

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

Paper ID : 199211

Roll No.

B.TECH.

Theory Examination (Semester-II) 2015-16

ELECTRONICS ENGINEERING

Time : 3 Hours

Max. Marks : 100

Section-A

1. **Attempt all parts.** **(2×10=20)**
- (a) Compare the properties of Si and Ge Semiconductors.
- (b) Define depletion layer in a diode.
- (c) Define bulk resistance of the diode.
- (d) Draw the double ended diode clipper circuit.

(e) Draw the output waveform appear across R_L .

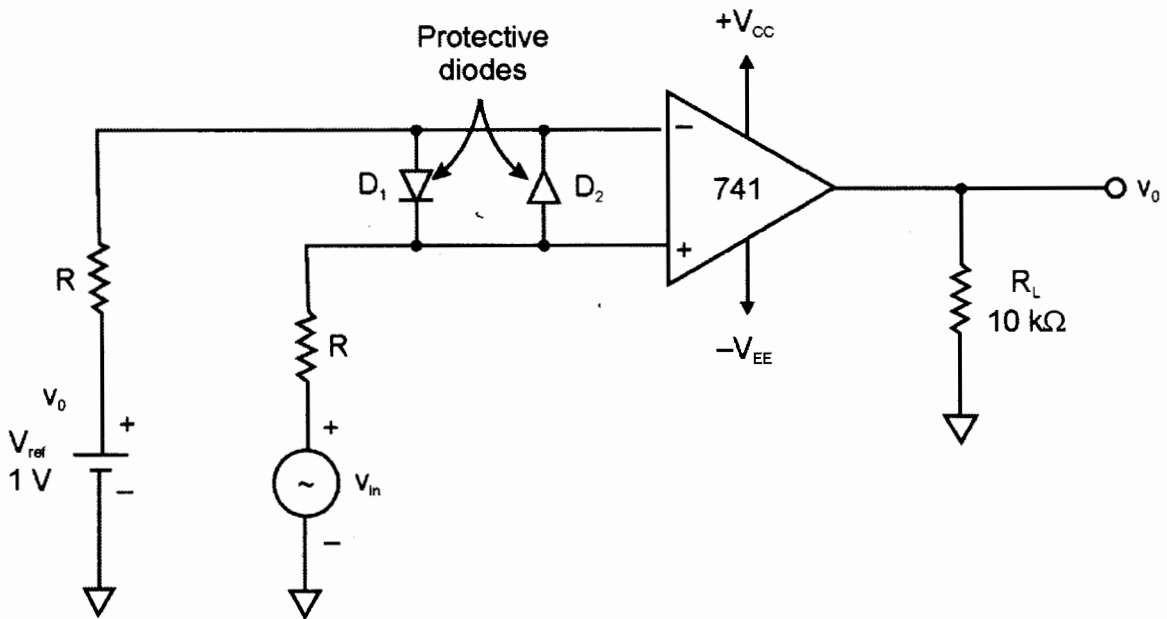


Figure-1

- (f) Consider a constant voltage source with 10 V and series internal resistance of 100 ohm. Calculate its equivalent to a current source.
- (g) Define Ohmic region in FET.
- (h) If α of a transistor changes from 0.981 to 0.987, Find the percentage change in β ?
- (i) Why triggering circuit is needed in CRO?
- (j) List the four specifications of unregulated Power Supply.

Section-B

2. Attempt any 5 questions.

(10×5=50)

(a) Explain input and output characteristics of the following:

(i) Zener Diode

(ii) Varactor Diode

(b) (i) Explain the working of a Common Base circuit with its circuit diagram.

(ii) What is a well-designed voltage divider biasing (VDB) circuit?

(c) (i) Explain how the input impedance of an amplifier can load down the ac source.

(ii) Explain the Transconductance Curve of a JFET.

- (d) (i) Draw the schematic of Self-Biasing JFET amplifier.
- (ii) Explain the CMOS inverter circuit working operation.
- (e) Explain
 - (i) Integrator circuit using OP-AMP
 - (ii) Summing Amplifier using OP-AMP
 - (iii) Zero crossing detector using OPAMP
- (f) Explain & Calculate the Voltage Gain, Input Impedance and Bandwidth for an Inverting Negative Feedback Amplifier.
- (g) Explain the characteristics of Digital Voltmeter Systems.
- (h) (i) Explain all Oscilloscope Controls with one example.
- (ii) How do you measure power supply performance? Explain.

Section-C

Attempt any two questions.

(15×2=30)

3. (i) For a half wave rectifier derive an expression for ripple factor.
- (ii) Explain the function of the circuit of fig. 2 and draw the output waveform.

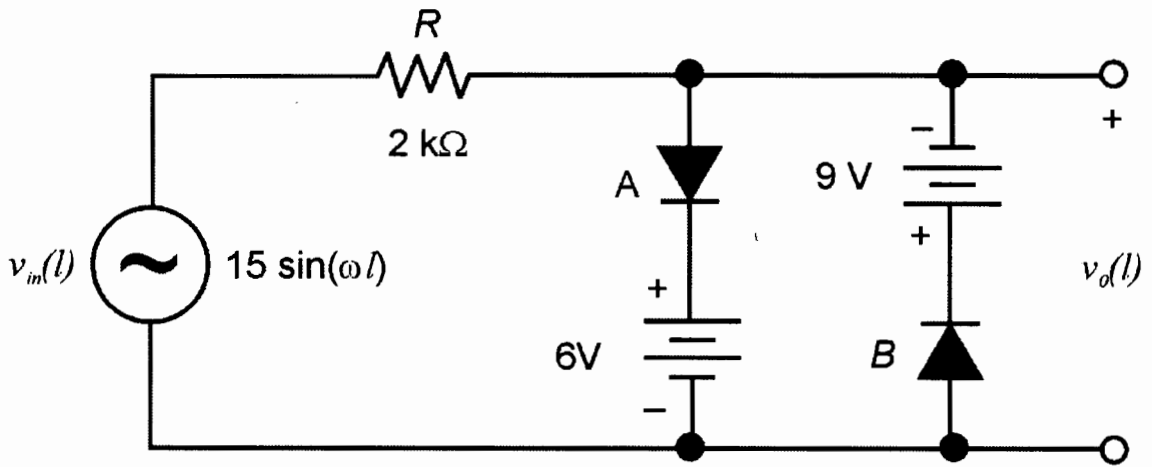


Fig-2.

4. (i) Draw the CE configuration circuit of BJT and explain its input and output characteristics.
- (ii) Describe the working operation of enhancement mode and depletion mode MOSFET. Also derive an expression for g_m of JFET configuration.

5. (i) Draw the block diagram and equivalent circuit of an op-amp. Explain ideal characteristics of an op-amp.
- (ii) Explain briefly functions of the following blocks in CRO :
- (a) Deflection Amplifier
 - (b) Cathode Ray Tube