PSG POLYTECHNIC COLLEGE, COIMBATORE - 641 004

DIPLOMA ODD SEMESTER EXAMINATIONS – NOV 2014

G12E09 INDUSTRIAL ELECTRONICS

MODEL QUESTION PAPER

Time : 3 Hours   **Max.Marks: 100**

Instructions:

1. **Group A** and **Group B** questions should be answered in the Main Answer book.
2. Answer any **TEN** questions in **Group A**. Each question carries three marks.
3. Answer **ALL** questions either **(a)** subdivision or **(b)** subdivision in **Group B**. Each question carries 14 marks.

Group – A   **Marks: 10 x 3 = 30**

1. Draw the constructional diagram of a Thyristor.

2. Define the terms Latching current and Holding current of a Thyristor.

3. List the applications of Thyristors.

4. Explain briefly the function of a dual converter

5. What is the importance of fly wheel diode in a converter circuit?

6. Mention the applications of Inverters.

7. State the laws of Robotic.

8. Define resolution and repeatability of a manipulator.

9. Differentiate between proximity sensors and limit switches.

10. How does Ultrasonic oscillator work?

11. Explain the step by step procedure in soldering.

12. How do you design a saw filter?

13. Draw the block diagram of a PLC and mention the name of each part.

14. What are the types of counters available in PLC and explain any one.

15. Develop a Relay Ladder Logic for Interlocking circuit.

Group– B   **Marks: 5 x 14 = 70**

16.a)i) Explain the two transistor analogy of SCR with neat diagrams.   (7)

   ii) Illustrate different types of SCR triggering.   (7)

(OR)

   b)i) What do you mean by Commutation of SCR? List the types of Commutation

   techniques.   (7)

   ii) Describe the series and parallel operation of SCR with relevant diagrams.   (7)

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17. a)i)Draw and explain single phase semi converter with R load. (7)

    ii)Construct single phase dual converter and explain with neat graphs. (7)

(OR)

  b) How to obtain sine wave output from inverter? Explain each technique in detail.

18.a)i) Write the fundamental concepts of Robotics. (7)

  ii) Explain the Robot anatomy. (7)

(OR)

  b)i)Discuss the working principle of encoder with neat diagrams. (7)

    ii)How Tacho generator and tactile sensor are used in industrial applications.

    Explain in detail. (7)

19.a)i) Explain the working principle of SONAR. (7)

  ii) Illustrate the drilling process in an industry (7)

(OR)

  b)List the medical applications of different types of sensors with necessary diagrams.

20. a)i)Discuss the evaluation of PLCs. (7)

  ii) Develop RLL for Car Parking Control. (7)

(OR)

  b)i)Draw and explain the block diagram of PLC. (7)

  ii) Develop RLL for Star/Delta Starter. (7)