C14-EE-**505**

4640

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH/APRIL-2019

DEEE - FIFTH SEMESTER EXAMINATION

DIGITAL ELECTRONICS

Time: 3Hours] [Max. Marks:80

PART-A

10x3=30M

Instructions: 1) Answer all questions and each question carries 3 marks.
2) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1) State De-Morgan's theorem.

2) Convert the following decimal numbers into hexadecimal numbers.

(a) 48_{10} (b)523_{10} (c) 104_{10}

3) Classify digital logic families.

4) Define Fan-In and Fan-Out.

5) List the IC numbers of two input digital IC logic gates.

6) List any three applications of multiplexers?

7) Draw the half-adder circuit and verify its functionality using truth table.

8) What is necessity of clock in a flip-flop.

9) List any four applications of Fip-flops.

10) Compare static RAM and dynamic RAM.

PART-B

5x10=50M

Instructions: 1) Answer any five questions. Each question carries 10 marks.
2) The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

11) a) State different postulates in Boolean algebra.

b) Perform the following using 2's complement method.

(i) $9_{10}+3_{10}$ (ii) $26_{10}-6_{10}$ (iii) $(-7_{10})+(-6_{10})$ (iv) $(-20_{10})+6_{10}$

12) Draw CMOS NAND gate circuit and explain its operation.

13) Explain the working of Totem-pole output TTL NAND gate with a circuit diagram.

14) Draw Decimal to BCD Encoder and explain its operation.

15) Explain the working of serial Adder with a block diagram.

16) Draw and explain 4 bit asynchronous counter and also draw its timing diagram.

17) Draw and explain Master slave JK -flip-Flop with its truth table.

18) Classify various types of memories based on principle of operation, physical characteristics, accessing modes and fabrication technology.

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