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Sains  
Kertas 1  
Ogos  
2007  
1 jam



JABATAN PELAJARAN NEGERI SELANGOR

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PROGRAM PENINGKATAN PRESTASI SAINS  
PENILAIAN MENENGAH RENDAH 2007

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SAINS

Kertas 1

Satu jam

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**JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU**

1. *Kertas soalan ini adalah dalam dwibahasa.*
2. *Soalan di halaman kiri adalah dalam bahasa Inggeris. Soalan di halaman kanan adalah yang sepadan dalam bahasa Melayu.*
3. *Calon dikehendaki membaca maklumat di halaman 2 atau halaman 3.*

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Kertas soalan ini mengandungi 37 halaman bercetak

**INFORMATION FOR CANDIDATES**

1. *This question paper consists of 40 questions.*
2. *Answer **all** questions.*
3. *Answer each question by blackening the correct space on the answer sheet.*
4. *Blacken only one space for each question.*
5. *If you wish to change your answer, erase the blackened mark that you have made. Then blacken the space for your new answer.*
6. *The diagrams in the questions provided are not drawn to scale unless stated.*
7. *You may use a **non-programmable** scientific calculator.*

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1. Which of the following is correctly matched?

	Physical quantity	S.I. unit
A	Mass	gram
B	Time	hour
C	Length	metre
D	Temperature	Celsius

2. Diagram 1 shows two types of microorganisms, P and Q.

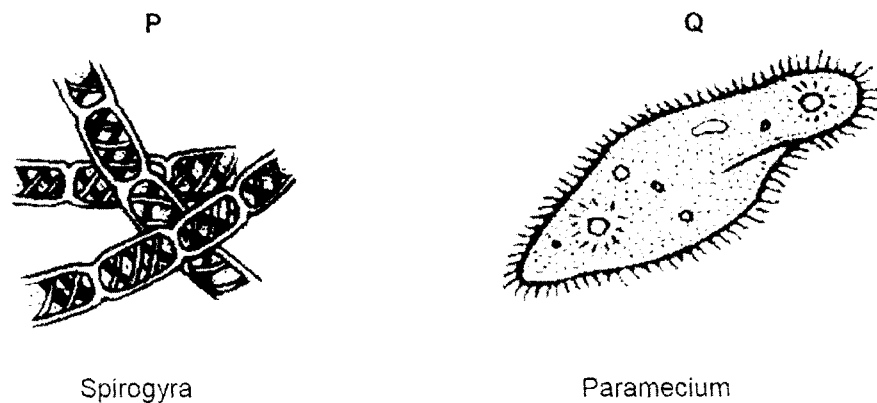


DIAGRAM 1

What is the difference between P and Q?

- A Q has chloroplast, P has cytoplasm  
 B P has cell wall, Q has cell membrane only  
 C Q has a definite shape, P has irregular shape  
 D P has very small vacuole, Q has large vacuole
3. Diagram 2 shows the arrangement of particles in P.

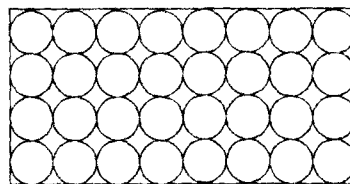


DIAGRAM 2

Which of the following is true about P?

- A P has low density because the particles are closely packed  
 B P has a lot of energy because the particles attract each other strongly  
 C The particles in P collide with one another due to little space between them  
 D The particles in P vibrate in their own position because they are closely arranged

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4. The following information shows two conditions of iron metal.

- An iron nail sinks in water
- A ship made of iron floats on the sea

Which of the following is the correct reason for it?

- A The iron nail displaces a very small volume of water
  - B The ship releases hot air due to the combustion of fuel
  - C The shape of the ship enables it to have a lot of air spaces
  - D The size of the iron nail is too small that the water cannot hold it afloat
5. The information shows the properties of gas P.

- Lights up a glowing wooden splinter
- Neutral to litmus paper
- Cannot dissolve in sodium hydroxide

Gas P is

- A Neon
  - B Oxygen
  - C Nitrogen
  - D Carbon dioxide
6. The information shows the advantages of using a source of energy.

