May - June
2010

Total No. of Questions : 6] [Total No. of Printed Pages : 3

[3761]-119

F. E. (Semester - II) Examination - 2010
BASIC ELECTRONICS ENGINEERING
(June 2008 Pattern)

Time : 2 Hours] **[Max. Marks : 50**

Instructions :

(1) You are advised to attempt not more than 3 questions.
(2) Black figures to the right indicate full marks.
(3) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.
(4) Neat diagrams must be drawn wherever necessary.
(5) Assume suitable data, if necessary.

Q.1) (A) Explain with neat circuit diagram and graphs the Way of Biasing P-N Junction Diode. **[05]**

(B) Give and explain any three Specifications of Zener Diode. **[03]**

(C) With the help of neat diagram explain Operation of a n-channel JFET. Sketch a typical output characteristics for the same. **[05]**

(D) Derive the expression for α interms of β. **[04]**

OR

Q.2) (A) For a Centre-tap Transformer Full Wave Rectifier derive the expression for following parameters :

(1) I_{dc}

(2) V_{dc}

(3) P_{dc}

(4) Ripple Factor **[05]**

(B) Explain the basic principle of working of LED with necessary diagram. **[03]**

(C) Draw construction diagram and explain working with the help of Transistor Equivalent Circuit of SCR. Also draw V-I Characteristics. **[05]**

(D) Determine weather or not the transistor shown in fig. 2(D) is in Saturation. Assume $V_{CE(sat.)} = 0.2V$. **[04]**

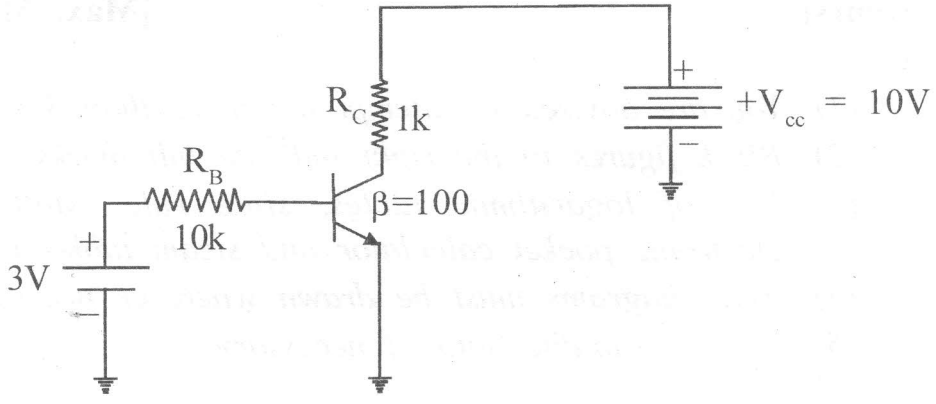

Fig. 2(D)

Q.3) (A) Draw neat circuit diagram of an ideal differentiator and explain its operation. Draw Output Waveforms for Sinusoidal and Square Wave Inputs. Also give any two applications of the same. **[08]**

(B) What is Shift Register ? What are the modes of operation in a Shift Register ? Explain the operation of 4-bit PIPO Shift Register. **[05]**

(C) Draw and explain the circuit diagram of CMOS NOR Gate. **[04]**

OR

Q.4) (A) Write short note on RC Phase Shift Oscillator. Determine the value of R_f and Frequency of Oscillations if R = 10kΩ and C = 0.001μF. **[08]**

(B) What is the difference between Half Adder and Full Adder ? Explain in detail the working of Full Adder with the help of truth table and give equations for Sum and Carry. **[05]**

(C) Write short note on Digital IC Classification. **[04]**

Q.5) (A) Draw and explain the block diagram of Alarm Annunciator. **[04]**

(B) With the help of neat circuit diagram explain construction and working of LVDT. **[04]**

(C) Write short note on Superheterodyne FM Receiver. **[08]**

OR

Q.6) (A) What is the need of Modulation ? Explain working of AM Transmitter with the help of neat block diagram. **[08]**

(B) What is RTD ? Draw its construction diagram and explain its operation. **[04]**

(C) Write short note on **any one** : **[04]**

(1) Electronic Weighing Machine

(2) CNC Machine
