



SCIENCE

414/01

Paper 1 Multiple Choice

October/November 2023

1 hour

Additional Materials: Multiple Choice Answer Sheet
Electronic calculator
Soft clean eraser
Soft pencil (type B or HB recommended)

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.

Write your centre number, candidate number and name on the Answer Sheet in the spaces provided unless this has been done for you.

There are **forty** questions on this paper. Answer **all** questions.

For each question there are four possible answers **A, B, C** and **D**.

Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

Read and follow the instructions on the separate Answer Sheet carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.

Any rough work should be done on this Question Paper and not on the Answer Sheet.

The total of the marks for this paper is 40.

1 Which method is used to administer heroine into the body?

- A injection
- B inhaling
- C drinking
- D absorption

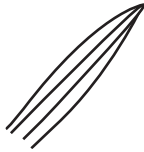

2 Which instrument is used to measure the mass of an object?

- A stopwatch
- B tape measure
- C spring balance
- D beam balance

3 What is the correct formula for carbon monoxide?

- A CO
- B CO₂
- C C₂O
- D CaO

4 Which statements correctly classifies and describes **other** characteristics of the flowering plants shown?

		
A	monocotyledon, has tap roots	dicotyledon, has fibrous roots
B	dicotyledon, has fibrous roots	monocotyledon, has tap roots
C	dicotyledon, has seeds with two cotyledons	monocotyledon, has seeds with one cotyledon
D	monocotyledon, has fibrous roots	dicotyledon, has tap roots

5 Which list **A**, **B**, **C** or **D** contains only renewable sources of energy?

- A solar, coal
- B petrol, coal
- C hydroelectric, coal
- D hydroelectric, solar

6 Why is aluminium most suitable for making food containers?

- A it is more reactive
- B it forms an alloy with zinc
- C it does not react with acids
- D it forms a protective oxide layer

7 What is the function of the part labelled E in Fig. 7.1?

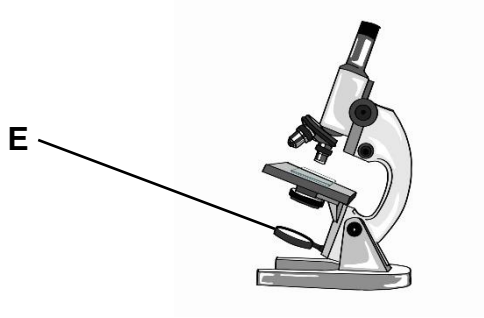


Fig. 7.1

- A reflects light onto the specimen
- B makes the specimen look larger
- C makes the specimen look clearer
- D brings the specimen closer to eye piece

8 Fig. 8.1 shows an electric kettle which draws a current of 6 A with a voltage of 240 V.

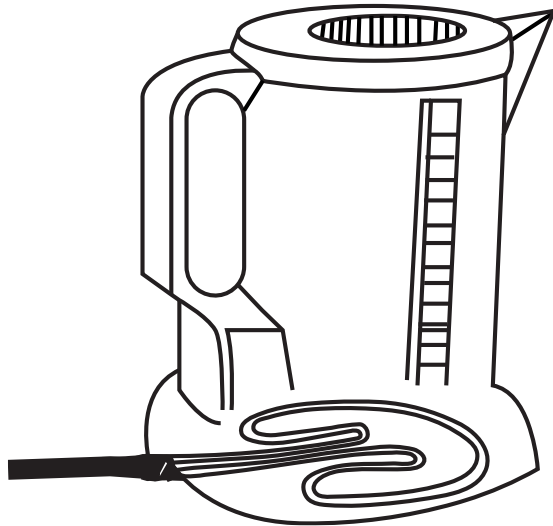


Fig. 8.1

What is the power of the kettle?

- A 40 W
- B 246 W
- C 1440 W
- D 0.025 W

9 Fig. 9.1 shows an ice cube changing into water.

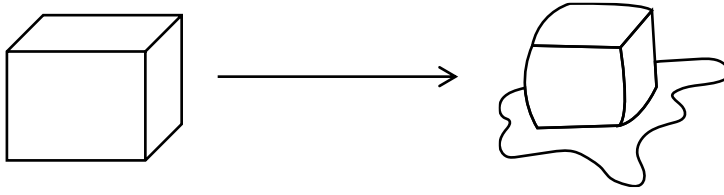


Fig. 9.1

What happens to the molecules of water in Fig. 9.1?

