## C.U. SHAH UNIVERSITY Summer Examination-2022

## **Subject Name: Digital Circuits**

	Subject Code: 4TE03DCI1			<b>Branch: B.Tech (Electrical)</b>			
	Semeste	er: 3	Date: 25/04/2022	Time: 02:30	Го 05:30	Marks: 70	
	Instructi (1) (2) (3) (4)	ons: Use of Progr Instructions Draw neat d Assume suit	ammable calculator & written on main answ agrams and figures (i able data if needed.	& any other electronic in er book are strictly to be f necessary) at right plac	strument is p obeyed. ces.	orohibited.	
Q-1	l	Attempt th	e following question	s:			(14)
	a)	Which of th a) Combina b) Sequenti c) Both a &	tional logic circuits al logic circuits b the mentioned	of digital logic circuit?			(1)
	b)	<ul> <li>d) None of</li> <li>Which of th</li> <li>a) Compute</li> <li>b) Informat</li> <li>c) Digital c</li> <li>d) All of th</li> </ul>	the following is an exa ers ion appliances ameras e mentioned	mple of a digital Electro	nic?		(1)
	<b>c</b> )	a)NAND at b)NAND at c) NAND a d) None of	and gates a nd AND nd NOR nd OR the above	are universal gates?			(1)
	d)	What are th a)High-effi b)Uses less c) Encrypti d) All of th	e advantages of the d ciency bandwidth on e above	igital systems?			(1)
	<b>e</b> )	In which ga a)AND b)NAND c) OR d) NOR	te the output is high v	when any one or all inpu	ts are high?		(1)
	f)	The 8 bits i a)One-byte b)Two-byte	s equal to the	bytes.			(1)



		c) Three-bytes	
		d) None of the above	
	<b>g</b> )	The Boolean algebra is given by	(1)
		a)Ronald J Tocci	
		b)Pascal	
		c) George Boole	
		d) None of the above	
	h)	What is the base of octal?	(1)
		a)2	
		b)8	
		c) 12	
		d) 10	
	<b>i</b> )	What are the basic gates?	(1)
		a)AND	
		b)NOT	
		c) OR	
		d) All of the above	
	j)	How many bits does one nibble have	(1)
		a)1-bit	
		b)4-bits	
		c) 3-bits	
		d)2-bits	
	k)	gate is a universal gate	(1)
		a)NOT	
		b)NOR	
		c) AND	
		d) Exclusive OR	
	l)	The parity is used to	(1)
		a)Increase the switching operation	
		b)Reduce switching operation	
		c) Detect errors	
		d) None of the above	
	m)	How many bits does one word have?	(1)
		a)4 bits	
		b)8 bits	
		c) 16 bits	
		d) 32 bits	
	n)	The counter is used to count the number of	(1)
		a)Digits	
		b)Bits	
		c) Pulses	
		d) None of the above	
,			
pt a	any	tour questions from Q-2 to Q-8	
		Attempt all questions	(14)

Atten	ipt any	four questions from Q-2 to Q-8		
Q-2	Attempt all questions		(14	
	a)	Explain OR, NOR, Ex OR and Ex NOR gate with truth table.	(7)	
	b)	What are the advantages of digital system over analog system?	(7)	

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Q-3		Attempt all questions	(14)
-	a)	Convert decimal to binary system: (1) 105.15 (2) 52	(7)
	b)	Convert octal to hexadecimal system: (1) 756.603 (2) B9F.AE	(7)
<b>O-4</b>		Attempt all questions	(14)
·	a)	Reduce the expression $A+B[AC+(B+C)D]$ .	(7)
	b)	Write short note on full subtractor.	(7)
Q-5		Attempt all questions	(14)
	a)	Briefly describe the following: (1) Parallel adder (2) Serial adder	(7)
	b)	Explain De Morgan's theorem with truth table.	(7)
Q-6		Attempt all questions	(14)
-	a)	What are different application of flip-flop?	(7)
	b)	What is flip-flop? Explain S-R flip-flop.	(7)
Q-7		Attempt all questions	(14)
	a)	Explain 3 to 8 line decoder circuit.	(7)
	b)	Distinguish between combinational and sequential switching circuits.	(7)
Q-8		Attempt all questions	(14)
	a)	Explain difference between MUX and a DEMUX.	(7)
	b)	What is the advantages of a synchronous counter over an asynchronous counter? What is its disadvantages?	(7)

