No. of Printed Pages : 3 **BIEL-001**

BTCSVI / BTECVI / BTELVI

01782

Term-End Examination

December, 2011

BIEL-001 : BASICS OF ELECTRONICS ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *1. Attempt **any five** questions.*

*2. All questions carry **equal** marks.*

1. (a) What do you understand by semiconductors ? Explain the properties of semiconductor materials. 7

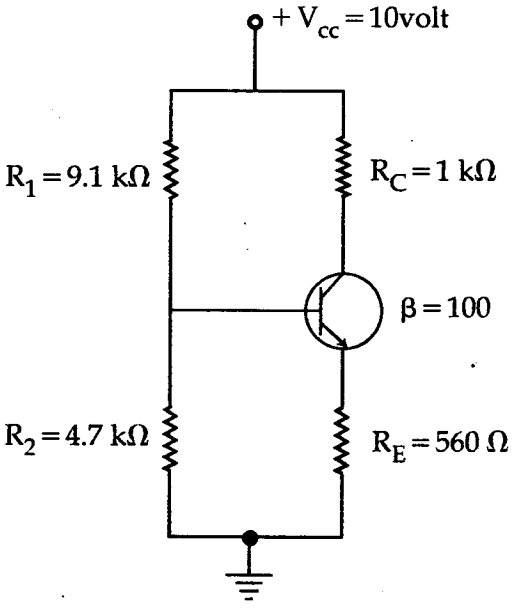
(b) Draw and explain the energy band model of semiconductors. 7

2. (a) What do you understand by excess carriers in semiconductors ? Also explain continuity equation. 7

(b) Explain the construction and working of PIN diode with neat diagram. 7

3. (a) Derive the relation between α and β of BJT. 7

(b) Calculate the Q point for the voltage divider bias circuit shown in figure (1). 7
Assume that the Transistor is a silicon transistor with $\beta = 100$



4. (a) Explain with neat diagram the Ebers Moll model for BJT. 7

(b) Explain the construction and principle of operation for N channel JFET. 7

5. (a) Explain the construction and working of Depletion type MOSFET. 7

(b) What do you understand by CMOS ? Also explain the frequency limitation of transistor. 7

6. (a) What are rectifiers ? Explain the working of Bridge rectifier with output waveforms. 7

(b) Explain with neat diagrams the BJT configurations. 7

7. Attempt ***any two*** parts of the following. (Short Notes) **2x7=14**

(a) Tunnel diode

(b) Voltage Multipliers

(c) Phototransistors