- Pollution-free
- Renewable
- Cost-free

Which of the following sources of energy **does not** have the advantages mentioned above?

- A Sun
  - B Wind
  - C Geothermal
  - D Radioactive substances
7. When one end of a metal rod is put in a Bunsen flame, the other end becomes hot after a while because heat travels along the rod by
- A radiation
  - B absorption
  - C convection
  - D conduction
8. Which of the following explains why the solar panels on the roofs of houses are painted black?
- A A black surface radiates heat better
  - B A black surface reflects heat better
  - C A black surface absorbs heat better
  - D A black surface retains heat better

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11. Diagram 5 shows the apparatus used to study a physical property of some elements. The bulb lights up when an element is connected and the switch is pressed.

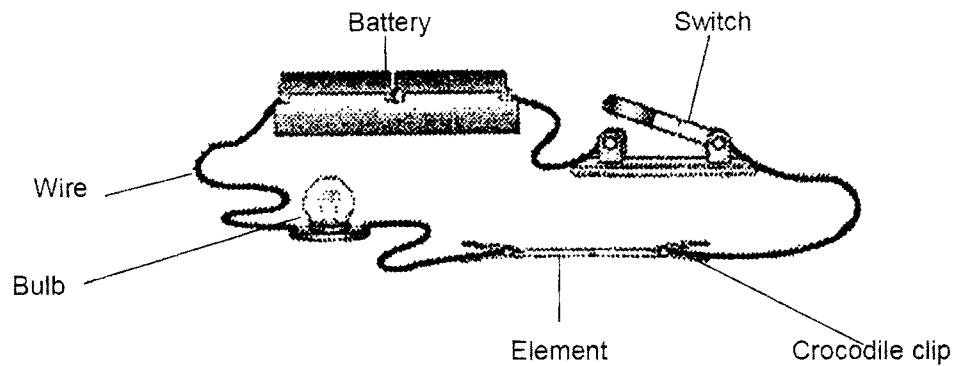


DIAGRAM 5

Which of the following statements is correct about the element?

- A It is brittle
  - B It is a poor conductor
  - C It has a shiny surface
  - D It has a low melting point
12. Diagram 6 shows a cross-section of the human eye.

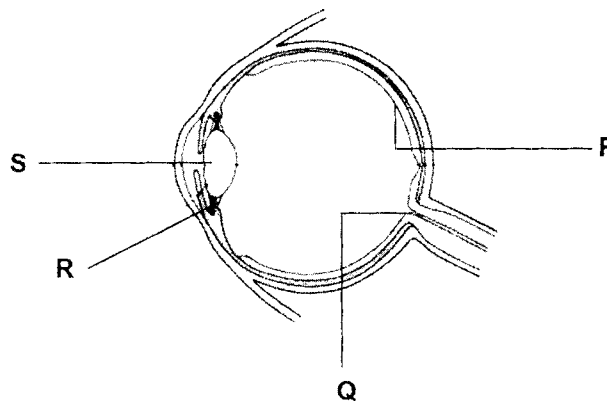


DIAGRAM 6

Which of the labelled parts, **P**, **Q**, **R** and **S** has photoreceptors?

- A P only
- B R and S only
- C Q and R only
- D P, Q and S only

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**SULIT**

9. Diagram 3 shows the production of hydroelectricity.

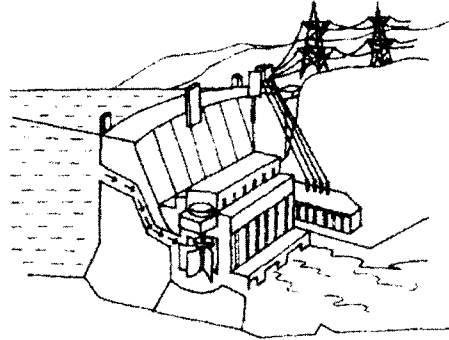


DIAGRAM 3

What is the energy change that occurs?

