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Total No. of Questions : 07]                                [Total No. of Pages : 02

## BCA (Sem. - 2$^{nd}$)
### DIGITAL CIRCUIT AND LOGIC DESIGN
### SUBJECT CODE : BC - 205 (N2)
### Paper ID : [B0209]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours                                    Maximum Marks : 60

**Instruction to Candidates:**

1) Section - A is **Compulsory**.

2) Attempt any **Four** questions from Section - B.

### Section - A

Q1)                                              (10 × 2 = 20)

a) Explain gate propagation delay time.

b) What are the different minimization techniques?

c) Reduce the following into SOP and POS form
   $\pi m$(0, 1, 2, 3, 4, 6, 10, 11, 13) and $\Sigma m$(0, 2, 4, 6, 10, 11, 12, 14, 15)

d) Explain Noise margin of a Logic circuit.

e) Explain **Field Effect Transistor** as a Switch.

f) What do you mean by Fan IN and Fan OUT for a digital circuit?

g) What is the difference between Combinational circuit and sequential circuit?

h) Convert $(0.6875)_{10}$ into octal.

i) What do you mean by **non-weighted** codes?

j) Define Character Codes.

### Section - B

                                                 (4 × 10 = 40)

Q2) Minimize the following Boolean function using Quine-Mccluskey's methods and check with Karnaugh Map reduction method $f$(A, B, C, D) = $\Sigma$ (0, 1, 2, 3, 6, 7, 13, 14).

J-331[8129]                                                P.T.O.

*Q3)* Explain design of synchronous counters.

*Q4)* Explain code converters.

*Q5)* Explain Decoder for binary to gray code.

*Q6)* Write all possible groups of eight adjacent ones in a four variable k-map.

*Q7)* Explain up down and programmable counters.

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2