**KAUWI DAY SECONDARY SCHOOL**

**MID TERM EXAMS**

**FORM 1 PHYSICS**

**TIME: 2 HOURS**

**SECTION A (25 MARKS)**

Answer all the questions in the spaces provided.

1. Define the following and state their SI units.(3 mks)
2. Density
3. Mass
4. Volume
5. A sphere of diameter 6.0 cm is moulded into a this uniform wire of diameter 0.2mm. Calculate the length of the wire in metres.(Take=$\frac{22}{7}$ )
6. A man has a mass of 30kg. Calculate;
7. His weight on earth,where the gravitation field strength is 10Nkg-1(2marks)
8. His weight on the moon,where the gravitation field strength is 1.7 Nkg(2mks)
9. A block of copper of density 8.9 g/cm3 measures 6cmX4cmX3cm.Given that the force of gravity is 10Nkg-1;Determine;
10. The maximum pressure(2mks)
11. The minimum pressure that it can exert on horizontal surface.(2mks)
12. A body weighs 100N in air and 80n when submerged in water.calculate the upthrust acting on the upthrust acting on the body.(2mks)
13. Find the volume of sphere whose radius is 3.0cm.(2mks)
14. Bronze is made up by mixing molten copper and tin.if 100gkg of the mixture contains 80% by mass copper and 20% by mass of tin ,calculate the density oof bronze .

(density of copper is 8900kgm-3 and density of tin 7000kgm-3) (4mks)

8 state the properties of a brake fluid(3mks)

 **SECTION B(55 mks)**

**Answer all questions**

9 what is pressure (1mk)

(b) a man of mass 90kg stands upright on a floor,if the area of a contact of his shoes and floor is 420 cm2 ,determine the average pressure exerts on the floor (take g=10nkg-1)(3mks)

(C) the density of mercury is 1300kgm-3 .determine the liquid pressure at a point 76cm below the surface of mercury (take g =10nkg-1(2mks)

(d) state the pascal principle (2mks)

(e) a girl standing upright exert a ressure of 25n/m2 on floor.gives that the total area of contact of shoes and the floor is 0.2om2.(9use g=10nkg-1)

(i) determine the mass of a girl (2mks)

(ii) determine the pressure she would exert on the floor if she stood on one foot(2MKS)

(f) a metallic block of mass 50kg exert pressure of 20nm-2 on a flat surface .determine the area of contact between the block and the surface .(2mks)

(ii) determine the fluid pressure formuler (p=plug)where e=density (4mks)

(g) The figure shows a simple hydraulic press used to compress a bole. The cross section areas of A and B are 0.002M2 and 0.30M2 respectively.

Determine;

1. Pressure exerted on the oil by the force applied at A(2mks)
2. Pressure exerted on B by the oil(1mk)
3. Force produced on B compressed the bale.(2mks)

10. 100cm3 of fresh water of density 10kgm—3 is mixed with 100cm3 of sea water of density 1030kg-3. Calculate the density of the mixture.(5mks)

11. a)(i) Define force and state its SI Unit.(2mks)

 (ii) Define cohesive and adhesive force.(2mks)

(b) Find the resultant of a force of 4N and force of 8N acting at the same point on an object if;

1. The forces act in the same direction in the same straight line.(2mks)
2. The force act in opposite directions but in the same straight line.(2mks)

( c) (i) Define surface tension.(2mks)

(ii) How does temperature rise and impurities affect the surface tension.(2mks)

12. A spring stretches by 6 cm when supporting a load of 15N.

(i) By how much would it stretch when supporting a load of 5kg. (2mkls)

(ii)What load would make the spring extend by 25mm (3mks)

13. Explain each of the following, using behavior of molecules where possible.

(i) A match-stick rubbed at one end with soap starts moving immediately in one direction when placed on the surface of water.(3mks0

(ii) A steel needle placed carefully on the surface of wate does not sink.

(iii) When a small drop of detergent is placed on water, the needle moves rapidly away from it and sinks when more detergent is added.(Assure that detergent does not affect the density of water.)