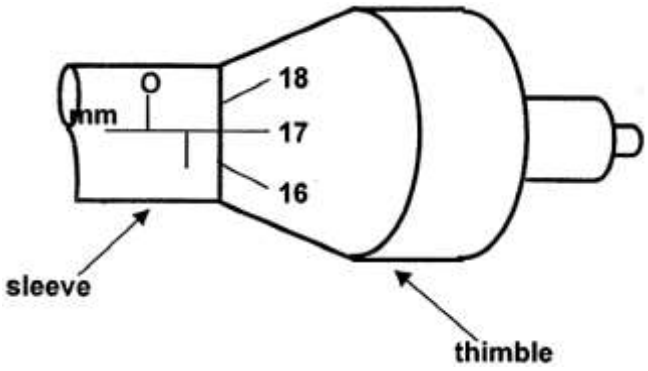
YEAR 2006 PAPER 1: 8TH NOVEMBER, 2006 P1

1. The diagram shows part of a micrometer screw-gauge.



The reading on the micrometer gauge screw-gauge is • • •

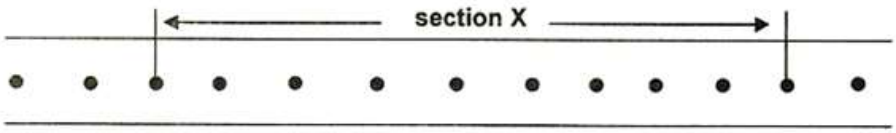
A. 0.05mm.

B. 0.17mm.

C. 0.57mm.

D. 0.67mm.

2. The figure below shows part of a ticker tape with equally spaced dots



Section X of the ticker tape represents motion for which • • •

A. speed is constant.

B. acceleration is constant.

C. deceleration is constant.

D. distance is constant.

3. To find the density of water, a pupil determined the volume of water of mass 10 grams three times. The values obtained were $9cm^3$, $10cm^3$ and $11cm^3$. Using the average value of the volumes, the density of water is • • •

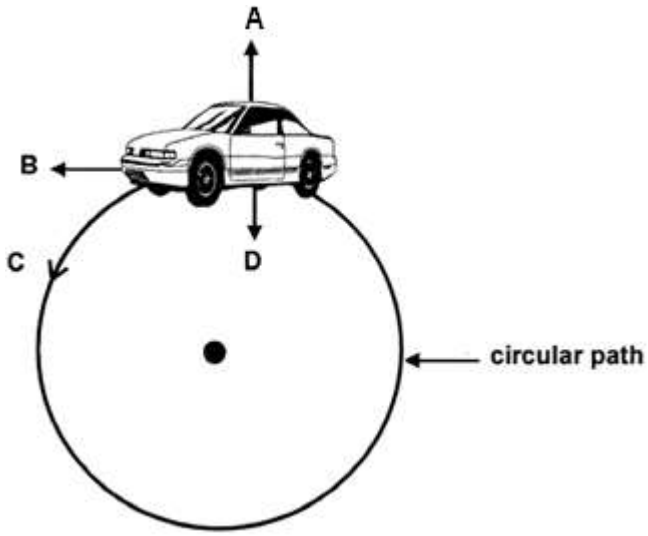
A $0.3g/cm^3$.

B $1.0g/cm^3$.

C $1.3g/cm^3$.

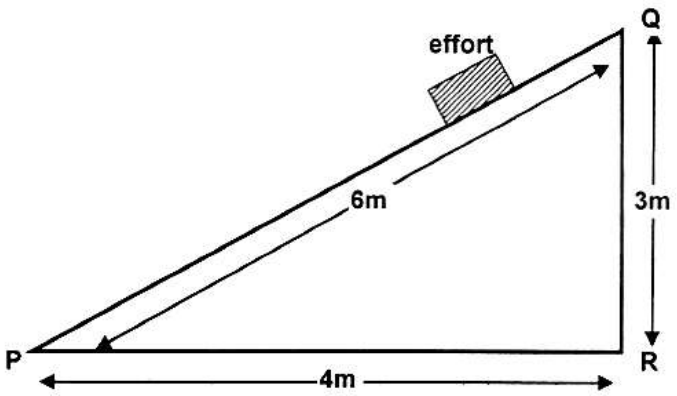
D $3.0g/cm^3$.

4. The figure below shows a toy car moving in a circular path at a constant speed



Which of the four letters shows the direction of the centripetal force on the car?

