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C14–EC–501

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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2018

DECE—FIFTH SEMESTER EXAMINATION

ADVANCED COMMUNICATIONS

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 different types of transmission lines.

2. List the applications of IMPATT and TRAPATT diodes.

3. State the need for duplexer in radar.

4. Define uplink and downlink frequencies.

5. Define group velocity and phase velocity.

6. What is meant by dominant mode?

7. What is the need for microwave integrated circuits (MICs)?

8. Mention the applications of radar system.

9. Define rectangular waveguide and circular waveguide.

10. What are the advantages 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 criterion for valuation is the content but not the length of the answer.

11. *(a)* Explain single conversion transponder with block diagram. 7

(b) List the functions of a transponder. 3

12. *(a)* Explain the operation of Gunn diode with diagram. 7

(b) Draw the *V–I* characteristics of tunnel diode. 3

13. Explain the construction and working of magnetron oscillator. 10

14. Draw the block diagram and explain the working of communication satellite. 10

15. *(a)* Explain the concept of infinite transmission line. 7

(b) Draw the electrical equivalent circuit of a transmission line. 3

16. Draw the block diagram of simple CW radar and explain its operation. 10

17. Derive the expression for radar range equation. 10

18. *(a)* With a neat sketch, explain the operation of travelling wave tube. 8

(b) List the different T-junctions. 2

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