

**EXAMINATIONS COUNCIL OF ZAMBIA**

**Examination for General Certificate of Education Ordinary Level**

**Biology**  
**Paper 1 Multiple Choice**

**5090/1**

**Wednesday**

**6 JULY 2016**

**Additional materials:**

Multiple Choice answer sheet  
Soft clean eraser  
Soft pencil (type B or HB is recommended)

**Time: 50 minutes**

**Instructions to candidates**

**Do not open this Question Paper 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.

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.

**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 Question Paper.

**Cell phones are not allowed in the examination room.**

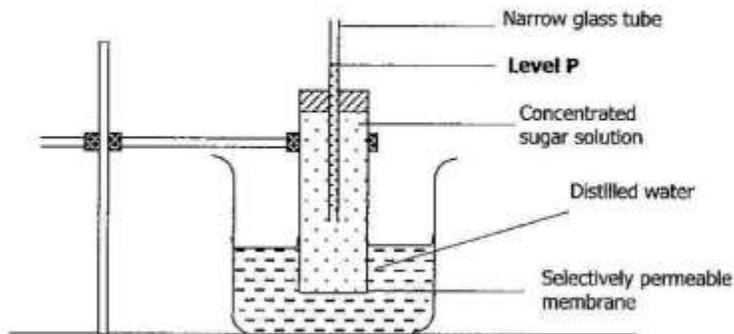
1 Which characteristic of living organisms is described by the following statement?  
 "Permanent increase in size of an organism".

- A Excretion
- B Growth
- C Reproduction
- D Respiration

2 What are the correct functions of the following specialised cells?

	Root hair cell	Phloem cells	Xylem cells
A	Absorption of water	Conduction of sucrose	Conduction of water
B	Absorption of water	Conduction of water	Conduction of sucrose
C	Conduction of water	Conduction of sucrose	Absorption of water
D	Conduction of water	Absorption of water	Conduction of sucrose

3 The diagram shows an apparatus used to investigate osmosis.



What molecules will pass through the selectively permeable membrane and what will happen to level P?

	Molecules that pass through selectively permeable membrane	Level P
A	Sugar	Fall
B	Sugar	Rise
C	Water	Fall
D	Water	Rise

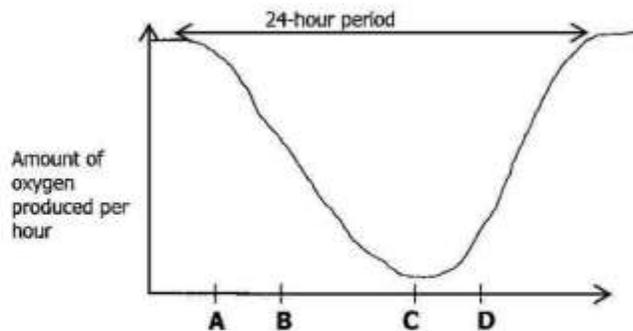
- 4 In the phylum arthropoda, which of the following characteristics correctly identifies the class insecta?

	Number of main body parts	Pairs of legs	Pairs of wings
<b>A</b>	2	3	2
<b>B</b>	3	2	4
<b>C</b>	3	3	2
<b>D</b>	4	6	4

- 5 Which of the following signs indicate that a plant is lacking magnesium?

- A** Purple leaves and thin stem.
- B** Small leaves and thin stem.
- C** White upper leaves and normal leaves.
- D** Yellow leaves and yellow stems.

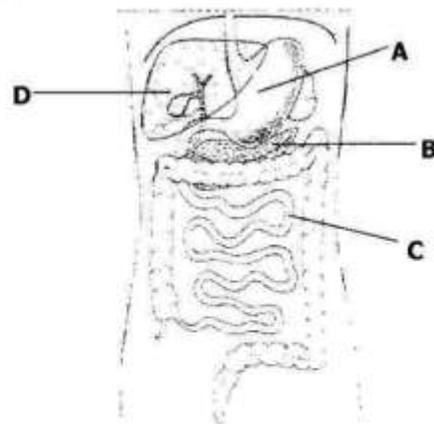
- 6 The diagram shows the amount of oxygen produced by a green plant, growing outdoors, during a 24-hour period. Which letter represents midday?



