

PART II (16 marks)

Answer any **TWO** questions from this part.

20. Figure 1 shows a load of 500 N being raised to point C using an inclined plane:

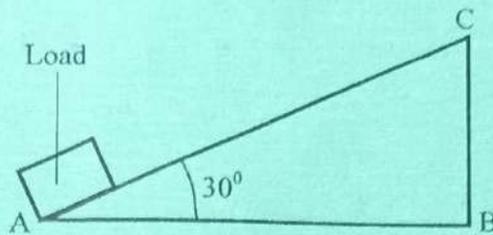


Fig. 1

Determine the:

- (a) velocity ration of the inclined plane;
(b) efficiency of the inclined plane if an effort of 300 N is applied. (8 marks)
21. (a) State the Archimedes' principle. (2 marks)
(b) With the aid of sketches, outline an experiment that can verify the Archimedes' Principle. (6 marks)
22. (a) A bar magnet is placed under a plain paper. Iron fillings are sprinkled on the paper and tapped lightly. Sketch what is observed on the paper and explain the occurrences. (4 marks)
(b) Sketch the magnetic fields existing between the following sets of magnetic poles:
(i) **two** like poles;
(ii) **two** unlike poles. (4 marks)

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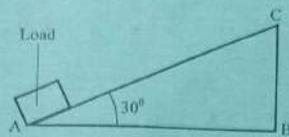


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24. (a) State **three** factors that contribute to increase in divorce in marriages. (3 marks)
- (b) State **two** factors that lead to increase in population. (2 marks)
- (c) State **two** effects of drought to a country. (2 marks)
- (d) State **two** ways in which Savings and Credit Co-operative Societies contribute to nation building. (2 marks)

PART II (20 marks)

Answer any **FIVE** questions from this part.

25. (a) State **two** purposes of using official forms in offices. (2 marks)
- (b) List **two** functions of a public relations department in an organisation. (2 marks)
26. (a) State **two** types of markets to whom a business may sell its products. (2 marks)
- (b) List **two** reasons for signing contracts in a business. (2 marks)
27. (a) List **two** ways of raising business capital. (2 marks)
- (b) List **two** types of bank accounts that a business may operate. (2 marks)
28. (a) State **two** methods of buying a product. (2 marks)
→ Barter the food
→ currency method
→ Electronic method
- (b) List **two** methods of advertising a product. (2 marks)
29. (a) State **two** details that are contained in a cash book. (2 marks)
- (b) List **two** benefits of preparing a budget. (2 marks)
30. (a) State **two** reasons why innovation is important to a country. (2 marks)
- (b) State **two** reasons why Kenyans are being encouraged to use biogas. (2 marks)

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		0405/215	

SECTION B: SCIENCE

PART I (24 marks)

Answer ALL questions in this part.

12. List any **three** characteristics of images formed by plane mirrors. (3 marks)
13. Figure 2 shows the processes involved when substances change from one state of matter to another. Identify the processes named Q, R and S. (3 marks)

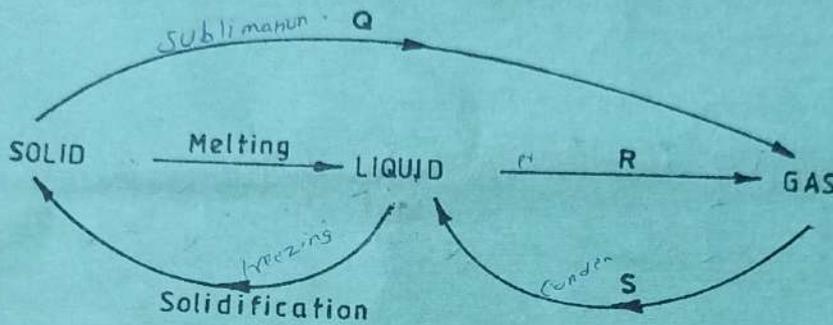


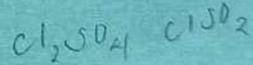
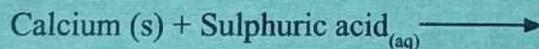
Fig. 2

14. (a) State the composition of the following alloys:

- (i) bronze;
- (ii) brass.

