

CBCS SCHEME

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17AE754

Seventh Semester B.E. Degree Examination, July/August 2022

Guidance, Navigation and Control

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Missing data, if any, may be suitably assumed.

Module-1

- 1 a. Explain different types of Navigation in detail. Mention its applications. (10 Marks)
b. Explain the basic principle of RADAR with a neat sketch. (10 Marks)

OR

- 2 a. Explain different types of MTI RADAR with a neat diagram. (10 Marks)
b. Mention the advantages of pulse Doppler RADAR over MTI RADAR. Also mention the differences between them. (10 Marks)

Module-2

- 3 a. Explain the principle of conical scan and sequential lobbing with a neat sketch. (10 Marks)
b. Write a short note on Automatic tracking with a surveillance RADAR (ADR). (10 Marks)

OR

- 4 a. Explain the principle and components of inertial Navigation system with a neat sketch. (10 Marks)
b. Explain the following : i) Laser based guidance ii) GPS and its segments. (10 Marks)

Module-3

- 5 a. Explain the concepts of open-loop and closed-loop control system in detail. (10 Marks)
b. Mention the differences between open loop and closed loop control system. (10 Marks)

OR

- 6 a. Mention the guided missile concept in detail. Also explain how control of aerodynamic missile is achieved. (10 Marks)
b. Explain the principle of roll stabilization with a neat sketch. (10 Marks)

Module-4

- 7 a. Compare the performance of various guidance systems. (10 Marks)
b. Explain various terms that is given below : i) LOS RATE ii) MISS distance iii) Closing velocity iv) Lateral acceleration v) Blind zone. (10 Marks)

OR

- 8 a. Explain the principle of PN guidance law with a neat sketch. (10 Marks)
b. Explain the principle of command guidance with a neat sketch. (10 Marks)

Module-5

- 9 Explain direction fire control system with neat sketch. Mention its advantage. (20 Marks)

OR

- 10 Explain the following :
a. Pitch orientational control system
b. Tracking control laws. (20 Marks)

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