- A Potential energy  $\rightarrow$  Kinetic energy
  - B Chemical energy  $\rightarrow$  Kinetic energy
  - C Kinetic energy  $\rightarrow$  Potential energy
  - D Kinetic energy  $\rightarrow$  electric energy
10. Diagram 4 shows the composition of air.

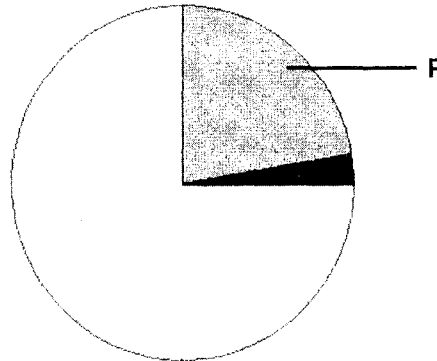


DIAGRAM 4

Which of the following statements is correct about P?

- A P is acidic
- B P is needed for combustion
- C P dissolves slightly in water
- D P is soluble in sodium hydroxide solution

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13. Diagram 7 shows the human tongue.

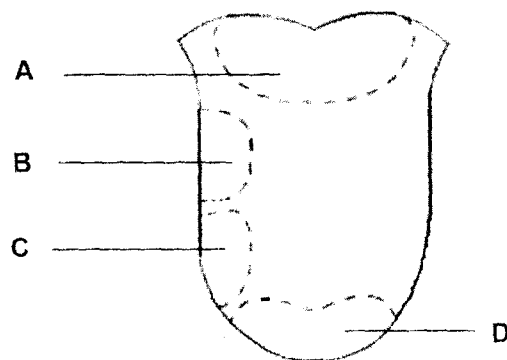


DIAGRAM 7

Which of the areas labelled **A**, **B**, **C** or **D** is most sensitive to the taste of vinegar?

14. Diagram 8 shows the response of a plant to stimulus.

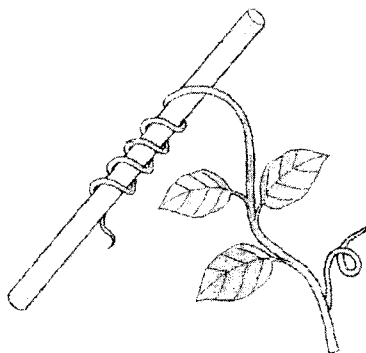


DIAGRAM 8

What is the type and function of this response?

	Type of response	Function of response
A	Thigmotropism	To obtain support
B	Phototropism	To obtain sunlight
C	Geotropism	To obtain protection
D	Nastic movement	To obtain water

15. Which is the correct path of sound waves as it passes through the ear?

- A Eardrum → Cochlea → Oval window → Ossicles  
 B Cochlea → Eardrum → Ossicles → Oval window  
 C Ossicles → Eardrum → Oval window → Cochlea  
 D Eardrum → Ossicles → Oval window → Cochlea

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16. Diagram 9 shows the human digestive system.

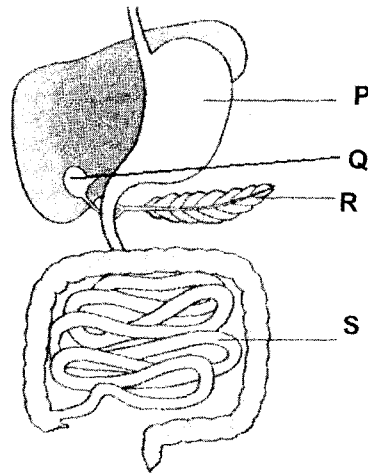


DIAGRAM 9

Which of the options has each label identified correctly?