5. The figure below shows a mass being raised to a height of 3m by pulling it from P to Q up a ramp of length 6m



The velocity ratio (VR) is ...

A. 0.2

B. 0.7

C. 1.5

D. 2.0

6. The higher an object is from the ground the

   A. more unstable it is.

   B. higher is its centre of mass.

   C. lower is its centre of mass.

   D. more potential energy it contains

7. In the Brownian motion experiment, the zigzag motion of the bright points of light seen in the smoke ceil is due to • • •

   A. Particles of smoke.

   B. Pollen grains.

   C. Oil droplets.

   D. Air molecules.

8. The increase in the amount of carbon dioxide, water vapour and other gases in the atmosphere may lead to • • •

   A. Less terrestrial radiation from the earth.

   B. The formation of more ice on earth.

   C. Global warming on earth.

   D. A decrease in the greenhouse effect on earth.

9. Radio waves of frequency 3.0×10^4Hz have a wavelength of • • •

   A. 1.0×10^2 m.

   B. 1.0×10^3 m.

   C. 1.0×10^4 m .

   D. 1.0×10^5 m.

10. Four different rays of light enter one of the transparent sides of a rectangular glass block at different angles. The ratio sini to sinr • • •

    A. Is different for different angles of incidence.

    B. Is different for different angles of refraction.

    C. Is constant regardless of the difference in the angles of incidence.

    D. Decrease if the number of rays are reduced.

11. Which of the following cannot cause sound pollution?

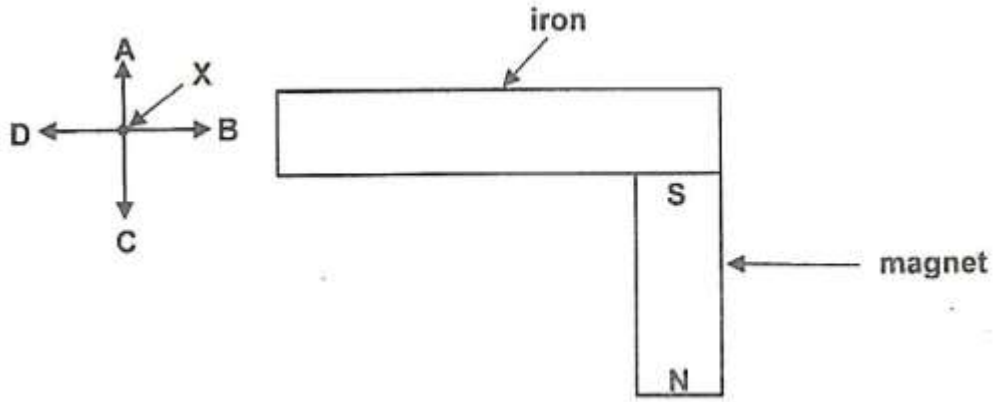
    A. Electric drill

    B. Jet engine

    C. Tuning fork

    D. Helicopter

12. A piece of iron is in contact with a permanent magnet as shown below. A compass needle is placed at point x



    In which direction A, B, C and D does the compass needle point?

