Jaypee University of Information Technology
MAKEUP EXAMINATION -2016
BT/BTDD IV Semester

Subject code: 15B11EC411   MAX. MARKS: 25
Subject name: Basic electronics
Course Credits: 04   MAX. TIME: 1Hr. 30min.

All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1 a) The maximum value of a sinusoidal alternating current of frequency 50Hz is 30A. Write the equation for instantaneous value of the alternating current. Determine its value at 4ms and 20ms.
b) Explain the working of half wave rectifier.

(2+3)

Q2 a) Why we use biasing circuit in transistor and what is need for stabilization?
b) Determine the intrinsic carrier concentration of germanium if its intrinsic resistivity at 300K is 0.37Ωm. Given that the electron and hole mobilities are 0.38m^2/Vs and 0.15m^2/Vs, respectively.

(2+3)

Q3 Explain the working of transistor.

(5)

Q4 a) An unloaded zener voltage regulator has an input source voltage of 20V, a series resistance of 300Ω, and a zener voltage of 12V. If the series resistor has a tolerance of $\pm20\%$, what is the maximum zener current?
b) The primary winding of the step-down transformer of a bridge rectifier is connected to an ac mains (220V, 50Hz). It uses silicon diodes with V_T=0.3V. If it is desired to obtain a maximum dc voltage of 20V from this circuit, find the turns ratio of the transformer.

(2+3)

Q5 a) When the emitter voltage of a transistor connected in CB configuration is changed by 320mV, its emitter current changes by 5mA. Calculate the dynamic input resistance of the transistor.
b)   Explain the working of positive and negative clamper circuit.

(2+3)