Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name: Analog and Digital Electronics

Subject Code: 4SC04ADE1 **Branch: B.Sc. (Chemistry, Physics)**

Semester: 4 **Date: 10/05/2018** **Time: 10:30 To 1:30** **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)	What is Amplifier?	1
b)	Define stabilization and give formula of stabilization factor.	1
c)	Give full form of JFET.	1
d)	Define voltage gain of amplifier.	1
e)	Give full form of UJT and draw its symbol.	1
f)	What is OP-Amp?	1
g)	Define Analog signal.	1
h)	Give the name of transistor biasing method.	1
i)	What is phase reversal?	1
j)	Define Transconductance of JFET.	1
k)	Define pinch-off voltage.	1
l)	Convert $(829)_{10}$ into binary number system.	1
m)	Define Bandwidth.	1
n)	Give Barkhahusen's criterion for self sustained oscillations.	1

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

Q-2 **Attempt all questions** **(14)**

a)	Explain in details Base resistor method of transistor biasing.	**5**
b)	Explain in details construction and working of JFET.	**5**
c)	Give differences between BJT and JFET.	**4**

Q-3 **Attempt all questions** **(14)**

a)	Explain in details Voltage divider method of transistor biasing.	**5**
b)	Explain in details construction and working of MOSFET.	**5**
c)	Write a short note on OR Gate in details	**4**

Q-4 **Attempt all questions** **(14)**

a)	Explain in details construction and working of UJT.	**6**
b)	Explain any two applications of OP-Amp.	**6**
c)	What Is Thermistor?	**2**

Q-5		**Attempt all questions**	**(14)**
	a)	Explain in details AND gate with two inputs logic diagram and its truth table.	**5**
	b)	Explain in details parameters of JFET.	**6**
	c)	Give classification of amplifier.	**3**
Q-6		**Attempt all questions**	**(14)**
	a)	Explain in details Barkhusen's criterion for self sustained oscillations in details.	**5**
	b)	Give characteristics of Ideal Op-Amp.	**5**
	c)	Simplify the following Boolean expression: Y=(A+B+C) •(A+B)	**4**
Q-7		**Attempt all questions**	**(14)**
	a)	Explain in details NAND Gate as a universal gate.	**6**
	b)	Explain in details Half adder and full adder circuits.	**6**
	c)	Explain Binary addition with examples.	**2**
Q-8		**Attempt all questions**	**(14)**
	a)	Explain in details practical circuit of transistor amplifier.	**5**
	b)	Explain in details NOT Gate with its logic circuit diagram.	**5**
	c)	State and prove any two De Morgan's theorems.	**4**