

4241

BOARD DIPLOMA EXAMINATION, (C-14)

JUNE-2019

DECE - THIRD SEMESTER EXAMINATION

DIGITAL ELECTRONICS

Time: 3 Hours]

[Max. Marks: 80

PART - A

3x10=30M

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

- 1) Convert the following binary numbers into Hexa decimal numbers.  
(i) 111100      (ii) 101010    and    (iii) 011011
- 2) Compare weighted and un-weighted codes.
- 3) What are universal gates and why are they called as universal gates?
- 4) Classify the digital logic families.
- \* 5) Draw the logic diagram of Half adder.
- 6) Mention the applications of Decoder circuit.
- 7) State the need of clock pulses.
- 8) Draw the symbols of (i) D flip-flop and (ii) T flip-flop.
- 9) List the types of Registers.
- 10) Distinguish between ROM and RAM.

**PART - B**

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**5x10=50M**

- Instructions:** 1) Answer any **five** questions.  
2) Each question carries **ten** marks.  
3) Answers should be comprehensive and the criterion for valuation is the content but not the length of answer.
- 11) Realize all the basic gates using NAND gates.
- 12) State and explain the De-Morgan's theorems.
- 13) Explain the working of Totem pole output TTL NAND gate with circuit diagram.
- 14) Draw and explain the 2's complement parallel adder cum subtractor circuit.
- 15) (a) Draw the logic diagram of 1X4 De-multiplexer (3M)  
(b) Draw and explain the working of digital comparator. (7M)
- 16) Draw and explain the working Master slave JK flip flop circuit with necessary Diagrams.
- 17) Draw and explain the 4-bit shift register and timing diagram.
- 18) Draw and explain working of 4-bit synchronous counter with timing diagrams.

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