DPP-2964
First Year B. Sc. (Sem. II) Examination
March / April - 2016
Electronics : Paper - I
(Semiconductor Devices)

Time : Hours] [Total Marks : 50
Instructions :

(1) Figures on the right indicate full marks
(2) All symbols and abbreviations have their usual meaning.
(3) Non-programmable calculators are allowed.
(4) Assume data if necessary.

1 Answer in short :
   (a) Why transistor is called a bipolar device?
   (b) What is a bond in solids? Give its type.
   (c) Define forbidden energy gap.
   (d) Differentiate BJT and UJT

2 (a) What is semiconductor? Draw the energy band
diagram of intrinsic and Extrinsic semiconductor.
   (b) Compare the V-I characteristics of silicon and
germanium diode.

OR

2 (a) Draw and explain common emitter input and output
characteristics of transistor.
   (b) Compare FET and BJT.
3. (a) Discuss the BJT current components. Why the width of the base in a BJT kept very narrow. Why is the collector region of BJT very large?

(b) Define $\alpha$ and $\beta$ of a transistor.

OR

3. (a) Explain the construction and working of a UJT.

(b) A UJT has an interbase resistance of $10K\Omega$ and $R_{BI} = 6K\Omega$. Find the intrinsic stand off ratio $\eta$ and peak point voltage $V_P$.

4. Write short notes on: (Any TWO)

(a) N-type semiconductor

(b) Majority and minority charge carriers

(c) Avalanche breakdown

(d) Photo-transistor.