

--	--	--	--	--	--	--	--	--	--

**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)

\* \* \* \* \*

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.