Candidate Name	Centre Number	Candidate Number

ZIMSEC
For Performance Measurement

ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

COMBINED SCIENCE 4003/1

PAPER 1 Multiple Choice

SPECIMEN PAPER 2018 1 hour

Additional materials:
Multiple Choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended.)
Calculator (Optional)

TIME 1 hour

INSTRUCTIONS TO CANDIDATES

Do **not** open this booklet until you are told to do so.

Write your name, Centre number and candidate number on the answer sheet in the spaces

provided unless this has already been done for you.

Read very carefully the instructions on the answer sheet.

INFORMATION FOR CANDIDATES

Each correct answer will score **one** mark. A mark will **not** be deducted for a wrong answer. Any rough working should be done in this booklet.

There are **forty** questions in 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 provided.

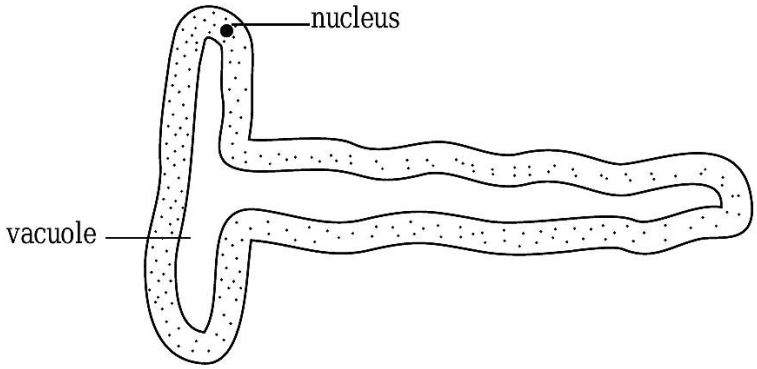
This question paper consists of 13 printed pages and 3 blank pages.

Copyright: Zimbabwe School Examinations Council, Specimen paper.

1 Which instrument is most suitable for observing specialised cells?

A microscope
B telescope
C bioviewer
D magnifying lens

2 The diagram shows a specialised cell.



What is the name of the cell?

A muscle cell
B palisade cell
C root hair cell
D red blood cell

3 Which adaptation of a leaf does **not** increase the rate of photosynthesis?

A air spaces
B thick cuticle
C numerous stomata
D large surface area

4 Which atmospheric condition reduces the rate of water uptake in plants?

A high humidity
B high wind speed
C high temperature
D high light intensity

5 A wind pollinated flower

A has short filaments.
B has large petals.
C has numerous pollen grains.
D produces nectar.

6 Ebola is caused by a

A bacterium.
B fungus.
C protozoan.
D virus.

7 Excessive consumption of alcohol leads to

A emphysema.
B hallucinations.
C lung cancer.
D liver cirrhosis.

8 Which deficiency disease is caused by lack of Vitamin C?

A goitre
B scurvy
C anaemia
D rickets

9 A student carried out a test on a food substance using the Biuret solution and a purple colour was observed.

Which nutrient was present in the food substance?

A fats
B proteins
C vitamins
D carbohydrates

10 Which is a function of the white blood cells?

A defence
B excretion
C transport
D homeostasis

11 Which contraceptive method prevents ovulation?

A pill
B spermicides
C sterilization
D intra uterine device

12 Which event will result in a child acquiring active immunity?

A keeping the child away from sick people
B injection the child with artificial hormones
C injection the child with a vaccine
D breastfeeding the child for at least six months

13 What happens to most of the energy as it flows through an ecosystem?

A It is recycled.
B It is lost as heat.
C It is used in digestion.
D It is stored as carbohydrates.

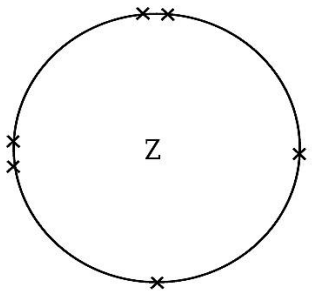
14 The physical property used in fractional distillation is the difference in

A densities of the liquids.
B boiling points of the liquids.
C melting points of the liquids.
D heat capacities of the liquids.

15 ${}^{35}_{17}CI$ and ${}^{37}_{17}CI$ are called

A isomers.
B isotopes.
C monomers.
D polymers.

16 The diagram show the outermost shell of element Z.



Z forms an ion with a charge of

A Z^{6+}.
B Z^{2+}.
C Z^{6-}.
D Z^{2-}.

