

S.B.Roll No. _____

Basic Electronics
2nd Exam/ECE/0664/Dec 2011

Duration: 3 Hrs.

M.Marks: 75

Section: A

Note: Attempt all Questions

15*1=15 Marks

Do as directed

- (i) The forces holding the silicon atoms together in a crystal are called _____ bonds.
- (ii) When a voltage is applied to an intrinsic semiconductor which is at room temperature electrons move to the _____ terminal and holes move to the _____ terminal.
- (iii) Avalanche breakdown in a semiconductor occurs when _____ exceeds a certain value.
- (iv) When forward bias is applied to a junction diode it decreases the _____.
- (v) In a PNP transistor with normal bias the emitter-base junction is _____ and the collector-base junction is _____.
- (vi) Compare to a CB amplifier, the CE amplifier has _____ current amplification.
- (vii) The operation of JFET involves a flow of _____ carriers.
- (viii) A good biasing circuit should stabilize the collector current against temperature variations. (true/ False)
- (ix) In a certain biasing circuit, V_{CC} and V_{CE} are equal. This is because the transistor is heavily conducting. (True/False)
- (x) In an amplifier, the coupling capacitors are used to prevent _____ mixing with input or output.
- (xi) The input impedance of CE amplifier is extremely _____.
- (xii) MOSFET stands for _____.
- (xiii) A Zener diode has a sharp breakdown at _____ voltage.
- (xiv) A transistor is said to be in a quiescent state when _____ signal is applied to the input.
- (xv) When a normal atom loses an electron, the atom becomes a _____ ion.

Section: B

Note: Attempt any Six Questions

- i. Explain why the temperature coefficient of resistance of a semiconductor is negative?
- ii. What is an "Ideal Diode"? Draw its V-I characteristics.
- iii. Draw the circuit diagram of full wave rectifier. Explain its working.
- iv. Explain the basic concept of bipolar transistor.
- v. Explain the term 'channel' in a JEFT.
- vi. Why a transistor should be biased? Explain
- vii. Explain the difference between dc load line and ac load line.
- viii. Give the applications of FET.

Section: C

Note: Attempt any three Questions

1. Describe the working of series inductor filter with the help of neat diagram.
2. Draw the circuit diagram of a single stage amplifier. State the functions of each component used in this circuit.
3. Explain the Common emitter input characteristics of NPN transistor.
4. Explain the following (attempt any two)
 - a. Operation of FET.
 - b. P type Semiconductor.
 - c. Drift and Diffusion current.