*Form 1 end term 3 2017*

1. *Define physics (1mk)*
2. *State two branches of physics (2mks)*
3. *A block measuring 20cm by 10cm by 4cm rests on a flat surface. The block has a weight of 6N. Determine:*
	* 1. *The minimum pressure it exerts on the surface. (2 marks)*
		2. *The density of the block in kg/m3  (3 mark)*
4. *Figure below shows apparatus used to observe the behaviour of smoke particles in a smoke cell.*

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*a) Explain what was observed (1mark)*

*b) Explain what would happen if the temperature was raised. (1mark)*

1. *Two samples of bromine vapour are allowed to diffuse separately under different conditions, one in a vacuum and the other in air. State with reasons the conditions in which bromine diffuse slower. (2 mrks)*
2. *Define atmospheric pressure (1mk)*
3. *Figure 14 below shows a manometer used to measure gas pressure.*

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*Determine the gas pressure Pg given that atmospheric pressure is 760mmHg, density of
water is l000kgm-3 and that of mercury 13,600kgm-3 (3mks)*

*c) The barometric height in a town is 65cmHg. Given that the standard atmospheric
pressure is 76cmHg and the density of mercury is 13600kg/m3, determine the altitude of
the town. (Take density of air = 1.25kg/m3) (3mks)*

1. *. a) Figure 13 below represents a car hydraulic braking system.*

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*Use the information given in the diagram above to answer questions 3(a) and 3(b).*

*(i) State one property the fluid should have. (1mk)*

 *(ii) Explain briefly how the system operates. (3mks)*

1. *Using kinetic theory of matter, explain why solids expand when heated. ( 1 mark )*
2. *State three modes of heat transfer (3mks)*
3. *Two l0g masses are fixed onto two similar aluminum plates, one polished and the other painted black, using wax as shown in the figure below. A Bunsen flame is placed mid-way between the plates.*



*Give and explain the observation made (2mks)*

1. *Ten glass marbles, each of mass 6.0 g, were gently lowered into a 100cm3 measuring cylinder containing water to the level marked A. The water level rose to the level marked B as shown in Fig. 1 below*

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 *Determine the density of the glass. (3mks)*

1. State two experiment to show that light travels in a straight line (2mks)
2. Define reflection (1mk)
3. Define the following terms (2mks)
	* 1. Angle of incident
		2. Angle of reflection
4. A pinhole camera forms an image of size 10cm. The object is 5m tall and 20m away from the pinhole. Find the length of the pinhole camera. ( 3marks )
5. State four characteristics of images formed by plane mirrors (4mks)
6. Figure 1 below shows an incident ray and reflected ray on a plane mirror

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* + 1. *Label incident ray and reflected ray in the diagram below (2mks)*
		2. *Calculate angle of incident and angle of reflection (2mks)*
		3. The mirror is rotated clockwise through an angle of 150 about point O. What will be the angle between the two rays? (2mks)