17 Sulphuric acid and calcium hydroxide reacts as shown by the equation:

$$H_2SO_{4(aq)} + Ca(OH)_{2(aq)} \rightarrow CaSO_{4(aq)} + 2H_2O_{(l)}$$

If 0.1 moles of sulphuric acid are used, how many moles of water are produced?

A 0.1
B 0.2
C 1.0
D 2.0

18 An organic compound contains 84 % carbon(C) and 16 % hydrogen (H) by mass. [atomic mass of C is 12 and that of H is 1]

What is the empirical formula of the organic compound?

A CH
B CH_2
C C_2H
D C_2H_4

19 Which substance, in exhaust fumes, causes global warming?

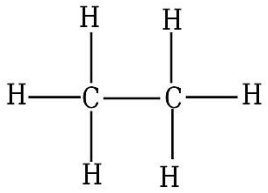
A carbon soot
B carbon dioxide
C water vapour
D carbon monoxide

20 What is the use of limestone in the blast furnace?

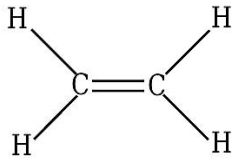
A to produce slag
B to act as a fuel
C to produce carbon monoxide
D to reduce iron (III) oxide to iron

21 Which diagram, **A**, **B**, **C**, or **D**, shows the structure of ethane?

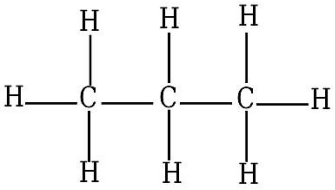
A



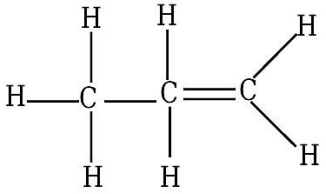
B



C



D



22 The list shows part of the reactivity series of metals:

calcium
magnesium
zinc
copper

What is the position of a metal that reacts vigorously with cold water?

A below copper
B above calcium
C between zinc and copper
D between magnesium and zinc

23 Which temperature is used in the Haber process?

A 200 °C
B 300 °C
C 450 °C
D 800 °C

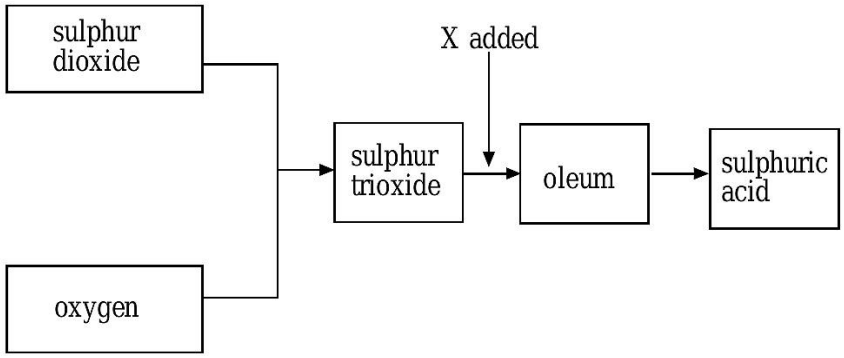
24 The equation shows the reaction between iron oxide and carbon monoxide.

iron oxide + carbon monoxide ⟶ iron + carbon dioxide

Which is the oxidising agent?

A iron
B iron oxide
C carbon dioxide
D carbon monoxide

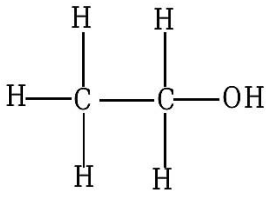
25 The flow diagram shows the manufacture of sulphuric acid.



What is X?

A water
B vanadium pentoxide
C dilute sulphuric acid
D concentrated sulphuric acid

26 The diagram shows the structure of an organic molecule.



To which homologous series does the molecule belong?

A alcohols
B aldehydes
C alkanes
D alkenes

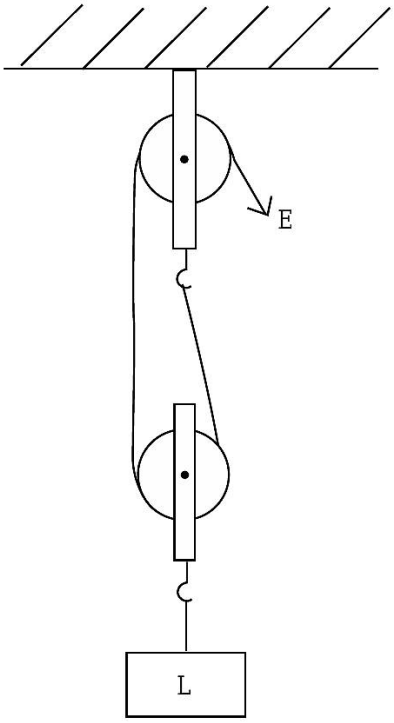
27 Which instrument would be used to accurately measure the internal diameter of a glass bottle?

