[6268]-258

S.E. (Robotics & Automation Engineering) (Insem)
CONTROL SYSTEM ENGINEERING
(2019 Pattern) (Semester - IV) (211509)

Time : 1 Hour] [*Max. Marks : 30*

Instructions to the candidates:
1) *All questions are compulsory i.e. Solve Q.1 or Q.2, Q.3 or Q.4.*
2) *Assume suitable data if, necessary.*
3) *Use of electronic pocket calculator is allowed.*
4) *Neat diagrams must be drawn wherever necessary.*

Q1) a) Give classification of control system compare time variant and time invariant system. **[8]**

b) What is signal flow graph give its properties state the advantages and application of it. **[7]**

OR

Q2) a) Explain Feed forward vs Feedback control system. **[8]**

b) With neat sketch explain block diagram reduction techniques also state the advantages and disadvantages of it. **[7]**

Q3) a) Consider unity feedback system with open loop transfer function $G(S) = 16/S (S+4)$ Determine time domain specifications of closed loop system. **[8]**

b) With the help of neat sketch explain any seven time domain specifications of second order underdamped system. **[7]**

OR

Q4) a) Derive the expression Rise time, Peak time, Peak Overshoot, Settling time. **[8]**

b) With suitable diagram explain PI, PID controller state the advantages and applications of both. **[7]**

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