

K.C.S.E 1996 PHYSICS PAPER 232/1

1.

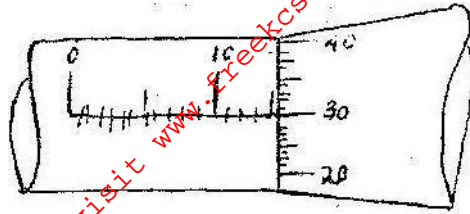


Fig. 1

The micrometer screw gauge represented by figure 1 has thimble scale of 50 divisions

What is the reading shown (1 mk)

2. What measurable quality is associated with colors of light? (1 mk)

3. State two factors that should be controlled in manufacturing a cylindrical container of uniform thickness, which should normally be in a standing position?

4.

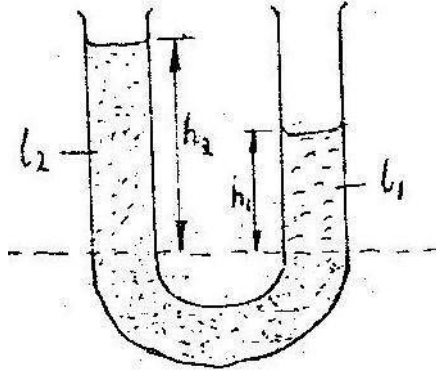


Fig. 2

Figure 2 shows a U tube containing two liquids L1 and L2 of densities 0.8 g cm^{-3} and 1.8 cm^{-3} respectively in equilibrium. Given that $h_2 = 8 \text{ cm}$ determine the value of h_1 (3mks)

5. A small nail may pierce an inflated car tyre and remain there without pressure reduction in the tyre. Explain this observation (2 mks)

6. Give a reason why a concrete beam reinforced with steel does not crack when subjected to changes in temperature (2 mks)

7. Give a reason why heat transfer by radiation is faster than heat transfer by conduction (1mk)

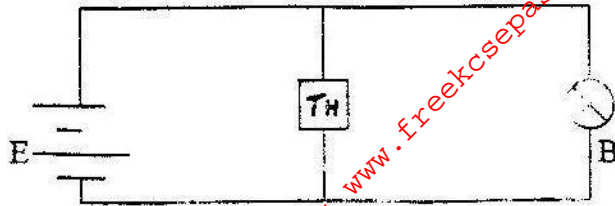
8. A vertical object placed on a bench is observed to have three shadows of different sharpness, in different directions. Explain this observation (3 mks)

9. State the law of electrostatic charges (1 mk)

10. The pitch of the note produced by a wire depends on the tension in the wire. State the other factor that effects the pitch (1 mk)

11. Name two forces that determine the shape of liquid drop on the solid surface. (2mks)

12.



Thermistor, TH, is connected in parallel with a bulb as shown in figure 3. The bulb is lit. When the thermistor is steadily heated the brightness of the bulb reduces. Explain this observation
(3 mks)

13.



Figure 4 shows two parallel current conductors A and B placed close to each other. The direction of the current is into the plane of the paper.

On the same figure;

- (i) Sketch the magnetic field pattern (1 mk)
- (ii) Indicate the force F due to the current on each conductor (1 mk)

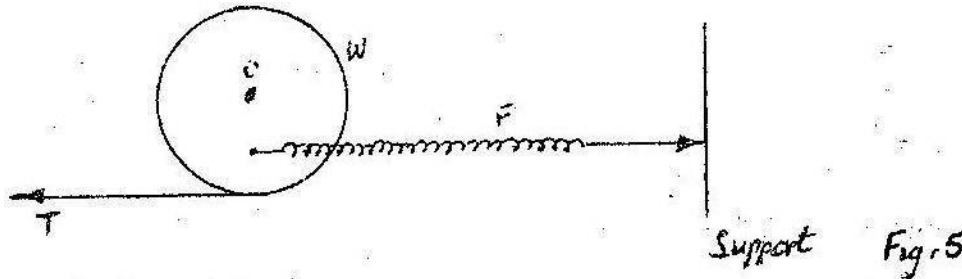


Figure 5 shows a wheel W pivoted at its centre, O and held stationary by a string and a spring. The tension in the strings is T and the force on the springs is F.

