Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Linear Electronics

Subject Code: 4TE03LNE1 **Branch: B.Tech (CE)**

Semester: 3 **Date: 27 /03/2017** **Time: 10:30 To 01:30** **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) Define Oscillator. 1

b) Define Input Offset Current. 1

c) Define Slew rate. 1

d) Define Operating Point. 1

e) Define Positive feedback. 1

f) If A=100 And B=50%. Then Af =……..? 1

g) If Operating Point is in Middle of Load Line Then amplifier is treated as a……. 1

A) Class B. B) Class A. C) Class C. D) Class D.

h) In push pull circuit each transistor conducts for …… 1

A) 90˚. B) 180˚. C) 270˚. D) 360˚.

i) In oscillator feedback loop may contain 1

A) L and C. B) R and C. C) crystal. D) all of above

j) If AB=1 then oscillation is called ……oscillation 1

A) Damped. B) Under damped C) over damped D) critically damped.

k) If B=1 and A=100 then f2f=……Hz. 1

A) 100f2 B) f2 C) f2/2 D) 101f2

l) To achieve 180˚ out of phase signal, input should be applied to pin no……..of IC741. 1

A) 3 B) 2. C) 4. D) 5.

m) Ideal op amp has very low ……. 1

A) Output impedance B) gain C) Input impedance. D) bandwidth

n) The thickness of Base of power transistor is……..as compare to ordinary transistor 1

A) Thick B) thin C) same (b) depend on construction style

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

Q-2		**Attempt all questions**	**(14)**
	1.	What IS feedback? Draw general block diagram of it. And derive the equation for overall gain with feedback..	**06**
	2.	Compare Positive feedback and negative feedback.	**03**
	3.	Explain the advantages of feedback.	**05**
Q-3		**Attempt all questions**	**(14)**
	1.	Draw and Explain the working of Hartley Oscillator.	**06**
	2.	Design oscillator which produce frequency of 5 K Hz using a Collpits oscillator	**04**
	3.	Give the classification of oscillation. State the need of oscillation. .	**04**
Q-4		**Attempt all questions**	**(14)**
	1.	Draw pin diagram of IC 741. State function of each pin. State the ideal characteristic of it	**06**
	2.	Define CMRR. If CMRR= 100 and Acm= 10 then find the value of output voltage Vin=10mV	**04**
	3.	Draw and Explain OP amp As an integrator.	**04**
Q-5		**Attempt all questions**	**(14)**
	1.	Explain distortion if power amplifier.	**04**
	2.	Compare power amplifier and voltage amplifier.	**04**
	3	Explain Push Pull amplifier in detail.	**06**
Q-6		**Attempt all questions**	**(14)**
	1.	Explain voltage divider biasing method.	**04**
	2.	Explain Emitter Follower for small signal.	**04**
	3.	Explain Two-Port Devices and the Hybrid Model.	**04**
	4.	Define biasing. State the types of biasing.	**02**
Q-7		**Attempt all questions**	**(14)**
	1.	Draw and explain voltage series feedback with necessary equation.	**06**
	2.	Draw and explain Phase-Shift Oscillator.	**04**
	3.	Explain Inverting and non inverting op-amp.	**04**
Q-8		**Attempt all questions**	**(14)**
	1.	An amplifier has a gain 100 without feedback and cutoff frequency are f1=1 KHz and f2=500 KHz. If 1% output voltage of amplifier is applied as a negative feedback find out bandwidth with and without feedback, cutoff frequency and overall gain of amplifier.	**06**
	2.	If A=1000 β=10% Ri=200Ω,Ro=20KΩ,F1=200Hz and F2=200KHz then find out 1. Bandwidth without feedback. 2. Bandwidth With feedback. 3. Gain with feedback. 4. Input Resistance with feedback. 5. Output Resistance with feedback. 5. Cutoff Frequencies. 6. Output Voltage if Vi=10mv	**06**
	3	State the function of RFC coil.	**02**