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5. Write a program for forward, backward, left, right, soft left and soft right movement for the ATMEGA 2560 microcontroller-based robot. (10)

(100)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7573

Unique Paper Code : 61018519

Name of the Paper : Programming Robotics
(GEC-5.3)

Name of the Course : **B.Voc. (Software
Development) 2023**

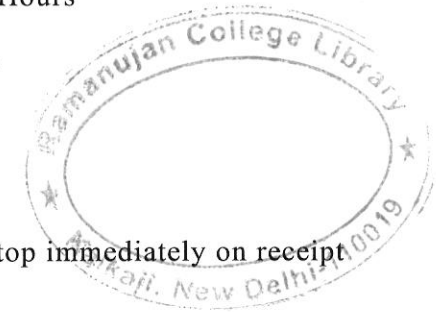
Semester : V

Duration : 2 Hours

Maximum Marks : 50

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **all** the questions.



Section A

1. What is the use of Data Direction register? Give an example to demonstrate it. (3)

P.T.O.

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2. Define the role of sensors and actuators in robots. (3)
3. Explain the use of different types of motors in a robot. (3)
4. What are the three application areas of robotics? (3)
5. Explain the use of white line sensors and position encoders in a robot. (3)

Section B

1. Write a program to on and off a buzzer with delay of 2 seconds for a AMEGA 2560 based robot. (5)

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2. Define the following (10)
 - (a) Gyroscope
 - (b) Proximity sensor
 - (c) Accelerometer
 - (d) Ultrasonic sensor
 - (e) GPS
3. Define the use of the different types of registers in ATMEGA 2560. (5)
4. Set PORTA registers of first three bits as an output port and remaining bit as input port. Transfer 0x02 as input to this port. (5)

P.T.O.