- 7 Which substances are needed for formation of healthy bones and teeth?

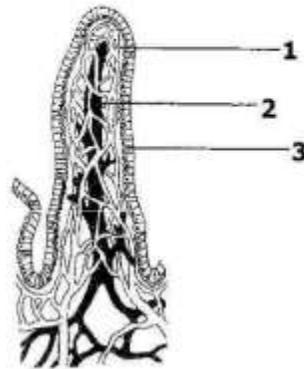
- A** Calcium and Vitamin C.
- B** Calcium and Vitamin D.
- C** Iron and Vitamin C.
- D** Iron and Vitamin D.

- 8 The diagram shows the alimentary canal.



Which labelled structure produces an acidic digestive juice?

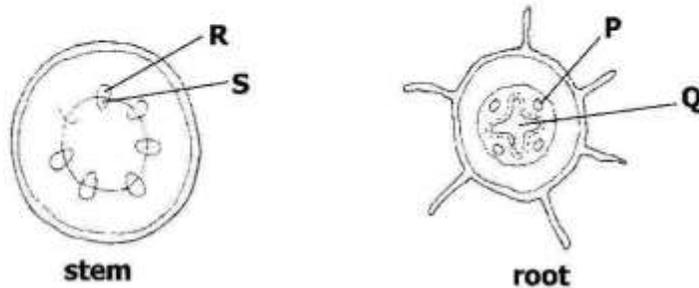
9 The diagram shows a villus.



Which of the following correctly describes the functions of the numbered parts?

	1	2	3
A	Absorbs digested fats	Absorbs glucose	Produces enzymes
B	Absorbs digested fats	Absorbs glucose	Produces mucus
C	Absorbs glucose	Produces digested fats	Produces enzymes
D	Absorbs glucose	Absorbs digested fats	Produces mucus

10 The diagrams show the transverse section of a dicot root and a dicot stem.



Which tissues carry sucrose in solution?

	Root	Stem
A	P	R
B	P	S
C	Q	R
D	Q	S

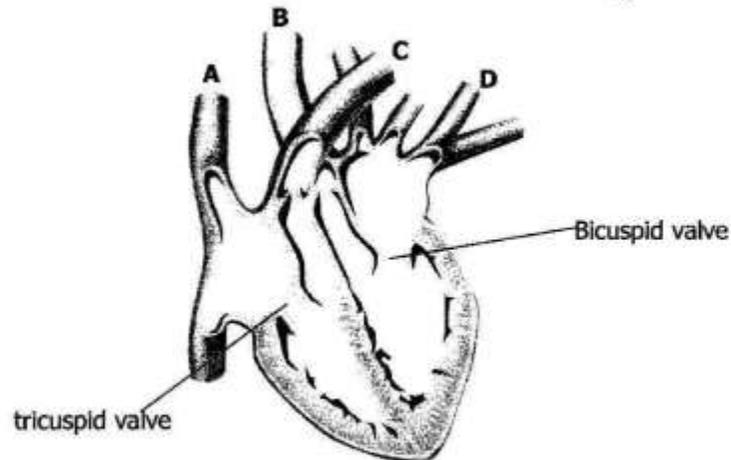
- 11 Which conditions will increase the rate of transpiration in a plant?

	Temperature	Humidity	Wind speed
A	High	High	High
B	High	Low	High
C	Low	High	High
D	Low	Low	High

- 12 A woman has fewer red blood cells than normal. What would be the effect of this?

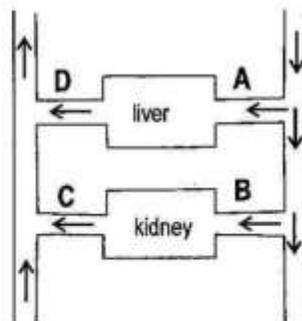
- A Her blood contains high levels of urea.
- B Her blood does not clot properly.
- C Her body does not get enough oxygen.
- D She cannot fight off infections.

- 13 The diagram shows a transverse section of the human heart.



Which labelled vessel is the vein that carries oxygenated blood?

- 14 The diagram represents the liver, Kidney and some associated blood vessels. In which blood vessel will the blood contain the lowest concentration of urea?



