

Total No. of Questions : 6]

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[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.

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

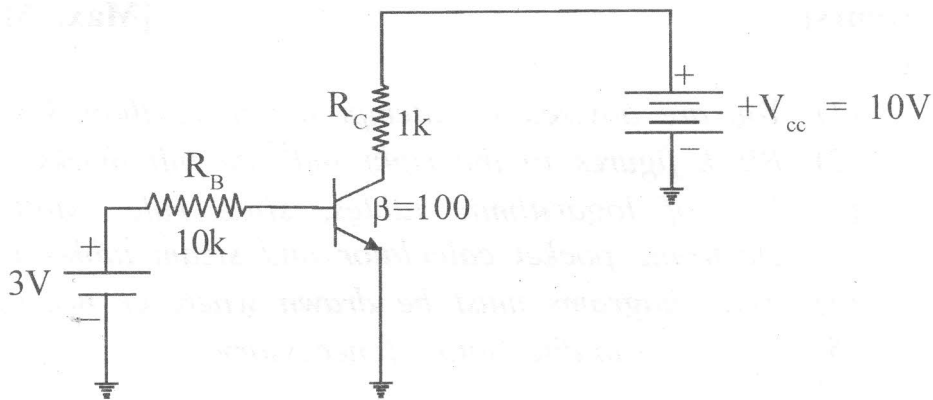


Fig. 2(D)

- 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 $R = 10k\Omega$ and $C = 0.001\mu F$. [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
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