- A they melt
- B they condense
- C they gain energy
- D they lose energy

10 Fig. 10.1 shows the alimentary canal.

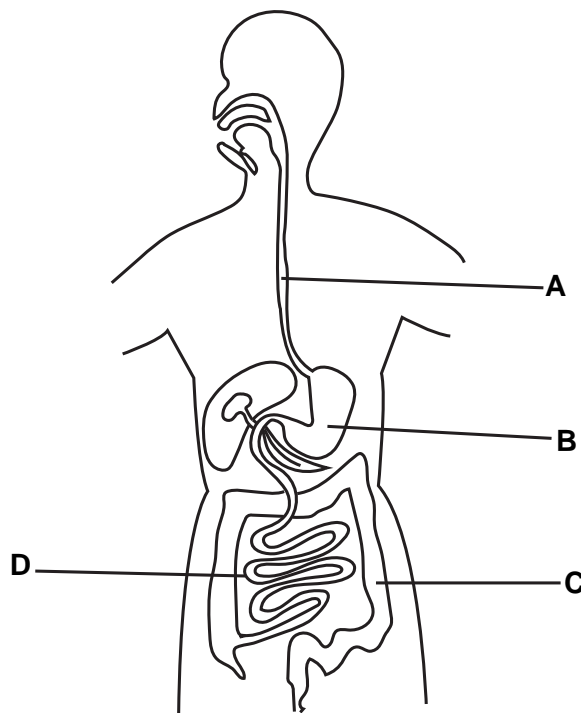


Fig. 10.1

Which structure **A**, **B**, **C** or **D** is mainly for the absorption of end products of digestion?

11 Fig. 11.1 shows a ray of light reflected on a mirror.

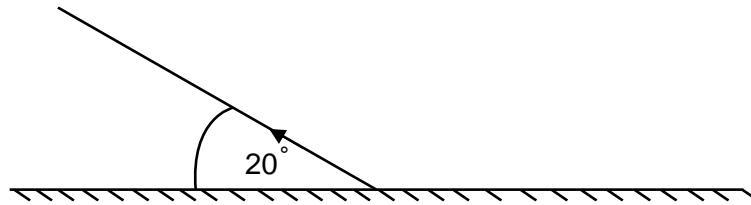


Fig. 11.1

What is the angle of incidence of the light on the mirror?

- A 20°
 - B 60°
 - C 70°
 - D 160°
- 12 Which gases are combined for welding burglar doors?
- A carbon dioxide and nitrogen
 - B carbon dioxide and oxygen
 - C acetylene and nitrogen
 - D acetylene and oxygen
- 13 Fig. 13.1 shows a chicken incubating her eggs.



Fig. 13.1

What characteristic of living things is shown in Fig. 13.1?

- A growth
- B sensitivity
- C respiration
- D reproduction

14 What is the function of the lens in the eye?

- A to attract light
- B to diverge light rays
- C to converge light rays
- D to prevent light from entering the eye

15 Fig. 15.1 shows a light bulb.

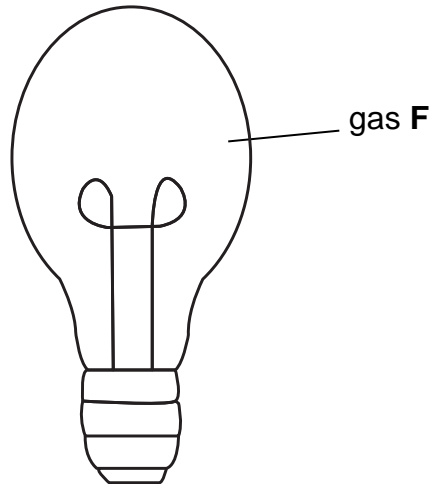


Fig. 15.1

What is the name of the gas labelled **F** in Fig. 15.1?

- A argon
- B chlorine
- C helium
- D hydrogen

Use Fig. 16.1 to answer Questions 16 and 17.

Fig. 16.1 shows a set-up used by some learners to investigate one of the conditions needed for photosynthesis to occur.

