

END OF TERM 2 EXAM - 2019
PHYSICS
FORM 2

NAME..... **ADM.**

NO.....

Time: 2 hrs

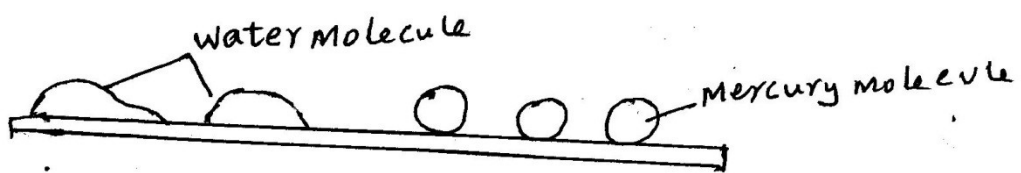
Q1. Explain why displacement method is unsuitable for determining the volume of solids such as charcoal
(2mks)

2. Water level in a burette is 30cm^3 . If 55 drops of water fall from the burette and the average volume of one drop is 0.12cm^3 . What is the final water level in the burette?

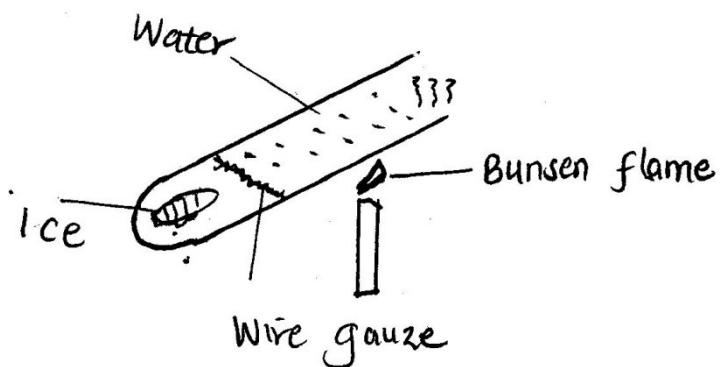
(2mks)

3. An object weight 1200N on earth. On planet X its weight is 240N. Calculate gravitational strength of planet X (take $g = 10\text{N/kg}$)
(3mks)

4. Explain the difference in the shape of drops of water and mercury in the figure below (4mks)



5. The diagram below shows boiling tube boiling water at boiling point. (2mks)



- i) State and explain the observation
(1mk)

- ii) State the use of the wire gauze in the experiment
(1mk)

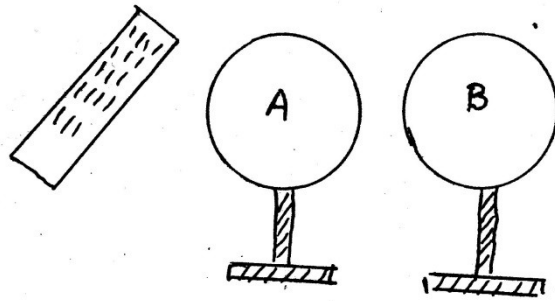
6. State the difference between heat and temperature
(2mks)

- b) Rooms that are well ventilated have ventilation, close to the ceiling and some close to the floor. Explain why?
(2mks)

c) How does the density of water vary as temperature is lowered from 10°C to the freezing point.
(3mks)

7. Two identical spheres A and B each standing on an insulating base are in Contact. A

negatively charged rod is brought near sphere A as shown in figure below



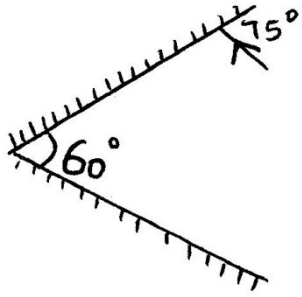
a) In what way will A differ from B if separated while the rod is near?
Explain (3mks)

b) State two uses of an electroscope
(2mks)

i)

ii)

8. The figure below shows a ray of light incident to the first of the two mirrors placed at angle of 60°



Complete the path of the ray after reflection from the mirror.
(3mks)

