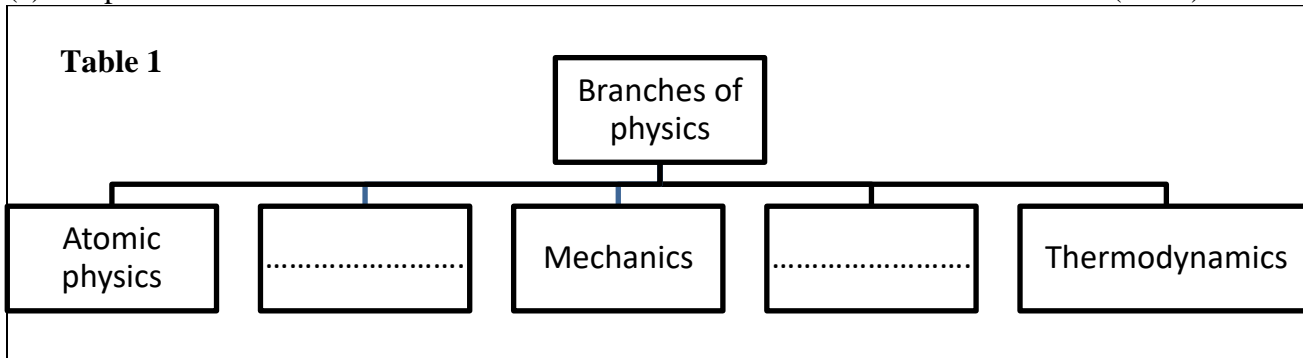


SECTION A (15 MKS)

Answer all questions

1. (a) Complete the table 1 below. (2mks)



- (b) List down factors that reduce the surface tension of a liquid. (2mks)

(i).....
(ii).....

2. An alloy contains 30% by mass of lead (density 11.4 gcm^{-3}) and 70% by volume of tin (density 7.3 gcm^{-3}). Find the density of the alloy. (3mks)

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3. Define time and state its S.I Unit. (2mks)

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4. Derive the fluid pressure formular. (3mks)

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5. Explain the following observations.

(a) Camels have wide soles. (1mk)

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(b) Our mothers add unga to water when they cook ugali before water boils. (1mk)

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6. Name the liquid that can be suitable for use in a thermometer to be used in measuring a temperature of -90°C . (1mk)

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SECTION B (45 MARKS)

ANSWER ALL QUESTIONS

7. (a) Define a laboratory. (1mk)

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(b) State the three basic facilities that an average laboratory should have. (3mks)

(i)

(ii)

(iii)

(b) State two likely causes of burns in a laboratory and the remedy in case of a burn. (3mks)

(i)

(ii)

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(c) State one laboratory precaution to be observed. (1mk)

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.....

8. Study figure 1 and use it to answer the questions that follow.

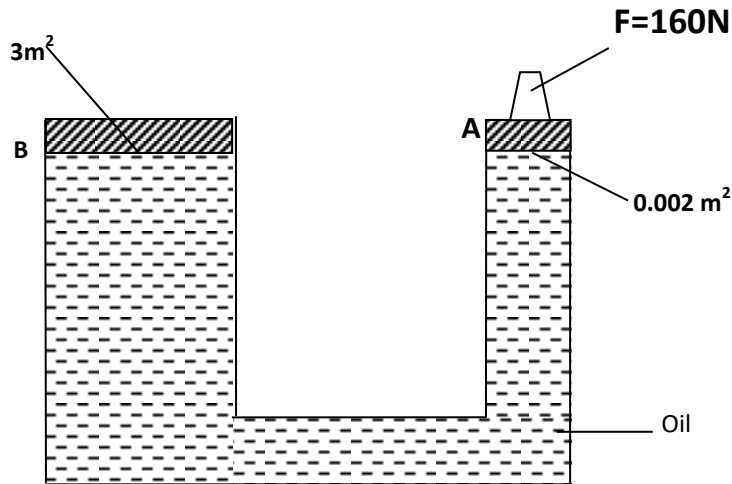


Figure 1

(a) State the principle on which the lift works upon. (1mk)

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(b) Calculate the pressure realized by a force applied on piston A. (2mks)

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(c) Calculate the pressure realized on piston B. (2mks)

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(d) Calculate the force achieved on piston B. (2mks)

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(e) State the reason why a gas cannot be used instead of oil in the lift. (1mk)

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(f) Needles used in hospitals are very sharp. Explain. (2mks)

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9. (a) Mechanics is one of the branches of physic. What does it deal with? (1mk)

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.....

(b) Study figure 2 that shows the arrangement of molecules in the three states of matter. Use it to answer the questions that follow.

