EXAMINATIONS COUNCIL OF ESWATINI
Junior Certificate Examination

**SCIENCE** **414/01**

Paper 1 Multiple Choice **October/November 2025**

**1 hour**

Additional Materials: Multiple Choice Answer Sheet
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.



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**[Turn over**

**1** What is the function of calcium in the human body?

**A** for energy

**B** for growth

**C** development of teeth

**D** development of nerves

**2** What is the correct unit for density?

**A** m / s

**B** J / s

**C** kg / $m^3$

**D** N / $m^2$

**3** Rusting and burning are similar processes since they both involve

**A** pollution

**B** oxidation

**C** corrosion

**D** combustion

**4** Which statement is correct about nutrients?

**A** is the transport of food substances in the body.

**B** are the basic units that make up food substances.

**C** are the chemicals obtained from food substances to sustain life.

**D** is the obtaining of chemicals from food substances to sustain life.

**5** Fig. 5.1 shows an arrow travelling horizontally in a straight line at constant speed.

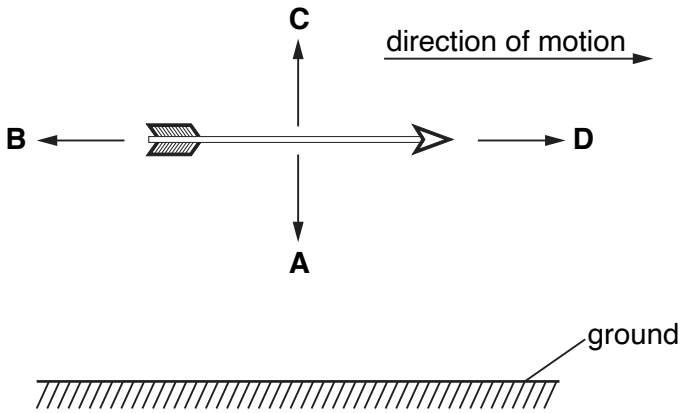



**Fig. 5.1**

In which direction does the weight of the arrow act?

**6** Simple distillation is a one of the methods used to separate mixtures.

It is based on the difference in physical property of the substances in the mixture.

Which of the following is the correct physical property?

**A** density
**B** volume
**C** melting point
**D** boiling point

**7** Fig. 7.1 shows the diagram of a plant cell.

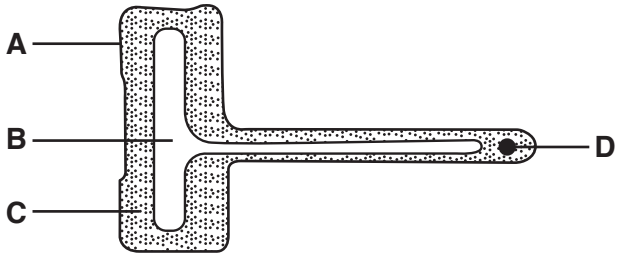



**Fig. 7.1**

Which part controls all activities of the plant cell?

**8** Most lamps in houses are operated independently because the lamps are connected

**A** in series
**B** to a fuse
**C** in parallel
**D** to an earth wire

**9** Which particles are found in the nucleus of an atom?

**A** protons only
**B** electrons only
**C** protons and neutrons
**D** electrons and neutrons

**10** Which term describes a process that occurs in the uterus?

**A** ovulation
**B** pregnancy
**C** fertilization
**D** contraception

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**11** Which description is correct about sound waves?

**A** have troughs

**B** are longitudinal

**C** cannot be reflected

**D** do not transfer energy

**12** The following is a word equation for the burning of carbon in plenty of air.

carbon + oxygen ⟶ product **E**

What is the name of product **E**?

**A** carbon oxide

**B** carbonic acid

**C** carbon dioxide

**D** carbon monoxide

**13** A farmer carried out a survey in a garden. The farmer found snails feeding on cabbages, and chickens perking on snails in the garden.

Which row correctly describes the organisms in the garden?

| | **producer** | **primary consumer** | **secondary consumer** |
|---|---|---|---|
| **A** | sun | snail | chicken |
| **B** | cabbage | chicken | snail |
| **C** | cabbage | snail | chicken |
| **D** | sun | chicken | snail |

**14** What is the length of the rod shown in Fig. 14.1?



**Fig. 14.1**

**A** 10 cm

**B** 10 mm

**C** 1.0 cm

**D** 1.0 mm

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**15** A student investigates the reactivity of metals, copper, magnesium, iron and zinc with dilute hydrochloric acid.