A metre rule
B vernier callipers
C tape measure
D micrometer screw gauge

28 Weight can be calculated by multiplying acceleration due to gravity by

A mass.
B velocity.
C time.
D distance.

29 The diagram shows a pulley system.

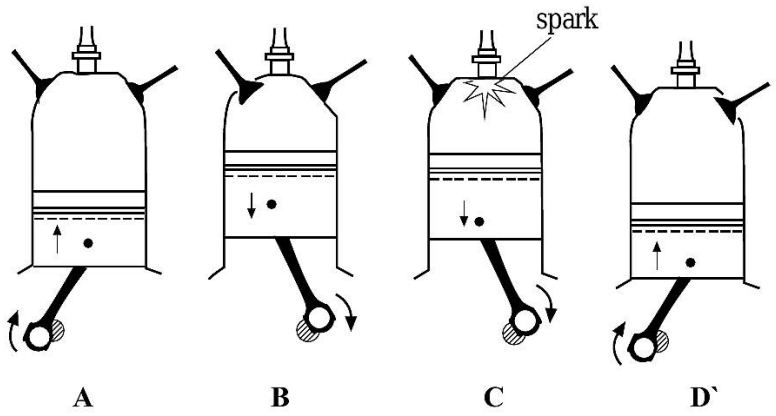


What is the velocity ratio (VR) of the pulley system?

A 1
B 2
C 3
D 4

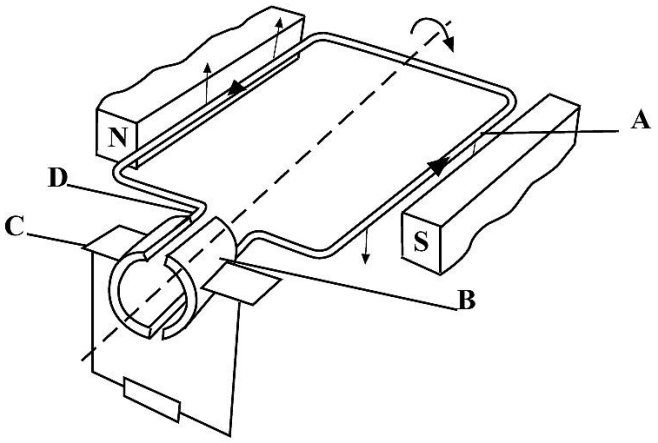
30 The diagrams show the four strokes of a petrol engine.

Which diagram, **A, B, C** or **D**, shows the inlet stroke?



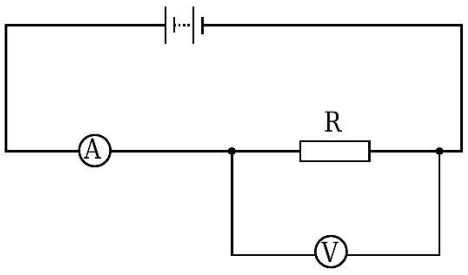
31 The diagram shows a simple direct current (d.c) electric motor.

Which part, **A**, **B**, **C** or **D**, is the commutator?

