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BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2017
DAEIE—FOURTH SEMESTER EXAMINATION

INDUSTRIAL ELECTRONICS AND CONTROL ENGINEERING

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

PART—A   3×10=30

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 any three applications of optocouplers.

2. Draw the circuit symbols of phototransistor and photoconductive devices.

3. List three applications of induction heating.

4. Mention the dielectrics used for dielectric heating in the range of 30 Hz to 3 MHz.

5. List any three applications of ultrasonics.

6. Distinguish between open-loop and closed-loop control systems in three aspects.

7. Define Laplace transfer function.

8. State the limitations of transfer function of a system.

9. Define 'type 0' control system.

10. List any three specifications of transient response.

PART—B 10×5=50

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. Explain the construction and working of the following devices :

5×2=10

   (a) Solar cell

   (b) Optocoupler

12. *(a)* Explain the construction and working of dot matrix display and list its any two applications.   5

   (b) Explain the principle of dielectric heating.   5

13. Explain the principle of resistance welding process.

14. Explain the magnetostriction oscillator.

15. Explain 'time variant' and 'time invariant' systems.

16. Derive the transfer function of mechanical translational system.

17. Explain any five rules of block diagram reduction.

18. Obtain the time response of first-order system to a unit step input.

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