



PRAGATI ENGINEERING COLLEGE

(Autonomous)

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(Approved by AICTE, Permanently Affiliated to JNTUK, Kakinada)
(Recognized by UGC Under Sections 2(f) and 12 (B) of UGC act, 1956)
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ROBOTICS CLUB

Date: 01-04-2024

CIRCULAR

It is to inform to all the students of B.Tech II, III and IV Year that the college Robotics Club of Department of ME and Department of ECE is conducting an Online Quiz on Introduction to Robotics on 02-04-2024. Interested students can participate through the link provided below.

Mode: Online through Google Sheets

Link: <https://forms.gle/KyMjvQ1fg2EFyxJv7>

Faculty Coordinator

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- 1) Circulate among students and staff
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ROBOTICS CLUB

Date: 03-04-2024

REPORT ON ROBOTICS CLUB EVENT **ONLINE QUIZ ON INTRODUCTION TO ROBOTICS**

As part of the Industry 4.0 Clubs, the Robotics Club of Pragati Engineering College conducted an Online Quiz on **Introduction to Robotics** on 02-04-2024. A total of 104 students of B.Tech I, II and III Year have participated in the Quiz.

The quiz aimed to test participants' understanding of the fundamentals of robotics. The quiz was conducted online using google forms where participants allowed to answer a series of multiple-choice questions within a specified time limit. The questions were carefully designed to cover a broad range of topics related to the introduction of robotics. Participants were tested on their understanding of the basic concepts, history, and applications of robotics. Questions focused on the significance of robotics in modern industries and the integration of robotic systems in everyday life.

The online quiz was conducted for a duration of 30 minutes. Participants were required to answer 25 multiple-choice questions within the given time frame. Each correct answer was awarded one point, and there was no negative marking for incorrect responses.

Faculty Coordinator

An Online Quiz on INTRODUCTION TO ROBOTICS

the Robotics Club of

Pragati Engineering College conducted an Online Quiz on **Introduction to Robotics** in association with Career Guidance Cell on 02-04-2024 for the students of Department of Mechanical Engineering and Department of Electronics and Communications Engineering.

* Indicates required question

1. Email *

2. NAME OF THE STUDENT *

3. ROLL NUMBER *

4. BRANCH *

5. EMAIL ID *

6. 1. What is the role of computer vision in robotics? *

Mark only one oval.

- a. Processing numerical data
- b. Interpreting visual information from the environment
- c. Controlling actuators
- d. Generating power

7. 2. Which of the following is a key component of a robot? *

Mark only one oval.

- a. Operating system
- b. Central processing unit (CPU)
- c. Sensor
- d. All of the above

8. 3. What is a "haptic sensor" used for in robotics? *

Mark only one oval.

- a. Visual perception
- b. Touch or force feedback
- c. Auditory perception
- d. Smell detection

9. 4. What is the "end effector" of a robot? *

Mark only one oval.

- a. The power source
- b. The manipulative part at the robot's extremity
- c. The central processing unit
- d. The sensor array

10. 5. What is the main purpose of a robotic arm? *

Mark only one oval.

- a. Cleaning
- b. Locomotion
- c. Manipulation
- d. Communication

11. 6. Which type of robot is designed to perform tasks in environments that may be dangerous for humans? *

Mark only one oval.

- a. Industrial robot
- b. Domestic robot
- c. Medical robot
- d. Hazardous environment robot

12. 7. What is the purpose of a gripper in a robot? *

Mark only one oval.

- a. Sensing temperature
- b. Grasping and manipulating objects
- c. Processing visual data
- d. Providing mobility

13. 8. What is the primary function of a robot's sensor system? *

Mark only one oval.

- a. Generating power
- b. Processing information
- c. Interpreting sensory input from the environment
- d. Controlling actuators

14. 9. What is the purpose of the "inverse kinematics" in robotics? *

Mark only one oval.

- a. Controlling robot movement
- b. Sensing the environment
- c. Solving the geometry of robot limbs to achieve a desired end-effector position
- d. Providing power to actuators

15. 10. Which type of robot is designed to imitate human or animal characteristics? *

Mark only one oval.

- a. Industrial robot
- b. Humanoid robot
- c. Swarm robot
- d. Aerial robot

16. 11. What is the purpose of a PID controller in robotics? *

Mark only one oval.

- a. Powering the robot
- b. Controlling movement and position
- c. Processing visual data
- d. Providing wireless communication

17. 12. What does the term "singularity" refer to in the context of robotics? *

Mark only one oval.

