

M.Sc. (Physics) (CBCS Pattern) Semester-III  
**PSCPHYT11-4 - Core Elective-1.4 Paper-XI - Applied Electronics-I**

P. Pages : 1

Time : Three Hours



GUG/S/25/11301

Max. Marks : 80

- Notes : 1. All questions are compulsory.  
2. Draw neat and well labeled diagrams wherever necessary.

**Either:**

1. a) What is OP-AMP? Explain the use of operational amplifier (OP-AMP) as an integrator and differentiator. 8  
b) What is a phase shift oscillator? Obtain an expression for its frequency of oscillations. 8  
What do you mean by frequency stability of an oscillator.

**OR**

- e) What is Multivibrator? Explain the construction and working of astable multivibrator. 8  
f) Explains the terms: 8  
i) CMRR ii) Frequency response.  
iii) Input offset voltage. iv) Output offset voltage.

**Either:**

2. a) What is SSB modulation? Explain how SSB waves are generated and detected. 8  
b) Explain the atmospheric effect on the propagation of micro waves- Discuss the Fresnel zone problem 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) Explain assembly language programmes in details. 8  
b) Discuss Read Only Memory (ROM) and Random Access Memory (RAM). 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 is a Magnetron? Describe principle, construction and working of a magnetron. 8  
b) Write a note on IMPATT and TRAPATT diode. 8

**OR**

- e) What is reflex klystron? Describe the construction and working of reflex Klystron. 8  
f) Explain the working of Helix travelling wave tubes for generation of microwaves. 8

5. Answer all the followings:

- a) Explain Wein bridge oscillator. 4  
b) What is Frequency Division Multiplexing (FDM)? 4  
c) Write a short note on 'Illustrative programmer'. 4  
d) Discuss transferred electron devices in short. 4

\*\*\*\*\*