**DARAJANI BOYS’ HIGH SCHOOL,**

P.O BOX 20-90129, NGWATA.

**School Motto:** “**Knowledge is Liberty, Ignorance is Fatal**”.

**END OF YEAR EXAMINATION, 2015**

**FORM 1,**

**PHYSICS.**

**TIME: 2 HRS**

NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ADM.NO\_\_\_\_\_\_\_\_\_\_\_CLASS\_\_\_\_\_\_

1. (a) State the reason why water spilled on a glass surface wets the surface. (2 marks)

(b) Explain how a steel needle is made to float on water. (1 mark)

1. Name any three properties of a thermometric liquid. (3 marks)
2. State the reason why gases are compressible while liquids and solids are not. (2 marks)
3. (a) State Pascal’s principle of transmission of pressure in liquids. (2 marks)

(b) In an experiment to demonstrate atmospheric pressure, a plastic bottle is partially filled with hot water and the bottle is tightly corked. After sometime the bottle starts to get deformed.

(i) State the purpose of hot water. (2 marks)

(ii) State the reason why the bottle gets deformed. (1 mark)

(iii) Explain your answer in (ii) above. (2 marks)

1. The reading on a mercury barometer at a place is 700mm. What is the pressure at the place in Nm-2? Take density of mercury to be 13600Kgm-3. (3 marks)
2. Define a scalar and vector quantity giving one example in each. (4 marks)
3. (a) State one unique feature of a clinical thermometer as compared to the normal mercury-in-glass thermometer. (1 mark)

(b) State and explain two features which affect the conduction of heat through solids. (4 marks)

(c) Sketch a graph of volume of water against temperature from 0oC to 10oC. (2 marks)

(d) State two disadvantages of the unusual expansion of water. (2 marks)

1. A body weighs 80N on the moon. Given that the earth’s gravitational strength is 10N/Kg and that of the moon is 116 that of earth. Find
2. The mass of the object on the earth. (3 marks)
3. Its weight on earth. (2 marks)
4. Define the following terms and state their SI units. (6 marks)
5. Length.
6. Time.
7. Temperature.
8. What is the total pressure experienced by a diver 100m below the surface of water in fresh water lake? (Density of water = 1g/cm3, g = 10N/kg and atmospheric pressure = 1 x 105pa. (4 marks)
9. (a) State the kinetic theory of matter. (1 mark)

(b) In an experiment to investigate Brownian motion, smoke was placed in a glass cell containing air and observed using a microscope. The smoke particles were seen moving in zig-zag (random) motion in all directions.

(i) Explain the observation. (2 marks)

(ii) If the temperature of the gas was raised, state and explain what would be observed. (2 marks)

1. A hydraulic press consists of two cylinders of cross-sectional areas 0.2m2 and 5m2. If the piston in the smaller cylinder is pushed down with a force of 100N. calculate:-
2. The pressure transmitted by the fluid. (2 marks)
3. The force exerted on the piston in the larger cylinder. (2 marks)
4. The figure below shows jets of water coming out from holes of equal size drilled on the curved side of a can. What conclusion about pressure in liquids can you make from the observations stated in (a) and (b)
5. Jets A and C are from holes drilled at the same level and travel the same horizontal distance. (2 marks)
6. Jet B is from a hole at a higher level than jet C and travel a shorter horizontal distance than Jet C. (1 mark)
7. State the three factors that affect pressure in fluid. (3 marks)
8. A block of wood measuring 30cm x 15cm x 6cm has a mass of 2300g. calculate its density in:-
9. g/cm3 (3 marks)
10. kg/m3 (1 mark)
11. 100cm3 of water of density 1000kg/m3 is mixed with 800cm3 of brine whose density is 1027kg/m3. What is the density of the mixture? (4 marks)
12. The diagram below shows how forces are balanced by two pistons.

Calculate the force W exerted on the bigger piston. (3 marks)

1. Convert:-
2. 70oC to Kelvin. (1 mark)
3. 3500kg to mg (milligrams) and write your answer in standard form. (2 marks)
4. The diagram below shows a bimetallic strip at room temperature.

Iron

Brass

Draw the bimetallic strip at a higher temperature. (2 marks)

1. Find the resultant force of the following.
2. 450N due East and 200N does West. (2 marks)
3. 250N due South and 100N due North. (2 marks)
4. Explain the following statements in terms of pressure.
5. Large flat feet enable elephants to more forcely. (2 marks)
6. It is painful if one tries to lift a heavy load by a thin string. (2 marks)
7. The figure below is a setup to demonstrate expansion of liquid. (2 marks)
8. State the observations noticed immediately the heating starts and after a few minutes. (2 marks)
9. Explain the observation. (2 marks)
10. A block of iron measures 6cm long, 8cm wide and 10cm deep and has a mass 360g.
11. Calculate the volume of block. (2 marks)
12. Convert the volume in (a) above into m3 and mass into kg. (2 marks)
13. Calculate the greatest pressure it can exert on a flat horizontal surface. (3 marks)
14. Give three differences between mass and weight. (3 marks)

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