Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Analog Electronics Circuits
Subject Code: 4TE03AEC1 Branch: B.Tech (Electrical)
Semester: 3 Date: 29/11/2018 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) Which diode is used in voltage regulation circuit?
A) Zener diode B) Varactor diode C) Tunnel diode D) None of these

b) In a zener shunt regulator circuit, if zener current is below zener knee current then……
A) Zener will not come in breakdown B) Zener will get damaged C) Both A & B D) None of these

c) Leakage current of a junction diode
A)decrease with temperature B) is due to majority carriers C) depends on the method of its fabrication D) is in the range of mA or μA

d) The maximum efficiency of resistive coupled class A amplifier is……..
A) 50 % B) 25 % C) 78 % D) 40%

e) Which one of the IC is used for obtaining positive 5 V regulated voltage?
A) IC 7805 B) IC 7905 C) IC 7812 D) IC7912

f) Astable Multivibrator oscillator to generate _____Waveform.
A) square B)sinusoidal C) triangular D) Ramp

g) In a JFET, drain current is maximum when VGS is
A) zero B) negative C) positive D) equal to VP

h) A FET Consists of a
A) source B) drain C) gate D) all of the above

i) The smallest of the four h – parameters of a transistor is
A) h_i B) h_r C) h_o D) h_f

j) In phase shift oscillator total output circuit is
A) 0^0 B) 180^0 C) 200^0 D) 90^0

k) The current amplification factor alpha dc is given by
A) Ic/I_E B) Ic/I_B C) I_E/I_B D) I_B/ I_E

l) Power dissipation capability of PN junction diode is ____.
A) High B) Low C) zero D) Nil

m) Clopitts Oscillator use in ____Feedback.
A) Inductor B) Capacitor C) Resistor D) All of the above

n) The ripple factor of a bridge rectifier is
A) 0.406 B) 0.812 C) 1.21 D) 1.11

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

Q-2		**Attempt all questions**	**(14)**
	(a)	Explain the simple current limit protection circuit.	**07**
	(b)	What are the difference between PN junction diode and Zener diode?	**07**
Q-3		**Attempt all questions**	**(14)**
	(a)	Explain Full wave rectifier circuit & also draw the waveform.	**07**
	(b)	Explain the circuit diagram of Colpitt's oscillator and its operation.	**07**
Q-4		**Attempt all questions**	**(14)**
	(a)	Explain Voltage Divider circuit for BJT.	**07**
	(b)	Explain the Block Diagram of operational amplifier.	**07**
Q-5		**Attempt all questions**	**(14)**
	(a)	Explain fixed bias circuit of n channel JFET.	**07**
	(b)	Explain Zener shunt regulator circuit for varying input voltage. (Load regulation)	**07**
Q-6		**Attempt all questions**	**(14)**
	(a)	Draw circuit diagram of Class B push pull amplifier. Explain its operation.	**07**
	(b)	Explain the following modes of operational amplifier for open loop configuration. (i) Differential Amplifier (ii) Inverting Amplifier (iii) Non-inverting Amplifier	**07**
Q-7		**Attempt all questions**	**(14)**
	(a)	Draw the Hybrid model of common emitter amplifier and derive the equation for voltage & current gain.	**07**
	(b)	Explain the operation of Astable multivibrator with necessary waveforms.	**07**
Q-8		**Attempt all questions**	**(14)**
	(a)	Draw the circuit diagram of Wein Bridge oscillator circuit and obtain the condition $f = 1/ 2\pi RC$ for sustained oscillation.	**07**
	(b)	Find the minimum and maximum load currents for which the zener diode in fig.1.will maintains regulation. What is the minimum R_L that can be used? V_Z = 10V, I_{Zmin} = 5mA , I_{Zmax} = 25mA. Assume $r_Z = 0\Omega$	**07**