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

PSCPHYT11-4 - Paper-II (Core Elective E1.4) : Applied Electronics-I

P. Pages : 2 **GUG/S/23/11301**

Time : Three Hours * 1 4 6 9 * Max. Marks : 80

Either:

1. a) What is multivibrator? Compare monostable and astable multivibrators with suitable circuit diagrams. **8**

b) Explain inverting and non-inverting amplifiers. **8**

OR

e) Draw the block diagram of a typical operational amplifier and explain the function of each block. Also explain open loop configuration of Op-Amp. **8**

f) Define Barkhausen criteria for oscillations. Draw circuit diagram for weinbridge oscillator, explain it's working. **8**

Either:

2. a) What is modulation? Explain amplitude modulation. **8**

b) Discuss the use of antennas in microwave communication system. **4**

c) Explain in brief Fresnel zone problem with respect to microwave communication. **4**

OR

e) Explain the atmospheric effect on the propagation of microwave. **6**

f) Discuss ground reflection with respect to microwave communication. **4**

g) What is Demodulation? Explain demodulation of AM waves. **8**

Either:

3. a) Explain the working of R-2R ladder D/A converter with suitable diagram. **8**

b) Discuss read only memory (ROM) and random access memory (RAM). **6**

c) What is de-multiplexing. **2**

OR

e) What is microprocessor? Explain about stack and subroutines. **8**

f) Draw Pin diagram of IC 8085, microprocessor and labels all pins clearly. **8**

Either:

4. a) What is gunn effect? Discuss principle operation of gunn diode. **8**

b) Discuss the working of Helix travelling wave tables. **8**

OR

e) What is microwave devices? Explain Klystrons used as microwave devices. **8**

f) Write a note on IMPATT and TRAPATT diode. **8**

5. Attempt **all** the following.

a) Explain LC tunable oscillator. **4**

b) Write a note on detector components in microwave communication. **4**

c) Discuss assembly language programmes. **4**

d) Explain velocity modulation. **4**

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