USN | | | | | | | | | | 18AE743

Seventh Semester B.E. Degree Examination, July/August 2022
Guidance, Navigation and Control

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Explain the concepts of Flight planning, Navigation, Guidance and control.   **(10 Marks)**
   b. Explain the Air data Information and its significance in Guidance and Navigation. **(10 Marks)**

OR

2 a. Explain the principle of working of MTI.   **(10 Marks)**
   b. Explain MTI from a moving platform (AMTI)   **(10 Marks)**

Module-2

3 a. Explain Automatic tracking with Surveillance Radar (ADT).   **(10 Marks)**
   b. Write a short note on conical scan and sequential lobbing.   **(10 Marks)**

OR

4 a. Describe Inertial Guidance and Laser based Guidance.   **(10 Marks)**
   b. Explain the following : (i) Inertial Navigation system.   (ii) GPS.   **(10 Marks)**

Module-3

5 a. Explain Input-Output Transfer function.   **(05 Marks)**
   b. What are the basic altitude references?   **(05 Marks)**
   c. Describe the concepts of open log and closed loop system.   **(10 Marks)**

OR

6 a. With neat sketch, explain the Roll stabilization of a missile.   **(10 Marks)**
   b. With neat sketch, explain the missile autopilot schematics.   **(10 Marks)**

Module-4

7 a. Illustrate the comparison of guidance system performance.   **(10 Marks)**
   b. Explain proportional navigation guidance and its types in detail.   **(10 Marks)**

OR

8 a. Explain command guidance and its types in detail.   **(10 Marks)**
   b. With neat sketches, explain bank to turn missile guidance.   **(10 Marks)**

Module-5

9 a. With help of block diagram, explain director fire control system.   **(10 Marks)**
   b. With neat sketch, explain the longitudinal flight control system.   **(10 Marks)**

OR

10 a. With the help of neat sketch, explain the lateral flight control system.   **(10 Marks)**
   b. Derive the equation for rate of change of Euler angle.   **(10 Marks)**

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