TED (15) – 6045
(Revision – 2015)

A23 - 00998

Reg.No……..
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE , APRIL – 2023

RADAR AND NAVIGATION

(Maximum Marks : 100) (Time : 3 hours)

PART – A
(Maximum Marks : 10)

Marks

I. Answer **all** questions in one or two sentences. Each question carries 2 marks.

1. Name the two important bands used for Radar communication.
2. Give any two applications of Radar.
3. Define Doppler shift.
4. Define navigation.
5. What is ILS?

(5x2=10)

PART – B
(Maximum Marks : 30)

II. Answer any **five** of the following questions. Each question carries 6 marks.

1. Describe the operation of an elementary pulsed radar.
2. What is tracking radar? Describe the two types of tracking radar.
3. What is clutter? Give the principle of operation by which it is eliminated in MTI radar.
4. How the principle of operation of Gonio meter differ from that of a loop antenna.
5. Describe the operation of VOR.
6. Describe how GPS works.
7. Give the principle of operation of INS.

(5x6=30)

PART – C

(Maximum Marks : 60)

(Answer **one full** question from each unit. Each full question carries 15 marks)

UNIT – I

III. (a) Derive radar range equation. (9)

(b) Define radar cross-section. What is its importance? (6)

OR

IV. Explain different radar performance factors. (15)

UNIT – II

V. (a) Explain the block diagram of an FM CW radar. (9)

(b) Give the advantages and limitations of CW radar over pulsed radar. (6)

OR

VI. (a) Explain the block diagram of pulsed radar. (9)

(b) Explain different types of radar displays. (6)

UNIT –III

VII. (a) With the help of block diagram explain the operation of Gonio meter. (9)

(b) Explain any three types of navigation system. (6)

OR

VIII. Explain the principle of operation of hyperbolic navigation system and hence explain LORAN. (15)

UNIT – IV

IX. With the help of diagram explain ILS and their components. (15)

OR

X. (a) How MLS is superior to ILS? (5)

(b) With the help of relevant diagrams explain the operation of MLS. (10)

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