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English
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PAPER 2
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JABATAN PELAJARAN TERENGGANU

DENGAN KERJASAMA

PERSIDANGAN KEBANGSAAN PENGETUA

SEKOLAH MENENGAH MALAYSIA

CAWANGAN TERENGGANU

PEPERIKSAAN AKHIR TAHUN 2007
TINGKATAN EMPAT

ENGLISH FOR SCIENCE AND TECHNOLOGY
PAPER 2

Satu jam

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

Arahan

1. *Kertas soalan ini mengandungi dua bahagian dan 30 soalan.*
2. *Jawab semua soalan.*
3. *Hitamkan semua jawapan anda untuk Bahagian A dan Bahagian B di dalam kertas jawapan objektif yang disediakan.*

Instructions

1. *This question paper consists of two sections and 30 questions.*
2. *Answer all questions..*
3. *Shade all your answers for Section A and Section B on the objective answer sheet provided.*

Kertas soalan ini mengandungi 11 halaman bercetak.

Section A

[25 marks]

You are advised to spend about 50 minutes on this section.

Questions 1 – 25

Each question is based on a given stimulus. Study the information carefully and choose the best answer. Then shade the answer in the sheet provided.

If the blood glucose concentration is too high in the body, the pancreas secretes insulin. This causes the liver to convert glucose into insoluble glycogen and store it. If the blood glucose concentration is too low, the pancreas secretes glucagon. This causes the liver to convert glycogen into glucose which is released into the blood.

- 1 What happens when the blood sugar level is too low in the body?
- A The insulin causes the liver to convert glucose into glycogen.
 - B The insulin causes the liver to convert glycogen into glucose.
 - C The glucagon causes the liver to convert glycogen into glucose.
 - D The glucagon causes the liver to convert glucose into glycogen.

Carbon monoxide (CO) is a colourless, odourless gas that is produced by the incomplete-burning of carbon-based fuels including petrol, diesel and wood. It is also produced from the combustion of natural and synthetic products such as cigarettes. It lowers the amount of oxygen that enters our blood. It can also slow our reflexes and make us confused and sleepy.

- 2 Which of the following is true about carbon monoxide?
- A It fastens our reflexes and makes us alert.
 - B It raises the amount of oxygen that enters our blood.
 - C It is given off by the complete-burning of carbon-based fuels.
 - D It is emitted from the burning of natural and synthetic products.

When asteroids crash against each other, they break up into smaller pieces and make a mess in their 'home', which is the asteroid belt. These broken bits are scattered around where they are affected by the gravity of Jupiter and other planets. The pieces are then pushed out of their 'home' towards Earth's orbit. Once they are in Earth's orbit they fall into Earth's atmosphere and plunge to the ground as burning meteors.

- 3 Which of the following is the result of the effect of the gravity of Jupiter and other planets on broken pieces of asteroids?
- A They plunge to the ground.
 - B They scatter in their 'home'.
 - C They leave the asteroid belt.
 - D They crash against each other.

Steels are alloys in which the main metal element is iron. They are usually much stronger than pure iron. Mild steel, an alloy of iron and carbon, is widely used in the construction industry. However, this alloy rusts easily. Stainless steel is much more rust-resistant because there is a small amount of chromium present in the alloy.

4 Why are steels widely used in the construction industry?

- A They contain chromium.
- B They are stronger than pure iron.
- C They are much more rust-resistant.
- D They are alloys of iron and carbon.

As microbes thrive in a moist environment, we can stop or hinder their growth by removing moisture from food. Nowadays, food is usually dehydrated by blowing hot air over it. Eggs, potatoes and meat are some of the foods that are processed in this way. Dehydrated food is convenient to carry because it is light and compact.

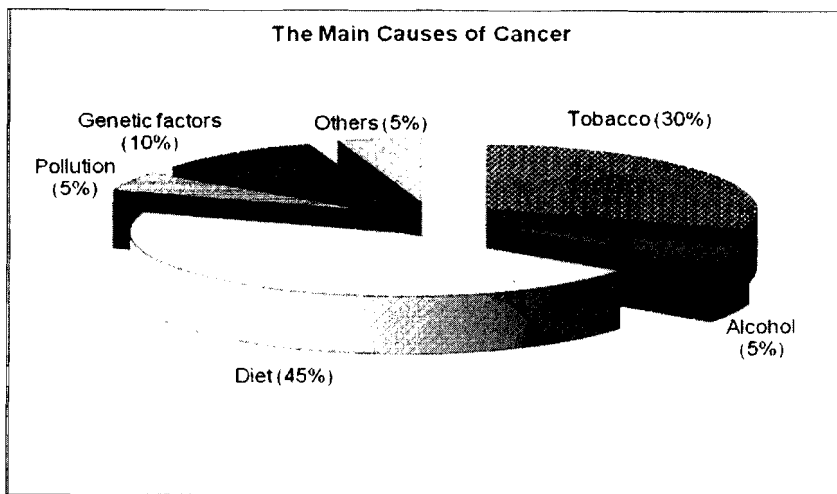
5 Why does dehydrated food last longer?