	P	Q	R	S
A	Oesophagus	Liver	Pancreas	Gall bladder
B	Stomach	Pancreas	Small Intestine	Gall bladder
C	Oesophagus	Stomach	Large Intestine	Small intestine
D	Stomach	Gall bladder	Pancreas	Small intestine

17. Diagram 10 shows some of the organs involved in food digestion.

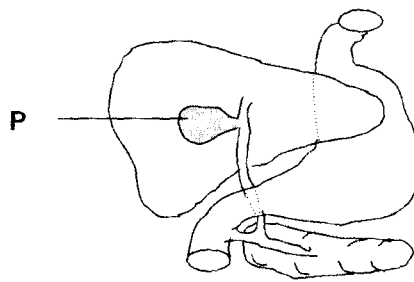


DIAGRAM 10

Which class of food should be avoided if organ P is removed?

- A Fat
- B Protein
- C Mineral salt
- D Carbohydrate



18. The information shows a list of animals with a common characteristic.

<ul style="list-style-type: none"> <li>• Birds</li> <li>• Frogs</li> <li>• Snakes</li> <li>• Whales</li> <li>• Lizards</li> </ul>
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What is the common characteristic for the animals above?

- A Lays eggs  
 B Cold-blooded  
 C Have backbones  
 D Internal fertiisation
19. Diagram 11 shows a food web.

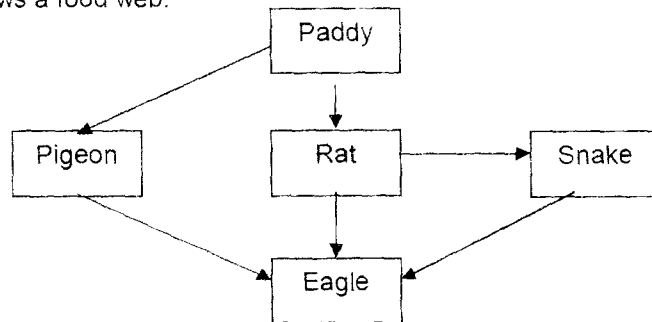


DIAGRAM 11

The interaction between the pigeon and the rat is known as

- A mutualism  
 B competition  
 C prey-predator  
 D commensalism
20. The information shows the characteristics of solution P.

• Freezing point	0 °C
• Boiling point	100 °C
• pH value	7
• Density	1 g/ml

Which of the following is P?

- A Sauce  
 B Vinegar  
 C Limewater  
 D Distilled water

21. Diagram 12 shows the classification of plants.

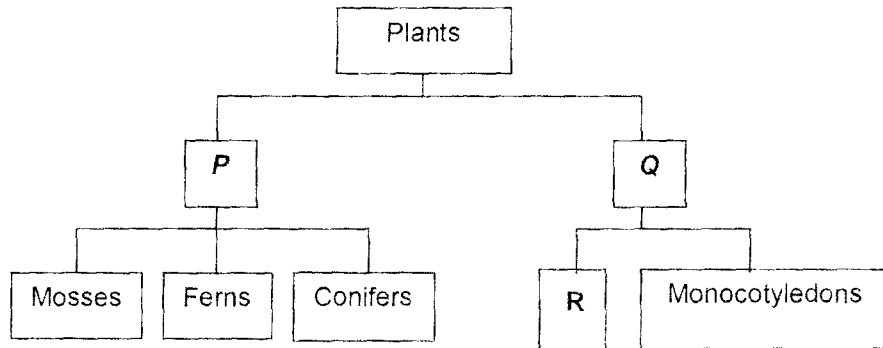


DIAGRAM 12

Which of the following represents P, Q and R?

	P	Q	R
A	Non-flowering plants	Flowering plants	Dicotyledons
B	Flowering plants	Non-flowering plants	Dicotyledons
C	Non-flowering plants	Dicotyledons	Flowering plants
D	Flowering plants	Dicotyledons	Non-flowering plants

22. Diagram 13 shows the stages in the purification of water in a water treatment plant.

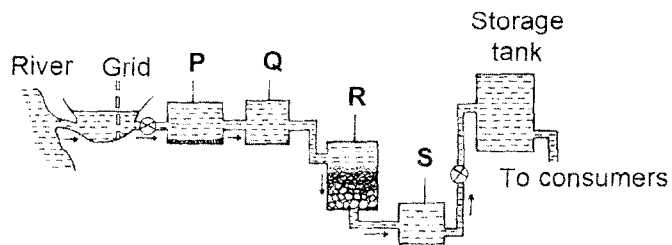


DIAGRAM 13

Name the processes that take place in tanks P, Q, R and S?

