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

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

P. Pages : 2 **GUG/W/22/11301**

Time : Three Hours * 2 0 2 5 * Max. Marks : 80

Either :

1. a) Draw the block diagram of a typical operational amplifier and explain the function of each block. **5**

b) Discuss the open loop configuration of operational amplifier. **3**

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

OR

e) State Barkhausen criterion for oscillations. Draw circuit diagram for phase shift oscillator, explain its working and obtain the frequency of the oscillator. **8**

f) Explain OP-AMP with negative feedback. discuss the effect of feedback on close loop gain and bandwidth. **8**

Either :

2. a) Discuss Fresnel zone problem and ground reflection with respect to microwave communication. **8**

b) Explain the atmospheric effect on the propagation of microwaves. Discuss the use of antennas in microwave communication system. **8**

OR

e) What is Modulation? Explain amplitude modulation. **8**

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

Either :

3. a) Draw the pin diagram of IC8085 microprocessor and labels all pins clearly. **8**

b) What is mean by microprocessor? Explain about stack and subroutines. **8**

OR

e) What are read only memory and random access memory? Explain their any three applications. **8**

f) Explain the need of A/D and D/A converters. Explain the working of R-2R ladder D/A converter with suitable diagram. **8**

Either :

4. a) What are magnetrons? Explain the principle of operation of magnetrons. **8**

b) Explain the working of Helix travelling wave tubes. **8**

OR

e) What is gunn effect? Explain principle operation of gunn diode. **8**

f) What are microwave devices? Explain klystrons used as microwave devices. **8**

5. Attempt all the followings.

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

b) Discuss fading sources. **4**

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

d) Write on IMPATT diode and TRAPATT diode. **4**

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