Printed Pages – 6

1015

B.Tech. Examination, 2016

(Second Semester)

(ME & EC Branch)

Paper - III

ELECTRONICS ENGINEERING

Time Allowed : Three Hours

Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

Q. 1. (a) Draw V-I characteristics of P-N Junction diode, Ideal diode and explain it. **10**

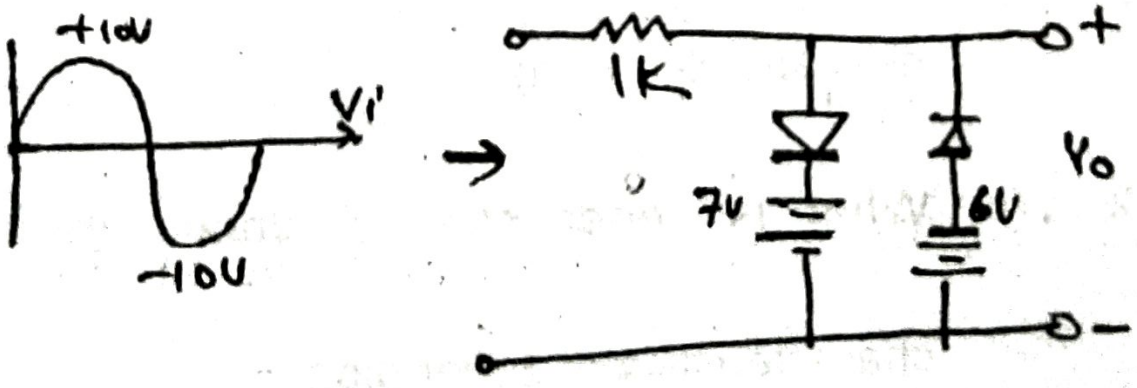
(b) Explain the P-N junction as rectifier. Draw it neat and clean diagram. **10**

Q. 2. (a) What is zener effect. Explain the V-I characteristics of zener diode. **10**

(b) A half wave rectifier is used to supply 10 Volt dc to a resistive load of 400 Ω. If the crystal diode has a forward resistance of 20 Ω, determine the value of ac voltage supplied to the circuit. **10**

Q. 3. (a) Explain the CE, CB, CC configuration. Draw its ckt diagram. **10**

(b) Find the O/P wave shape in following ckt. **10**



Q. 4. (a) Explain working principle and construction of JFET. Define pinch off voltage. **10**

(b) For an intrinsic semiconductor with energy gap width eg = 0.7 eV. Determine the position of the Fermi level at 300 K if m_n = 6 me. Also calculate the density of hole and electron at 300 K, where KT = 0.026 eV. **10**

Q. 5. (a) What do you understand by Ideal and practical operational amplifier. Also draw the non-inverting configuration. **10**

(b) Explain the enhancement type MOSFET. Draw its characteristics. 10

Q. 6. (a) Simplify the boolean function F with don't care condition in POS. 10

$F(w, x, y, z) = \Sigma(0, 1, 2, 3, 7, 8, 10)$

$d(w, x, y, z) = \Sigma(5, 6, 11, 15)$

(b) Define basic gate and universal logic gates implement OR, AND gates using only NOR gates. 10

Q. 7. (a) Explain the working principle of CRO and how can measurement of voltage, current, phase using CRO. 10

(b) Determine the output wave form for the network and calculate the output dc level and required PIV of each diode. 10

Q. 8. Write short note on any three of following : 20

(i) Clipper and clamper ckt

(ii) Fixed and self biasing JFET amplifier

(iii) Working principle of digital voltmeter

(iv) Full wave bridge rectifier

(v) Full wave centre tapped rectifier