

DIPLOMA OF VOCATION**Industrial Electronics****Subject: Digital Electronics****Subject Code: EDDE-203****Semester: Third****January 2021****Theory (External): 35 Marks****Time: 03 Hours****Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

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SECTION -A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x1=10 Marks)

- (A) What are the advantages of digital system over analog system?
- (B) How positive logic system is different from negative logic system?
- (C) Write truth table of NOR gate?
- (D) What does CMOS logic means?
- (E) How half adder is different from full adder?
- (F) Write the truth table for 4*1 multiplexer.
- (G) Write application of memory circuits in industrial environment.
- (H) Write the truth table of JK flip flop.
- (I) How counter can be employed in the industry?
- (J) What are binary counters?

SECTION –B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

- Q.1 Convert (i) Binary (10111) to Hexadecimal (ii) Binary (1001.10) to decimal (iii) Binary (123) to octal (iv) Hexadecimal (110) to decimal and (v) Decimal (101) to binary.
- Q.2 Why NAND and NOR gates are called Universal gates? Make AND gate using NAND gate and NOR gate.
- Q.3 What are TTL logic families how these are different from CMOS logic families?
- Q.4 Simplify the expression using K-map and implement
 $F(A,B,C,D) = \sum(0,3,6,7,9,13,14,15)$
- Q.5 What is multiplexer? Explain in details with neat diagram. Also explain its possible industrial application.
- Q.6 Explain what is digital counter? With the simple block diagram explain the difference between synchronous and asynchronous counter.
- Q.7 Explain in details about the possible advantages of digital industrial environment Vs the manual industrial environment and how the digital component and circuits helps in industry.
- Q.8 Design a synchronous decade counter.

“END OF PAPER”