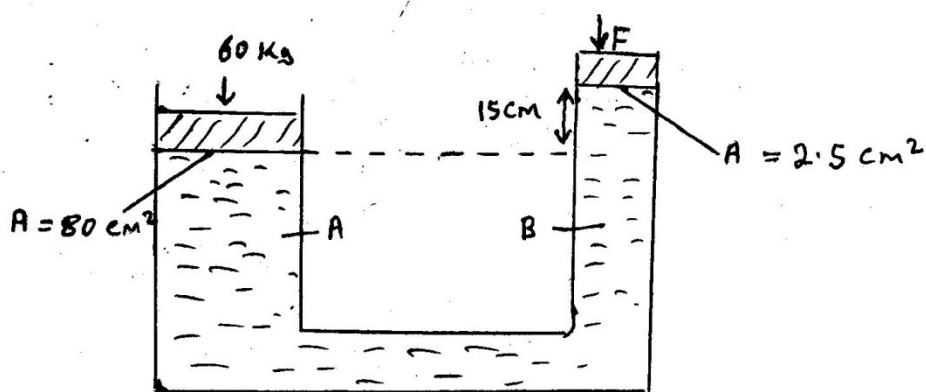
9. a) Define the term pressure
(1mk)

b) State factors that affect pressure in liquids
(2mks)

c) State three properties of brake fluid
(3mks)

d) The figure below shows two masses placed on light piston. The pistons are held

stationary by the liquid whose density is 0.8g/cm^3



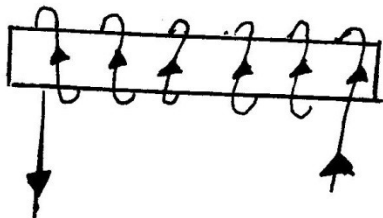
Determine the value of h force F
(3mks)

10. a) State the basic law of magnetism
(1mk)

b) With help of well labelled diagram explain using domain theory the difference between a magnetic material if magnetized state and unmagnetized state. (4mks)

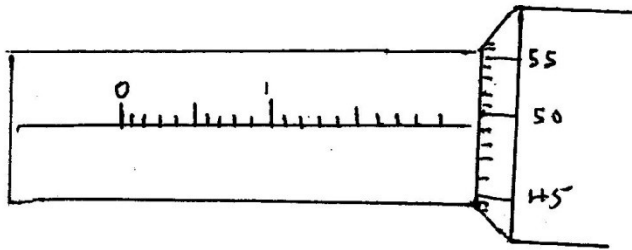
c) State and explain two method of magnetization.
(3mks)

d) On the diagram below show the polarity of the magnet obtained
(2mks)



e) Types of magnetic materials
(2mks)

11. a) What is the reading of the micrometer screw gauge in the figure below ? (2mks)



ii) If the micrometer screw gauge had a positive zero error of 0.02mm. What is the actual measurement of the diameter?
(1mk)

b)i) In an experiment to estimate the size of a molecule of olive oil; a drop of oil of volume 0.12mm^3 was placed on a clean water surface, the oil spread into a patch of areas $6.0 \times 10^4\text{mm}^2$. Estimate the size of a molecule of olive oil
(2mks)

ii) State two assumptions made during the experiment.
(2mks)

12. a) Define the term

i) Moments of force
(2mks)

ii) Principle of moments
(2mks)

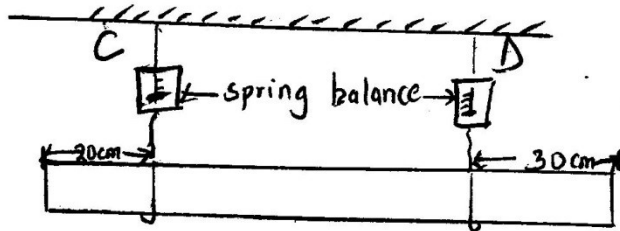
b) A uniform metre rule pivoted at its centre is balance by a force of 4.8N at 20cm mark and two other forces F and 2.0N on the 66cm and 90cm respectively. Calculate the force F
(4mks)

c) The figure below shows a uniform metal rod of length 80cm and mass 3.2kg is

supported horizontally by two vertical spring balances C and D.
balances C is 20cm

from one end while balance D is 30cm from the other end. Find the reading on each

balance
(4mks)



13. State two factors affecting stability
(2mks)

14. Define the term

i) Centre of curvature (c)
(1mk)

ii) The principal focus (F)
(2mks)

b) In an experiment to determine the focal length of a concave mirror the corresponding