- a. A highly advanced robotic system
- b. A point in time when artificial intelligence surpasses human intelligence
- c. A type of robot sensor
- d. A location for robot testing

18. 13. What is the primary advantage of using swarm robotics? *

Mark only one oval.

- a. Higher processing power
- b. Greater energy efficiency
- c. Enhanced communication capabilities
- d. Improved individual robot performance

19. 14. Consider a scenario where a robot is programmed to assemble products on an assembly line. How would you optimize the robot's movements to improve efficiency? *

Mark only one oval.

- a. Implement algorithms for path optimization in the robot's programming.
- b. Identify the main types of robots.
- c. Discuss the impact of robotics on the workforce.
- d. Define the term "end effector."

20. 15. Which of the following is an example of a bio-inspired robot design? *

Mark only one oval.

- a. Robotic arm
- b. Hexapod robot
- c. Industrial robot
- d. Telepresence robot

21. 16. If a robot encounters an obstacle in its path, what specific programming instructions could be implemented to navigate around it? *

Mark only one oval.

- a. Develop a set of conditional statements in the code for obstacle avoidance.
- b. List the components of a robotic arm.
- c. Define the term "artificial intelligence" in robotics.
- d. Explain the significance of actuators.

22. 17. What is the purpose of a force sensor in robotics? *

Mark only one oval.

- a. Sensing environmental temperature
- b. Measuring forces applied to the robot
- c. Controlling robot communication
- d. Analyzing visual data

23. 18. How would you modify the programming of a robot to adapt its movements to a changing environment? *

Mark only one oval.

- a. Write a code to adjust the robot's path based on real-time sensor data.
- b. Identify the key components of a robot.
- c. Explain the importance of sensors in robotics.
- d. Describe the history of robotics.

24. 19. In the context of robot programming, explain how a PID controller can be fine-tuned to achieve precise control over a robot's movements. *

Mark only one oval.

- a. Adjust the proportional, integral, and derivative parameters based on the robot's response.
- b. Enumerate the types of robot sensors.
- c. Compare and contrast different programming languages used in robotics.
- d. Describe the role of haptic sensors in robotics.

25. 20. Imagine you are programming a robot for pick-and-place tasks in a manufacturing setting. How would you program the robot to optimize its efficiency in grasping and releasing objects? *

Mark only one oval.

- a. Develop algorithms for adaptive grasping and release based on object characteristics.
- b. Identify the key components of a robot's sensor system.
- c. Discuss the ethical considerations in robotics.
- d. None of the above

26. 21. Consider a scenario where a robot is required to perform complex tasks in a dynamic environment. How would you program the robot to make decisions in real-time based on sensory input? *

Mark only one oval.

- a. Develop decision-making algorithms incorporating real-time sensor data.
- b. List the components of a robotic sensor system.
- c. Explain the impact of robotics on healthcare.
- d. Describe the importance of a gripper in a robot.

27. 22. Suppose you are responsible for programming a robot to use computer vision for object recognition. How would you design the code to improve the accuracy of object identification? *

Mark only one oval.

- a. Implement machine learning algorithms for object recognition based on visual data.
- b. List the types of robot mobility.
- c. Explain the purpose of SLAM in robotics.
- d. Describe the function of a force sensor in a robot.

28. 23. If a robot is designed for a hazardous environment, explain how you would program it to autonomously navigate and adapt to changing conditions. *

Mark only one oval.

- a. Implement adaptive navigation algorithms based on real-time sensor feedback.
- b. Identify the key components of a humanoid robot.
- c. Discuss the cultural impact of robotics.
- d. Explain the purpose of an inverse kinematics solver in robotics.

29. 24. In a swarm robotics scenario, how would you program individual robots to collaborate effectively in completing a task? *

Mark only one oval.

- a. Design communication protocols and coordination algorithms for swarm behavior.
- b. Compare and contrast industrial robots and domestic robots.
- c. Discuss the legal implications of robotics.
- d. Enumerate the types of actuators used in robotics.

30. 25. If you were tasked with programming a robot for teleoperation in hazardous environments, what specific features or safeguards would you implement in the code? *

Mark only one oval.

- a. Integrate safety protocols and emergency shutdown procedures in the teleoperation code.
- b. Discuss the historical developments in robotics.
- c. Explain the concept of AI in robotics.
- d. List the components of a robotic gripper.

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Google Forms

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