	P	Q	R	S
A	Sedimentation	Chlorination	Coagulation	Filtration
B	Coagulation	Sedimentation	Filtration	Chlorination
C	Coagulation	Chlorination	Sedimentation	Filtration
D	Filtration	Coagulation	Chlorination	Sedimentation

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25. Diagram 16 shows a transformer. The primary coil has 20 turns and the secondary coil has 200 turns.

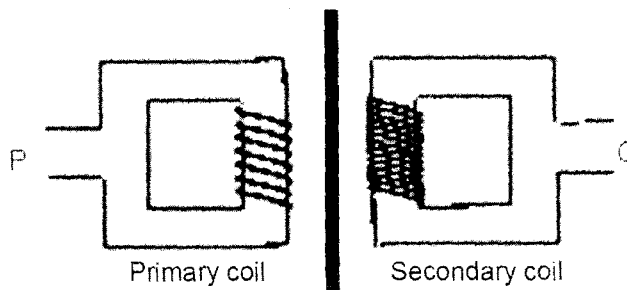


DIAGRAM 16

If the voltage of **Q** is 60V, what is the voltage of **P**?

- A 2V
- B 6V
- C 10V
- D 20V

26.

Some aquatic animals can grow many times larger than land animals

Based on the information above, which of the following statements is **true**.

- A Aquatic animals have hydrostatic skeletons
- B Aquatic animals have unlimited food supply
- C Aquatic animals are not affected by the pull of gravity
- D The body weight of aquatic animals is supported by the buoyancy of water

27. Diagram 17 shows part of the human respiratory system.

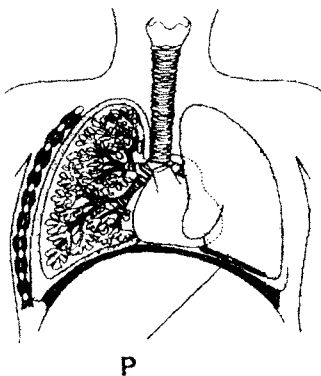


DIAGRAM 17

What will happen when structure **P** contracts and becomes flattened?

- A Air from outside enters the lungs
- B The rib cage move downwards and inwards
- C The volume of the thoracic cavity decreases
- D Air pressure inside the thoracic cavity increases

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23. Diagram 14 shows a syringe.

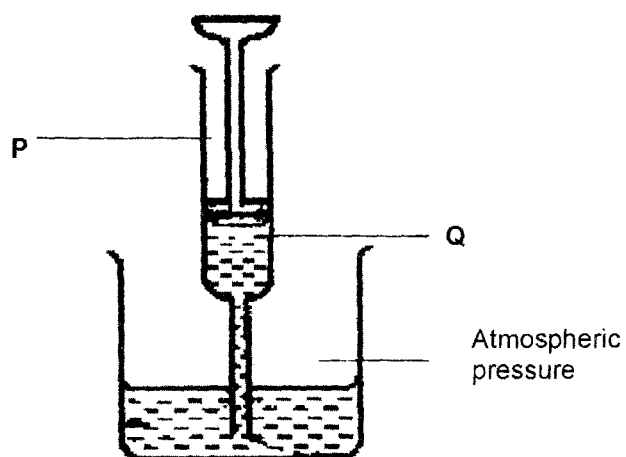


DIAGRAM 14

The syringe can suck up the liquid because the atmospheric pressure is

- A higher than the air pressure at Q
- B lower than the air pressure at Q
- C the same as the air pressure at Q
- D higher than air pressure at P

24. Diagram 15 shows a load of 10 N extending the spring from 5 cm to 8 cm.

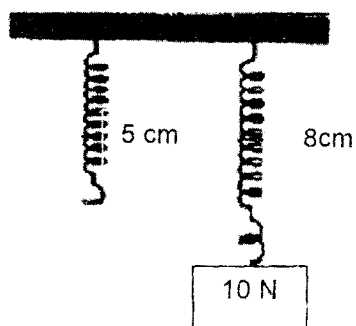


DIAGRAM 15

What is the value of the load if the spring extends to 11 cm?

