

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- III (New) EXAMINATION – WINTER 2019

Subject Code: 3134104

Date: 3/12/2019

Subject Name: Electronic Devices and Circuits

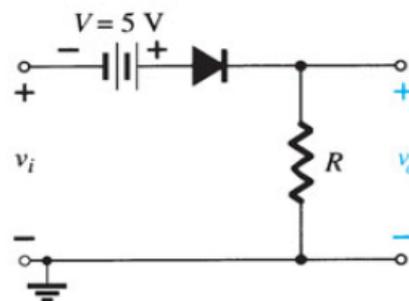
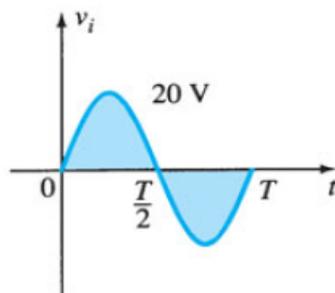
Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	Marks
Q.1 (a) Explain the function of LED with neat sketch.	03
(b) Explain p and n semiconductor formation in detail.	04
(c) Differentiate FET and BJT.	07
Q.2 (a) List the two types of carriers and name the type of impurity that causes each to be a majority carrier.	03
(b) With help of voltage doubler circuit, describe the action of voltage multipliers.	04
(c) Draw and explain bridge rectifier circuit with capacitor filter.	07
OR	
(c) Draw and explain series and shunt positive clipper with output waveforms.	07
Q.3 (a) Explain Transistor as a switch.	03
(b) With the help of neat figure, explain the operation of a N-P-N transistor.	04
(c) Determine the output waveform for the sinusoidal input of figure given below.	07



OR

Q.3 (a) Draw V-I characteristics of Zener diode.	03
(b) Drive the relation between dc alpha and dc beta for bipolar junction transistor.	04
(c) Explain Darlington pair in detail. Also derive its current gain.	07
Q.4 (a) Draw and explain the input and output characteristics of common emitter configuration.	03
(b) Explain the JFET application as analog switch.	04
(c) Draw the basic construction of a p-channel JFET and explain its operation in detail.	07

OR

- Q.4** (a) Compare E MOSFET with D MOSFET. **03**
(b) Write the advantages and disadvantages of negative feedback. **04**
(c) Explain Voltage Divider Bias biasing in detail. **07**
- Q.5** (a) What is the difference between a voltage amplifier and a power amplifier? **03**
(b) Draw Ebers-Moll model and π -model of a transistor. **04**
(c) Explain the working of a transformer coupled class A power amplifier and show the efficiency of class A transformer coupled amplifier is 50%. **07**
- OR**
- Q.5** (a) Explain the difference between class B and class AB Operation. **03**
(b) Draw a schematic of class B push-pull amplifier and explain its operation. **04**
(c) Describe the characteristics of amplifiers, including classes of operation, types of coupling, and frequency ranges. **07**
