



DPP-2964

First Year B. Sc. (Sem. II) Examination

March / April - 2016

Electronics : Paper - I

(Semiconductor Devices)

Time : Hours]

[Total Marks : 50

Instructions :

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="FIRST YEAR B. SC. (SEM. 2)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="ELECTRONICS : PAPER - I"/>	<input type="text"/>
Subject Code No. : <input type="text" value="2"/> <input type="text" value="9"/> <input type="text" value="6"/> <input type="text" value="4"/>	<input type="text"/>
Section No. (1, 2,.....): <input type="text" value="Nil"/>	<input type="text"/>
	Student's Signature

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

- | | | |
|---|---|----|
| 1 | Answer in short : | 8 |
| | (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. | 10 |
| | (b) Compare the V-I characteristics of silicon and germanium diode. | 4 |

OR

- | | | |
|---|---|----|
| 2 | (a) Draw and explain common emitter input and output characteristics of transistor. | 10 |
| | (b) Compare FET and BJT. | 4 |

- 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? 10
- (b) Define α and β of a transistor. 4

OR

- 3 (a) Explain the construction and working of a UJT. 10
- (b) A UJT has an interbase resistance of $10K\Omega$ and $R_{BI} = 6K\Omega$ Find the intrinsic stand off ratio η and peak point voltage V_p ? 4
- 4 Write short notes on : (Any TWO) 14
- (a) N-type semiconductor
- (b) Majority and minority charge carriers
- (c) Avalanche breakdown
- (d) Photo-transistor.