



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 990101**

Roll No.

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## B. Tech.

(SEM. I) (ODD SEM.) THEORY  
EXAMINATION, 2014-15

### ELECTRONICS ENGINEERING

Time : 3 Hours]

[Total Marks : 100

1 Attempt any **four** parts : **5×4=20**

- a) Explain the following
  - i. Bulk Resistance.
  - ii. Up-Down Circuit Analysis.
- b) Explain with neat schematic the loaded Zener Regulator.
- c) Describe the drain curves and transconductance curve of enhancement mode and depletion mode MOSFET. Derive an expression for  $g_m$  of JFET configuration.
- d) Draw the block diagrams of four types of Negative Feedback amplifiers. Also calculate VCVS voltage gain, input impedance and output impedance.
- e) Explain the procedure to obtain the Lissajous pattern on the screen of a CRO and also explain how the phase of an unknown signal can be determined from it.

- 2 Attempt any two parts : 10×2=20
- a) Sketch the waveform output  $V_{out}$  in the circuit of Figure-1, indicating the values of maximum positive and negative output voltages.

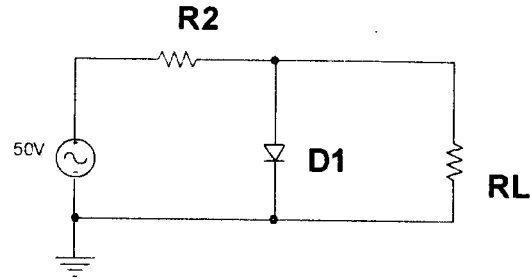


Figure - 1

- b) Explain the working of Full-Wave Bridge rectifier with wave forms.
- c) Explain the working of Schottky Diode and its characteristics.

- 3 Attempt any two parts : 10×2=20
- a) Design a collector to base bias circuit to have  $V_{CE} = 3V$  and  $I_C = 2mA$ , when the supply voltage is 12V and  $\beta_{dc} = 100$ , Assume silicon transistor.
- b) What is the meaning of transistor biasing? Draw a neat sketch to explain the base biasing of transistor in CE mode.
- c) Compare different types of biasing methods

- 4 Attempt any two parts : 10×2=20
- a) Define Transconductance. Also explain how JFET can be used as a Shunt Switch & Series Switch.
- b) Draw the schematic of Source Follower JFET amplifier and determine  $A_v$ .
- c) Draw and explain CMOS inverter and its VTC.

- 5 Attempt any two parts : 10×2=20
- a) Draw the Block Diagram of an OPAMP and List its all typical characteristics.
- b) Draw and explain the block diagram of Digital Voltmeter Systems.
- c) Explain
  - i. Cathode Ray Tube
  - ii. Deflection Amplifier.