

CONTROL SYSTEM (ELECTIVE)

Time : 2:30 Hours]

[Maximum Marks : 50

NOTES :

- i) Attempt **all** questions.
- ii) Students are advised to specially check the Numerical Data of question paper in both versions. If there is any difference in Hindi Translation of any question, the students should answer the question according to the English version.
- iii) Use of Pager and Mobile Phone by the students is not allowed.

Q1) Answer any two parts of the following:

[2 × 5 = 10]

- a) Draw block diagram of feedback control system and its elements.
- b) Explain the working of closed loop control system with the help of block diagram.
- c) Define and explain Static and Dynamic control system.

Q2) Answer any two parts of the following:

[2 × 5 = 10]

- a) Compare between Linear and Non linear control system.
- b) Discuss about Definition of Transfer Function and its use in control system.
- c) Discuss Pole-Zero concept of Transfer Function.

Q3) Answer any two parts of the following:

[2 × 5 = 10]

- a) Discuss Initial value and final value theorem.
- b) Compare between open and close loop control system.
- c) Mention basic concept of stability analysis by Routh-Hurwitz criterion.

Q4) Answer any two parts of the following:

[2 × 5 = 10]

- a) Discuss role of basic controller in process Industry.
- b) Give basic idea about different types of controllers.
- c) Give basic idea of Laplace Transform.

Q5) Answer any two parts of the following:

[2 × 5 = 10]

- a) Give basic idea of undamped, over-damped and critically damped system.
- b) Give basic idea of proportional controller.
- c) Discuss in detail about PID controller.

