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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2016

DAEIE—FOURTH SEMESTER EXAMINATION

INDUSTRIAL ELECTRONICS AND CONTROL SYSTEMS

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.
(2) Each question carries **three** marks.

1. List the applications of solar cells.

2. List the applications of optocouplers.

3. State the principle of induction heating.

4. List the applications of dielectric heating.

5. Define transfer function.

6. Distinguish between open-loop and closed-loop control system.

7. Derive the transfer function of unit impulse function.

8. Define Manson's gain formula.

9. Define peak overshoot and peak time.

10. State the necessary condition for stability of a system.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.
(2) Each question carries **ten** marks.

11. *(a)* Explain the working principle of phototransistor. 7

(b) List the applications of phototransistor. 3

12. Explain the method of coupling electrode with RF generator in dielectric heating. 10

13. Explain the principle of resistance welding process.

14. *(a)* Explain the closed-loop control system with an example. 6

(b) Explain digital control system. 4

15. Derive the transfer function of RLC parallel circuit.

16. Derive the transfer function of pressure system.

17. *(a)* Find the inverse Laplace transform of the following : 5

$$F(s) \quad \frac{1}{(s \quad 2)(s \quad 6)}$$

(b) Explain the order of a control system. 5

18. Obtain the time response of II order system for step input.

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