

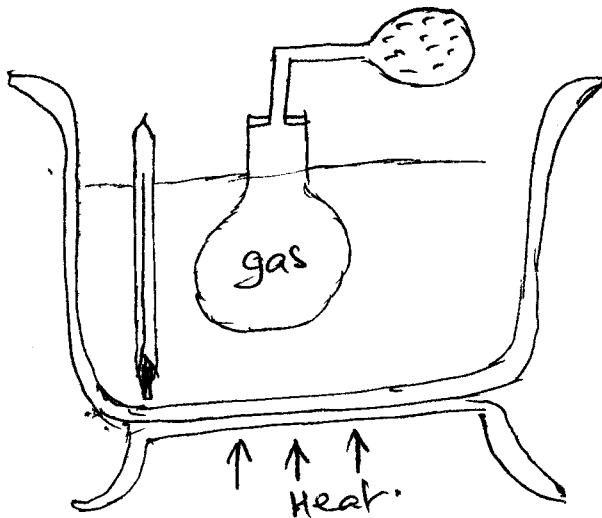
**GATITU SECONDARY SCHOOL, P.O. BOX 327 – 01030, GATUNDU**

**FORM 4 PHYSICS MID TERM EXAMINATIONS. TERM 1 2016.**

1. A basic laboratory rule states that Never heat a glass bottle with its stopper on!. Explain the purpose of this precaution. (2mks)

2a) State the pressure law of gases. (2mks)

b) To verify pressure law the following set up was used.



i) State the measurement that would be taken in the above experiment. (2mks)

ii) Explain how the measurement taken above may be used to determine the absolute temperature. (4mks)

c) A certain mass of a gas occupies  $2.4\text{m}^3$  at a pressure of  $1.6 \times 10^5$  pa and a temperature of  $27^\circ\text{c}$ . Determine the pressure of the gas when its volume is  $3.0\text{m}^3$  at a temperature of  $196^\circ\text{c}$ . (4mks)

3a) Distinguish between latent heat of fusion and specific latent heat of fusion of a substance. (2mks)

3) A 2kg mass of ice at  $-10^{\circ}\text{C}$  is converted into steam of  $100^{\circ}\text{C}$  under standard atmospheric pressure. Given that specific latent heat of fusion of ice is  $336\text{kJ/kg}$ . Specific latent heat of vapourisation is  $2260\text{kJ/kg}$ , specific heat capacity of ice is  $2100\text{J/kg}\cdot\text{K}$ . And specific heat capacity of water =  $4200\text{J/kg}\cdot\text{K}$ . Calculate the heat energy required to convert ice until all the mass turns into steam. (10mks)

4. A turn table of a record player makes 45 revolutions per minute. Calculate  
i) Its angular velocity in radians per second. (2mks)

ii) The linear speed at a point  $0.12\text{m}$  from the centre. (2mks)

i) Complete a the ray diagram below to show the position of the Image. (4mks

iii) (4mks

iv) You are provided with the following apparatus. A convex lens, screen with cross wires, metre rule and a source of light.

Describe how you can use the above to determine the focal length of the lens. (5mks

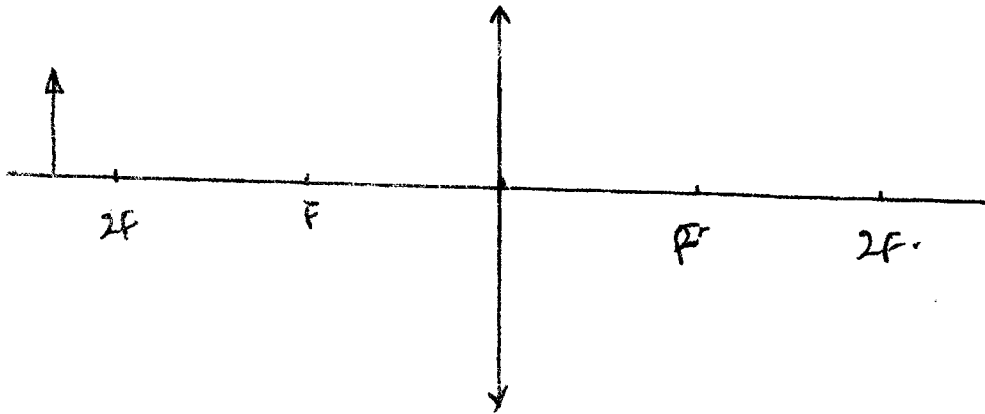
b(i) What is meant by centripetal force. (1mk

ii) An object of mass 0.5kg at the end of a light string is whirled round in a vertical circle of radius 2.0m with a constant speed of 10m/s. What are the maximum and minimum tensions in the string. (4mks

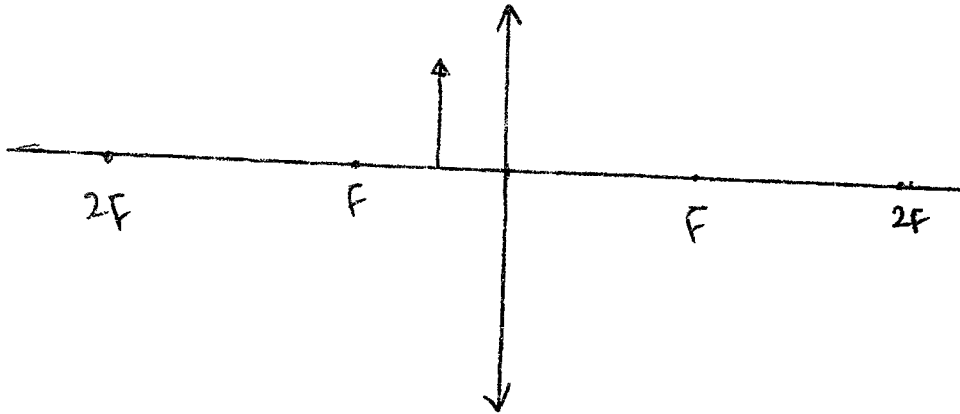
c) Explain why wet clothes put in a drum get dried faster when the drum of the drying machine is rotated at high speed. (3mks

5(i) Mention two uses of a convex lens. (2mks

) Complete the ray diagram below to show the position of the image. (4mks)



) (4mks)



You are provided with the following apparatus. A convex lens, screen with cross wires, metre rule and a source of light.  
Describe how you can use the above to determine the focal length of the lens. (5mks)

