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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 Flip-flops.
- 10) Compare static RAM and dynamic RAM.

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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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