QUESTION PAPER CODE- 52016

University Institute of Engineering & Technology

(Recognised Under Section 2(f) and 12B of UGC)

Kurukshetra University, Kurukshetra

Roll No. -

THEORY EXAMINATION – MAY 2019	
B.TECH – ALL BRANCHES	SEMESTER - II

TIME – 3 Hrs.

M.M. - 75

PAPER –ECE-101

SUBJECT –Basics of Electronics Engineering (REAPPEAR)

Note: All questions in Part-A and Part-B are compulsory. Attempt any four questions from Part-C selecting at least one from each unit.

PART-A (15 Marks)

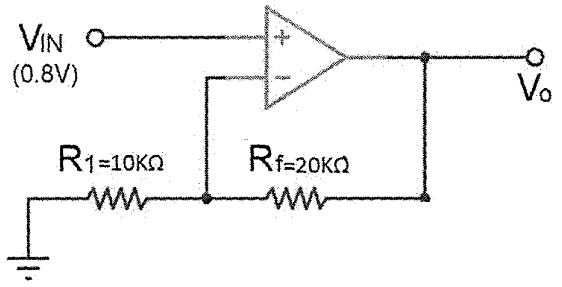
Q. No. – 1 Answer the following questions. **15x1=15**

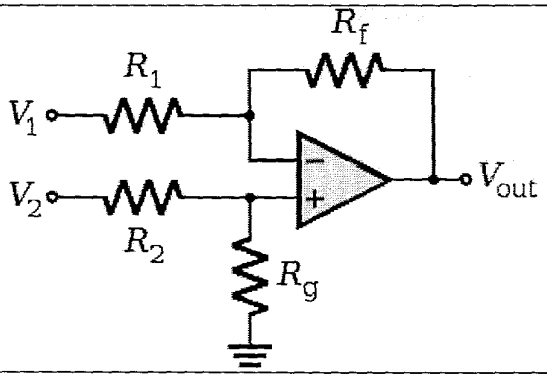
(i)	Describe the difference between conductor, semiconductor and insulator with energy band diagram.
(ii)	Explain why Zener diode is used in voltage regulator and not simple p-n diode?
(iii)	Discuss whether p-n junction diode can be used as an amplifier or not ?
(iv)	Discuss the significance of virtual ground in Op-Amp?
(v)	Why biasing is required in BJT? which biasing configuration is most stable?
(vi)	Why negative feedback is used in amplifiers and positive feedback in oscillators?
(vii)	What is the significance of barkhausen criterion in Oscillators?
(viii)	Which semiconductors are used in making LEDs?
(ix)	What is the value of ripple factor in half wave and full wave rectifiers?
(x)	What is the ideal value of CMRR of Op-amp?
(xi)	What is the ideal value of slew rate of Op-amp?
(xii)	What is the voltage gain of common collector BJT configuration?
(xiii)	Explain the significance of pinch-off voltage in JFET ?
(xiv)	Interpret the difference between current controlled and voltage controlled device?
(xv)	What is the value of voltage gain of practical Op-Amp 741?

PART-B (20 Marks)

	UNIT-I	
2	With necessary diagram and equation describe the working of p-n diode in forward and reverse bias conditions.	5
	UNIT-II	
3	What is the procedure of drawing the DC load line? Draw the DC load line in voltage divider bias configuration?	5
	UNIT-III	
4	Discuss the pin diagram of Op-amp 741 with function of each pin. Draw the ideal voltage transfer curve of Op-Amp?	5
	UNIT-IV	
5	Describe the working of n-channel JFET with drain and transfer characteristics?	5

PART-C (40 Marks)

	UNIT-I	
6	What is the use of rectifiers? What are its various types ? Explain the working of Full wave bridge rectifier and calculate its ripple factor.	10
7	Explain the difference between clipper and clampers? Describe the series, parallel and combination clippers with examples?	10
	UNIT-II	
8	Explain the input output VI characteristics of common emitter (CE) BJT configuration showing active, cut-off, saturation and breakdown regions.	10
9	What is the main function of oscillators? Explain the working of phase shift oscillator and find its frequency of oscillations.	10
	UNIT-III	
10	Derive the output equation of non-inverting Op-Amp. Calculate the output Voltage of the following Op-Amp circuit: 	10
11	Describe how Op-Amp in differential mode can be used as a subtractor? Find the output voltage of the following : Rf=100 Ω, R1=10 Ω, R2=10 Ω, Rg=100 Ω, V1=10 V, V2=5 V	10

		
	UNIT-IV	
12	Describe the working and operation of SCR with all the necessary diagram And characteristics? What are its applications?	10
13	Explain the working and operation of UJT with necessary diagrams ? What are the applications of UJT?	10