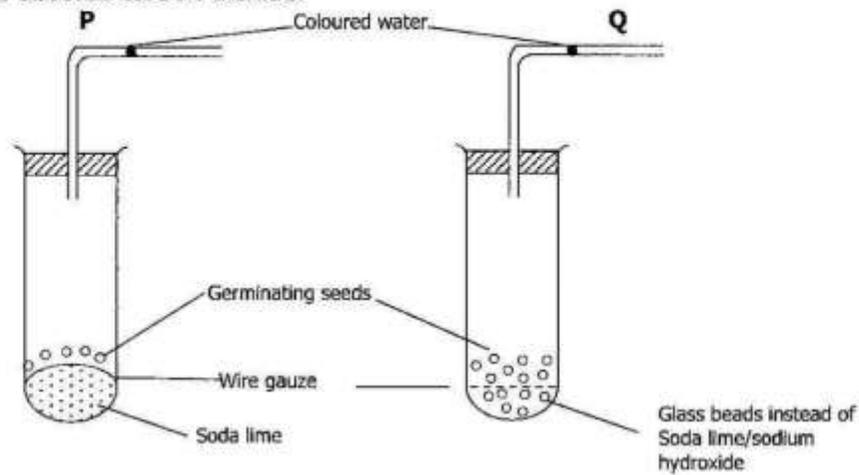
15 The end products of anaerobic respiration in yeast cells are ...

- A carbon dioxide and ethanol.
- B carbon dioxide and lactic acid.
- C carbon dioxide and water.
- D ethanol and water.

16 What happens to the diaphragm and external intercostal muscles during inspiration?

	Diaphragm	External intercostal muscles
A	Contract	Contract
B	Contract	Relax
C	Relax	Contract
D	Relax	Relax

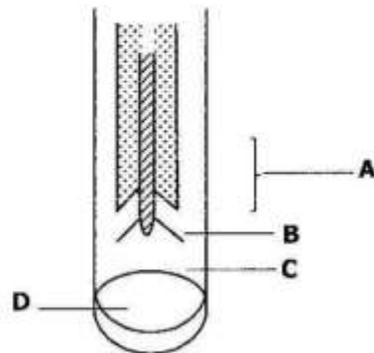
17 The diagram shows an experiment to investigate respiration in germinating seeds. Soda lime absorbs carbon dioxide.



In which direction does the coloured water move?

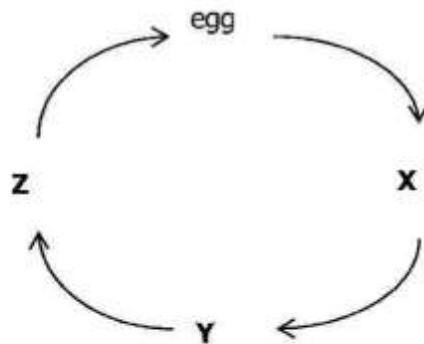
	P	Q
A	Left	Right
B	Left	Stay still
C	Right	Left
D	Stay still	Right

- 18 The diagram shows a root meristem.



Which part is the region of cell division?

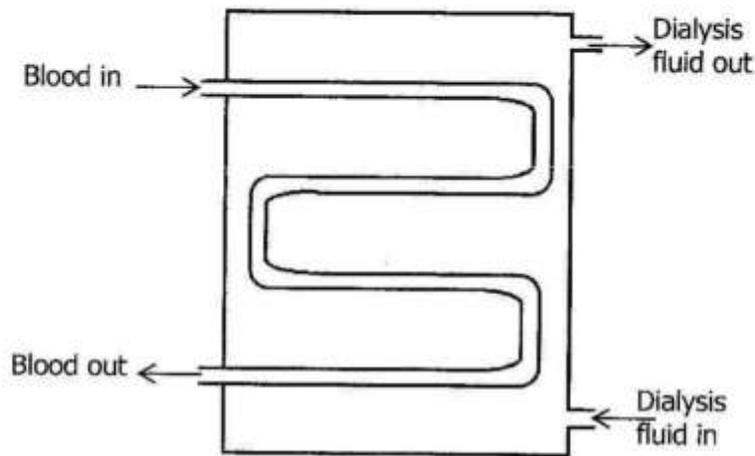
- 19 The diagram shows the life cycle of a mosquito.



