Enroll. No. _____

SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY

BE - SEMESTER–I • MID SEMESTER-II EXAMINATION – WINTER 2018

SUBJECT: BASIC ELECTRONICS (3110016) (IT)

DATE: 21-12-2018 TIME: 02:00 pm to 3:30 pm TOTAL MARKS:40

Instructions: 1.Q. 1 is compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

Q.1 (a) Give Answer with most suitable/correct option. [05]

(i) The number of depletion layers in a transistor is/are _____.
(a)one (b) three (c)two (d) four

(ii) A JFET is also called _____ transistor.
(a) unijunction (b) Bipolar (c) Unipolar (d) Both a and b

(iii) In p-channel JFET, the charge carriers responsible for drain current flow are _____.
(a)Electrons (b) holes (c)both a and (d)NONE

(iv) Which biasing method is most suitable for Q-point stability?
(a) Fixed Bias (b) Voltage Divider Bias
(c) Collector to Base Bias (d) Emitter Bias

(v) In which region of operation, transistor can operate as an amplifier?
(a)Cutoff (b)Saturation (c)Active (d)Inverse

(b) Explain and draw the circuit of transistor as a switch. Also indicate its application. [05]

Q.2 (a) State the three regions of BJT and explain construction characteristics of each region. [06]

(b) Draw the structure of n-channel JFET and explain its working. [05]

(c) Draw the structure of n-channel enhancement type MOSFET. Also, draw its drain characteristics. [04]

OR

Q.2 (a) How to draw DC load line on the output characteristics of CE transistor? Also, locate Q-point on DC load line. [06]

(b) Draw the structure of n-channel depletion type MOSFET and explain its working. [05]

(c) Draw drain characteristics and transfer characteristics of n-channel JFET. [04]

Q.3 (a) List the Biasing methods of transistor. Draw and explain the circuit of voltage divider biasing. [06]

(b) Draw T-model and Π – model of transistors for small signal ac analysis. [05]

(c) Write Short Note on Tunnel diode [04]

OR

Q.3 (a) What do you mean by thermal instability in transistor? State the need of biasing the transistor. Also, draw and explain Fixed Bias method of transistor biasing. [06]

(b) Draw and explain input output characteristics of CE transistor configuration. [05]

(c) Explain the basic principles of operation of LED and Photodiode. [04]