- A It is light and compact.
- B Hot air is blown over it.
- C Microbes cannot grow on it.
- D Moisture is removed from it.

The iris controls the amount of light that reaches the retina. The iris is a ring of muscles in front of the lens. When the circular muscles in the iris are contracted, the gap or pupil through which light can pass becomes very small. Therefore, only a little light reaches the retina. When the circular muscles are relaxed, the pupil becomes large. Light entering the eye is controlled in this way to protect the very delicate light receptor cells of the retina from damage by bright light.

6 A large amount of light is allowed to reach the retina when the circular muscles of the iris are

- A relaxed, enlarging the pupil.
- B relaxed, constricting the pupil.
- C contracted, enlarging the pupil.
- D contracted, constricting the pupil.



7 Based on the pie-chart above, choose the statement that is true.

- A Nearly all cancer cases are due to improper diet.
- B Almost a third of cancer cases is due to smoking.
- C The leading cause of cancer is the unhealthy environment.
- D About a fifth of the cancer victims inherit the disease genetically.

Diamond is made up carbon atoms. All the atoms are joined together by covalent bonds. The atoms are held in position rigidly, which gives diamond its hardness and high melting point. Diamond is an example of a covalent network element, which is based on a tetrahedral arrangement of carbon atoms linked by single covalent bonds. In a covalent network, millions of atoms are linked in a regular structure which tends to have very high melting and boiling points.

8 What makes diamond a very hard substance?

- A It is made up of carbon atoms.
- B It has a covalent network structure.
- C It has very high melting and boiling points.
- D The atoms are arranged in tetrahedral arrangement.

Flash evaporation is the most widely used method of water desalination. This process works well although it requires large quantities of heat energy, and is very costly. To make the process more affordable, modern desalination plants recycle heat from the evaporation stage.

9 What is implemented to lower the cost of water desalination?

- A Heat is reused.
- B Heat is reduced.
- C Heat is increased.
- D Heat is maintained.

In an experiment, 3 groups of healthy people spent time together with volunteers infected with rhinovirus – a virus that attacks the nasal mucus membrane and is the most common cause of the common cold.

<i>Groups</i>	<i>Situations</i>	<i>Findings</i>
Group 1	Spent 3 days and nights in a room separated by a screen.	0 out of 11 was infected
Group 2	Sat at a table talking, laughing and singing together.	1 out of 11 was infected
Group 3	Held hands together for ten seconds, and then touched own noses or eyes.	11 out of 15 were infected

- 10 From the above experiment, it can be concluded that the rhinovirus is transmitted efficiently by
- A a screen.
 - B air particles.
 - C body contact.
 - D oral communication.

Our body has two lungs, the right lung and the left lung. Both of our lungs consist mainly of air spaces. Each lung consists of the bronchus, bronchioles and alveoli. The bronchus is a branch of the trachea. The bronchus branches off into smaller tubes called bronchioles. At the end of each bronchiole are air sacs called alveoli.

