into 4-bit gray code.
- (b) Convert the following numbers to decimal :
 - (i) $69DF_{16}$
 - (ii) $EABC_{16}$

(OR)

2. (a) Explain the construction of Hamming code.

- (b) Implement the following logic function using minimal number of logic gates,

$$Y = \overline{\overline{AB} + \overline{BA} + AC}$$

UNIT - II

3. (a) Compare ECL, MOS and TTL logic family of ICs.

- (b) Mention the different types of IC packages available and compare them in terms of reliability.

(OR)

4. (a) Draw and explain the diagram and principle of operation of a 3 input IC NOR gate.

- (b) Discuss any two characteristics of digital Integrated circuits.

- (c) Differentiate Schottkey and ordinary Pn diode.

UNIT - III

5. (a) Prove :

$$\overline{AC} (\overline{ABD}) + \overline{ABC}\overline{D} + \overline{ABC} = \overline{BC} + \overline{AD} (B+C)$$

- (b) Simplify the expression

$$Z = ABC + AB\overline{C} + A\overline{B}C.$$

(OR)

6. (a) Design a logic circuit with inputs P, Q and R, so that output S is high whenever P is 0 or whenever Q = R = 1.

- (b) With an example, explain how a 4 variable Karnaugh map can be constructed.

UNIT - IV

7. (a) Design a decade counter, using D-flip-flop.

- (b) Give the truth table for JK-flip-flop.

- (c) Is a flip-flop a buffer ? - Justify.

(OR)

8. (a) Explain the working of a 4-bit serial in parallel out shift register.
- (b) Differentiate Synchronous and Asynchronous circuits.
- (c) Draw the circuit diagram of SR-flip-flop using NOR gate.

UNIT - V

9. (a) Differentiate PAL and PLA with diagrams.
- (b) Differentiate EPROM and EEPROM in terms of their programming and erasing features.
- (c) Differentiate SRAM and DRAM.

(OR)

10. Implement a full adder circuit using ROM, PLA, and PAL.