

7442

BOARD DIPLOMA EXAMINATION, (C-20)

MAY—2023

DECE - FOURTH SEMESTER EXAMINATION

MICROWAVE AND SATELLITE 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. List the limitations of ground wave propagation.
2. Define critical frequency and MUF of ionosphere.
3. List different layers of atmosphere.
4. What is the basic principle of working of an antenna?
- * 5. Define the term beam width of an antenna.
6. List the applications of horn antenna.
7. List the first 6 microwave bands with their frequency ranges.
8. List any three microwave solid state devices.
9. List various displays used in RADARs.
10. Define up-link and down-link frequencies in satellite communication.

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PART—B

8×5=40

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

- 11.** Explain the space wave propagation and list the various factors affecting the space wave propagation.

(OR)

Explain the reason for formation of duct layer and explain the duct propagation.

- 12.** Explain the functions of simple half-wave dipole and folded dipole. Also give their applications.

(OR)

Explain the construction and working of end-fire array with its radiation pattern.

- 13.** Explain TE and TM modes of propagation in rectangular wave guide.

(OR)

Explain the construction and working of IMPATT diode.

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- 14.** Draw and explain the block diagram of pulsed RADAR and give its limitations.

(OR)

Draw and explain the block diagram of MTI RADAR.

- 15.** Explain the block diagram of satellite earth station.

(OR)

Explain the application of satellite in direct to home.

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PART—C

10×1=10

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

- 16.** Explain the construction and working of a microwave tube in which RF field and electron beam interact continuously.

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