Total No. of Questions : 4]

SEAT No. : ____

PC378

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[6358]-109
F.E. (Insem)
BASIC ELECTRONICS ENGINEERING
(2019 Pattern) (Semester - I) (104010)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4.***
2) ***Assume suitable data if necessary.***

Q1) a) Explain forward biasing of P-N Junction diode with its V-I characteristics. **[5]**

b) Compare half wave, center tapped transformer full wave rectifier and Bridge full wave rectifier. **[5]**

c) Draw and explain voltage regulator circuit using zener diode. **[5]**

OR

Q2) a) What is depletion region? Explain the effect of forward biasing and reverse biasing of P-N Junction diode on depletion region. **[5]**

b) For Bridge full wave rectifier, applied input voltage is 10Sin wt, calculate average output voltage, RMS voltage and PIV rating of diode used. **[5]**

c) Explain principle of operation and construction of photodiode. List its applications. **[5]**

Q3) a) Explain BJT as an amplifier in common Emitter configuration. **[5]**

b) Explain construction and operation of N-channel EMOSFET. **[5]**

c) For an inverting amplifier using Op-Amp if $R_f = 10k\Omega$, $R_1 = 1k\Omega$ and $V_{cc} = \pm 15V$ calculate 'V_o' for $V_{in} = 100$ mv. **[5]**
Comment on the phase relation between input and output voltage.

OR

Q4) a) Explain regions of operation of transistor with respect to biasing conditions. For BJT, if $J_B = 10\ \mu A$ and $I_E = 1mA$ **[5]**
Calculate value of I_c and β(Beta).

b) Compare BJT and MOSFET. **[5]**

c) Draw and explain Op-amp as inverting amplifier. Write the expression for voltage gain. **[5]**

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