Class 8

Answer Key

RoboGenius Pro

1. The World of Robots: Ethics, Laws and Future

ROBO CHECK

A. 1. (ii) 2. (i) 3. (i) 4. (iii) 5. (iii)

B. 1. T 2. F 3. T 4. F 5. F

C. 1. Programmed 2. Human 3. Second generation
4. Robotic surgery 5. Isaac Asimov

COMPETENCY-BASED QUESTIONS

1. Fourth generation
2. Mechanical structure

CASE STUDY

1. Robots are valuable in manufacturing due to their autonomy, precision and efficiency.
2. Limitations such as lack of creativity, high costs, and an inability to adapt to unexpected situations could affect production.
3. Ethical concerns in industries may involve issues related to job displacement, safety, and responsibility for errors made by robots.

2. Robot as a System

ROBO CHECK

A. 1. (iii) 2. (iv) 3. (iii) 4. (ii) 5. (ii)

B. 1. F 2. T 3. F 4. T 5. T

C. 1. Mechanical 2. Microbots 3. Car 4. ABB 5. Sensors

COMPETENCY-BASED QUESTIONS

1. The Mechanical Block is responsible. It includes components like the body, joints, and actuators (motors).
2. It is a Snakebot, specifically a Modular Snakebot.

CASE STUDY

1.
   - The mechanical block helps robots move and interact with objects.
   - The electronic block enables robots to detect their environment using sensors.
   - The computational block controls the robots' actions and decision-making through algorithms.
2. The company may face downtime and loss of efficiency as robots cannot quickly adapt to changes in production and require reprogramming.
3. The company can improve the robots' ability to adapt to new tasks by allowing them to quickly adapt to tasks outside their programming.

3. Introduction to Google Teachable Machine

ROBO CHECK

A.	1. (i)	2. (ii)	3. (iii)	4. (ii)	5. (iv)
B.	1. F	2. T	3. F	4. F	5. T
C.	1. Learn	2. Machine	3. Retrain	4. Class	
	5. Recognise, Classify				

COMPETENCY-BASED QUESTIONS

1. Anjali can try the following steps to improve her model's accuracy: Add More Data, Use Clear and Varied Data, Test the Model, Adjust Settings and Retrain the Model.
2. Rohit should export the model and integrate it into his conservation project for real-world use.

4. Building Projects with Google Teachable Machine

ROBO CHECK

A.	1. (ii)	2. (i)	3. (iv)	4. (ii)	5. (iii)
B.	1. T	2. T	3. F	4. T	5. F
C.	1. Images	2. Sounds	3. Accurately	4. Webcam	
	5. Augmented Reality (AR)				

COMPETENCY-BASED QUESTIONS

1. They should use the Audio Project because it helps the model learn and identify different sounds, such as claps, whistles, or spoken words.
2. The factory should use an Image Project because this project type helps a computer recognise and classify images, allowing it to distinguish between good and defective products.

5. Sensors, Logic and Maze Navigation

ROBO CHECK

A.	1. (i)	2. (iv)	3. (ii)	4. (iii)	5. (iii)
B.	1. T	2. F	3. F	4. T	5. T
C.	1. Sensor	2. Boost, Drop	3. Console	4. Operators	
	5. Coordinates				

COMPETENCY-BASED QUESTIONS

1. The student should use the Distance Sensor to detect obstacles and the Eye Sensor to identify objects. These sensors help the robot sense its surroundings and make decisions while cleaning the reef efficiently.
2. Riya should use the Bumper Sensor. This sensor will detect when the robot touches a wall, triggering it to stop and then turn in a different direction to continue moving.