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Question Paper Code : 90752

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Sixth Semester

Instrumentation and Control Engineering

IC 8651 — ADVANCED CONTROL SYSTEM

(Common to : Electrical and Electronics Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define state vector.
2. What does state space become for a second order system?
3. When is the perfect model following achieved in pole placement?
4. Write the key problem in applying pole placement.
5. Compare absolute stability and relative stability.
6. State the Nyquist stability criterion.
7. Write the uniqueness of limit cycle.
8. Compare phase-plane analysis and describing-function analysis.
9. Define the term LQ regulator stability.
10. List the applications of gain scheduling approaches in process control.

PART B — (5 × 13 = 65 marks)

- (a) Explain the concept of the state of the system.

Or

- (b) Explain the state space representation of electrical network.

