**Total No. of Questions : 4]** SEAT No. : PD5 [Total No. of Pages : 2 [6408]-105 F.E. (Insem) **BASIC ELECTRONICS ENGINEERING** (2019 Pattern) (Semester - II) (104010) [Max. Marks: 30 Time : 1 Hour] Instructions to the candidates: Answer Q.1 or Q.2, Q.3 or Q.4. 1) 2) Neat diagrams must be drawn wherever necessary. Figures to the right indicate full marks. 3) Assume suitable data if necessary. *4*) Explain drift current & diffusion current in semiconductor. *Q1*) a) [5] For full wave bridge rectifier applied input voltage is 4sinot. Calculate b) average output voltage, RMS voltage & PIV rating of the diode used. [5] c) Which diode can be used as Light Source Draw it's symbol. In which bias it will be operated? List any two applications for the same other than the Light Source. [5] Differentiate between Active & Passive components. *Q2*) a) [5] Determine the current through zener diode for the circuit shown in figure b) is : (Given : zener diode break down voltage Vz = 5.6V).  $200\Omega$ **9**V Draw the circuit diagram of center tap rectifier and explain its operation c) with suitable waveforms. [5] *P.T.O.* 

Compare between CE, CB & CC configurations. *Q3*) a) [5] For N Channel E MOSFET b) [5] Draw the drain characteristics and mark the various operating regions. i) Draw the transfer characteristics and define threshold voltage  $V_{th}$ . ii) Draw the circuit diagram of [5] c) Non-inverting amplifier and write the expression for Vo. i) Voltage follower and write the expression for Vo. ii) OR What is the application of BJT in active region. Explain with suitable **Q4)** a) diagram function of each component. [5] Explain construction of N channel E MOSFET with suitable diagram and b) draw its symbol. [5] For inverting amplifier using Op Amp,  $RF = 6K\Omega$ ,  $R1 = 2K\Omega$ , Supply is c) +10V & -10V. Calculate the output voltage Vo for [5] Vin = 2Vi) Another property of the state Vin = 4Vii) Justify your answers

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