What stages are X, Y and Z?

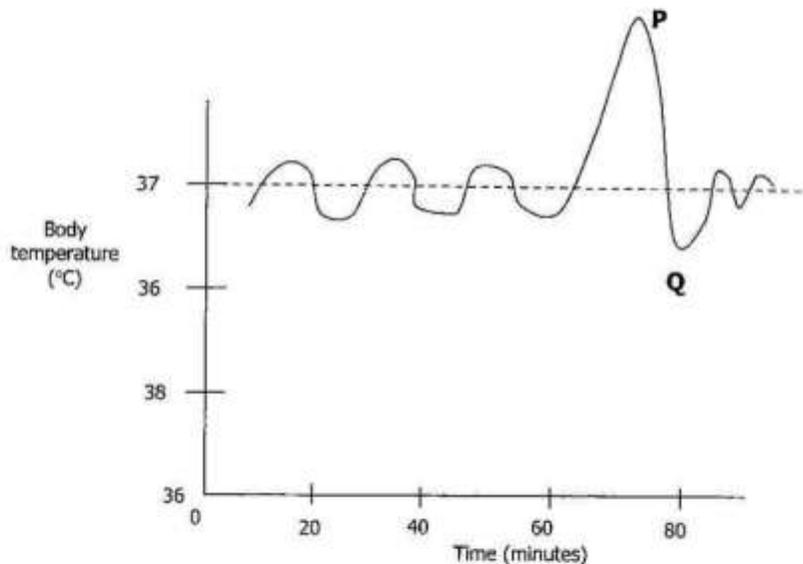
	X	Y	Z
A	Adult	Pupa	Larva
B	Adult	Larva	Pupa
C	Larva	Adult	Pupa
D	Larva	Pupa	Adult

20 The diagram shows part of a dialysis machine.



Which substance in the dialysis fluid should be at a lower concentration than in the blood?

- A Amino acids and glucose.
  - B Amino acids and urea.
  - C Glucose and salts.
  - D Salts and urea.
- 21 The graph shows changes in the person's body temperature plotted against time. What causes the change in temperature between P and Q?



- A Increase in temperature.
- B Increase in evaporation of water in sweat.
- C Reduced blood flow through surface capillaries.
- D Shivering.

- 22 What effect would an increase in glucagon have on the human body?

	Concentration of glycogen in the liver	Concentration of glucose in the blood
<b>A</b>	Decrease	Increase
<b>B</b>	Increase	Increase
<b>C</b>	No effect	Decrease
<b>D</b>	Increase	No effect

- 23 Which of the following correctly distinguishes a taxic response from a tropic response? The taxic response ...

- A** involves hormones.
- B** is a growth movement.
- C** is movement of whole organism.
- D** is irreversible.

- 24 Which part of the brain is responsible for osmoregulation?

- A** Cerebellum
- B** Cerebrum
- C** Hypothalamus
- D** Medulla oblongata

- 25 Which substances are depressant drugs?

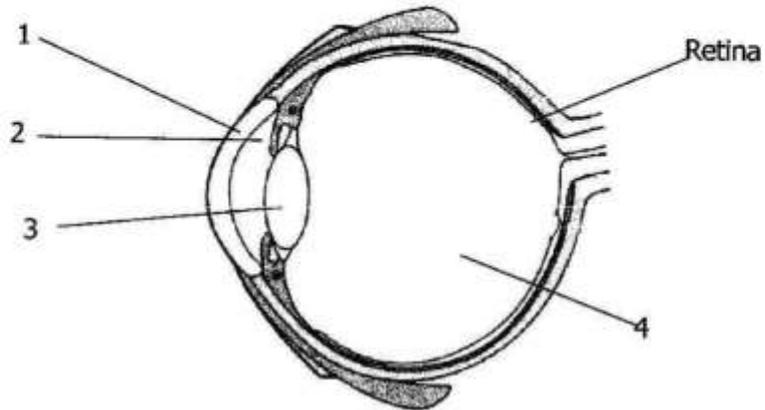
	Alcohol	Heroin	Nicotine
<b>A</b>	✓	✓	✓
<b>B</b>	✓	✓	X
<b>C</b>	✓	X	✓
<b>D</b>	X	✓	✓

**Key**

✓ depressant drug

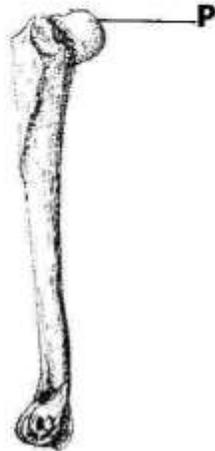
X not a depressant drug

- 26 The diagram shows a section through the eye.



