***Cruise School: Gebriel campus***

***Individual Assignment***

***Subject: Physics***

***Grade: 10***

Total weight: equivalent to mid exam

Submission date: on the day school reopen.

Assignment should be submitted in hard copy.

Assignment should be presented individually.

April 2020

***CRUISE SCHOOL,addis ababa***

***Physics worksheet for G-10***

1. Define and explain the following terms

a) Electronics

b) Thermionic Emission

d) Cathode rays

e) Electron Gun

f) X-ray tube

g) Cathode ray oscilloscope (CRO)

h) Semiconductor

2. Explain and understand

a) Pure (intrinsic) semiconductors

b) Impure (extrinsic) semiconductors

c) N-type semiconductor

d) P-type semiconductor

3. Why do impure semiconductors are preferred rather than pure semiconductor?

4. What makes a semiconductor material so special than conductors? Explain

5. What is P-N junction diode?

6. Why dose the depletion year layer act as an insulator? Explain

7. What is forward and reverse bias? Explain

8. Why is the depletion layer become thin and the current large in forward bias? Explain

9. List and explain some semiconductor devices (at least 10).

10. Explain half and full wave rectification?

11. Define the term transistors and its three parts.

12. What the difference between N PN transistor and PNPtransistor?

13. What are the characteristics of transistors?

14. Define logic gate

15. Explain and understand the five logic gates?

16. In logic gates what meant by 0 and 1

Workout problems

1. On cathode ray oscilloscope, the distance between crests is 2cm.If the time base is set at 10ms/cm. What is the period of the wave?

2. The collector current of a transistor used as an amplifier changes from 6MA to 18MA as the base current change from 5µA to 25µA. What is the current amplification factor of a transistor?

3. If the output voltage changes by 4v when the input voltage changes by 0.2v. What is the voltage gain?

4. If A=B=C=0 and then A=B=1 and C=0 then what is the gate at D for both cases?

A

B D

C

5) A transistor has current gain of 200. If a current of 3µA is sent into the base, what size collector current would you expect?

6) A battery is connected to the y-terminal of an oscilloscope and the spot deflects 3cm vertically. The sensitivity of the oscilloscope is set at 1v/cm. What is the potential deference across the battery?

7) Complete the truth table for the arrangement of gates shown in the figure

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | B | C | D | E |
| 0 | 0 |  |  |  |
| 1 | 0 |  |  |  |
| 0 | 1 |  |  |  |
| 1 | 1 |  |  |  |

A C  **E**

B D