M.Sc. (Electronics) (NEP Pattern) Semester-I

NEP-31 / PSCELT101-Paper-I : Semiconductor Devices and Electronics Circuits

P. Pages : 2 **GUG/S/25/15087**

Time : Three Hours * 2 7 3 1 * Max. Marks : 80

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

Either:

1. a) Explain the construction and working of BJT. **8**

b) Draw I/P and O/P V-I characteristics of BJT and Explain. **8**

OR

c) Explain the analysis of transistor amplifier in CE configuration using h-parameters. **8**

d) Explain the need of bias stabilization. **8**

Either:

2. a) Explain working of RC coupled amplifier and draw the frequency response curve. **8**

b) Draw the circuit diagram of transformer coupled amplifier and explain its working. **8**

OR

c) Describe high frequency performance of Bipolar junction transistor. **8**

d) Differentiate between RC couple and transformer couple amplifier. **8**

Either:

3. a) Draw the circuit diagram of transformer couple class A power amplifier and explain its working. **8**

b) Derive the expression for the efficiency of transformer coupled Class A power amplifier. **8**

OR

c) Explain the working of class B push pull amplifier with neat circuit diagram. What is cross-over distortion: How doe's it can be removed. **8**

d) What is power amplifier? State difference between single tuned amplifier and double tuned amplifier. **8**

Either:

4. a) Explain the construction and working of phase shift oscillator. State its advantages. **8**

b) Explain the construction and working of Wein bridge oscillator. State its advantages and disadvantages. **8**

OR

c) Draw the circuit diagram of transistor Colpitts oscillator circuit and explain its working. **8**

d) Explain the working of crystal oscillator and state its advantages and disadvantages. **8**

5. Solve the followings.

a) Describe cascaded transistors? **4**

b) State and explain the drawbacks of RC coupled amplifier. **4**

c) Explain the effect negative feedback. **4**

d) Explain the construction of Hartley Oscillator. **4**

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