No. of Printed Pages : 3

**BIEL-001**

00611

# B. TECH
## BTCSVI / BTECVI / BTELVI
### Term-End Examination
### June, 2013

## BIEL-001 : BASICS OF ELECTRONICS ENGINEERING

*Time : 3 Hours* *Maximum Marks : 70*

***Note :*** *(i) Attempt **any seven** questions.*
*(ii) Assume missing data if any.*
*(iii) Use of scientific calculator is **permitted**.*

**1.** (a) With the help of energy band diagram, explain why some materials behave as insulators, some as good conductors and others as semiconductors. 5

(b) Define : 5

(i) Mean life time of a carrier

(ii) Diffusion length

**2.** What is Zener effect ? Explain the function of a Zener diode and draw its characteristics. **10**

3. (a) How does a tunnel diode differ from a conventional P-N junction diode ? 5

(b) Determine the current flowing in the circuit shown in fig. (i). Also determine the potential of point A. 5

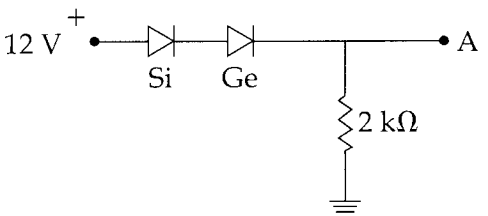


Fig. (i)

4. For the common emitter circuit of fig. (ii), calculate the values of $I_B$, $I_C$, $I_E$ and $V_{CE}$. Take $\beta = 50$ and neglect $V_{BE}$. 10

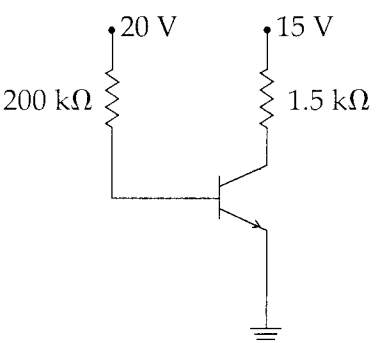


Fig. (ii)

5. With neat sketch, describe the construction and working of UJT. Define the term "Intrinsic stand-off ratio". 10

6. (a) Describe the basic principles of photo transistors. 5

(b) Draw the equivalent circuit of UJT and explain all parameters. 5

7. Describe briefly the construction and operation of a MOSFET in depletion region. 10

8. (a) What do you mean by ripple factor and peak inverse voltage ? 5

(b) What is Bleeder resistance ? Why it is used in L-C filter ? 5

9. Draw the circuit diagram and explain the working of full wave rectifier using semi-conductor diodes. 10

10. Write short notes on *any two* : 2x5=10

(a) Varactor diode

(b) Voltage multipliers

(c) LDR