Use this information to answer 14 and 15

14. State how the magnitudes of T and F compare. Give reasons for your answer

(3 mks)

15. State what would happen to the wheel if the string snapped

(1 mk)

16. Sketch in the space provided below, a labeled diagram to show how an arrangement of a single pulley may be used to provide a mechanical advantage of 2

(2 mks)

17. Circular water waves generated by a point sources at the centre, O of the pond are observed to have the pattern shown in figure 6

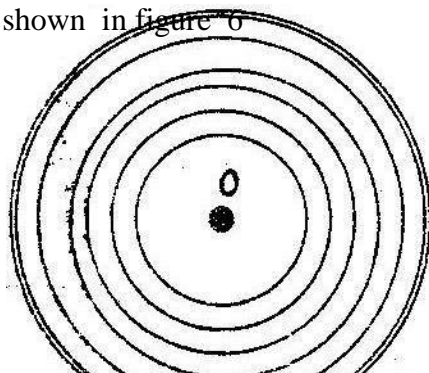
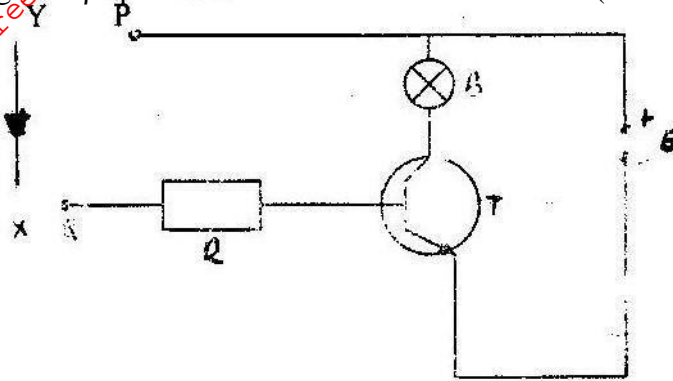


Fig. 6

- Explain the pattern (2mks)
18. What characteristics of sound is applied in turning pianos? (1 mk)
19. In large current circuits large resistors in parallel are preferred to low resistors in series explain (2mks)
20. A girl heats 5 kg of water to temperature of 80°C . When she adds m kg of water at 15°C the mixture attains temperature of 40°C . Determine the value of m . (ignore heat changes due to the container) (3 mks)
21. Equal masses of water and paraffin with specific heat capacities C_W and C_P respectively are heated using identical sources of heat, for the same length of time. The final temperature θ_P of paraffin was found to be greater than final temperature than of water, Show that C_W is greater than C_P .
22. A lady holds a large concave of focal length 1 m, 80 cm from her face, state two characteristics of her image in the mirror (2 mks)
23. A small object lies at the bottom of a water pond at a depth of 1.2 m. Given that the refractive index of water is 1.3, determine the apparent dept of the object. (Give your answers to 1 decimal place)
24. State how the pressure in a moving fluid varies with the speed of the fluid (1 mk)
25. In some petrol engines where spark plugs are used, a capacitor is connected to the distributor. Suggest the function of the capacitor. (1 mk)
26. A house in which as cylinder containing cooking gas is kept unfortunately catches fire. The cylinder explodes. Give an explanation for the exposition (2mks)
27. Explain how a piece of a Polaroid reduces the sun's glare (1 mk)
28. An observer A is in a moving vehicle with a siren on while an observer B is stationary on the side of the road. State the difference between the sound heard by A and B as the vehicle approaches B at a high constant speed (2mks)
29. A solid copper sphere will sink in water while a hollow copper sphere of the same mass many float. Explain this observation (2 mks)
30. The moment of the weight of vertical door does not significantly affect the moment of the force required to open the door. Give a reason for this (1 mk)
31. What causes electromagnetic damping in a moving coil galvanometer (1mk)

32. The control grids in a cathode Ray Oscilloscope (CRO) is used to control the brightness of the beam on the screen. How is this achieved? (2 mks)
33. α - particles are more ionizing than β - particles. Give one reason for this (1 mk)

Fig.7



In the figure 7 the circuit diagram contains bulbs B, a transistor T and a resistor R. A diode D is connected between points Y and X as shown. In the set up bulb B is not lit. When the connections YP and XQ are made, B lights. Answer questions 34, 35 and 36 with reference to the figure.

34. Name the type of transistor used in the circuit (1 mk)
35. Explain the observation when the connections are made (3 mks)
37. In the Brownian motion experiment, smoke particles are observed to move randomly. Explain how this motion is caused (2 mks)
38. Figure 8 shows an object O placed in front of a concave lens with principal foci F and F Construct a ray diagram to locate the position of the image (3 mks)

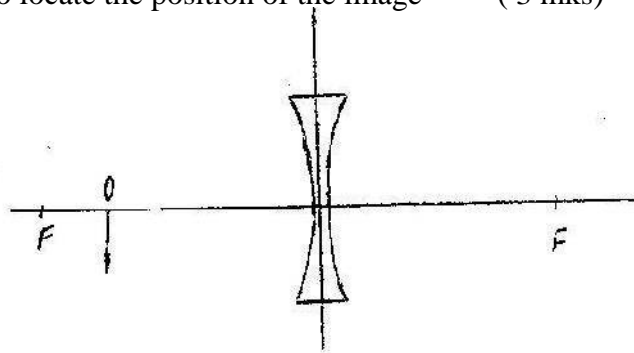


Fig 8