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CC-285

M. Sc. EXAMINATION, May 2017

(Third Semester)

(Re-appear Only)

PHYSICS

PHY-609-B

Analog Communication

Time : 3 *Hours*] [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. (a) Explain, how microwaves can be detected. What is the role of isolator and circulator in Gunn diode.

(b) Discuss the principle of operation of IMPA Π diode ? **12,8**

2. (a) Explain transferred electron effect how it leads to negative differential resistivity (NDR).

(b) Give the characteristics properties of Gunn diode. **12,8**

Unit II

3. (a) Describe the basic Radar system with suitable diagram.

(b) Derive the equation for Radar range and discuss performance factor. **8,12**

4. (a) Differentiate between CWIF radar and FMCW Radar.

(b) Briefly describe moving target indicator (MTI). **12,8**

Unit III

5. (a) Discuss the operation (with circuit diagram) of amplitude modulation and demodulation of analog signal.

(b) Explain the term Quantization with reference to PCM. Draw the black circuit for the same. **10,10**

6. (a) Draw the black circuit for differential PCM and explain its working.

(b) Discuss the characteristic features of FM receiver. Draw black circit for the same. **10,10**

Unit IV

7. (a) Give Kepler's laws for orbital motion and give their mathematical form and explain.

(b) What is Transponder ? Draw block diagram for the same and discuss various components used. **10,10**

8. (a) Discuss multiple access technique.

(b) Discuss about the satellite orbit, trajectory and its stability. **10,10**