Exam

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IMPORTANT

- **Each Question carries 1 mark and you will get 1 attempt each. Total 15 Marks**
- **Checkbox questions do not have partial marking. You need to select all the correct answers to get full marks**

Checkboxes

1.0/1.0 point (graded)

Suppose, you are building an autonomous drone which will be used to build a 3D map of a hundred year old building. The drone has no information regarding the floor planning of the building. So, it needs to calculate its currrent position in respect to the environment.

What kind of algorithm and/or technique can be implemented to help the drone to determine it's current position?

- [x] Global Positioning System
- [ ] Shortest Path Algorithm
- [x] Localization Algorithms

Submit You have used 1 of 1 attempt

Multiple Choice

1.0/1.0 point (graded)

Which of the following situations are in conflict with Asimov's First Law of Robotics?

- ( ) A robot killing a predatory animal to save a human
- (•) A robot not alarming the police of a dangerous criminal it detected which lead to a fatality
- ( ) A robot defying the order to kill terrorrist

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Multiple Choice

1.0/1.0 point (graded)

What is the job of a calibration circuit?

- ( ) Convert sensor data into analog data
- (•) Make the sensor data understanbale to the processor
- ( ) Convert microcontroller output to display or motor action data

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Show Answer

Multiple Choice

1.0/1.0 point (graded)

Which of the following can help in controlling the torque of a DC motor?

- ○ Power source
- ○ Armature
- ◉ Gearbox
- ○ Stator Teeth
- ○ Actuator

✔

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Show Answer

Checkboxes

1.0/1.0 point (graded)

Which of the following is a parallel robot?

- ☐ Predator Drone
- ☑ Flight Simulator
- ☑ Milling Machine
- ☐ UBER autonomous taxi

✔

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Multiple Choice

1.0/1.0 point (graded)

Suppose you are creating an IoT network for an enterprise which has factories at different locations. The IoT devices of each of the factories must be able to communicate with each other so that they can control the rate of production. Since there are no dedicated line between the factories, communication must take place over the internet. Which of the following technologies will allow you to enable secure communications for the devices?

- ○ credential based authentication system
- ○ RSA based encryption algorithm
- ○ Blockchain based authentication
- ◉ All of the above
- ○ None of the above

✔

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Show Answer

Multiple Choice

1.0/1.0 point (graded)

Curiosity and Opportunity rovers are

- ◉ Mars Rover
- ○ Lunar Rover

- ◯ Rescue Robot
- ◯ None of above

✔

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Checkboxes

1.0/1.0 point (graded)

Which of the following is a passive sensor?

- ☑ Microphone
- ☐ Sonar
- ☑ Compass
- ☐ LiDAR

✔

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Multiple Choice

1.0/1.0 point (graded)

'MYO' device can be part of which subsystem-

- ◯ Control subsystem
- ◯ Motion subsystem
- ◉ Recognition subsystem

✔

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Multiple Choice

1.0/1.0 point (graded)

For creating a drone tasked with counting the number of trucks in a road alongside reading and sending their license plates to central server, which of the following is/are more suitable?

- ☑ Nvidia Jetson Nano
- ☐ ATmega328p
- ☐ Programmable logic array
- ☑ Raspberry Pi
- ☐ Arduino Nano

✔

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Multiple Choice

1.0/1.0 point (graded)

Which part of the Robot provides motion to the manipulator and end-effectors?

- ◯ Controller
- ◯ Sensor

- (●) Actuator
- ( ) Motor

✔

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Multiple Choice

1.0/1.0 point (graded)

Robot is a Digital System because

- ( ) It is a highly advanced device
- ( ) It handles dirty, dull, dangerous, or difficult task
- (●) Digital electronics and control system is an important part of it
- ( ) None of above is true

✔

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Show Answer

Multiple Choice

1.0/1.0 point (graded)

What is the kinematic part of a robot or manipulator called?

- ( ) Sensors
- (●) Joints
- ( ) Links
- ( ) End-Effectors

✔

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Multiple Choice

1.0/1.0 point (graded)

Which of the following are proximity sensors?

- ( ) Inductive type
- ( ) Capacitative type
- ( ) Ultrasonic Type
- (●) All of the above
- ( ) None of the above

✔

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Multiple Choice

1.0/1.0 point (graded)

In an excavator, we can call the excavator claw and the mechanism that is helping moving the arm -

- ( ) actuator and end-effector respectively

- manipulator and end-effector respectively
- end-effector and manipulator respectively
- end-effector and actuator respectively
- actuator and manipulator respectively

✔

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