Enrollment No: _____ Exam Seat No:_____

C. U. SHAH UNIVERSITY

Summer Examination-2022

Subject Name: Analog Electronics Circuits

Subject Code: 4TE03AEC1 **Branch: B.Tech (Electrical)**

Semester: 3 **Date: 22/04/2022** **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) Rectification Efficiency of Half Wave Diode Rectifier with R Load is _____%.
b) Ripple Factor of Full Wave Diode Rectifier with R Load is _____.
c) PIV for Diode Bridge Rectifier is _____ volts.
d) CE Configuration of BJT is commonly used because ----------.
e) AC / DC Load lines decides _____ in amplifier.
f) Voltage Regulated IC 7812 is used for _____ volts.
g) Full Form of CMRR is _____& PSRR is _____.
h) Zero Crossing Detector circuit is one type of _____.
i) Hartley oscillator is commonly used in _____.
j) Oscillator Circuit needs _____ input(s).
k) IC-555 is invariably used in applications such as ----------.
l) In phase shift oscillator, we use _____ RC sections.
m) Slew Rate is the measurement of _____in Op-amp.
n) Filter Circuits block the ------- component & pass ------- component.

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

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

a) Compare Diode with Bipolar Junction Transistor. **(3)**
b) Give comparative statements in Tabular form for CE, CB, CC Configuration of BJT **(4)**
c) Draw and explain Full Wave Rectifier circuit diagram and various waveforms having capacitor filter for R – Load. **(7)**

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

a) Discuss Ideal Op-amp. **(3)**
b) Discuss practical Op-amp Characteristics. **(4)**
c) Draw the basic block diagram, symbol, characteristics and equivalent circuit of Operational Amplifier. List the type and important parameters of Op-amp. **(7)**

Q-4		**Attempt all questions**	**(14)**
	a)	Draw Class-C amplifier circuit and specify its applications.	**(3)**
	b)	Draw Class – A amplifier circuit and specify its applications and limitations	**(4)**
	c)	Explain 78xx and 79xx voltage regulators. Draw necessary circuit diagram to get 12-volt constant output using 7812 IC.	**(7)**
Q-5		**Attempt all questions**	**(14)**
	a)	Discus fundamental of tuned amplifier.	**(3)**
	b)	Discus the effect of bypass and coupling capacitors on frequency response of amplifier circuit.	**(4)**
	c)	Explain basic inverting and non-inverting amplifier circuits using Op-amp	**(7)**
Q-6		**Attempt all questions**	**(14)**
	a)	Discuss Phase Shift Oscillator.	**(3)**
	b)	Discuss Wien Bridge Oscillator	**(4)**
	c)	Draw and explain the circuit diagram and various waveforms for Triangular Wave Generator.	**(7)**
Q-7		**Attempt all questions**	**(14)**
	a)	Discus general characteristics of negative feedback amplifier.	**(3)**
	b)	Discus on Heat-sinks design.	**(4)**
	c)	Draw and explain feedback amplifier. Deduce the necessary formula for the calculation of voltage gain, current gain, input impedance and output impedance.	**(7)**
Q-8		**Attempt all questions**	**(14)**
	a)	What do you mean by oscillation circuit? What are the general conditions for it?	**(3)**
	b)	Draw and explain Hartley oscillator.	**(4)**
	c)	Draw and explain Crystal Oscillator. Where it is used?	**(7)**