(2 marks)

- (b) Complete the reaction shown below:



(1 mark)

15. Figure 3 shows a pair of magnets placed close to each other. Re-draw the magnets and sketch the magnetic field pattern. (3 marks)

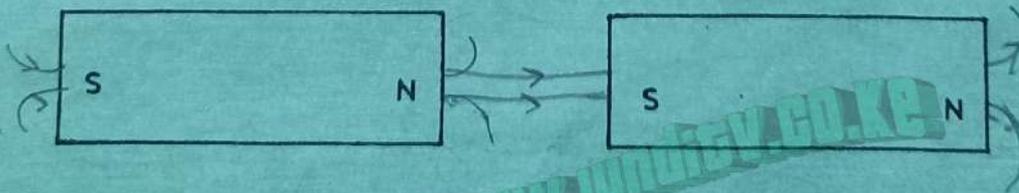


Fig. 3

16. Two resistors of $6\ \Omega$ and $2\ \Omega$ are connected in series across a $12\ \text{V}$ battery of negligible resistance. Calculate the current in the circuit. (3 marks)
17. State any **three** ways of reducing friction. (3 marks)
18. A gun is fired near a wall and the echo from the wall is heard 10 seconds later. Calculate the distance between the gun and the wall given that the speed of sound is $360\ \text{ms}^{-1}$. (3 marks)
19. State **three** properties of dilute sulphuric acid. (3 marks)

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20. Figure 4 shows the extraction of iron in the blast furnace.

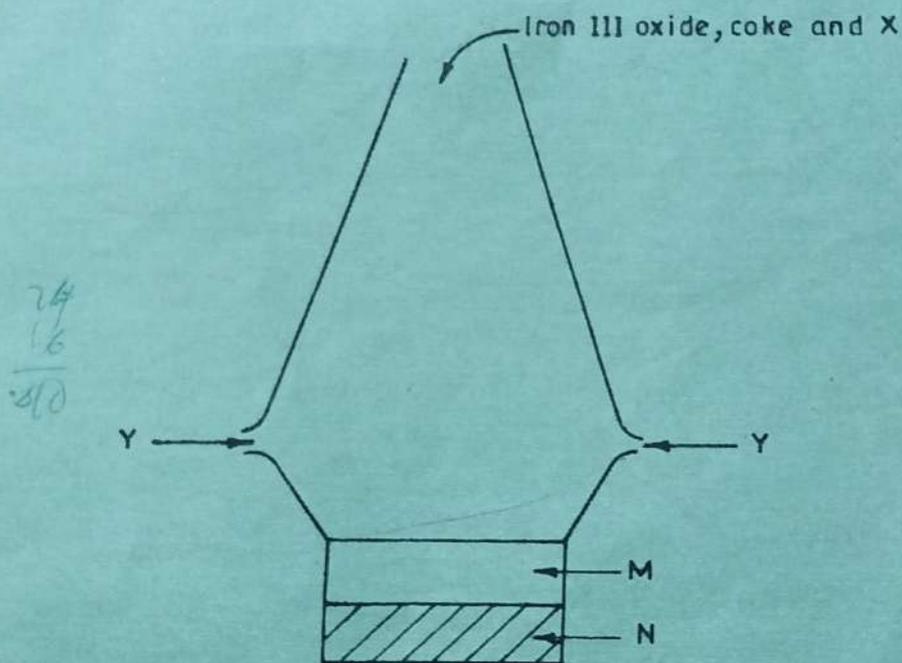


Fig. 4

- (a) Write the name and purpose of the substance marked:

- (i) X;
(ii) Y.

(4 marks)

- (b) Name the substance:
- (i) M;
 - (ii) N.

(2 marks)

- (c) State **two** alloys of iron.

(2 marks)

21. An inclined plane was used to move a 50 kg bag of cement to the top of an 8 m tall building using an average force of 200 N. If the plane was 25 metres long, determine:

- (a) the work done;
- (b) the potential energy gained;
- (c) the efficiency of the simple machine.

