(Turn over)

1. Choose the correct answer among the following (Objective Type Questions)

Group - A

Answer from both the groups as directed.

The figures in the margin indicate full marks.

Candidates are required to write their answers in full marks: 80

Time: 3 hours

2015
Four dimensional
Three dimensional
Two dimensional
One dimensional
Position of a point in 4D:
Spherical coordinates can uniquely define the
Robot controller
Vision system
Robot arm
A track drive
A manipulator is also known as a
An autonomous guided vehicle
An analytical engine
An expert system
Artificial Intelligence
A rule-based system is also known as
A second generation and effecter
Edge detection
Episodic navigation

Binomial equation

Using:

Tweeling down a specific lane of traffic by
An autonomous robot might keep itself

Around the year:
Second-generation robots first were used
With a computer virus

In case the robot controller is infected
In case of an accident
Requests it
When the human being specifically
Never
A human being?
According to Asimov's three laws, under what
(Turn over)

4. (a) Consider the situation in which a car is moving at a constant velocity of 60 m/s. The driver applies the brakes, and the car comes to a stop in 5 seconds. Calculate the acceleration of the car.

3. (a) What are the advantages and disadvantages of using PLC systems in industrial automation?

2. (a) What is the difference between path and trajectory planning?

(b) Define path function, trajectory, and dwell operator and discuss their significance.

(b) Write a short essay on the importance of path and trajectory planning in industrial robotics.

Answer any four questions from the following:

(long-answerm type Quetions)

Group - B

4. (a) Autonomous robot

4. (b) Automated guided vehicle

3. (a) Insect robot

3. (b) Android

2. (a) Computers are called as:

2. (b) A robot that has its own computer and can work independently of other robots or A robot that has its own computer and can work independently of other robots or

1. (a) Machine vision

1. (b) Distance measurement

1. (c) Telerobot navigation

1. (d) Direction measurement

1. (e) Proximity sensing is most closely akin to:

1. (f) Orange, Green and Violet

1. (g) Cyan, Magenta, and Yellow

1. (h) Blue, Red and Green

1. (i) Blue, Red and Yellow

Pass
Write short notes on any three of the following:

1. Explain the principles of servomotor.
2. Discuss briefly about touch sensors used in recognition.
3. Template matching technique for part.
4. PID controller.
5. PWM amplifiers.
6. Proximity sensor.

Concider:

* Motion Planning
* Bounded Deviation Algorithm for straight
* Properties of Inverse Kinematics solutions
* Classification of robots

7. Write short notes on any three of the following:
   - Stops
   - Second after motor 2 stops, the stop switch stops motor 1 and 20 seconds later motor 2.
   - The switch selects motor 1 and 15
   - Having the following conditions:

8. Draw a ladder diagram for two motor system
   - Demonstrate De Morgan's theorem.

9. Explain the equivalent ladder diagram to shape.

10. What are the different moments to characterize

11. Advantages over the descriptors of Explain one method for polygonal objects? Explain one