6418

C16-AEI–405

6418

BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

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.

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

1. State the principle of optocoupler.

2. List the applications of solar cell.

3. State the principle of dielectric heating.

4. Draw the diagram of resistance welding.

5. Define linear and non-linear control systems.

6. List any three limitations of transfer function of system.

7. State initial value theorem.

8. List the basic components of block diagram.

9. Write the type and order of control system.

10. State Routh Hurwitz criterion for stability of system.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

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

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain the working of seven segment display and list its applications.

12. Explain the working of high frequency power source for induction with diagram.

13. Explain the methods of coupling electrodes with RF generator in dielectric heating.

14. Explain about the following systems :

(a) Time variant control systems 5

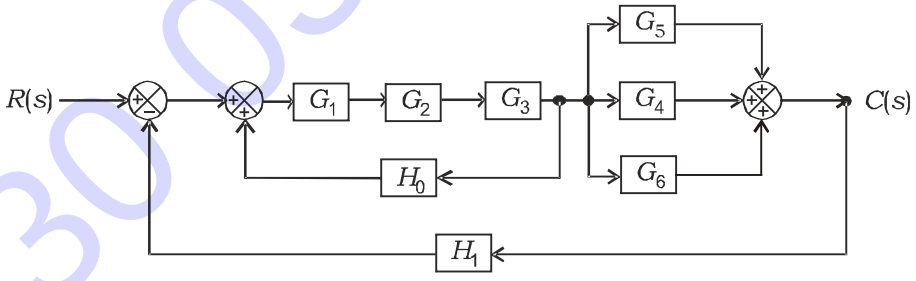
(b) Digital control systems 5

15. Find the Laplace transform of the following functions :

(a) sin *at*

(b) e^{at} cos *at*

16. Determine the overall transfer function C(s)/R(s)



17. *(a)* Derive the transfer function of RLC series circuit. 6

(b) Define rise time and peak overshoot of second order system. 4

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

★ ★ ★