Total No. of Questions – [4] Total No. of Printed Pages 02

G.R. No.	

Paper Code - U117-104 A (T2)

October
~~SEPTEMBER~~ 2017 / IN - SEM (T2)

F. Y. B.TECH. (COMMON) (SEMESTER - I)

COURSE NAME: Basic Electronics Engineering

(2017 PATTERN)

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

(*) Instructions to candidates:
1) **Answer Q.1 OR Q.2, Q.3 OR Q.4**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q1 **a)** Draw and explain the operation of N channel Enhancement-MOSFET with its characteristics. **[6]**

b) Draw and Explain working of SCR with V-I characteristics. **[6]**

c) For N-channel Enhancement -MOSFET $ID_{(on)}$ =500mA at VGS=10V and Vth=1V. Find ID when VGS=5V. **[4]**

OR

Q2 **a)** Draw and Explain working of TRIAC with V-I characteristics. **[6]**

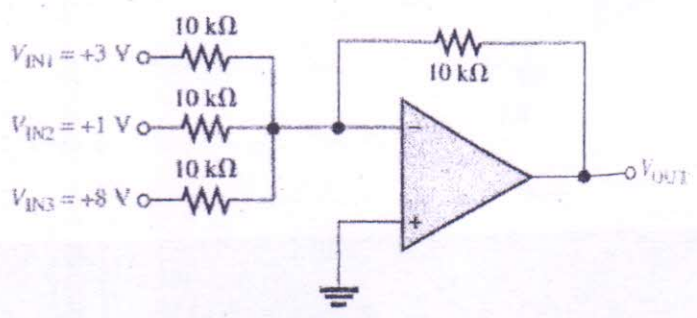
b) Explain controlled full wave rectifier using SCR with neat diagram and waveforms **[6]**

c) Compare features of BJT and MOSFET. Draw symbols of P-Channel and N-Channel Enhancement type MOSFET. **[4]**

Q3 **a)** Draw the circuit of close loop inverting amplifier. Derive the expression for gain of inverting amplifier. Draw input & output waveforms. **[6]**

b) Draw the block diagram of Op-Amp. Label the blocks. State the function of each block. **[4]**

c) Determine the output voltage in following Figure: **[4]**



OR

Q4 a) Draw the circuit of close loop non inverting amplifier. Derive the expression for gain of non inverting amplifier. Draw input & output waveforms. [6]

b) Explain following parameters of op-amp
a) Slew rate
b) Input offset current & Input bias current. [4]

c) A certain op-amp has an differential voltage gain of 100,000 and a Common-mode gain of 0.2. Determine the CMRR and express it in decibels. [4]