

CBCS SCHEME

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15AE754

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020 Guidance , Navigation and Control

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Explain the basic principles of Navigation , Guidance and Control. (08 Marks)
b. What is Air data Information? What are the instruments involved in it? (08 Marks)

OR

- 2 a. Explain the basic working principle of a radar. (08 Marks)
b. What is MTI? What are the limitations of MTI performance? (08 Marks)

Module-2

- 3 a. Explain Mono Pulse Tracking. (04 Marks)
b. Describe Automatic Tracking with Surveillance radar. (08 Marks)
c. Define Conical scan. (04 Marks)

OR

- 4 a. Explain in detail about the Inertial Navigation System and its components. (08 Marks)
b. Explain Satellite Navigation. (04 Marks)
c. What is GPS? Explain Imaging infrared guidance. (04 Marks)

Module-3

- 5 a. Explain Input – Output Transfer function. (04 Marks)
b. Using block diagram, reduction technique find closed loop transfer function of the system whose block diagram is shown in fig. Q5(b). (12 Marks)

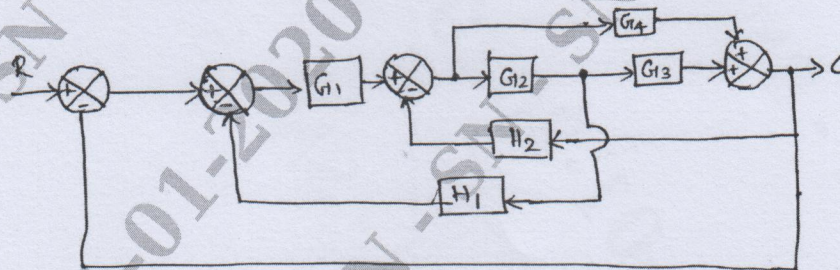


Fig.Q5(b)

OR

- 6 a. Explain a Tactile missile and its components, with neat sketch. (08 Marks)
b. Explain the control of Aerodynamic missile and its parameters. (08 Marks)

Module-4

- 7 a. Describe Propositional Navigation system and its types. (10 Marks)
b. Compare the proportional and command guidance performance. (06 Marks)

OR

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.

- 8 a. Discuss in detail about the Command Guidance System. (08 Marks)
- b. Explain Bank to turn missile guidance. (08 Marks)

Module-5

- 9 a. Explain the Tracking Control laws. (08 Marks)
- b. Explain Longitudinal Flight Control System. (08 Marks)

OR

- 10 a. Derive the Rate of Change of Euler angle. (08 Marks)
- b. Explain Lateral Flight Control system. (08 Marks)