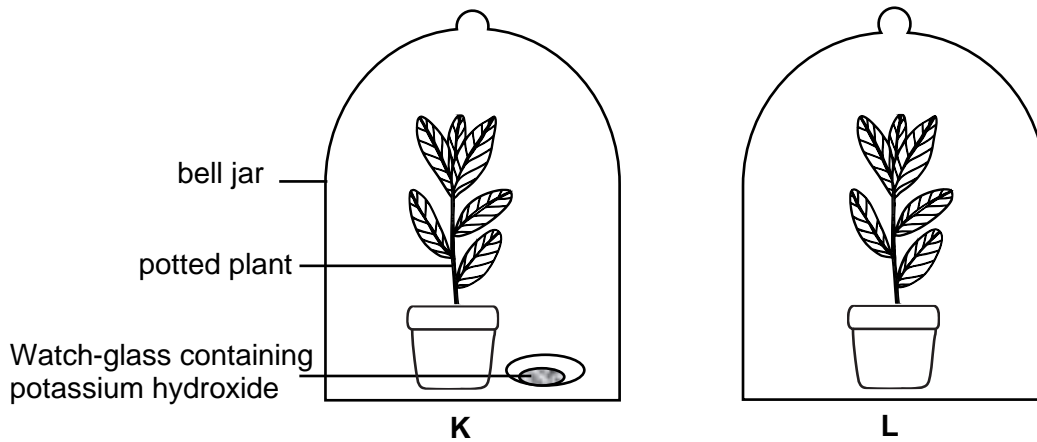


Fig. 16.1

16 What is the purpose of the potassium hydroxide in set-up K in Fig. 16.1?

- A to release carbon dioxide
- B to absorb carbon dioxide
- C to release oxygen
- D to absorb oxygen

17 The learners tested one leaf from each of the set-ups in Fig.16.1 for starch.

Which row is correct for the observation and conclusion for the tests?

	set-up K	set-up L
A	brown, starch present	brown, starch present
B	brown, no starch	blue-black, starch present
C	blue-black, starch present	blue-black, starch present
D	blue-black, no starch	brown, no starch

18 What is the function of a fuse in an electrical circuit?

- A to increase the current flowing
- B to reduce too much current flowing
- C to break the circuit when less current is flowing
- D to break the circuit when too much current is flowing

19 Naphthalene crystals sublime when heated.

Why is this a physical change?

- A it is reversible
- B it is irreversible
- C heat energy is gained
- D a new substance is formed

20 Which vitamin enables the nervous system to function normally?

- A vitamin B
- B vitamin C
- C vitamin D
- D vitamin K

21 Fig. 21.1 shows an axle which is too large to fit into a hole of a ring made of the same metal.

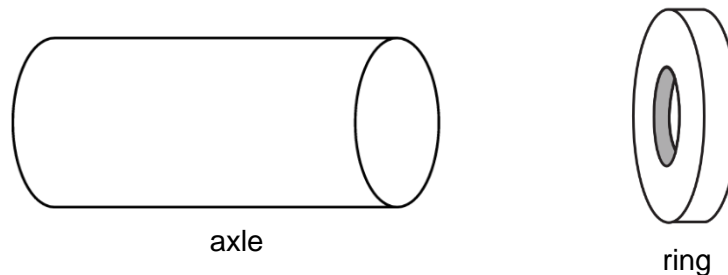


Fig. 21.1

What is the correct method to make the axle fit into the hole of the ring?

- A by heating the axle
- B by heating the ring
- C by cooling both the axle and the ring
- D by heating both the axle and the ring

22 Why do farmers often add a base to the soil?

- A to decrease soil pH
- B to make it more fertile
- C to neutralise acid in the soil
- D to kill harmful bacteria in the soil

23 Which effect is not a result of a force on an object?

- A a bulb lighting
- B a car increasing speed
- C a plastic bottle crushed
- D a car moving in a curved road

24 Which element is found in Group VIII in the Periodic Table?

- A boron
- B fluorine
- C neon
- D sodium

25 A bus carrying passengers on a cold day has all its windows closed.

The windows get misty.

Which characteristic of exhaled air makes the windows misty?

- A less warm
- B less moist
- C more warm
- D more moist

26 Which row shows the correct form of energy and its example?

	form of energy	example
A	light	transferred by an electric current
B	wind	energy in a rain drop falling from the sky
C	kinetic	energy in a car moving down a hill
D	chemical	energy in a crane lifting a mass

27 Which row is correct for the percentage composition of the gases oxygen, carbon dioxide, and nitrogen in air?

	oxygen	carbon dioxide	nitrogen
A	20	1.0	78
B	21	1.0	78
C	20	0.03	78
D	21	0.03	78

28 Which opportunistic disease may be spread due to poor ventilation in a classroom?

- A syphilis
- B diarrhoea
- C pneumonia
- D tuberculosis

- 29 Fig. 29.1 shows a diagram of an incomplete circuit.
The current flowing through the circuit is to be measured with an ammeter.

