

B.Sc.- I (NEP) Semester-I
BSCEL501 - Core - Electronics - Semiconductor Devices and Circuits

P. Pages : 2

Time : Three Hours



GUG/S/25/15921

Max. Marks : 40

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- Notes : 1. All questions are compulsory and carry equals marks.
2. Draw neat and well labelled diagram wherever necessary.

1. a) Draw the V-I Characteristics of forward biased p-n junction and explain it. 4
b) Explain the working of full wave rectifier using centre tap transformer. 4

OR

- c) Explain the clipper with suitable diagram. 4
d) Explain the working of Zener diode as a shunt regulator. 4
2. a) Explain the working of a NPN transistor. 4
b) Explain the CB and CE configuration of transistor with suitable diagram. 4

OR

- c) Explain the output characteristics of CE configuration with suitable diagram. 4
d) Explain the DC load line in CE configuration of transistor. 4
3. a) Explain the working of a N-Channel JFET. 4
b) Define 4
i) Transconductance
ii) Amplification Factor.

OR

- c) Explain the working of DE-MOSFET in Enhancement mode. 4
d) Explain the working of JFET as an amplifier with suitable diagram. 4
4. a) Explain the working of a UJT. 4
b) Draw the V-I characteristics of UJT and explain it 4

OR

- c) Explain the construction and working of SCR. 4
d) State the applications of triac and draw its symbol. 4

5. Attempt **any eight** of the followings :

1x8

- a) What is cut-off voltage?
- b) Define peak inverse voltage.
- c) State the advantage of Bridge rectifier.
- d) State the application of transistor.
- e) Draw the symbol NPN and PNP transistor.
- f) Draw the CC configuration of transistor.
- g) Differentiate between the BJT and FET.
- h) Draw the symbol of DE-MOSFET.
- i) Draw V-I Characteristic of E-only MOSFET.
- j) Draw the symbol of DIAC.
- k) State the application of DIAC.
- l) Differentiate between SCR and TRIAC.
