

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2022**

RADAR & NAVIGATION

[Maximum Marks: 100]

[Time: 3 Hours]

PART-A

[Maximum Marks: 10]

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

1. State the functions of Duplexer in Radar.
2. State the frequency range of Conventional Radar.
3. List any two applications of Doppler Radar.
4. List two main classes of Visual Direction Finders.
5. Write any two drawbacks of ILS. (5 x 2 = 10)

PART-B

[Maximum Marks: 30]

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

1. Explain Radar cross section of targets.
2. With block diagram explain FM- CW radar.
3. Explain tracking radar with block diagram.
4. Briefly explain the four methods of navigation.
5. Describe loop antenna with diagram.
6. List the advantages of MLS.
7. Write short notes on GNSS. (5 x 6 = 30)

PART-C

[Maximum Marks: 60]

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

UNIT – I

- III. (a) Explain the operation of basic radar with the help of block diagram. (8)
(b) Derive the radar range equation. (7)

OR

- IV. (a) Explain any four applications of radar system. (10)
(b) Explain the frequency ranges used in radar system. (5)

UNIT – II

- V. (a) With block diagram explain the operation of FW- CW altimeter. (8)
(b) Explain delay line cancellers. (7)

OR

- VI. (a) With block diagram explain MTI signal processor. (8)
(b) Explain Pulse Doppler Radar with block diagram. (7)

UNIT- III

- VII. (a) With block diagram explain Automatic Direction Finder. (8)
(b) Explain Goniometer with neat figure. (7)

OR

- VIII. (a) Explain VHF- phase comparison ADF with block diagram. (9)
(b) With block diagram explain DME. (6)

UNIT - IV

- IX. Explain the function of components of Instrument Landing System (ILS) with the help of diagrams. (15)

OR

- X. (a) With the help of diagrams explain Microwave landing System (MLS). (9)
(b) State the advantages & disadvantages of GPS. (6)
