* 3414 *

C09–AEI–**404**

3414

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2016

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

1. State the working of solar cell.

2. List any three applications of photomultipliers.

3. List any three applications of induction heating.

4. List the dielectrics used for dielectric heating.

5. State the piezoelectric effect.

6. State the need of feedback in control system.

7. State the properties of transfer function of system.

8. Define transfer function of system.

9. Define the following transient response specifications :

(a) Delay time

(b) Peak time

10. Define velocity error constant K_v.

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 phototransistor with diagram.

12. *(a)* Explain the working of photoconductive cell. 5

(b) Explain the principle of resistance welding process. 5

13. Explain the principle of induction heating and mention its merits.

14. Explain various methods to generate ultrasonics.

15. *(a)* Explain the linear and non-linear control systems. 5

(b) Explain about sampled data control system. 5

16. *(a)* Derive the Laplace transform of cos *at*. 5

(b) Derive the transfer function of mechanical translational system. 5

17. Derive the transfer function of pressure system.

18. Derive the time response of first-order system when subjected to unit-step input signal.

★ ★ ★