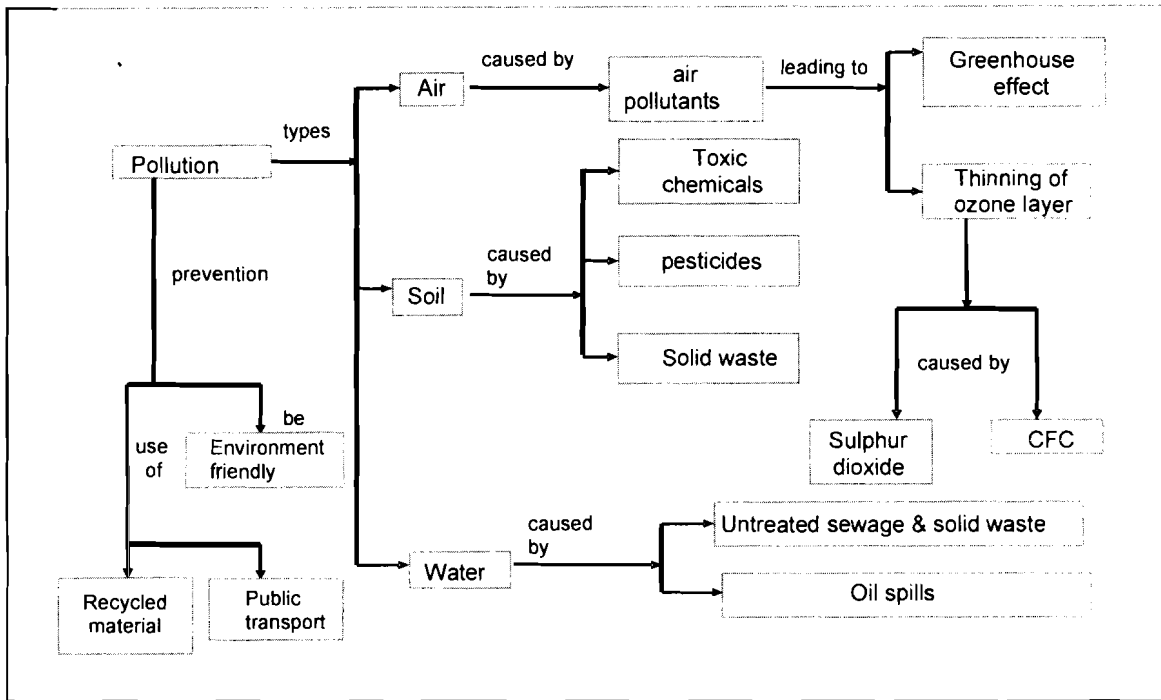
- 11 Which of the answer below shows the correct order of air flow into the lungs?
- A Nose – trachea – bronchus – bronchioles – alveoli
 - B Nose – bronchus – trachea - bronchioles – alveoli
 - C Nose – alveoli – bronchioles – bronchus – trachea
 - D Nose – alveoli – bronchus – trachea – bronchioles

Before a blood transfusion is carried out, we need to know the blood group of the donor and that of the recipient. Blood in humans is classified into four groups, namely A, B, AB and O. It is important to know one’s blood group as not all blood groups are compatible. Mixing incompatible blood groups leads to blood clotting or agglutination, which may kill the recipient.

- 12 What happens if incompatible blood is given to a recipient?
- A The donor may die.
 - B It may be fatal to the recipient.
 - C Agglutination may kill both the donor and the recipient.

Question 13

Read the concept map below and answer the question that follows.



13 From the concept map, all the following statements are true **except**

- A pollution can be prevented.
- B pesticides are the main cause of soil pollution.
- C oil spills and untreated sewage pollute the water.
- D air pollution is caused by pollutants such as sulphur dioxide.

The Universe contains billions of galaxies with each galaxy containing billions of stars. Studies done by scientists show that the Universe is still growing outwards in every direction. The Universe is so huge that scientists use the light year as the unit to measure distance in space. We can say that the expanse of the Universe is limitless compared to the Earth.

14 Which of the following facts is true?

- A The distance from one star to another is one light year.
- B The size of the Universe is still increasing.
- C The number of galaxies is still growing.
- D The expanse of the Earth is limitless.

Questions 15 and 16 are based on the following text.

Two alternative sources of energy that can be used to generate electricity are biomass and the sun.

Biomass refers to the mass of living things in an area. The decomposition of the remains and wastes of living things by bacteria produces a gas called methane. Methane can be used as a fuel. As such, it can be burnt to provide energy to turn turbines and produce electrical energy.

There are two ways to tap solar energy to produce electrical energy. One way is by the use of solar cells. Solar cells convert energy from the sun into electrical energy. The other way is by the use of solar energy to heat up water to produce steam. The steam is then used to turn turbines which will generate electrical energy.

- 15 What is methane?
- A A combustible gas.
 - B The remains and wastes of living things.
 - C The decomposition of living things by bacteria.
 - D The energy to turn turbines to produce electrical energy.
- 16 Solar energy can be converted to electrical energy by using
- A solar cells only.
 - B solar cells and steam generators.
 - C solar cells and water heaters to produce steam.
 - D solar cells and the heat from the sun to produce steam.

Kidneys	Filter waste products and excess water from the blood to form urine.
Ureters	Enable urine to flow from the kidneys to the urinary bladder.
Urinary Bladder	Stores urine before it is excreted from the body.
Urethra	Enables urine to flow out of the body.

- 17 The best title for the above table would be
- A The Kidney System
 - B The Urinary System
 - C The Urinary Organs and their Functions
 - D Kidneys, Ureters, Urinary Bladder and Urethra

Asexual reproduction is the formation of new individuals from a single individual or parent without involving the male or female reproductive cells. Asexual reproduction can take place in various ways. Organisms such as sea anemones, amoebas, parameciums and bacteria reproduce asexually by binary fission. In binary fission, one individual divides and separates into two individuals which are identical to the parent cell.

- 18 In binary fission, the parent cell divides and
- A separates into two individuals of almost similar characteristics.
 - B separates into two individuals which are exactly the same .
 - C produces a male and a female reproductive cell.
 - D produces two identical reproductive cells.

