Printed pages: 02 **Sub Code: EC101**

Paper Id: | 3 | 0 | 0 | 2 | **Roll No:** | | | | | | | | | | |

B TECH
(SEM I) THEORYEXAMINATION 2017-18
ELECTRONICS ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Notes: 1. *Attempt all Sections.*
2. *Assume any missing data.*

SECTION A

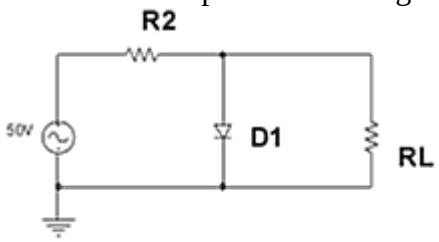
1. Attempt *all* questions in brief. 2 x10 = 20

a. Explain bulk resistance
b. Explain up down circuit analysis
c. Define the terms conductivity, intrinsic concentration andenergy gap of a semiconductor material.
d. A silicon diode has a saturation current of 5 nA at 25°C.What is the saturation current at 100°C?
e. Describe drain curves for depletion mode MOSFET.
f. Enlist the difference between JFET and BJT.
g. Draw the Capacitance verse Voltage transfer characteristicfor the Varactor Diode.
h. Write the advantages of Negative Feedback in Amplifiers.
i. Draw the block diagram of four types of negative feedback amplifiers.
j. Explain how to determine phase of an unknown signal.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. Sketch the waveform output V_{out} in the circuit of the given figure indicating the values of maximum positive and negative output voltages.

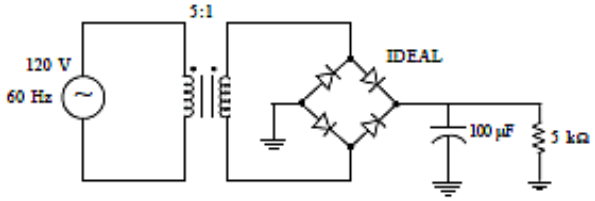


b. Describe and compare different types of biasing methods.
c. Describe the procedure to obtain the Lissajous pattern on the screen of a CRO.
d. Describe the CMOS inverter and its VTC with help of a neat sketch.
e. With the help of a neat block diagram of OPAMP list and describe its major characteristics.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

a. Determine the DC load voltage and ripple voltage for the circuit as shown in figure.



b. With help of a neat schematic explain the Loaded Zener regulator.

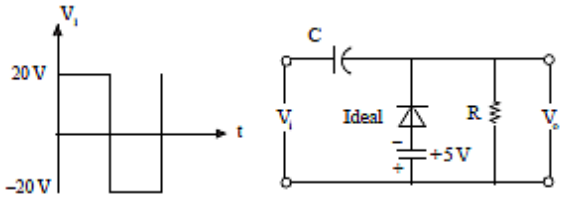
4. Attempt any *one* part of the following: 10 x 1 = 10

a. Discuss the working of a CRO with help of a neat block diagram. Explain how the frequency and phase are measured.

b. Explain the working of a full wave bridge rectifier with waveforms.

5. Attempt any *one* part of the following: 10 x 1 = 10

a. Sketch V_o of the following network shown in the given figure.



b. What is the meaning of transistor biasing? Draw a neat sketch and explain the base biasing of transistor in in CE mode.

6. Attempt any *one* part of the following: 10 x 1 = 10

a. Explain trans-conductance. Also explain how JEET can be used as shunt switch and series switch.

b. Draw the basic structure of a CE BJT and explain its basic principle of operation with neat diagram along with its input and output characteristics.

7. Attempt any *one* part of the following: 10 x 1 = 10

a. Draw and explain the block diagram of digital voltmeter systems.

b. Explain the working of following:

i. Cathode ray tube

ii. Schottky Diode