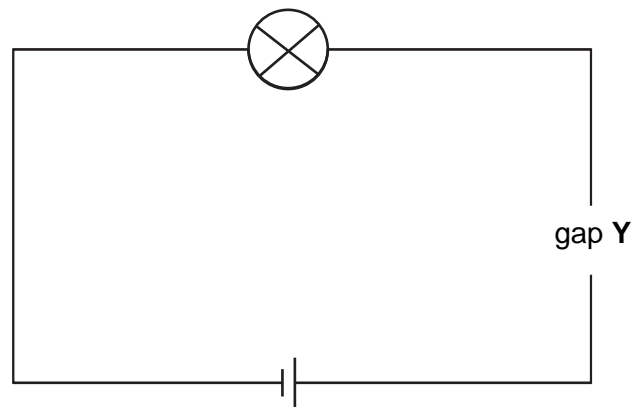
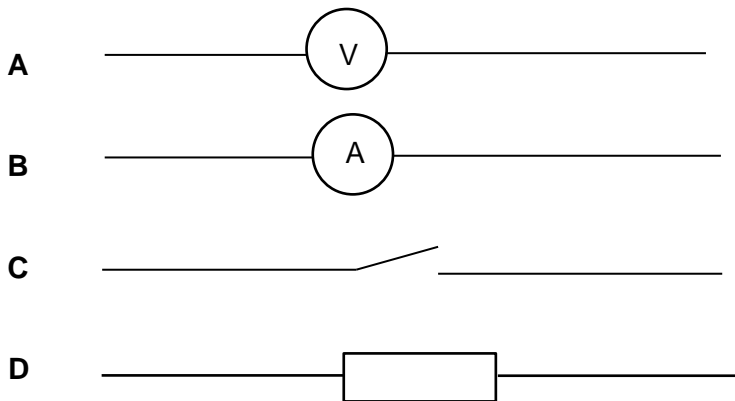


Fig. 29.1

What is the correct symbol of the component that can be used to complete the circuit in the gap Y in Fig. 29.1?



- 30 Which property of copper makes it suitable to make electrical wires?

- A it is ductile
- B it is lustrous
- C it is malleable
- D it is sonorous

31 Fig. 31.1 shows a calendar for the month of October and November.

A girl's first day of menstruation is on the 10th of October.

October 2022							November 2022						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1			1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28	29	30			
30	31												

Fig. 31.1

What is the date of her next ovulation?

- A 15th October
- B 23rd October
- C 6th November
- D 10th November

32 Fig. 32.1 shows four lamps with positions of the centre of mass marked M in each case.

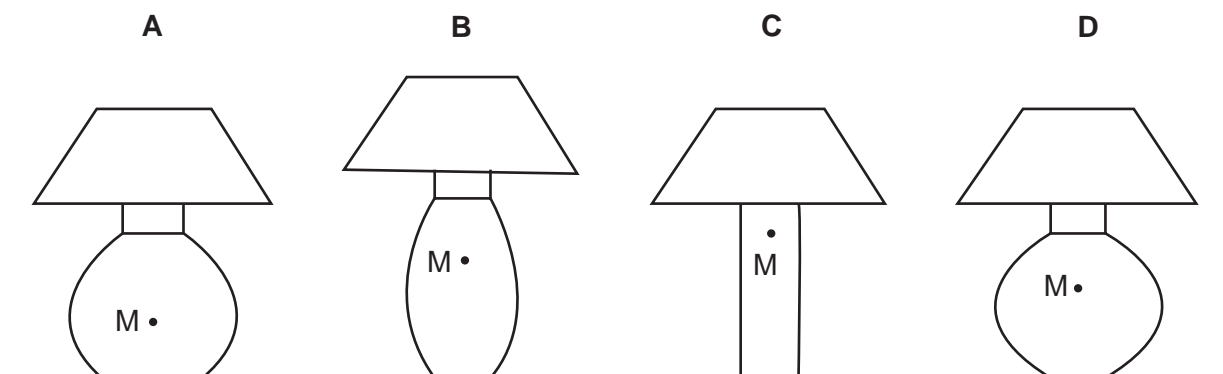


Fig. 32.1

Which lamp is the most stable?

