* 6439 *

C16–EC–405

6439

BOARD DIPLOMA EXAMINATION, (C–16)

SEPTEMBER/OCTOBER - 2020

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. Define virtual height.

2. List the different layers in ionosphere.

3. Define antenna gain and directivity.

4. Classify the antennas based on radiation and frequency range.

5. List the applications of reflex klystron.

6. Define TE wave and TM wave.

7. What is the need of duplexer?

8. Define doppler effect in radar system.

9. Define the terms 'apogee' and 'perigee' of satellite.

10. List the types of transponders in satellite.

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 the ground wave propagation of electromagnetic waves.

12. Explain the duct propagation and tropospheric scattering.

13. Explain the operation of yagi-uda antenna and draw its radiation pattern.

14. Explain horn antenna and list its advantages and disadvantages.

15. Explain the operation of gunn diode and IMATT diode briefly.

16. Explain the operation travelling wave tube with neat sketch.

17. Explain the operation of MTI radar.

18. *(a)* Explain the application of satellite in TV broadcasting (DTH). 5

(b) Explain the application of satellite in satellite phone. 5

★ ★ ★

* 6439 *

C16–EC–405

6439

BOARD DIPLOMA EXAMINATION, (C–16)

OCTOBER—2020

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. Define skip distance in ionospheric propagation.

2. List the factors affecting space wave propagation.

3. Define antenna gain and directivity.

4. State the need of antenna arrays.

5. What is the function of wave guide? List the types of wave guides.

6. Define phase velocity and group velocity.

7. What is doppler effect?

8. List the types of displays used in radar system.

9. Write the function of transponder.

10. List the applications of satellite communication.

PART—B

10×5=50

Instructions **:** (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. Explain the ground wave propagation and mention ground effects on waves. 10

12. Explain the ionosphere wave propagation. 10

13. Explain the operation of broad side array and draw its radiation pattern. 10

14. *(a)* Define isotropic radiator and draw its radiation pattern. 2+2

(b) State the need for folded dipole antenna and mention its applications. 3+3

15. Explain reflex klystron with a neat sketch. 10

16. Explain the working of travelling wave tube. 10

17. Derive the expression for radar range. 10

18. Explain the block diagram of satellite communication system. 10

★ ★ ★