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

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

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

Time : Three Hours * 6 3 1 9 * Max. Marks : 80

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**Either:**

**1.** a) Explain the working of Wienbridge oscillator with neat circuit diagram. Obtain an expression for the frequency of Weinbridge oscillator. **8**

b) What is Op-Amp? Explain the use of operational amplifier (Op-Amp) as an integrator and differentiator. **8**

**OR**

e) Explain the terms: **8**
i) CMRR
ii) Frequency response.
iii) Input offset voltage and
iv) Output offset voltage

f) What is multivibrator? Explain monostable and astable multivibrators with their circuit diagrams. **8**

**Either:**

**2.** a) What is DSBSC modulator? Discuss the generation and coherent detection of DSCBSC waves. **8**

b) Explain the atmospheric effect on the propagation of micro waves. Discuss the Fresnel zone problems in shorts. **8**

**OR**

e) What is modulation? Explain amplitude modulation in details. **8**

f) Explain advantages and disadvantages of microwave communication. **8**

**Either:**

**3.** a) Discuss Read Only Memory (ROM) and Random Access Memory (RAM). **8**

b) Explain assembly language programmes in detail. **8**

**OR**

e) Discuss the architecture of microprocessor 8085. **8**

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

**Either:**

**4.** a) What are microwave devices? Explain Klystrons used as microwave devices. **8**

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

**OR**

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

f) Explain the working of Helix travelling wave tubes for the generation of microwaves. **8**

**5.** Answer all the followings.

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

b) What is Frequency Division Multiplexing (FDM)? **4**

c) Write a short note on 'Illustrative programmes.' **4**

d) Discuss transferred electron devices in short. **4**

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