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

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

P. Pages : 2 **GUG/W/24/15087**

Time : Three Hours * 5 9 7 0 * Max. Marks : 80

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

Either:

1. a) Explain the action of bipolar junction transistor. **8**

b) Explain the CB, CC and CE configurations of a transistor. **8**

OR

c) Explain terms thermal instability and bias stabilization of transistor. **8**

d) Explain analysis of transistor as an amplifier using h-parameter. **8**

Either:

2. a) Explain frequency response of RC-coupled amplifiers. **8**

b) Explain application of BJT at high frequency. **8**

OR

c) Explain working of transformer coupled amplifier. **8**

d) Write down difference between single stage and multistage amplifier. **8**

Either:

3. a) Explain working of transformer coupled class-A power amplifier. **8**

b) Explain class-B push pull amplifier. **8**

OR

c) Write down principle of feedback amplifies, Explain difference between positive and negative feedback. **8**

d) Explain effect of negative feedback in terms of gain stability. **8**

Either:

4. a) Explain working of Phase Shift Oscillators. **8**

b) Draw neat circuit diagram of Wien's Bridge oscillator and explain its working. **8**

OR

c) Write down difference between Hartley and Colpitts oscillators. **8**

d) Explain the working of crystal oscillators. **8**

5. Write short notes on each of the following:

a) Write down application of transistor. **4**

b) Write a short note on multistage amplifier. **4**

c) Write a short note on classification of amplifier. **4**

d) Explain working of crystal oscillators. **4**

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