Which pair of structures focus light rays onto the retina?

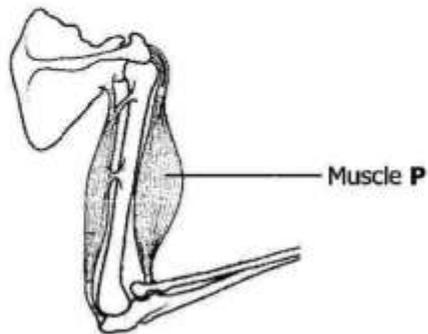
- A 1 and 2.
  - B 1 and 3.
  - C 2 and 3.
  - D 2 and 4.
- 27 The diagram shows a bone from a fore limb.



What is the name of the bone and which type of joint does it form at P?

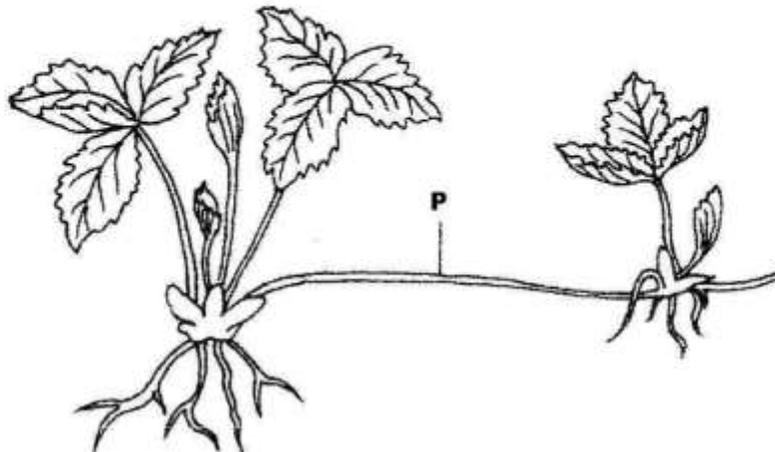
	Bone	Joint
A	Humerus	Hinge
B	Humerus	Ball and socket
C	Ulna	Hinge
D	Ulna	Ball and socket

- 28 The diagram shows the main bones and muscles of the arm.



What happens when muscle **P** contracts?

- A The lower arm is extended.
  - B The lower arm is raised.
  - C The upper arm is raised.
  - D The whole arm rotates.
- 29 The diagram below shows a form of asexual reproduction.



What name is given to the vegetative structure labelled **P**?

- A Corm
- B Rhizome
- C Runner
- D Sucker

30 In plant reproduction, the following processes occur:

- 1 Fertilization
- 2 Growth of a pollen tube
- 3 Pollination
- 4 Seed germination

In which order do these processes occur?

- A** 1 → 4 → 2 → 3  
**B** 2 → 1 → 3 → 4  
**C** 3 → 2 → 1 → 4  
**D** 4 → 3 → 1 → 2

31 A woman ovulates on the 7<sup>th</sup> of January. In which week will her next menstrual period begin?

January							
Mon	Tue	Wed	Thurs	Fri	Sat	Sun	
A	–	–	–	1	2	3	4
B	5	6	7	8	9	10	11
C	12	13	14	15	16	17	25
D	26	27	28	29	30	31	–

32 Which **one** of the following statements describes the effects of smoking on the baby in a pregnant mother?

- A** Increased growth rate and increased birth weight.  
**B** Increased growth rate and reduced birth weight.  
**C** Reduced growth rate and increased birth weight.  
**D** Reduced growth rate and reduced birth weight.