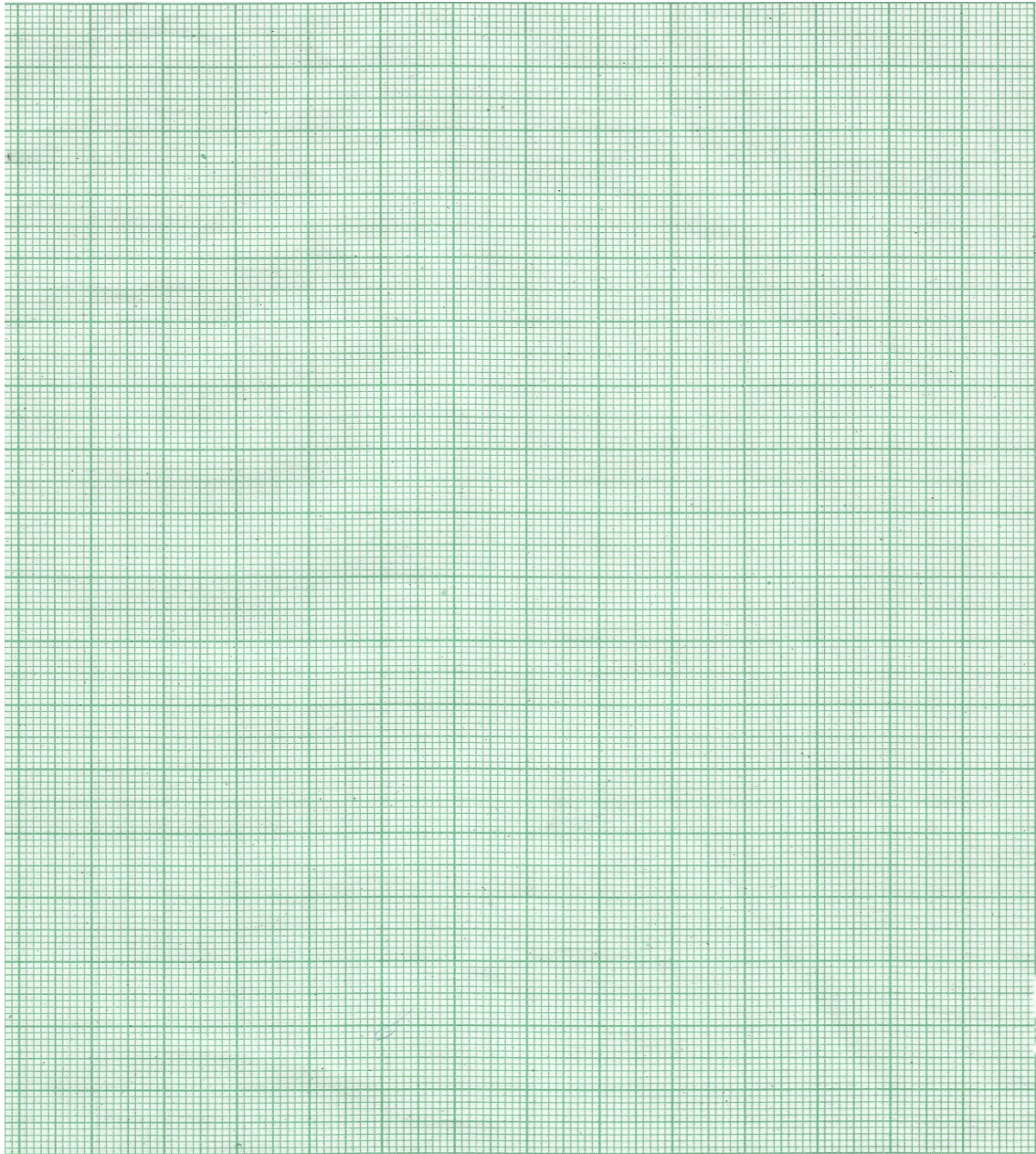
values of image distance when object is placed at various distances from the mirror

were recorded as shown below.

Object distance $u(\text{cm})$	15	20	30	35	40	45	50	
Image distance $v(\text{cm})$	30	20.0	16.7	15.0	14.0	13.3	12.9	12.5
$1/u \text{ cm}^{-1}$								
$1/v \text{ cm}^{-1}$								

i) Complete for $1/u$ and $1/v$ on the table above
(4mks)

ii) Draw a graph of $1/v$ against $1/u \text{ (cm}^{-1}\text{)}$
(4mks)



- iii) Use the formulae and the graph to determine the value of focal length of the concave mirror (2mks)

15. State two application of concave mirrors (2mks)

i)

ii)

16. State three factors affecting the strength of an electromagnet
(3mks)

i)

ii)

iii)

b) State three uses of electromagnets
(3mks)

i)

ii)

iii)

17.a) State Hooke's law
(2mks)

b) A mass of 100g is suspended from the lower end of a spring. If the spring extends by

100mm and the elastic limit of the spring is not exceeded. What is the spring constant?

(3mks)

c) A metal cube suspended freely from the end of a spring causes it to stretch by 5.0cm.

A 500g mass suspended from the same spring stretches it by 2.0cm. If the elastic limit

is not exceeded. Find the weight of the metal cube
(3mks)