



C09-AEI-404

3414

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2013

DAEIE—FOURTH SEMESTER EXAMINATION

INDUSTRIAL ELECTRONICS AND CONTROL ENGINEERING

Time : 3 hours]

[Total Marks : 80

PART—A

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. List the applications of phototransistor.
2. Draw a neat diagram of photomultipliers.
3. List the different types of industrial heating.
4. Draw the circuit of AC resistance welding.
5. Draw a neat sketch of magnetostriction oscillator.
6. Define linear and nonlinear control systems.
7. Define order of the control system.
8. Find the Laplace transform of $\frac{df(t)}{dt}$.
9. Mention the time response specifications.
10. Find the static error coefficient k_p .

PART—B

- Instructions :** (1) Answer *any five* questions.
 (2) Each question carries **ten** marks.
 (3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. (a) Explain the working of seven-segment display. 5
 (b) Explain the construction and working of photoconductive devices. 5
12. (a) Explain about optocouplers and solar cells. 3+3=6
 (b) List the applications of dielectric heating. 4
13. Explain electrodes used in dielectric heating and method of coupling to RF generator. 10
14. (a) Draw and explain piezoelectric oscillator for generation of ultrasonics. 3+3=6
 (b) List the applications of ultrasonics. 4
15. (a) List the differences between open-loop and closed-loop control systems. 5
 (b) Explain time variant and time invariant control systems. 5
16. Find the steady-state error for type-1 system when input is unit-step signal. 10
17. Derive the transfer function of *R-L-C* series circuits. 10
18. Derive the following transfer function $C(s) / R(s)$: 10


