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2107082

SECTION -B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

BACHELOR OF VOCATION
Robotics and Automation
Subject: Mobile Robots
Subject Code: DBME-303
Semester: Fifth
July 2021
Theory (External): 35 Marks
Time: 03 Hours

1. What are the recent advancement in mobile robotics for RICE Application?
2. Write a short note on following
 - Holonomic robot
 - Kinematic control?
3. Discuss about following
 - Motion/Speed Sensors
 - Heading/Orientation Sensors
4. What are the major issues in map representation for mobile robot localization?
5. Discuss following
 - Ground based beacons
 - Active ranging
6. What are the major problem of multiple robots system?
7. Draw the architectural diagram of Arduino & explain its various units?
8. Discuss about following
 - Arduino Data types
 - Arduino Data Types

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

==END OF PAPER==

Roll Number									

SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x1=10 Marks)

- A. Which of the following is not an essential components for construction of robots?
a) Power Supply
b) Actuators
c) Sensors
d) Energy
- B. Motors used for electronic actuator drives :
a) AC servo motors
b) DC servo motors
c) Stepper motors
d) All of the mentioned
- C. Drives are also known as
a) Actuators
b) Controller
c) Sensors
d) Manipulator
- D. Clockwise or Anti clockwise rotation about the vertical axis to the perpendicular arm is provided through
a) Shoulder swivel
b) Elbow extension
c) Arm sweep
d) Wrist bend
- E. Radial movement (in & out) to the manipulator arm is provided by
a) Elbow extension
b) Wrist bend
c) Wrist swivel
d) Wrist yaw

- F. Industrial Robots are generally designed to carry which of the following coordinate system(s).
a) Cartesian coordinate systems
b) Polar coordinate systems
c) Cylindrical coordinate system
d) All of the above
- G. -The Robot designed with Polar coordinate systems has
a) Three linear movements
b) Three rotational movements
c) Two linear and one rotational movement
d) Two rotational and one linear movement
- H. The following drive is used for lighter class of Robot.
a) Pneumatic drive
b) Hydraulic drive
c) Electric drive
d) All of the above
- I. An automatic apparatus or device that performs functions ordinarily ascribed to humans or operate with what appears to be almost human intelligence is called _____
a) Robot
b) Human
c) Animals
d) Reptiles
- J. Which of the following is not a type of Robot Locomotion?
a) Legged
b) Wheeled
c) Tracked deslip
d) Tracked skid