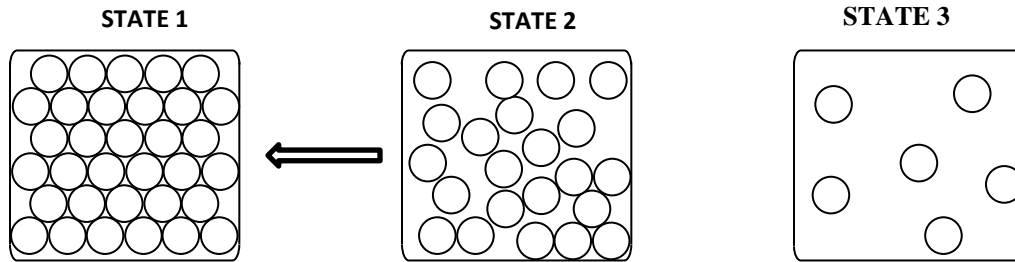


Figure 2

(i) Name the process represented by the arrow. (1mk)

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(ii) State the reason for arrangement of molecules in state 3. (2mks)

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(c) State a reason why a burette used to measure volume graduates from up downwards. (1mk)

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(d) Highlight three precautions to be observed when using a density bottle. (3mks)

- (i)
- (ii)
- (iii)

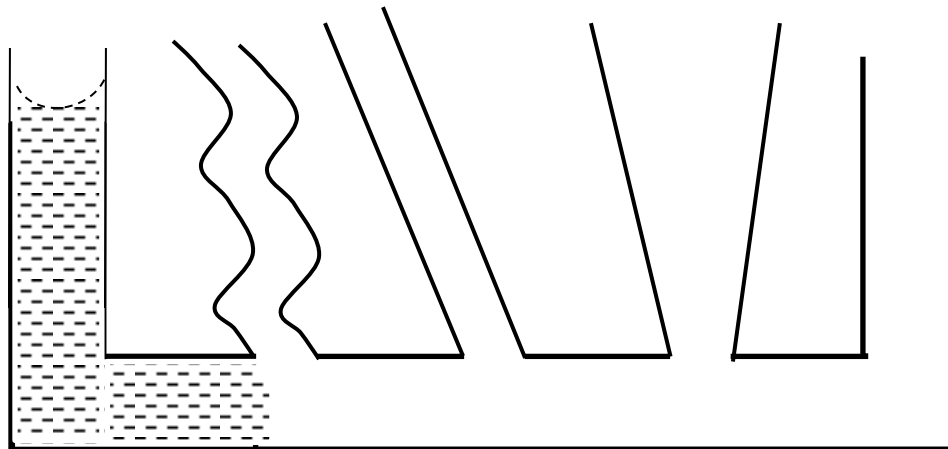
10. (a) A man has a mass of 70kg. Calculate his weight on the moon. (Take $g = 1.7\text{Nkg}^{-1}$ on the moon) (3mks)

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(b) Distinguish between vector and scalar quantities. (2mks)

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(c) Complete the diagram in figure 3 to show the water levels in all the tubes. (2mks)



(e) Three identical strings A,B and C are arranged as shown in fig 4.

If C stretches by 3cm and bar XY is assumed to be weightless, determine the extension in A. (3mks)

11. (a) Which is heavier? 1kg of iron or 1kg of feathers? (1mk)

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(b) Explain the observation in figure 4.

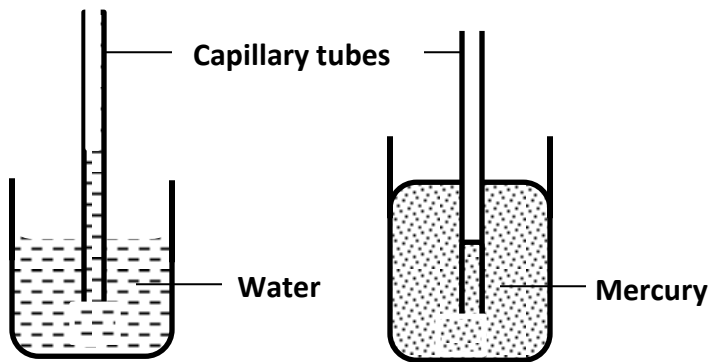


Figure 4

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(c) (i) Define fractional force. (1mk)

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(ii) Highlight two advantages friction. (2mks)

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(d) The following readings were taken from an experiment;

Height of rod = 180 cm

Length of the rod's shadow – 116 cm

Length of the flag post's shadow = 84 cm

Using estimation of length method calculate the height of the flag post. (3mks)

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