Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Analog and Digital Electronics

Subject Code: 4SC04ADE1 Branch: B.Sc. (All)

Semester: 4 Date: 03/05/2019 Time: 02:30 To 05:30 Marks: 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 Attempt the following questions: (14)

a)	Differentiate: Analog and Digital Signal	1
b)	What do you mean by stabilization in a transistor?	1
c)	Define the term Virtual Ground in Op Amp.	1
d)	List two advantages of JFET.	1
e)	Define Thermistor.	1
f)	What is an Op-Amp?	1
g)	Write the Commutative laws used in logic gates.	1
h)	What is CMRR in Op-AMP operation?	1
i)	List the names of the basic logic gates.	1
j)	Give full form of MOSFET and draw its symbol.	1
k)	Draw the diagram for Op Amp when it is used as an Integrator.	1
l)	Define pinch-off voltage.	1
m)	Give the truth table for NOR gate.	1
n)	Give two applications of Op-Amp	1

Attempt any four questions from Q-2 to Q-8

Q-2		**Attempt all questions**	**(14)**
	a)	Discuss in detail transistor as an amplifier in CE configuration.	**6**
	b)	Enumerate on the working and construction of MOSFET.	**8**
Q-3		**Attempt all questions**	**(14)**
	a)	Explain in detail the terms Load Line and Operating Point in Transistor working.	**8**
	b)	Write a note on construction and working of a JFET.	**6**
Q-4		**Attempt all questions**	**(14)**
	a)	Describe the input and output characteristics of Common Base Transistor connection.	**7**
	b)	Define Stability factor of a transistor, also derive the formula for the same.	**7**
Q-5		**Attempt all questions**	**(14)**
	a)	Explain AND gate in detail	**6**

	b)	Discuss the characteristics of an Ideal Operational Amp	**8**
Q-6		**Attempt all questions**	**(14)**
	a)	Write a note on NAND as a Universal Gate.	**6**
	b)	Convert the following decimals to binary (i) 15_{10} (ii) 0.3125_{10}	**8**
Q-7		**Attempt all questions**	**(14)**
	a)	State and Prove De Morgan's Theorem used in Logic Gates.	**7**
	b)	Discuss in detail on Op Amp used as an Adder.	**7**
Q-8		**Attempt all questions**	**(14)**
	a)	Simplify the Boolean Expressions: $Y = (A + B + C).(A + B)$ $Y = AB + \overline{AC} + A\bar{B}C(AB + C)$	**8**
	b)	Explain in detail Op Amp as an Inverting Amplifier.	**6**