(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.

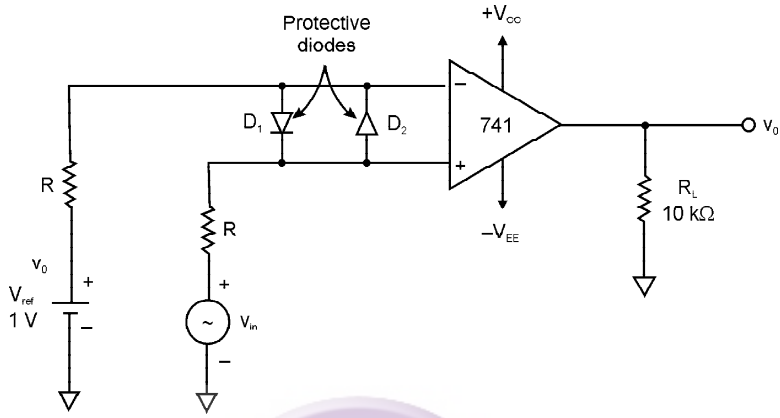

Figure-1

(f) Consider a constant voltage source with 10 V and series internal resistance ol 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 JFFT 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.

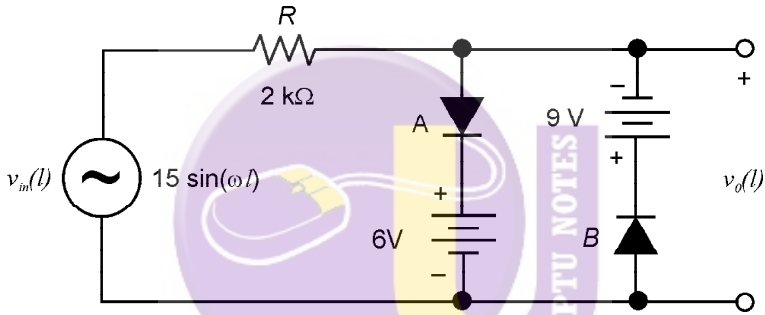

Fig-2.

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 Rax Tube