M.Sc.(Physics) CBCS Pattern Semester-I

PSCPHYT03 - Core Paper-III : Electronics

P. Pages : 2 **GUG/W/23/11181**

Time : Three Hours * 6 2 0 8 * Max. Marks : 80

Either:

1. a) Explain construction and working of n-channel JFET. **8**

b) Explain construction and working of SCR. Discuss the characteristics of a silicon controlled rectifier with the help of a circuit diagram. **8**

OR

e) Explain construction and working of n-channel enhancement MOSFET. **8**

f) Discuss in details Schottky and Tunnel diodes. **8**

Either:

2. a) Explain construction and working of RC coupled amplifier. **8**

b) What is oscillator? Draw circuit diagram of Hartley oscillator and obtain an expression for frequency of oscillator. **8**

OR

e) Draw circuit diagram of clipping and clamping and explain its working. **8**

f) Explain working of JFET as an amplifier. **8**

Either:

3. a) Explain working of OPAMP as a differentiator and integrator. **8**

b) Explain Half and Full adder with diagram and its truth table. **8**

OR

e) Explain working of operational amplifier as comparator and Schmitt trigger generator. **8**

f) Explain construction and working of sweep generator using SCR. **8**

Either:

4. a) Explain working of amplitude modulation & demodulation. **8**

b) Discuss microwave oscillators in details. **8**

OR

e) Explain working of cavity resonators in details. **8**

f) Explain digital (PCM) modulation in details. **8**

5. Attempt all of the followings.

a) Explain construction and working of photo transistor. **4**

b) Construct OR and AND gate using transistor. **4**

c) Discuss operational Amplifier as a inverting amplifier. **4**

d) Why modulation necessary in communication? Define frequency modulation. **4**

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