TEE-502   1110

Odd Semester Examination 2018-19

B.TECH. (EEE/EN) (Semester-V)

System Engineering

Time: 03:00 Hours   Max. Marks:100

1.   Attempt any four: [4×5=20]

   (a)   What do you mean by system engineering?

   (b)   Discuss the term Validation.

   (c)   Write down about the unit circle concepts.

   (d)   What do you mean by steady state error?

   (e)   Define the term transfer function.

   (f)   What do you mean by Controllability?

2.   Attempt any **four**:   [4×5=20]

   (a)   What is stability, discuss in brief.

   (b)   Write down the four applications of system engineering in brief.

   (c)   Discuss the term pulse transfer function in brief.

   (d)   Define the term canonical variable Diagonalization in brief.

   (e)   Discuss the different type of systems.

   (f)   Write down the short note on State transition matrices

3.   Attempt any **two**:   [2×10=20]

   (a)   What do you mean by controller, discuss P, PI and PID controllers in details?

(b) Show the derivation of state model of linear time invariant (LTI) continuous and discrete time systems in detail.

(c) What is sampling, discuss sample and hold circuits with its block diagram in details.

4. Attempt any two: [2×10=20]

(a) What do you understand by the terms, construction of Liapunov's function, also define Popov's stability criterion in detail.

(b) Show the comparative study between open loop and closed loop systems in details.

(c) Discuss the unity and non-unity feedback systems in detail.

5. Attempt any two: [2×10=20]

(a) What do you mean by transient response, discuss the transient response of first order and second order system in details?

(b) Write down the advantages of z-transform, also discuss the properties of z-transform in details.

(c) Write down short notes on

(i) Mason's gain formula

(ii) Inverse z-transform.

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