- A 15 N
- B 20 N
- C 25 N
- D 30 N

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30. Diagram 20 shows an example of a class of lever.

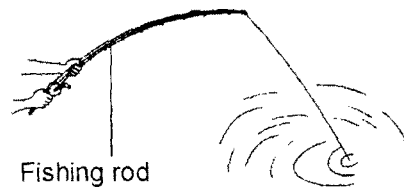
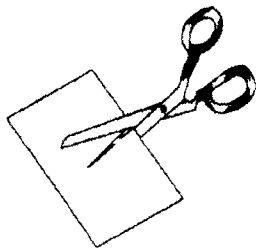


DIAGRAM 20

Which of the following can be classified in the same class of lever as shown in the example above?

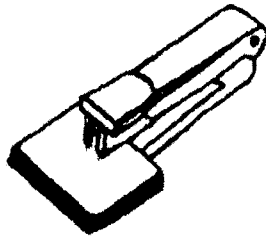
A



B



C



D



31. The table shows some organisms which produce asexually.

Organism	Type of asexual reproduction
P	Budding
Q	Spore formation
R	Binary fission

Which of the following organisms represents P, Q and R?

	P	Q	R
A	Yeast	Amoeba	Paramecium
B	Hydra	Ferns	Amoeba
C	Paramecium	Algae	Moss
D	Fungus	Hydra	Bacteria

28. Diagram 18 shows a few electrical appliances labelled P, Q, R and S.

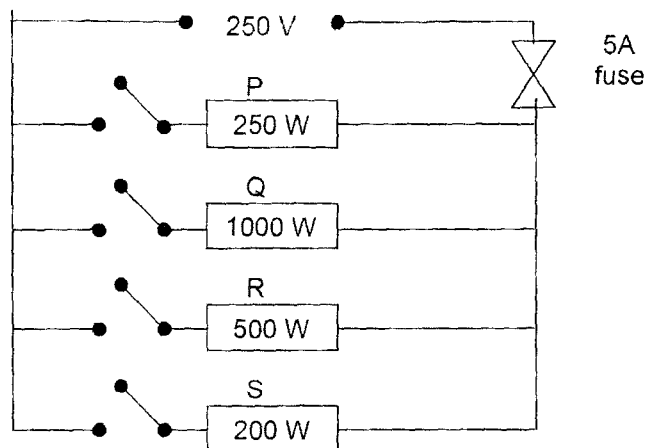


DIAGRAM 18

Which two appliances will definitely blow the fuse when used at the same time?

- A P and Q
- B P and R
- C Q and R
- D R and S

29. Diagram 19 shows the human excretory organs.

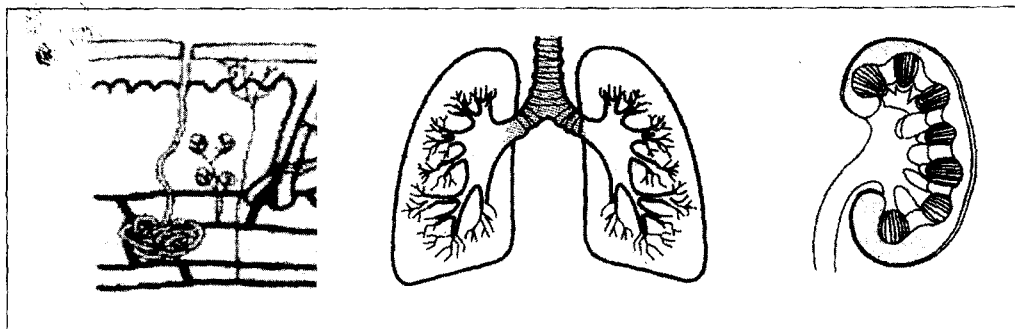


DIAGRAM 19

What is the excretory product common to these organs?

