M.Sc. (Physics) (C.B.C.S. Pattern) Sem-III

PSCPHYT11-4-Paper-XI : (Core Elective-E1.4) : Applied Electronics-I (PSCPHYT.11)

P. Pages : 2 **GUG/S/19/11301**

Time : Three Hours * 3 2 3 1 * Max. Marks : 80

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1. Either

a) Discuss Op-Amp with Block diagram. Explain the use of operational amplifier as integrator and differentiator. **10**

b) Explain scaling and averaging amplifier. **6**

OR

e) Explain construction and working of phase shift oscillator and LC tunable oscillator. **8**

f) Explain monostable and astable multivibrators with their time diagrams. **8**

2. Either

a) What are modulation and demodulation? Discuss amplitude modulation and generation of AM-waves. **8**

b) What is DSBSC modulation? Discuss the generation and coherent detection of DSCBSC waves. **8**

OR

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

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

3. Either

a) Discuss IC-8085 microprocessor with Pin diagram. **8**

b) Discuss D/A converters. Explain ladder and weighted register type D/A converter. **8**

OR

e) Discuss demultiplexer. Explain the working of 1:4 demultiplexer with suitable diagram. **8**

f) Explain assembly language programmes. **8**

4. Either

a) Explain the reflex 'Klystrons' used as microwave device. Discuss principle of two cavity Klystrons and reflex Klystrons. **8**

b) What are wave modes? Explain the working of Helix travelling wave tubes for the generation of microwaves. **8**

OR

e) Discuss velocity modulation used in microwave generation. **8**

f) Write short note on: **8**

i) Read diode

ii) IMPATT diode

5. All questions are compulsory.

a) Explain CMRR in Op-Amp. **4**

b) Discuss frequency division multiplexing. **4**

c) Explain stack and sub routings. **4**

d) Explain basic principle of two cavity Klystrons. **4**

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