Fig. 15.1 shows the results of the investigation.

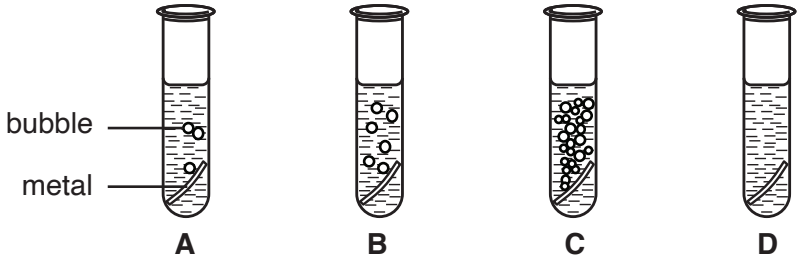



**Fig. 15.1**

Using the information in Fig. 15.1, which test tube shows the results for iron?

**16** Which statement best describes the Sun in an environment?

**A** is the principal source of energy for plants only.

**B** is the principal source of energy for animals only.

**C** is the principal source of energy to all living systems.

**D** is the principal source of energy to all living and non-living systems.

**17** A ray of light bends when travelling from air to glass.

What causes the ray of light to bend?

**A** the colour of the light changes

**B** the speed of the light changes

**C** the amplitude of the light changes

**D** the frequency of the light changes

**18** The word equation for the main reaction in the blast furnace is shown below

iron(III) oxide + carbon monoxide ⟶ iron + carbon dioxide:

Why is this a reduction reaction?

**A** iron is formed

**B** carbon dioxide is formed

**C** iron(III) oxide loses oxygen

**D** carbon monoxide gains oxygen

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**19** During inhalation, inhaled air passes along several organs to the lungs.

Which list contains the organs in their correct order?

**A** trachea, larynx, bronchus, lungs

**B** larynx, trachea, bronchus, lungs

**C** larynx, bronchus, trachea, lungs

**D** bronchus, trachea, larynx, lungs

**20** Which list consists of examples of forces only?

**A** potential, upthrust, suction

**B** suction, kinetic, gravitational

**C** gravitational, kinetic, tension

**D** upthrust, gravitational, tension

**21** Which elements make up mild steel?

**A** zinc and iron

**B** iron and carbon

**C** zinc and carbon

**D** iron and copper

**22** The following are human activities which cause pollution.

1 fertilizers and bottle waste

2 bottle waste and pesticides

3 household waste and car exhaust fumes

4 car exhaust fumes and herbicides

Which human activities bring about air pollution?

**A** 1 and 3

**B** 4 only

**C** 3 and 4

**D** 1 and 2

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**23** A student uses a stopwatch to measure the time taken by a runner to complete a race.

Fig. 23.1 shows the readings on the stopwatch at the start and at the end of the race.

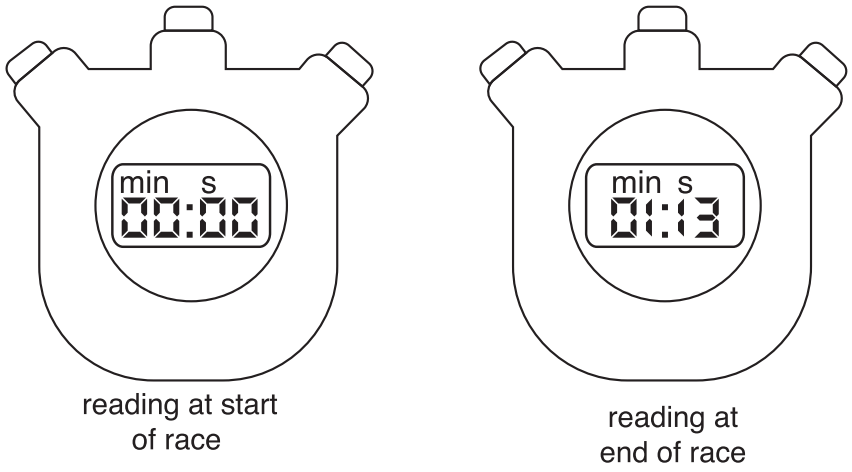



**Fig. 23.1**

What is the time taken by the runner to complete the race?

