



C14-EC-601

4737

**BOARD DIPLOMA EXAMINATION, (C-14)**  
**MARCH/APRIL—2018**  
**DECE—SIXTH SEMESTER EXAMINATION**  
**ADVANCED COMMUNICATION SYSTEMS**

Time : 3 hours ]

[ Total Marks : 80

**PART—A**

3×10=30

**Instructions** : (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Draw the electrical equivalent circuit of transmission line.
- \* 2. Define characteristic impedance of transmission line.
3. List various microwave frequency bands.
4. Find the cut-off frequency for the dominant mode in air dielectric rectangular waveguide with area of cross-section 4 cm by 2 cm.
5. State the need for microwave integrated circuits (MICs).
6. State the applications of IMPATT diode.
7. List the types of indicators used in radar systems.
8. State Doppler effect.
9. Define the terms apogee and perigee.
10. List the applications of satellites.

/4737

\*

1

[ Contd...

\*

**PART—B**

10×5=50

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11.** Explain impedance matching using quarter wave transmission line.
- 12.** Explain construction and working of reflex klystron oscillator (RKO).
- 13.** Define dominant mode and explain various modes of operation of waveguide.
- 14.** (a) Explain Gunn effect. 5  
(b) Distinguish between ordinary semiconductor devices and microwave semiconductor devices. 5
- 15.** Derive the expression for radar range.
- 16.** Draw the block diagram of pulsed radar system and explain the function of each block.
- 17.** Explain about global positioning system (GPS).
- 18.** (a) List the advantages and disadvantages of geostationary satellites. 5  
(b) Define uplink frequency and downlink frequency of satellites communication. 5

\*\*\*