Questions 19 – 20

Photosynthesis is a process by which green plants and certain other organisms use light energy from the sun which is absorbed by the pigment chlorophyll to convert carbon dioxide and water into glucose. In so doing, photosynthesis provides the basic energy source for virtually all organisms. An extremely important byproduct of photosynthesis is oxygen, on which most organisms depend.

- 19 What is the key byproduct of photosynthesis?
- A water
 - B oxygen
 - C glucose
 - D carbon dioxide
- 20 From the extract, it can be concluded that
- A carbon dioxide is converted into oxygen during photosynthesis
 - B chlorophyll provides energy for photosynthesis
 - C glucose is the end product of photosynthesis
 - D photosynthesis occurs only in green plants

In an atom, the number of positively charged protons in the nucleus is the same as the number of negatively charged electrons surrounding the nucleus. This makes the atom neutral. However, some atoms can lose electrons, while others can gain electrons. When this happens, the atom is no longer neutral. An atom that has lost or gained electrons is called an ion.

- 21 Which of the following statements is not true?
- A An atom has the same number of protons and electrons.
 - B An atom that loses or gains electrons is called an ion.
 - C An atom can either lose or gain protons.
 - D An atom is always neutral.

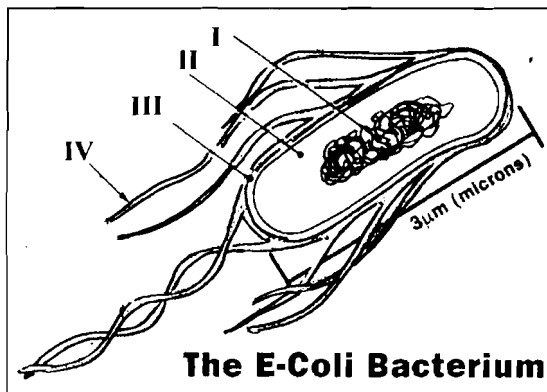
Questions 22 – 23

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 bacteria have flagella.

22 Which of the following are components found in all bacterial cells?

- A Wadded-up balls, cytoplasm and cell membrane.
- B Cell membrane, DNA, cytoplasm and flagella.
- C Flagella, DNA, amino acids, glucose and ATP.
- D Cell membrane, cytoplasm and DNA.

23 With reference to the text above, which structure is used to propel the cell?



- 23 A I
B II
C III
D IV

Mosquitoes are insects belonging to the order Diptera. They have two wings but unlike other insects, their wings have scales. Female mosquito mouthparts form a long piercing-sucking proboscis which is suitable for piercing animal skin. Males differ from females by having feathery antennae and a proboscis not suitable for piercing skin. A mosquito's principal food is nectar or similar sugar sources.

- 24 Based on the text above, mosquitoes are insects that
- A rely on nectar, sugar and blood as their main food.
 - B use a proboscis to obtain necessary nutrients
 - C are similar to all other flying insects

Mobile phones are small radio transmitters. They create an electric field when they are used. This can interfere with sensitive equipment nearby. Hospital equipment such as heart monitors and kidney dialysis machines and an aeroplane's navigation and control system can be affected. Therefore, mobile phones should always be switched off completely when in aircraft and hospitals.

- 25 Based on the text, mobile phones can
- A affect a person's heart
 - B alter the readings of a heart monitor
 - C damage the control system of an aircraft
 - D interfere with an aeroplane's navigation readings

Section B

[5 marks]

You are advised to spend 10 minutes on this section.

Questions 26 – 30

Read the following passage and then shade the best answer in the answer sheet provided.

The secrets of successful dieting, according to leading nutritionists, are to lose weight slowly – no more than 0.5 to 1 kilogramme per week – and to change your eating 26. “Miracle” diets may result in quick weight loss, but many are unhealthy, and the weight lost is often rapidly 27.

To lose weight steadily, 28 3,500 to 7,000 calories per week from your diet. You can do this by reducing portion sizes and by eliminating such high-calorie foods such as rich desserts and fried foods. To burn extra calories, exercise more: 29 exercise also reduces appetite.

Any weight-loss diet should daily include foods from the four basic food groups – fruits and vegetables, breads, cereals, and grains, milk and milk products, and meat and beans – and should be varied to ensure 30 intake of vitamins and minerals.

- 26 A habits
 B routine
 C practice
 D behaviour

- 29 A brisk
 B strong
 C forceful
 D vigorous

- 27 A recovered
 B reclaimed
 C redeemed
 D regained

- 30 A satisfactory
 B acceptable
 C adequate
 D plenty

- 28 A eliminate
 B eradicate
 C abolish
 D purge