(8 marks)

22. (a) Figure 5 shows the carbon cycle. Name the processes labelled P, Q and R.

(3 marks)

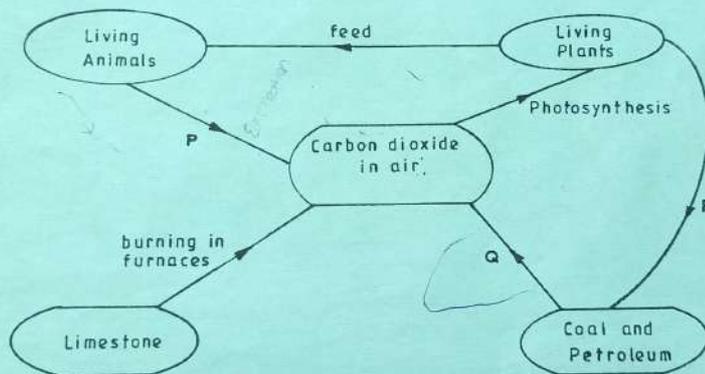


Fig. 5

- (b) With the aid of a labelled diagram, show the laboratory preparation of hydrogen gas.

(5 marks)

13. (a) Define friction. (3 marks)

(b) State two causes of friction.

14. With the aid of a sketch, outline the procedure of verifying that sound travels through air. (4 marks)

15. Figure 2 shows the arrangement for lifting a mass of 60 kg through a distance of 4 m on a plane inclined at 30° . Determine the work done. (2 marks)

Take $g = 10 \text{ m/s}^2$

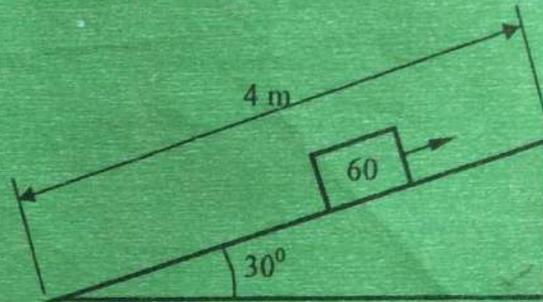


Fig. 2

16. Illustrate the existence of atmospheric pressure. (2 marks)

17. With the aid of a sketch, show that depth affects pressure in liquids. (3 marks)

18. Outline two:

(a) uses of electrolysis; (2 marks)

(b) features of a dry cell. (2 marks)

19. Explain expansion in solids using the particle theory. (2 marks)

20. Figure 3 shows the magnetic field between two magnets X and Y.

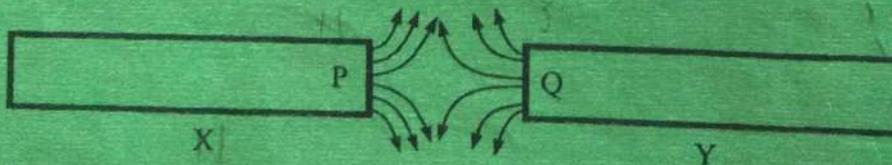


Fig. 3

(a) State the poles P and Q.

(b) State which of the two magnets is stronger and give the reason for your answer.

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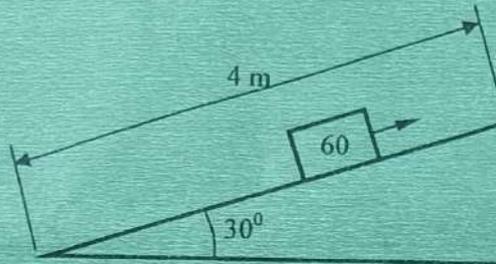


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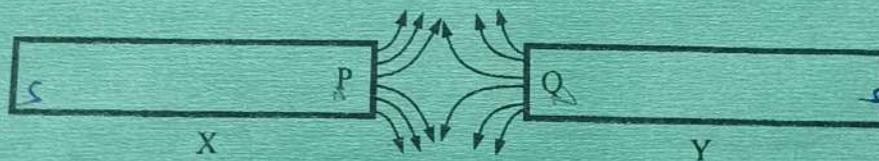


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