Learning that works for Arizona
CTE™

(These items were developed by teachers for the Technical Skills Assessment. Below is a sample item for each program standard.)

Question 1 of 13

Who is responsible for the death of a human if a teleoperated robot was involved and mechanical design or software failures were NOT identified?

○ **A)** Designer

○ **B)** Manufacturer

○ **C)** Owner

○ **D)** Operator

Question 2 of 13

How many connections are REQUIRED between analog ground and digital ground in a single circuit?

○ **A)** Three

○ **B)** None

○ **C)** Two

○ **D)** One

Question 3 of 13

What material property has the MOST influence on a robot in transporting a payload?

○ **A)** Strength

○ **B)** Density

○ **C)** Luminosity

○ **D)** Speed

What module is NOT a component of a typical Programmable Logic Controller (PLC)?

A) Output

B) Animation

C) Input

D) Memory

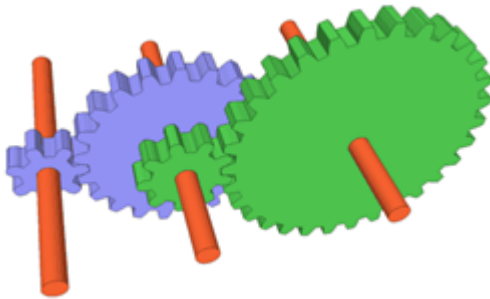## Question 5 of 13

What is the MAIN focus when designing a new system?

A) Maintenance

B) Speed

C) Safety

D) Strength

Question 6 of 13

The left rear gear is the input and the right forward gear is the output. What impact does this gear ratio have?

A) Increase speed

B) Increase power

C) Increase torque

D) Increase pressure

Which view gives the BEST representation of an object from all angles?

○ **A)** Side

○ **B)** Geometric

○ **C)** Isometric

○ **D)** Front

What is the mechanical advantage of a robotic arm (lever) that requires an input force of 10 pounds and can lift an object that weighs 40 pounds if using the formula "mechanical advantage equals output force/input force?"

○ **A)** 4

○ **B)** .4

○ **C)** 40

○ **D)** 400

What is this connector? (Shared via Google Drive)

○ **A)** Centronics

○ **B)** Parallel

○ **C)** SCSI

○ **D)** USB-A

Question 10 of 13

What type of sensor is NOT used to detect force?

○ **A)** Strain gauge

○ **B)** Scale

○ **C)** Torque sensor

○ **D)** Thermocouple

Question 11 of 13

What machine is used for subtractive manufacturing?

○ **A)** 3D printer

○ **B)** Injection molding

○ **C)** Resin printer

○ **D)** CNC

Question 12 of 13

What is the function of a flowchart?

○ **A)** Provides a recipe for results

○ **B)** Illustrates programming language use by robots

○ **C)** Illustrates a sequence of movements or actions

○ **D)** Provides technical specs

Question 13 of 13

What are examples of safety hardware and circuits?

○ **A)** Switches and enable guards

○ **B)** Movements and speed relays

○ **C)** Light curtains and emergency E-stops

○ **D)** Start button and electrical values

Automation and Robotics Sample Test Answer Key

Question	Answer
1.	D
2.	D
3.	A
4.	B
5.	C
6.	C
7.	C
8.	A
9.	D
10.	D
11.	D
12.	C
13.	C