M.Sc. (Physics) (CBCS Pattern) First Semester

PSCPHYT03 - Core-III - Electronics Paper-III

P. Pages : 2 **GUG/W/18/11181**

Time : Three Hours * 3 2 8 4 * Max. Marks : 80

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1. EITHER:-

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

b) Discuss in details Schottky diode and Tunnel diode. **8**

OR

e) Write a short note on: **8**

i) Photo-diode

ii) Solar cell

f) Discuss in detail silicon controlled rectifier (SCR). **8**

2. EITHER:-

a) Explain in detail working of MOSFET as an amplifier. **8**

b) Explain construction and working of Zener regulated power supply. **4**

c) Explain in short working of RC coupled amplifier. **4**

OR

e) Write a short note on: **8**

i) Phase shift Oscillator.

ii) Hartley Oscillator.

f) Explain construction and working of clipping and clamping circuit. **8**

3. EITHER:-

a) Explain construction and working of Astable and monostable multi-vibrator using suitable time diagram. **8**

b) Explain working of OPAMP as a adder, integrator and differentiator. **8**

OR

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

f) Construct AND, OR, NOT and NOR by using NAND gates and NOR gates. **8**

4. EITHER:-

a) Explain digital pulse code modulation (PCM.). **8**

b) Discuss in detail, fundamentals of optical communication. **8**

OR

e) Explain working of magnetron and Gunn diode oscillator. **8**

f) Explain working of cavity resonator. **8**

5. Attempt all the followings.

a) Write short note on LCD. **4**

b) Explain need of feedback in amplifier. **4**

c) Explain working of operation amplifier as a comparator. **4**

d) Discuss demodulation. **4**

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