- I Urea
  - II Water
  - III Mineral salts
  - IV Carbon dioxide
- A II only
  - B IV only
  - C I, II and IV only
  - D I, II and III only

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34. Diagram 23 shows the developmental stages after the process of fertilisation.

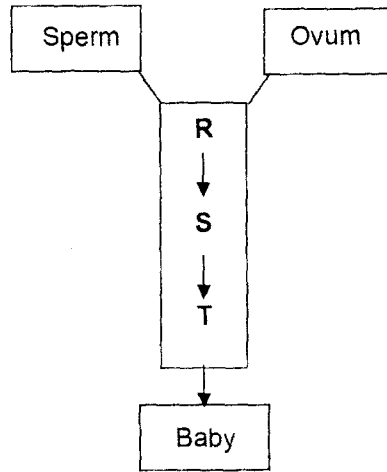


DIAGRAM 23

Which of the following represents by R, S and T?

	R	S	T
A	Foetus	Zygote	Embryo
B	Embryo	Foetus	Zygote
C	Zygote	Embryo	Foetus
D	Zygote	Foetus	Embryo

35. Diagram 24 shows a circuit with three ammeters and two identical bulbs connected. The ammeter reading at R is 0.2A.

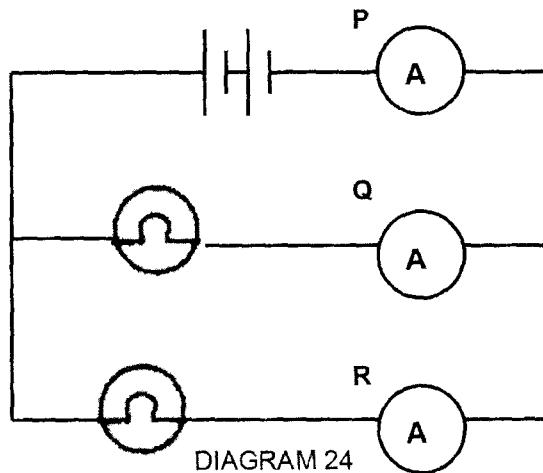


DIAGRAM 24

What is the ammeter reading at P?

- A 0.1 A
- B 0.2 A
- C 0.3 A
- D 0.4 A

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32. Diagram 21 shows a cross-section of the heart.

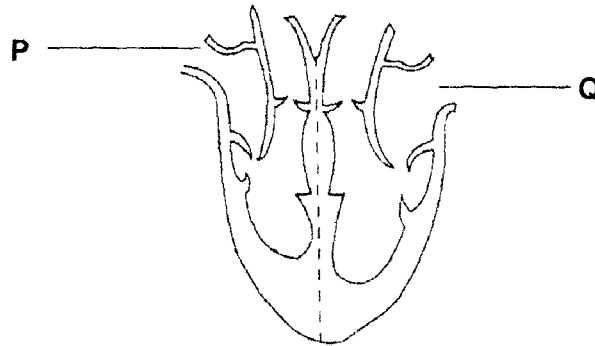


DIAGRAM 21

P and Q are blood vessels. Which of the following is true about P and Q?

	P	Q
A	Aorta which carries deoxygenated blood	Pulmonary artery which carries oxygenated blood
B	Pulmonary artery which carries oxygenated blood	Aorta which carries deoxygenated blood
C	Vena cava which carries deoxygenated blood	Pulmonary vein which carries oxygenated blood
D	Pulmonary vein which carries oxygenated blood	Vena cava which carries deoxygenated blood

33. Diagram 22 shows a longitudinal section of the hibiscus.

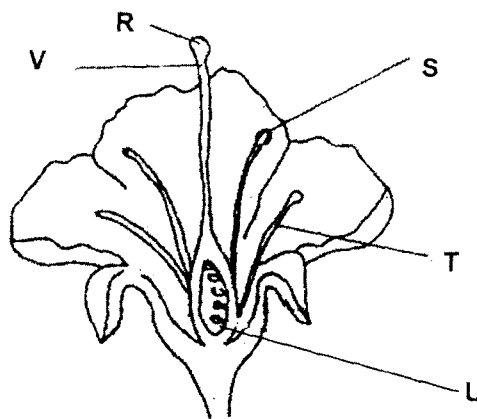


DIAGRAM 22

Which parts of the flower form the pistil?

