**Microprocessor Lab**

Laboratory Activity No. 1

**Familiarization with TinkerCAD**

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Score

*Submitted by:*

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**Sat 10:00AM – 1:00PM / CPE 0412 – 1.1**

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*Submitted to:*

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1. Exercise

a. A process in Tinkercad where we can develop electronic circuits that can be quickly updated, modified and tested is called prototyping.

b. In Tinkercad, simulation tests the working of the circuits and the components.

c. The device used to assemble and connect the various components is known as breadboard.

d. In an electronic circuit with LED, the positive end of the circuit should be connected to

anode and negative end should be connected to cathode of the LED.

e. A resistor is used to restrict the flow of current to electrical components

2. Label the following:



1. Anode and Cathode in a LED

Cathode (-)

Anode (+)

1. Different parts of breadboard

Ground Bus



Power Rails

Power Bus

Terminal Rails

Central Divider

Terminal Rails

Power Rails

1. List the electronic components used in a circuit assembly.
2. Micro bit - A petite microcontroller tailored for pedagogical purposes, equipped with various built-in functions for electronic learning.
3. Piezo Buzzer - Utilizes the piezoelectric phenomenon to produce varying sound frequencies.
4. 9V Battery - Contains cells that collectively provide a voltage potential of 9 volts.
5. Hobby Gearmotor - A motor tailored for amateur projects, adept at transforming electric impulses into kinetic action.
6. Temperature Sensor - Instruments that detect ambient temperature changes, converting them to electric signals.
7. Diode - A component that permits electrical current to flow solely in one predetermined direction.
8. Ultrasonic Distance Sensor - Employs sound waves of high frequency to gauge the distance to an obstacle or object.
9. Slideswitch - An actuating switch which, by sliding its handle, toggles between circuit states.
10. LED - Electronic component that illuminates upon receiving electrical current.
11. DC Motor - An apparatus that morphs direct current electrical power into revolving mechanical movement.

11. Breadboard - An unsoldered platform used for constructing and testing electronic designs.

12. 1.5V Battery - A power storage medium that outputs a voltage of 1.5 volts.

13. NPN Transistor (BJT) - A semiconductor device that modulates current flow based on the voltage applied to one of its terminals.

14. Vibration Motor - Engineered to produce a tremor or shake, predominantly seen in alert mechanisms of devices.

15. Coin Cell 3V Battery - Thin, coin-like cell that furnishes a 3-volt electrical output, typical in diminutive gadgets.

16. Arduino Uno R3 - A customizable electronic board, pivotal for crafting and controlling varied digital projects.

17. PIR Sensor - Harnesses infrared wavelengths to perceive motility, especially effective for detecting humans.

18. Capacitor - Stores electrical energy temporarily in a field, to be discharged when required.

19. Photoresistor - A type of resistor that adjusts its resistance depending on the luminosity it's exposed to.

20. Resistor - Electronic entity introduced into a circuit to control or limit the passage of electric current.

21. Push button - Mechanical switch that acts upon pressure to establish or sever electrical connections.

22. Multimeter - Diagnostic tool for evaluating several electrical attributes, including but not limited to voltage and resistance.

23. Soil Moisture Sensor - Ascertains the hydration levels in soil, primarily using principles of capacitance.

24. Potentiometer - A tunable resistor, with a moving contact that defines the resistance value.

25. RGB LED - An LED variant, with the capability to showcase varied hues by amalgamating primary colors.

26. Micro Servo - Miniature motor with a regulated output, allowing precise positioning or rotation.