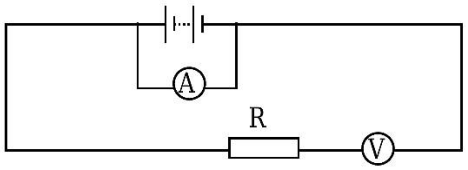


32 Which circuit diagram, **A**, **B**, **C** or **D**, can be used to determine the resistance of a resistor, R?

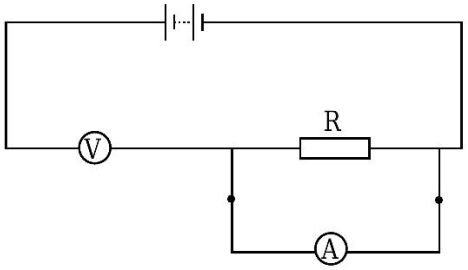
A



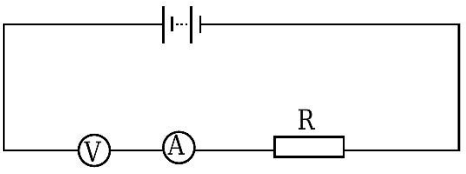
B



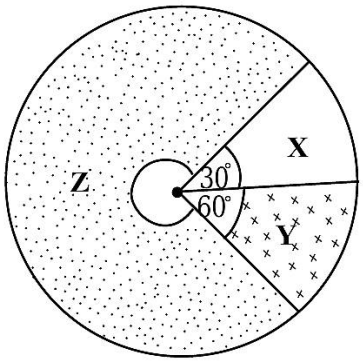
C



D



33 The pie chart shows components **X, Y** and **Z** which are in a mixture.



What is the percentage of **Z** in the mixture?

A 8%
B 16%
C 25%
D 75%

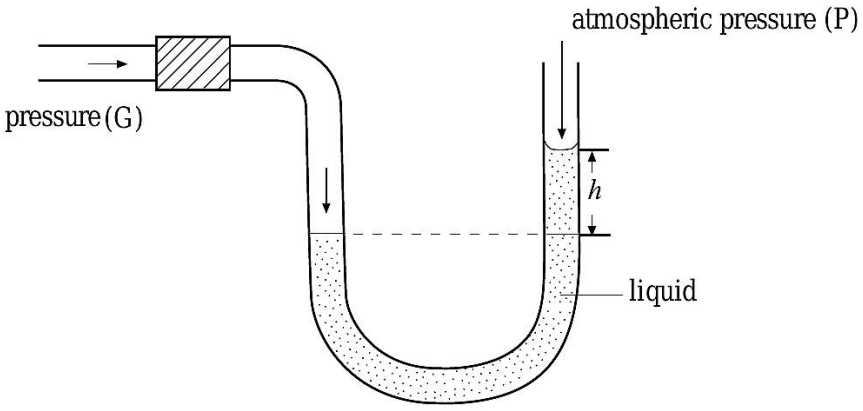
34 A wind blows with a force of 200 N against a wall of height 2 m and length 5 m.

What is the pressure exerted on the wall by the wind?

A 20 N/m^2
B 40 N/m^2
C 100 N/m^2
D 200 N/m^2

35 The diagram shows a manometer used to measure gas pressure.

[Acceleration due to gravity is g, density of liquid is ρ.]



Which expression gives the gas pressure, G?

A $G = P - \rho gh$
B $G = P + \rho gh$
C $G = \rho gh - P$
D $G = \rho gh$

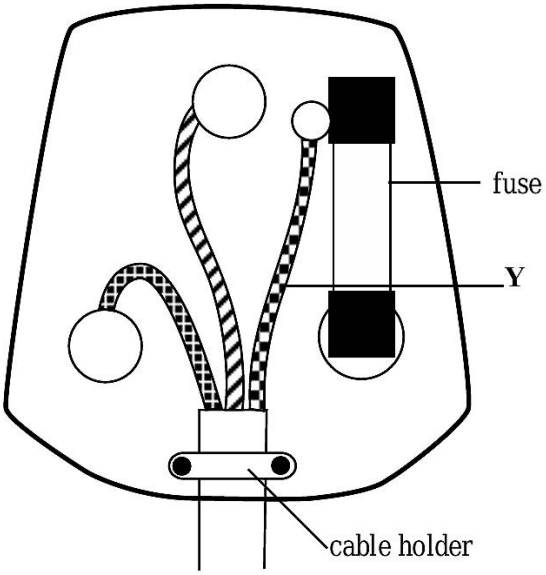
36 Why does a solar cooker have a shiny surface?

A to reflect heat
B to conduct heat
C to absorb heat
D to concentrate heat

37 Which media of communication is used to share pictures using cell phones?

A coaxial cable
B optic fibre
C sheathed pair cables
D wi-fi

38 The diagram shows a 3-pin plug.



What is the standard colour of wire **Y**?

A green-yellow
B blue
C black
D brown

39 What is the energy conversion in a generator?

A electrical energy → kinetic energy
B electrical energy → mechanical energy
C mechanical energy → electrical energy
D mechanical energy → potential energy

40 Electricity costs 10 cents per kilowatt hour (kWh).

How much does it cost to run a 0.75 kw machine for 20 hours?

A $0.375
B $1.50
C $7.50
D $15.00

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