

Total No. of Questions : 4]

SEAT No. :

PF5

[Total No. of Pages : 2

APR-26/FE/Insem-5

F.E. (Insem)

BASIC ELECTRONICS ENGINEERING

(2019 Pattern) (Credit System) (Semester-II) (104010)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates;

- 1) Answer Q.1 or Q.2 and Q.3 or Q.4.
- 2) Figures to the right indicates full marks.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Assume suitable data, if necessary.

Q1) a) Define the following: [5]

- i) Intrinsic Semi-conductor
- ii) Extrinsic Semi-conductor
- iii) Doping
- iv) Drift Current in Semi-conductor
- v) Diffusion current in Semi-conductor

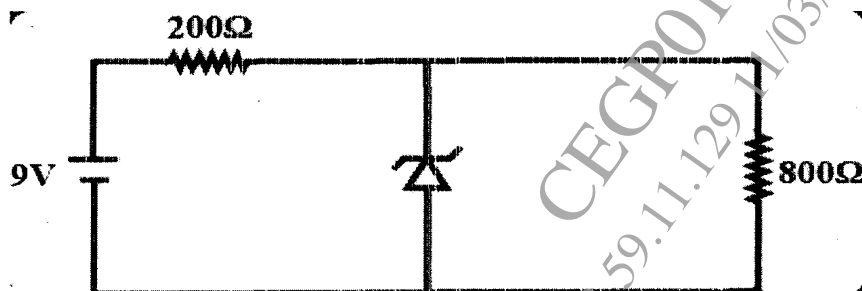
b) For full wave bridge rectifier applied input voltage is $4\sin\omega t$. Calculate average output voltage, RMS voltage & PIV rating of the diode used. [5]

c) Compare LED & Photo diode. [5]

OR

Q2) a) Differentiate between Active & Passive components. [5]

b) Determine the current through zener diode for the circuit shown in figure is: (Given: zener diode break down voltage $V_z = 5.6V$) [5]



c) Draw the circuit diagram of center tap rectifier and explain its operation with suitable waveforms. [5]

P.T.O.

- Q3)** a) Draw the circuit diagram of CE amplifier and explain the function of each component. [5]
- b) For N Channel E MOSFET [5]
- i) Draw the drain characteristics and mark the various operating regions.
- ii) Draw the transfer characteristics and define threshold voltage V_{th} .
- c) Draw the circuit diagram of: [5]
- i) Non-inverting amplifier and write the expression for V_o .
- ii) Voltage follower and write the expression for V_o .

OR

- Q4)** a) Draw the circuit diagram of BJT as switch and explain its operation in detail. [5]
- b) Explain construction of N channel E MOSFET with suitable diagram and draw its symbol. [5]
- c) For inverting amplifier using Op Amp, $R_F = 6K\Omega$, $R_1 = 2K\Omega$, Supply is +10V & -10V. Calculate the output voltage V_o for [5]
- i) $V_{in} = 2V$
- ii) $V_{in} = 4V$

Justify your answers.

