

St John Baptist De La Salle Catholic School, Addis
Ababa

Grade 10 Work Sheet Problems
4th Quarter

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1. Let's say we want to study a signal visually. For an AC signal of a maximum voltage 12V and frequency of 60 Hz, draw a visual representation of what we would expect to see on an oscilloscope. You are free to give the oscilloscope the time base and gain control of your choice.
2. State the uses of a transistor and explain how amplification is possible through a double junction. Draw the paths of current in the transistor and state Kirchhoff's Law. Explain why the word "amplification" is misleading while using it for transistors.
3. Explain the difference between P-type and N-type semiconductors and how they are made. Explain how their properties gives rise to rectification. Explain what rectification is and state what the opposite process of rectification is(inversion) and state how we can rectify or invert current.
4. Define and explain the following terms:
 - (i) Doping and impurities.
 - (ii) Acceptor and Donor atoms.
 - (iii) Conduction band theory and lattice structures.
5. Explain what we mean by 0 and 1 electrical signals. Explain what logic gates are. Give 3 examples of logic gates used in real life.