- A S, T and V
- B R, T and U
- C R, V and U
- D S, T and U

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38. Diagram 27 shows the positions where a compass is placed around a magnet.

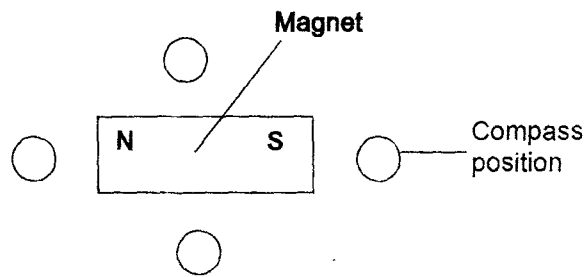


DIAGRAM 27

Which of the following shows the correct direction of the compass needle?

- A
- B
- C
- D

39. The information shows a description about the Sun.

- Looks dark on the Sun's surface
- Consists of gas which is not so hot

Which of the following phenomena suits the above description?

- A Sun flare
- B Sunspot
- C Prominence
- D Photosphere

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36. Diagram 25 shows a piece of heated calcium carbonate in a crucible.

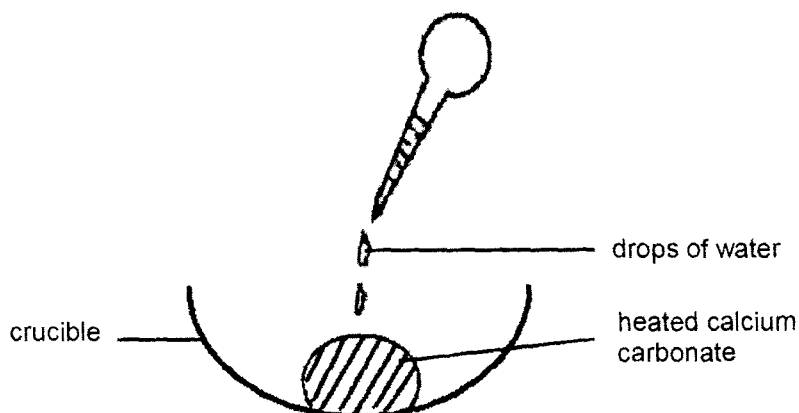


DIAGRAM 25

What can be observed when a few drops of water are added to the heated calcium carbonate?

- I Carbon dioxide gas is released
  - II An active reaction occurs
  - III The crucible becomes hot
  - IV The solid expands and crumbles
- A I and IV only
  - B II and III only
  - C III and IV only
  - D II, III and IV only
37. Diagram 26 shows a socket for a 3-pin plug.

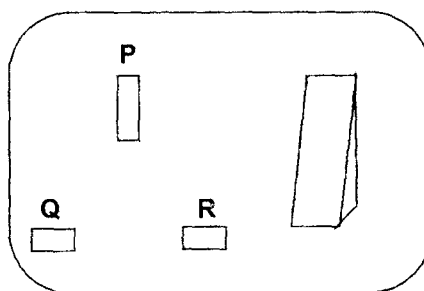


DIAGRAM 26

Which pins of the plug are connected to P, Q and R?

	P	Q	R
A	Earth	Neutral	Live
B	Earth	Live	Neutral
C	Live	Earth	Neutral
D	Neutral	Earth	Live

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**SULIT**

40. The information shows some uses of an equipment in the field of astronomy.

- Defence
- Weather forecasting
- Telecommunication
- Search for natural resource

Which of the following is used for the above purpose?

- A Probe
- B Satellite
- C Telescope
- D Space station

**END OF QUESTION PAPER**