

**M. TECH.-III (ELECTRICAL -POWER SYSTEM) (CBCS – 2015
COURSE) : SUMMER - 2018**

SUBJECT: ELECTIVE – II a) ADVANCED CONTROL SYSTEM

Day: **Thursday**
Date: **31/05/2018**

S-2018-3143

Time: **11.00 AM TO 02.00 PM**
Max Marks. 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books
- 4) Assume suitable data if necessary

SECTION - I

Q.1 Explain PID control and tuning approaches with reference to review of classical control concepts. **(10)**

OR

Describe in detail selection of variables for PID control.

Q.2 Explain control system analysis using state variable methods. **(10)**

OR

Describe in detail conversion of transfer function to phase variable model.

Q.3 Explain in detail nonlinear systems and equilibrium points. **(10)**

OR

What is the concept of stability. Explain describing function analysis.

SECTION - II

Q.4 Explain the following in detail: **(10)**

- a) Structure of digital control system.
- b) ADC.

OR

Explain the following in detail:

- a) Digital control system.
- b) DAC

Q.5 Compare frequency response of first order and second order systems. **(10)**

OR

Describe Bode plot with suitable figure and example.

Q.6 Write short notes on : **(10)**

- a) Parameter optimization and optimal control problems
- b) Hamiltonian formulation of optimal control problem

OR

- a) Hamilton – Jacoby equation
- b) Linear regulator problem

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