

SULIT
EST.
ENGLISH FOR
SCIENCE AND
TECHNOLOGY
OKTOBER
2003
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PERSIDANGAN KEBANGSAAN PENGETUA
SEKOLAH MENENGAH MALAYSIA
CAWANGAN TERENGGANU
DENGAN KERJASAMA
JABATAN PENDIDIKAN TERENGGANU

PEPERIKSAAN AKHIR TAHUN 2003

TINGKATAN EMPAT

ENGLISH FOR SCIENCE AND TECHNOLOGY

Satu jam empat puluh lima minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

Arahan:

- 1. Kertas soalan ini mengandungi 46 soalan.*
- 2. Jawab semua soalan.*
- 3. Bulatkan jawapan anda untuk Bahagian A di dalam kertas jawapan di halaman 11.*
- 4. Untuk Bahagian B, Bahagian C dan Bahagian D tuliskan jawapan anda di ruang yang disediakan di dalam kertas soalan ini.*

For Examiner's Use	
Section	Marks
A	
B	
C	
D	
TOTAL	

Instructions:

- 1. This question papers consists of 46 questions.*
 - 2. Answer all questions.*
 - 3. Circle your answer for Section A on the answer sheet on page 11.*
 - 4. Write your answer for Section B, Section C and Section D in the space provided on this question paper.*
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Kertas soalan ini mengandungi 11 halaman bercetak

SECTION A

[15 marks]

Questions 1 – 15

For each of the questions in this section, read the question and study the information given to find the answer. Then circle the answer A, B, C or D on the answer sheet provided.

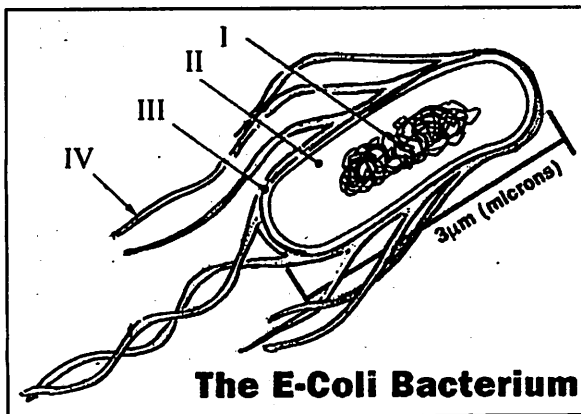
Questions 1 – 5

Read the short texts and answer the questions that follow.

Questions 1 and 2

Bacteria are a lot simpler than human cells. A bacterium consists of an outer wrapper called the cell membrane, and inside the membrane is a watery fluid called the cytoplasm. Cytoplasm might be 70 percent water. The other 30 percent is filled with proteins called enzymes that the cell has manufactured, along with smaller molecules like amino acids, glucose and ATP. At the centre of the cell is a ball of DNA (similar to a wadded-up ball of string). In the E. Coli bacterium, there are long strands called flagella which propel the cell. However, not all bacterium have flagella.

- Which of the following are components found in all bacterial cells?
 - Cell membrane, DNA and flagella
 - Wadded-up balls, cytoplasm and cell membrane
 - Flagella, DNA and cytoplasm
 - Cell membrane, cytoplasm and DNA
- With reference to the text above, which of the following is the correct labelling of the parts of the cell as shown in the diagram below?



	I	II	III	IV
A	DNA	Cytoplasm	Cell membrane	Flagella
B	DNA	Cell membrane	Cytoplasm	Flagella
C	Cytoplasm	DNA	Flagella	Cell membrane
D	Cytoplasm	DNA	Cell membrane	Flagella

Question 3

Photosynthesis is the process by which plants, some bacteria, and some protists use the energy from sunlight to produce sugar. The conversion of unusable sunlight energy into usable chemical energy, is associated with the actions of the green pigment chlorophyll. Most of the time, the photosynthetic process uses water and releases the oxygen that we absolutely must have to stay alive.

- 3 In the photosynthetic process,
- A all living things produce food to stay alive
 - B energy from sunlight is used to produce sugar
 - C water and oxygen are released to help others to stay alive
 - D the green pigment chlorophyll releases unusable sunlight energy

Questions 4 and 5

It is important to understand that mass is independent of your position in space. Your body's mass on the moon is the same as its mass on Earth, because the number of atoms is the same. The Earth's gravitational pull, on the other hand, decreases as you move farther away from the Earth. Therefore, you can lose weight by changing your elevation, but your mass remains the same. You can also lose weight by living on the moon, but again, your mass is the same.

- 4 According to the text above, which of the following is true?
- A If you change your position on earth, your mass will change too.
 - B You will be heavier if you live farther away from the Earth.
 - C Your body mass remains the same wherever you are.
 - D A person's body mass depends on where he is.
- 5 If you change your elevation
- A your weight will change
 - B your position in space will remain the same
 - C the number of atoms in your body will change
 - D the gravitational pull on your body will remain the same

Questions 6 – 15

Read the following passage and then fill in the blanks with the best answer.

