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	Name:	Date: July, 2026
	Grade: 7th	Term: 3rd
	Area/ Subject: Technology and computing	Mark:

Purpose: Identify and correctly apply the function of logical operators (AND, OR, NOT) and conditional structures in the design of automated control algorithms.

Evaluative Activity: Conditionals and Logical Operators

1. *What is the main function of he **AND** logic operator in an algorithm?*

- ☐ *It changes the condition from true to false.*
- ☐ *It activates an action if at least one condition is true*
- ☐ *It activates an action only if all conditions are true at the same time.*

2. *In a home security system, a warning sounds if the **gas sensor** detects a leak OR if the **humidity sensor** detects a flood. Which logic operator do we use?*

- ☐ *AND*
- ☐ *OR*
- ☐ *NOT*

3. *We want an **air extractor** to turn off when the **gas sensor** does NOT detect dangerous substances. Which operator is best for this **inverse** logic?*

- ☐ *AND*
- ☐ *OR*
- ☐ *NOT*

4. *What type of sensor is necessary for a project to **prevent** gas poisoning accidents in a house?*

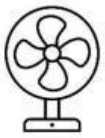
- ☐ *Gas sensor*
- ☐ *Logic operator*
- ☐ *Light sensor*



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5. *An algorithm turns on a fan if the **temperature** is high AND the **humidity** is high too.*

*If the temperature is **high**, but the humidity is **low,** what happens to the fan?*



- ☐ *The fan turns on because temperature is the most important factor.*
- ☐ *It activates an action if at least one condition is true*
- ☐ *The fan stays off because both conditions are not true.*

6. *For the classroom lights to turn on, the classroom must be **dark** there must be students inside. Which of the following logical conditions is correct?*



- ☐ *IF Light_Sensor = Dark OR Motion_Sensor = People are in THEN Lights = TURN ON*
- ☐ *IF Light_Sensor = Light AND Motion_Sensor = Empty THEN Lights = TURN ON*
- ☐ *IF Light_Sensor = Dark AND Motion_Sensor = People are in THEN Lights = TURN ON*

7. *A cooperative team programmed an **irrigation system** for the plants using the following logic condition:*

*IF Soil = Dry **OR** Time = 6:00 PM THEN Irrigation System = ON.*

The irrigation system turns on at 6:00 PM even though the soil is completely moist, wasting water. What is the error in the algorithm?



- ☐ *They should have used the NOT operator to invert the time value*
- ☐ *They used the OR operator instead of AND.*
- ☐ *They used the AND operator instead of OR.*

8. The following algorithm has been created to display an alert message if the room temperature is higher than 30°C or the air humidity is higher than 90%:

*If temperature = high **OR** humidity = low, Then Alert = active*



The thermometer currently reads 32°C. What happens?

- ☐ *The alert does not activate because the humidity is too low and blocks the system.*
- ☐ *There is an error in the algorithm.*
- ☐ *The alert does appear because one of the two conditions is TRUE*

9. *Create the algorithm to the following situation with these dates:*



It's raining / I will wear a cape / I will take a umbrella

IF_____ ***THEN***_____ ***OR***_____

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