**A** 14 s

**B** 73 s

**C** 113 s

**D** 1.13 s

**24** Which term best describes a sugar solution.

**A** solute

**B** mixture

**C** element

**D** compound

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Fig. 25.1 is the human urinary system.

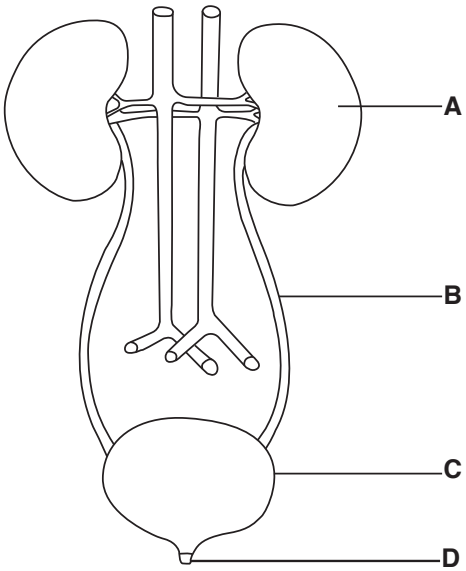



**Fig. 25.1**

**25** Which part in Fig. 25.1 removes urea from the blood?

**26** Which part in Fig. 25.1 is the urethra?

**27** Fig. 27.1 shows magnetic field patterns.

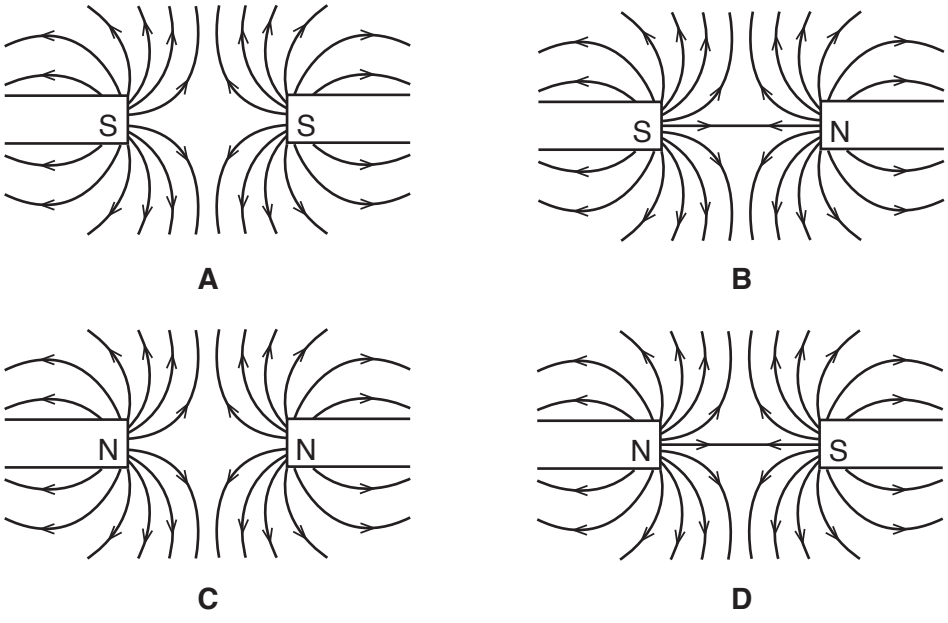



**Fig. 27.1**

Which magnetic field pattern is correct?

**28** Oxygen is collected using the downward displacement of water.

Which property explains why oxygen is collected using this method?

**A** odourless

**B** colourless

**C** less dense than air

**D** less dense than water

**29** A person travels from home to a shop at a speed of 2 m / s for 300 seconds.

What is the total distance covered by the person?

**A** 150 m

**B** 302 m

**C** 600 m

**D** 0.00 667m

**30** Which property of aluminium makes it suitable for making aircraft bodies?

**A** stronger

**B** less dense

**C** resistant to corrosion

**D** good conductor of electricity

**31** Which of the following is a secondary sex characteristic in males at puberty?

**A** menstruation begins

**B** hips become rounder

**C** amount of muscle increases

**D** amount of body fat increases

**32** Which statement correctly defines resistance?

**A** the rate of flow of electric charge.

**B** the opposition to the flow of electric current.

**C** the material which allows flow of electric charge.

**D** the material which does not allow flow of electric charge.

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**33** A student investigates if oxygen is necessary for rusting to occur.

