

(b) Explain AND-OR-INVERT and OR-AND-INVERT gate.

UNIT – IV

8. (a) What is full adder ? How a full adder is built using half adder ?
(b) What is BCD to seven segment Decoder ? Explain.
9. (a) What are Encoders ? Draw and explain a Octal to binary encoder.
(b) What is full subtractors ? Prepare truth table circuit for full subtractor.
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Roll No.

97664

BCA 1st Semester

Examination – December, 2022

LOGICAL ORGANIZATION OF COMPUTER - I

Paper : BCA-104

Time : Three Hours] [Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) What is Unicode ?
(b) What is Number system ?
(c) What is Multiplexer ?

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P. T. O.

- (d) Differentiate Encoder and Decoder.
- (e) How does a NAND gate works ?
- (f) What is Digital signal ?
- (g) What is Boolean Function ?
- (h) What is Verni diagram ?

UNIT - I

- 2. (a) Construct an even parity seven bit hamming code to transmit the data (i) 0100 (ii) 1110.
- (b) What is BCD code ? What are the rule for BCD addition ? Explain with suitable example.
- 3. (a) Perform the following conversions $(37.125)_{10} = ()_2 = ()_8 = ()_{16}$
- (b) Add 10110111 and 01110101
- (c) Subtract 10001 from 11001.

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UNIT - II

- 4. Simplify the following Boolean function $F(A, B, C, D) = \sum(0, 1, 2, 5, 8, 9, 10)$ in SOP Draw the logic circuit using gates.
- 5. (a) State and prove De Morgan law.
- (b) Simplify the following Boolean expression :
 - (i) $ABC'D' + ABCD + ABCD + ABCD$
 - (ii) $AB(ABC' + ABC + ABC)$

UNIT - III

- 6. (a) How to realize OR, NOT, AND using universal gates ?
- (b) What is the design procedure for combinational logic circuit ?
- 7. (a) What is an exclusive OR and exclusive NOR gate ? Draw its symbol and prepare truth table.

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P. T. O