Learning is Supreme Deity

PRAGATI ENGINEERING COLLEGE

(Autonomous)
ADB Road, Surampalem, E.G.Dt., A.P. – 533 437
(Approved by AICTE, Permanently Affiliated to JNTUK, Kakinada)
(Recognized by UGC Under Sections 2(f) and 12 (B) of UGC act, 1956)
Ph: 08852 – 252233, 34. Website: www.pragati.ac.in

ROBOTICS CLUB

Date: 27-05-2024

CIRCULAR

It is to inform to all the students of B.Tech I, II and III Year that the college Robotics Club of Department of ME is conducting an Online Quiz on Introduction to Robotics on 28-05-2024. Interested students can participate through the link provided below.

Mode: Online through Google Sheets
Link: https://forms.gle/KyMjvQ1fg2EFyxJv7

Faculty Coordinator

Copy to:

1) Circulate among students and staff
2) Department Notice Board
3) Department File
4) Principal for Information

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ROBOTICS CLUB

Date: 29-05-2024

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 28-05-2024. A total of 50 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** on 28-05-2024 for the students of Department of Mechanical Engineering.

* Indicates required question

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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.

List of students participated

S.No.	Roll Number	Name of the Student	Branch
1	21A31A0136	NARALA MANI KUMAR	CE
2	21A31A0228	CHEEKATLA UMA GOWTHAM	EEE
3	21A31A0262	GUTTULA PRADEEPTHI	EEE
4	21A31A0279	NOKKU ACHYUTH	EEE
5	21A31A0313	BOBBILI VIJAY DURGA RAO	ME
6	21A31A0326	JAYAVARAPU NAGA RAJESH	ME
7	21A31A0341	PEDDAPATI SAI NARENDRA	ME
8	21A31A0363	BALLA ABHIRAM	ME
9	21A31A0377	MATTA SRI AMMAYYA	ME
10	21A31A0412	MUTYAM SATYA SWATHI	ECE
11	21A31A0449	MATHA SUSHANTH	ECE
12	21A31A04C1	PERUMALLA SAI GOWTHAM	ECE
13	21A31A04F2	LANKE VIDYA SREE	ECE
14	21A31A04F2	LANKE VIDYA SREE	ECE
15	21A31A04L8	RAJALA RAMYA	ECE
16	22A31A0306	BODDU AJAY	ME
17	22A31A0320	KARANAM KALI KRISHNA	ME
18	22A31A0336	PANTHAGADA DEEPAK SAI	ME
19	22A31A0369	KOTHAPALLI ASHISH VARDHAN	ME
20	22A31A0394	TUTTA LAKSHMI GANESH	ME
21	22A35A0206	GOVVALA RAMAKRISHNAM RAJU	EEE
22	22A35A0239	THALLAPU VENKATESH	EEE
23	22A35A0301	DONDAPATI VIJAYA SUKRUTHI	ME
24	22A35A0302	VASAMSETTI MALLIKA	ME
25	22A35A0304	AYITHIREDDY BHAVANI RAJA	ME
26	22A35A0312	KAPAVARAPU UMAMAHESH	ME
27	22A35A0317	NAMBU SRI VENKATA SIVA SAI LAKSHMAN ROYAL	ME
28	22A35A0331	MARKANDA RAGHAVEANDRA	ME
29	22A35A0331	MARKANDA RAGHAVEANDRA	ME
30	22A35A0426	NAGIREDDI NANDINI	ECE
31	23A31A0318	CHILUKURI SIVA SANKAR	ME
32	23A31A0334	PALIVELA CHAITANYAKUMAR	ME
33	23A31A0352	VINTI VEERABHADRA TRINATH	ME
34	23A31A0424	BONDADA SUMANTH	ECE
35	23A31A04A8	JUTTIGA RAM SURESH	ECE
36	23A31A04E6	SAINAM SNEHALATHA	ECE
37	23A31A04H7	PODAGATLA SIVA	ECE
38	23A31A04L6	RUDRA DEEPIKA	ECE
39	23A31A04U1	MAKIREDDI JAYA SURYA	ECE
40	23A31A4270	CHAKKA VASAVI	CSE(AIML)
41	23A31A4285	NUNNA NAGA SRILAKSHMI	CSE(AIML)
42	23A31A42D4	BHUPATHI HARI DEEPIKA	CSE(AIML)
43	23A31A42E4	KONDEPUDI MANASA	CSE(AIML)
44	23A31A42H2	GUMMIDI DURGA MALLESWAR	CSE(AIML)
45	23A31A42J0	TEKU SYAM KUMAR	CSE(AIML)
46	23A31A42J5	YADLAPALLI LALITHADITYA	CSE(AIML)
47	23A31A4324	SIDDA BARANI	CSE(AI)
48	23A31A4325	SURINEDI RISHITHA SRI NAGA SUREKHA	CSE(AI)
49	23A31A4361	TEKI SIVA KUMAR	CSE(AI)
50	23A35A0317	CHODIPALLI SANDEEP	ME