**HOLIDAY ASSIGNMENT**

**PHYSICS FORM 3**

1. Define the terms and state the SI unit of each. (6mark)
2. Work
3. Energy
4. Power
5. A hammer is used to hit a round metal into a flat shape. It is observed that the temperature of the metal rises. State the energy transformation. (2mark)
6. A force of 120N stretches a spring by 15cm. How much work is done in stretching this spring by 20cm? (3mark)
7. A bullet of mass 30g strikes a tree trunk of diameter 40cm at 200m/s and leaves it from the opposite side at 100m/s. Find the:
8. Kinetic energy of the bullet just before it strikes the tree.
9. Kinetic energy of the bullet just before it emerges from the tree.
10. Average force acting on the bullet as it passes through the tree.
11. An effort of 125N is used to lift a load of 500N through a height of 2.5m using a pulley system. If the distance moved by the effort is 15m, calculate the:
12. Work done on the load.
13. Work done by the effort.
14. Efficiency of the pulley system.
15. A man uses an inclined plane to lift a 50Kg mass through a vertical height of 4m. if the plane is 62.5% efficient and makes an angle of 300 with the horizontal, calculate:
16. the velocity ratio.

ii) the effort needed.

iii) the work output.

iv) the work input.

v) the work done against friction.

1. Distinguish between elastic and inelastic collision.
2. A man of mass 75Kg stands on a lift. determine the weight on the lift when:
3. the lift moves upwards with an acceleration of 2m/s2.
4. The lift moves downwards at a constant velocity of 1.5m/s
5. The lift moves downwards with an acceleration of 2.5m/s2
6. The initial velocity of a body of mass 20Kg is 4m/s. Determine how long a constant force of 5N would act on the body in order to double its kinetic energy.
7. State ohm’s law and describe an experiment to verify it.