DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Summer Examination – 2023

Course: B. Tech. **Branch: E&TC /ECE** **Semester: III**

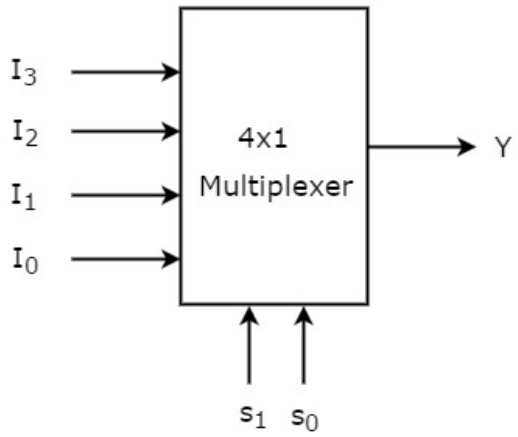
Subject Code & Name: (BTETC303/BTEXC303) Digital Electronics

Max Marks: 60 **Date:14/08/2023** **Duration: 2:00 To 5:00 PM**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		Level/(CO)	Marks
Q. 1)	**Solve Any Two of the following.**		**12**
A)	**Minimize the following Boolean function- F (A, B, C, D) = Σm (0, 1, 2, 5, 7, 8, 9, 10, 13, 15)**	**CO1**	**6**
B)	**For the given multiplexer circuit, determine the logic function?**	**CO2**	**6**



C)	**Express the Boolean function F = x + y z as a sum of minterms.**	**CO1**	**6**
Q.2)	**Solve Any Two of the following.**		**12**
A)	**Write short note on toggle flip flop.**	**CO3**	**6**
B)	**Explain JK flip flop in detail.**	**CO2**	**6**
C)	**Design 4 bit serial-in-parallel -out shift register is initially set to 1111. Data 1010 is applied to the input. After 3 clock pulses output will be**	**CO2**	**6**
Q. 3)	**Solve Any Two of the following.**		**12**
A)	**Implement a full adder circuit using a 3-to-8-line decoder.**	**CO1**	**6**
B)	**Write short note on Mealy and Moore Type Finite State Machines**	**CO3**	**6**

C)	**Explain ECL in detail.**	**C03**	**6**
Q.4)	**Solve Any Two of the following.**		**12**
A)	**Explain Operation of TTL NAND gate.**	**CO3**	**6**
B)	**What are the important characteristics of digital ICs?**	**CO4**	**6**
C)	**Compare the performance of TTL, CMOS and ECL Logic?**	**CO3**	**6**
Q. 5)	**Solve Any Two of the following.**		**12**
A)	**Explain General Architecture of FPGA in detail.**	**CO4**	**6**
B)	**Write a short note on PAL & PLA.**	**CO3**	**6**
C)	**What is VHDL? Explain in detail.**	**CO4**	**6**

***** End *****