33 Which row is correct for the locations of protons, neutrons and electrons in an atom?

	electrons	neutrons	protons
A	inside the nucleus	inside the nucleus	outside the nucleus
B	outside the nucleus	inside the nucleus	inside the nucleus
C	inside the nucleus	outside the nucleus	outside the nucleus
D	outside the nucleus	outside the nucleus	inside the nucleus

34 Fig. 34.1 shows the male reproductive system.

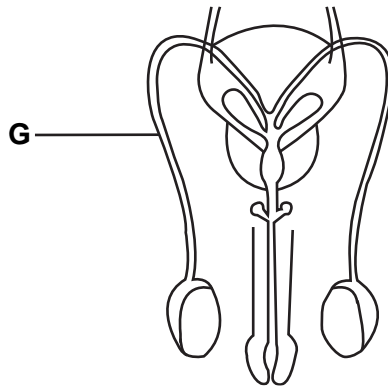


Fig. 34.1

What is the function of the part labelled **G** in Fig. 34.1?

- A** stores sperms
- B** transports urine
- C** produces sperms
- D** transports sperms

35 Fig. 35.1 shows a briefcase with flat rectangular sides resting on the floor.

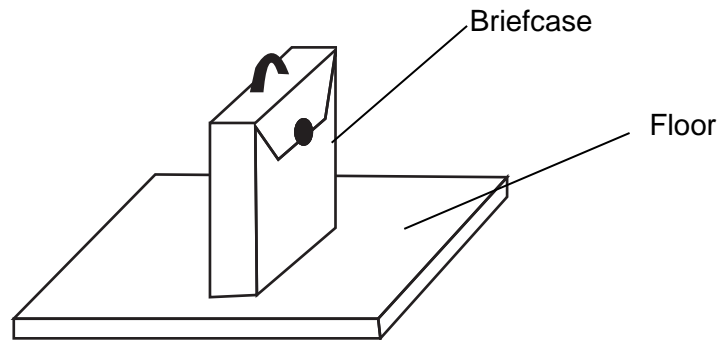


Fig. 35.1

The briefcase is now turned so that it rests with its larger, flat side on the floor.
Which of these quantities changes?

- A mass of the briefcase
- B volume of the briefcase
- C force exerted on the floor
- D pressure exerted on the floor

36 Table 36.1 shows the densities of two immiscible liquids.

Table 36.1

liquid	density (g/cm ³)
cooking oil	0.92
water	1.00

Which method can be used to separate the two liquids?

- A evaporation
- B filtration
- C separation by gravity
- D simple distillation

37 Which of these methods completely prevents pregnancy and the transmission of sexually transmitted infections?

- A abstinence
- B using the pill
- C rhythm method
- D using a condom

38 Fig. 38.1 shows the structure of a liquid in glass thermometer.



Fig. 38.1

What is the name of the part labelled **H** in Fig. 38.1?

- A bulb
- B stem
- C capillary tube
- D mercury thread

39 Which metals can occur in their pure state?

- A gold and copper
- B zinc and calcium
- C magnesium and iron
- D calcium and aluminium

40 Fig. 40.1 shows a simple feeding relationship between organisms in a grassland.

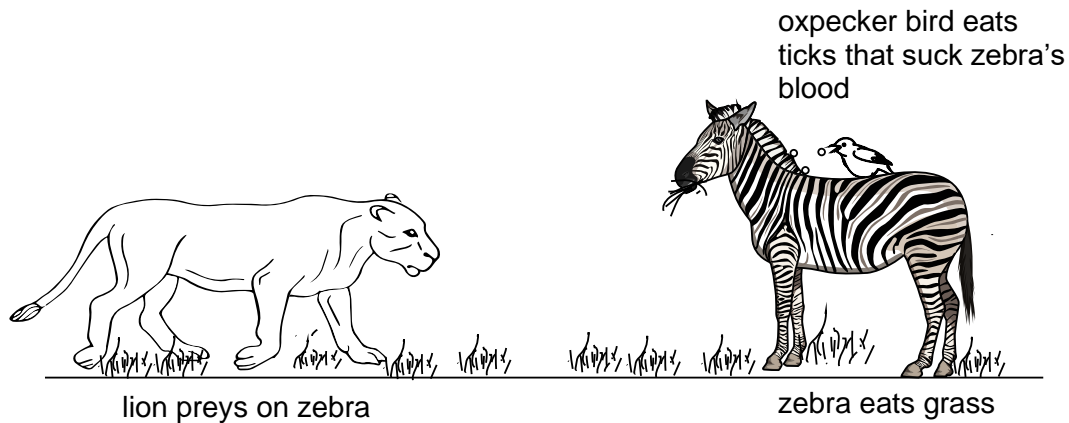


Fig. 40.1

Which organism is a primary consumer in Fig. 40.1?

- A tick
- B zebra
- C lioness
- D oxpecker

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