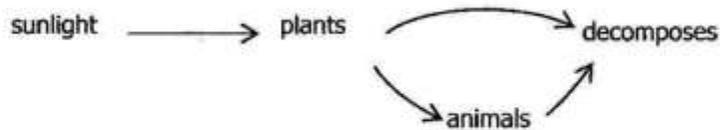
33 Which of the following parasites requires a fresh water snail to complete its life cycle?

- A** Plasmodium  
**B** Schistosoma  
**C** Trypanosoma  
**D** Vibrio cholerae

34 Which **one** of the following is the most effective way of avoiding HIV infection by someone who is not infected?

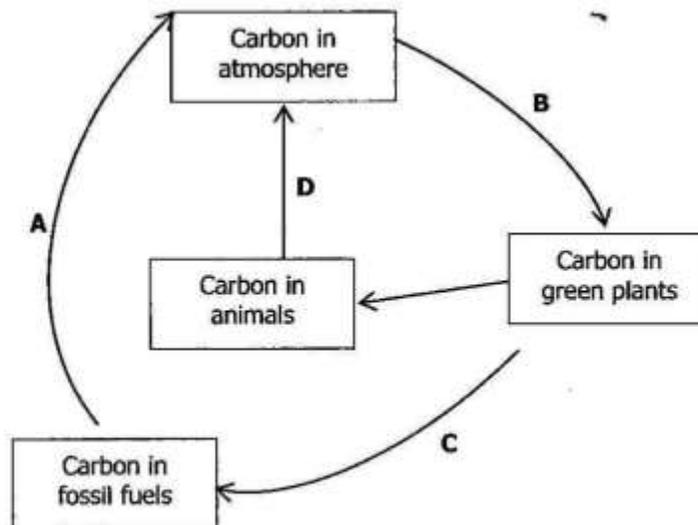
- A** Avoiding sexual intercourse.  
**B** Having one sexual partner.  
**C** Using condoms during sexual intercourse.  
**D** Using spermicides during sexual intercourse.

- 35 The diagram below shows a simple version of the energy flow through a food chain.



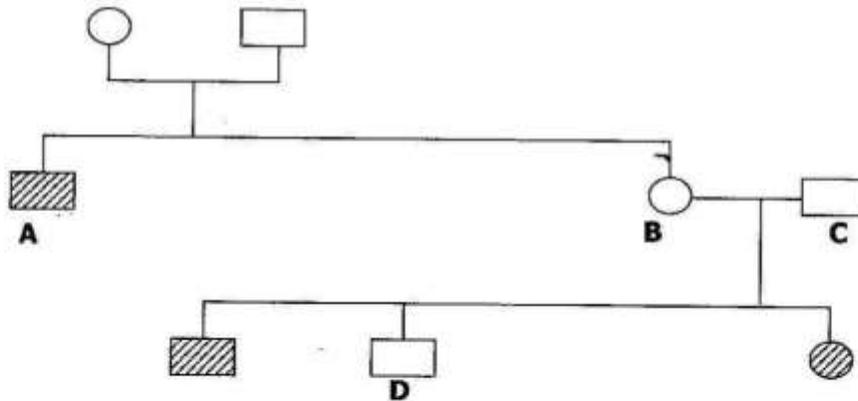
What happens to the energy leaving the decomposers?

- A Adds to soil fertility.
  - B Lost as heat.
  - C Lost in undigested food (faeces).
  - D Returns to the sun.
- 36 The diagram shows a part of the carbon cycle. Which letter represents fossilisation?



- 37 Which of the following is an effect of deforestation?
- A Decreased carbon dioxide content in the air.
  - B Decreased flooding of low lying land.
  - C Increased rainfall.
  - D Increased rate of soil erosion.
- 38 An insect has 42 chromosomes in each of its muscle cells.  
How many chromosomes are there in its egg cells?
- A 42
  - B 30
  - C 25
  - D 21

- 39 If the allele for round seeds is dominant to the allele for wrinkled seeds, how many wrinkled seeds can be obtained in a cross of 200 heterozygous plants to yield 1500 round seeds?
- A 6000  
B 2000  
C 1500  
D 500
- 40 The diagram shows a family pedigree in which some members have sickle cell anaemia.



Which person could have two alleles for sickle cell anaemia?

**Key**

-  Male with sickle cell anaemia  
 Female with sickle cell anaemia  
 Normal male  
 Normal female

Gidemy.com