DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular & Supplementary Winter Examination-2023

Course: B. Tech. **Semester : III**

Branch : Electronics and Computer Engg. / Electronics and Computer Science Engg.

Subject Code & Name: BTESC305 Digital Electronics and Microprocessor

Max Marks: 60 **Date:11-01-24** **Duration: 3 Hr.**

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)	Perform following Conversion. a. $(0.1010)_{2=}$ (…….?)$_{10}$ b. $(249)_{10=}$ (…?)$_{16}$ c. $(3241)_{8=}$ (…….?)$_{2}$	(k1/CO1)	**6**
B)	What are the universal gates? Explain how basic gates can be realized using NAND and NOR gates.	(k3/CO1)	**6**
C)	Elaborate need of coding? Explain error detecting and error correcting codes.	(k2/CO1)	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	Minimize following equation using Kmap a) F(A,B,C,D)= ∑m(0,1,2,3,4,5,13,15) + d(8,9,10,11) b) F(A,B,C,D)= ∏M(0,2,4,6,8,10) . d(1,3,5,7)	(k1/CO2)	**6**
B)	Explain the working of half adder and full adder with truth table	(k1/CO2)	**6**
C)	Provide comprehensive explanation of ALU using IC 74181**.**	(k2/CO2)	**6**
Q. 3	**Solve Any Two of the following.**		**12**
A)	Define Flip-Flop? Explain S-R Flip –Flop.	(k2/CO3)	**6**
B)	Draw and explain universal shift register.	(k3/CO3)	**6**
C)	Differentiate between synchronous counter and asynchronous counter.	(k2/CO3)	**6**
Q.4	**Solve Any Two of the following.**		**12**
A)	Draw architecture of 8085 microprocessor and explain it in detail.	(k1/CO4)	**6**
B)	Explain the addressing modes of 8085 with suitable examples of each.	(k3/CO4)	**6**

C)	Write a program for addition of two 16 bit numbers using 8085. Store lower byte of a result at 1000H memory location and higher byte 1001H.	(k2/CO4)	**6**

Q. 5	**Solve Any Two of the following.**		**12**
A)	Compare between 8085 and 8086 microprocessor.	(k1/CO5)	**6**
B)	Describe 8086 flag register and its functions.	(k3/CO5)	**6**
C)	Explain hardware and software interrupts of 8086.	(k2/CO5)	**6**

***** End *****