Alternative Energy Sources

Fossil fuels are non-renewable resources. Some day, they will be used up and none will be left. As the _____(6) of fossil fuels decreases, the cost of energy will increase. _____(7) of energy resources is one of the solutions to this problem. Another is the _____(8) of alternative energy resources.

Solar energy is one alternative to fossil fuels. The sun provides free energy that can be _____(9) to _____(10) electricity. However, one disadvantage is, it has to be stored for the night or cloudy days.

Nuclear energy is another alternative. Nuclear power _____(11) use a nuclear fuel such as uranium or plutonium. The energy _____(12) from the fuel by a nuclear fission reaction is used to produce electricity.

Geothermal energy _____(13) from hot spots in the earth. A natural geyser that shoots hot water or _____(14) into the air is an example of geothermal energy. However, use of geothermal energy is limited to areas where hot spots are present.

Windmills are among the world's oldest devices for _____(15) energy to produce electricity. One problem with wind power is storing the electricity for use on windless days.

- 6 A supply
B supplied
C supplying
D supplication

- 11 A mills
B plants
C factories
D manufacturers

- 7 A Counselling
B Consultation
C Conservation
D Constraining

- 12 A releases
B released
C is releasing
D is released

- 8 A develop
B developed
C developing
D development

- 13 A obtain
B obtains
C is obtained
D was obtained

- 9 A tap
B tapped
C tapping
D tappable

- 14 A stream
B steam
C storm
D stem

- 10 A make
B develop
C generate
D construct

- 15 A capitalizing
B harnessing
C producing
D capturing

SECTION B

[15 marks]

Read the text and answer the questions that follow.

Disease Prevention

In the nineteenth century, 75 percent of the patients who had operations died soon after surgery. The deaths of many of these patients were caused by infections during surgery. Joseph Lister (1827 – 1912), an English surgeon solved the problem. He sprayed microbe-killing carbolic acid on the area of a patient's body where surgery was to be performed. As a result, deaths from surgery infections were greatly reduced. Chemicals such as carbolic acid which kill or prevent the growth of microbes are called disinfectants.

A major part of disease prevention is the destruction or control of disease carriers. Many insects, such as flies and mosquitoes, are disease carriers. Animals, people, air, water, and food are also carriers.

Common houseflies can transfer large quantities of bacteria which cause disease. When they walk over dirty objects, flies pick up germs on their legs. The flies carry these disease-causing microbes to food, dishes, and other things used by people.

Cockroaches often make their homes in restaurants and other places where food is prepared or sold. They may spread germs in much the same way as flies do.

Mosquitoes can become carriers of disease organisms when they bite infected animals and people. Later, the organisms are passed on to other animals or people when they are bitten by these mosquitoes.

Quarantine is a way to control disease carriers. To quarantine means to isolate an infected person or animal for a time to prevent the spread of microbes.

Water can carry microbes. For example, typhoid fever is caused by bacteria which live in water. Chlorine is added to drinking water and swimming pools to prevent disease. Chlorine kills microbes in the water.

Food is another major carrier of disease microbes. The standard of cleanliness in food stores and restaurants is maintained through inspection by the authorities. Regulations control handling, processing, and packaging of foods for safety.

Milk can carry disease microbes if it is not treated properly. Pasteurization is a process in which milk is heated to kill harmful microbes.

Adapted from:
Focus On Life Science
By Heimler, Charles H.

I. True/False Questions.

Answer these questions based on the text above. Write **T** if you think the statement is true and **F** if you think the statement is false,

		T/F
16	Many deaths were caused by infections during surgery.	
17	Lister sprayed carbolic acid all over the patient's body to kill the microbes before surgery.	
18	Diseases can be prevented by the destruction or control of disease carriers	
19	Some insects can spread diseases.	
20	You will get ill by drinking milk that is not pasteurized.	

(5 marks)

II. Based on the text above, complete the tables below. The first two have been done for you.

Table 1 – How Diseases Are Spread

Diseases can be spread by:	
Flies	
Mosquitoes	
21	
22	
23	
24	
25	
26	

[6 marks]

Table 2: How Diseases Can Be Controlled Or Prevented

Diseases can be controlled or prevented by:	
Using disinfectants	
Destruction / Control of Carriers	
27	
28	
29	
30	

[4 marks]

SECTION C

[15.Marks]

Read the facts about heat energy and the experiment procedure below. Then answer the questions that follow.

You have tiny thermometers in your skin.

In your skin are temperature-sensitive nerve endings that act like tiny thermometers: they can detect differences between the temperature inside and outside of your body. Heat is a form of energy that always flows from a hotter surface to a colder surface. If you touch an object that is warmer than your skin, heat is transferred from the object to your skin. Your skin sensors send a message to your brain that your skin is receiving heat. Depending on the amount of heat you receive, your brain can determine whether an object is hot or cold. If an object is colder than your skin, heat is transferred from your skin to the object. Your skin loses heat, and your brain determines that the object is cold. In other words, whether something feels cold or hot depends on whether your skin loses or gains heat. All materials conduct heat, which means that molecules bump into each other and transfer heat. But not all materials conduct heat at the same speed. Conductors are materials that conduct heat quickly, and insulators are materials that conduct heat more slowly.

