

B TECH
(SEM I) THEORY EXAMINATION 2017-18
ELECTRONICS ENGINEERING

Time: 3 Hours

Total Marks: 100

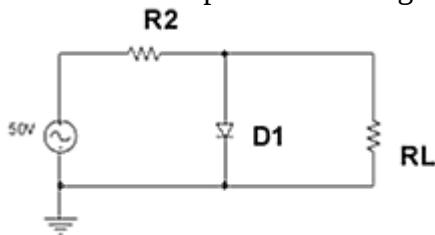
- Notes:** 1. Attempt all Sections.
 2. Assume any missing data.

SECTION A

1. Attempt all questions in brief. 2 x 10 = 20
- Explain bulk resistance
 - Explain up down circuit analysis
 - Define the terms conductivity, intrinsic concentration and energy gap of a semiconductor material.
 - A silicon diode has a saturation current of 5 nA at 25°C. What is the saturation current at 100°C?
 - Describe drain curves for depletion mode MOSFET.
 - Enlist the difference between JFET and BJT.
 - Draw the Capacitance versus Voltage transfer characteristic for the Varactor Diode.
 - Write the advantages of Negative Feedback in Amplifiers.
 - Draw the block diagram of four types of negative feedback amplifiers.
 - Explain how to determine phase of an unknown signal.

SECTION B

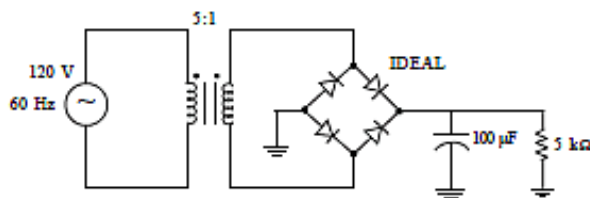
2. Attempt any three of the following: 10 x 3 = 30
- Sketch the waveform output V_{out} in the circuit of the given figure indicating the values of maximum positive and negative output voltages.



- Describe and compare different types of biasing methods.
- Describe the procedure to obtain the Lissajous pattern on the screen of a CRO.
- Describe the CMOS inverter and its VTC with help of a neat sketch.
- 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
- Determine the DC load voltage and ripple voltage for the circuit as shown in figure.



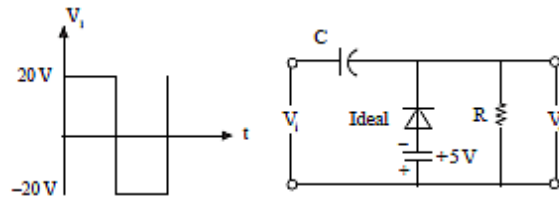
b. With help of a neat schematic explain the Loaded Zener regulator.

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 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