13. Which of the following instruments is used for measuring the rate of flow of charge?

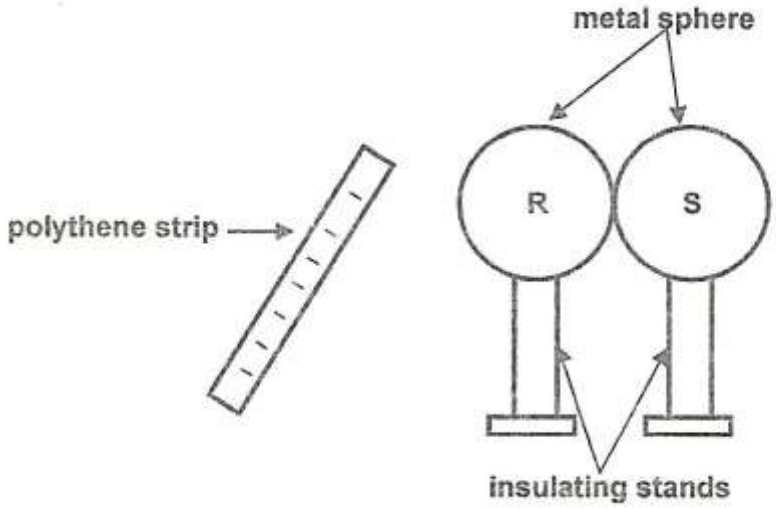
    A. Electroscope

    B. Ammeter

    C. Voltmeter

    D. ohmeter

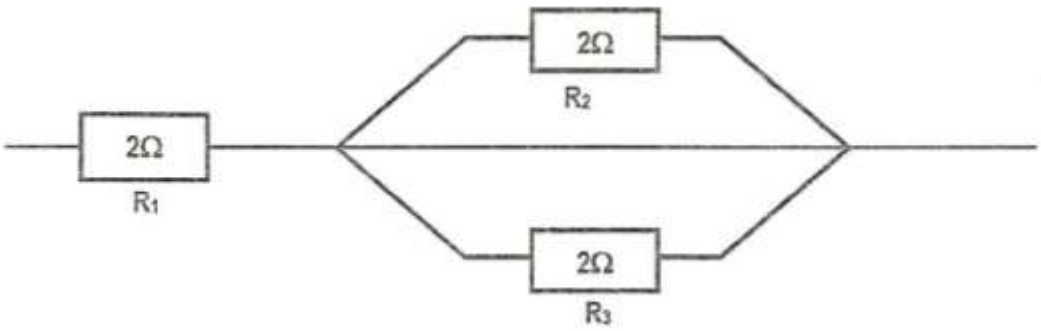
14. Use the figure below to answer the question that follows.



The spheres are separated without removing the strip. The charges on R and S are*

	R	S
A.	+	+
B.	-	+
C.	+	-
D.	-	-

15. A circuit is arranged as shown below



If the total current in the circuit is 2A, the potential difference across R_3 is

A. 1V.

B. 2V.

C. 3V.

D. 4V.

16. In a house it was found that a metallic drainage pipe from a sink had a vertical copper earthing connected to it. The pipe had a water leakage very close to the copper earthing. Which of the following is true about the water that was leaking?

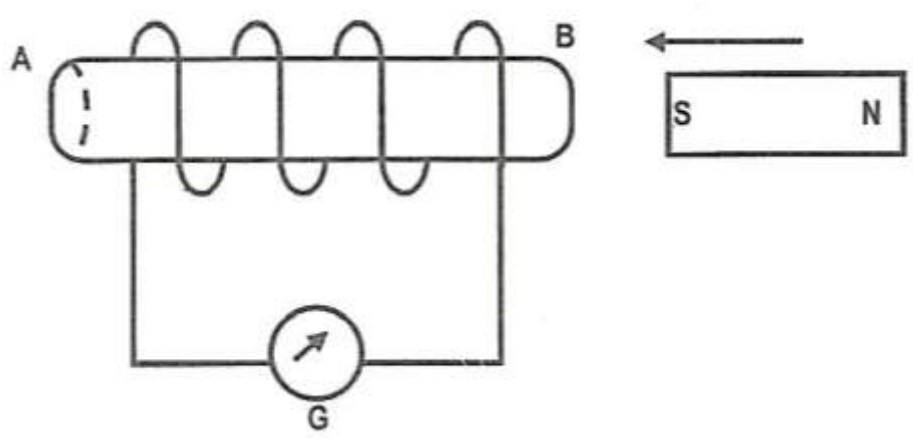
A It curved towards the plate.

B It curved away from the plate.

C It was not affected in any way.

D It split up into droplets.

17. The figure below shows a magnet being pushed towards a coil of wire connected to a galvanometer.



Which of the following is correct?

A. The induced current will flow in the clockwise direction at point B.

B. The induced current will flow in the anti-clockwise direction at point B.

C. The induced current will flow in the clockwise direction at point A,

D. No induced current will flow.

18. Which of the following is measured by a cathode ray oscilloscope?

A. A Current

B. Resistance

C. Potential difference

D. Charge

19. Radon ${}^{220}_{86}R_n$ decays by emitting an alpha particle. The symbol of the element formed is …

A. ${}^{216}_{86}Ak$

B. ${}^{216}_{86}R_n$

C. ${}^{220}_{84}Po$

D. ${}^{218}_{84}Po$

20. Polonium has a half-life of half an hour. 8 grams of this substance remains undecayed after $2\frac{1}{2}$ hours. How much was originally present?

A. 3.2 grams

B. 20.0 grams

C. 40.0 grams

D. 256.0 grams