Try an experiment!

Purpose

To determine how conduction makes one object feel cool and another warm even if they are at the same temperature.

Materials

- empty metal can (a soft drink can will work)
- Styrofoam cup

Procedure

1. Allow the can and the cup to sit on a table for five minutes or more so that each comes to room temperature.
2. Hold the can in one hand and the Styrofoam cup in the other.
3. Compare how cool or warm the can and the Styrofoam cup feel.

Adapted from Janice Van Cleave's Science for Fun
Gaining and Losing Heat Energy: Can You Feel It?

31 What are the tiny thermometers in your skin?

..... [1 mark]

32 What is heat?

..... [1 mark]

33 How does your brain know that you are touching an object warmer than your skin?

..... [1 mark]

34 How do materials conduct heat?

..... [1 mark]

35 What are insulators?

..... [1 mark]

Questions 36 - 45

The passage below is the summing-up of the results of the experiment given in the text above. Fill in each of the blanks with one suitable word. When filling in the blanks, you can use your own words or words taken from the passage.

The metal can and the Styrofoam cup are both at (36) temperature, which is lower than the (37) of your body. But when you first (38)..... the can and the cup, the can feels colder than the cup. This is because metal is a better (39)..... of heat than Styrofoam. The (40)..... from your skin (41) faster into the metal can and is (42)..... to the other parts of the can. This continues until the metal can (43)..... warm to the touch. However, there is no significant change in the temperature of the (44)..... because Styrofoam is a poor conductor of (45).....

[10 marks]

SECTION D
[15 Marks]

The following is an experiment entitled: **How to separate the components of a mixture of sand and salt.**

With reference to Figures 1 and 2 and the notes given, write out the procedure in the report of the experiment by completing the paragraph below. Your answer must be in continuous writing (not note form).

Apparatus and Materials:

Filter funnel, 2 beakers, retort stand, glass rod, evaporating dish, wire gauze, tripod stand, Bunsen burner, sand, salt and water.

Procedure:

1. Put – sand, salt – beaker
2. Add – water – beaker
3. Stir mixture – glass rod – dissolve salt
4. Set up – apparatus – shown – Figure 1
5. Pour – contents – beaker – into filter funnel
6. Collect – liquid – beaker
7. Set up – apparatus – shown – Figure 2
8. Pour liquid collected – evaporating dish
9. Heat – water in beaker – until – liquid in evaporating dish – evaporated

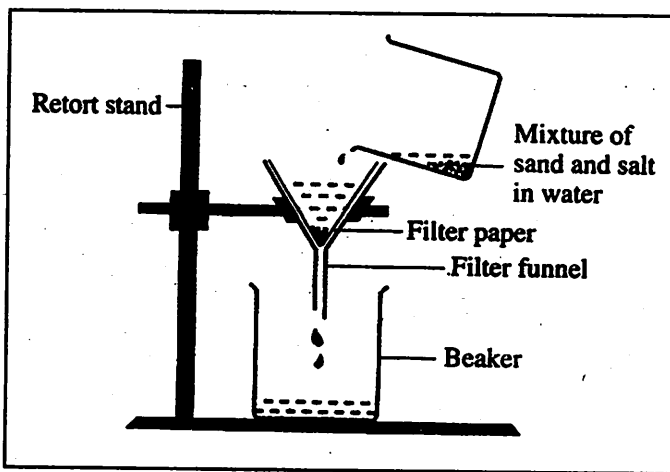


Figure 1

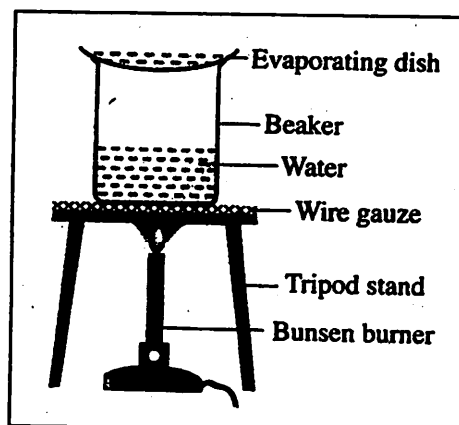


Figure 2.

Procedure

First, some salt and sand were put into a beaker.

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ANSWER SHEET FOR SECTION A**1 A B C D****2 A B C D****3 A B C D****4 A B C D****5 A B C D****6 A B C D****7 A B C D****8 A B C D****9 A B C D****10 A B C D****11 A B C D****12 A B C D****13 A B C D****14 A B C D****15 A B C D****EST Ting. 4****Akhir Tahun 2003**