The student sets up the apparatus as shown in Fig. 33.1.

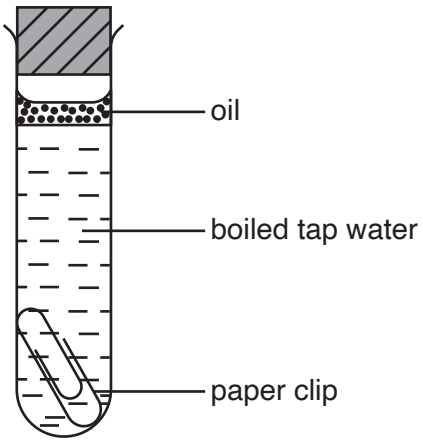



**Fig. 33.1**

What is the purpose of using boiled tap water during the investigation?

**A** to purify the water

**B** to add the oil layer

**C** to remove dissolved air

**D** to speed up the reaction

Use Fig. 34.1 to answer questions **34** and **35**.

Fig. 34.1 shows a reflex arc when a person touches a pin.

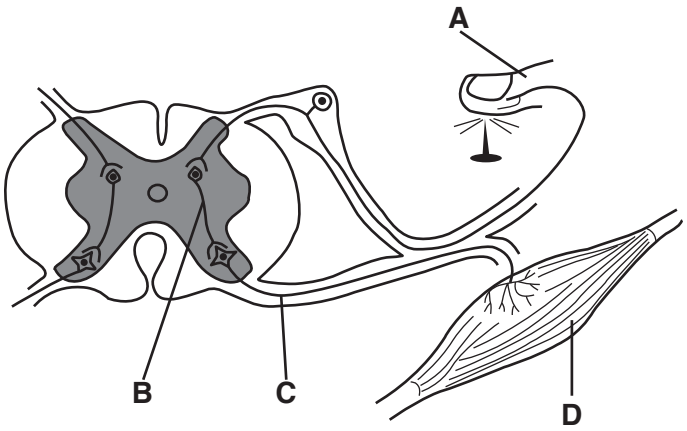



**Fig. 34.1**

**34** Which part in Fig. 34.1 responds to the stimulus?

**35** What is the stimulus in the reflex arc shown in Fig. 34.1?

**A** touch

**B** sound

**C** chemicals

**D** temperature

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**36** Fig. 36.1 shows four waves all drawn to the same scale.

The waves travel at the same speed.

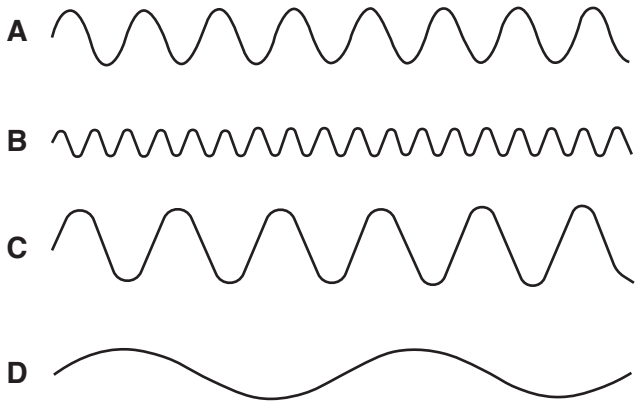



**Fig. 36.1**

Which wave has the longest wavelength?

**37** Which gases are always present in the air?

**A** oxygen, nitrogen, carbon dioxide

**B** hydrogen, carbon dioxide, oxygen

**C** carbon dioxide, nitrogen, hydrogen

**D** acetylene, oxygen, carbon dioxide

**38** Which of the following is a renewable source of energy?

**A** coal

**B** petrol

**C** biomass

**D** natural gas

**39** A cabbage farmer took a sample of soil from a field to a soil testing laboratory. A research officer in the laboratory advised the farmer to add ten bags of a base to the soil.

Why did the research officer advise the farmer to add a base to the soil?

**A** to add nutrients

**B** to neutralize the soil

**C** to increase the soil fertility

**D** to neutralise acid in the soil

**40** Which of the following is an application of thermal expansion?

**A** cracking in roads

**B** overflowing of milk in pots

**C** bimetallic strip in electric irons

**D** sagging of electrical power lines

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