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C16–EC–405

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## 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

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