

Section A*[20 marks]***Question 1***Read the following text and complete the given task.*

Chlorofluorocarbons (CFCs), organic compounds that contain carbon, chlorine, and fluorine atoms. CFCs are highly effective refrigerants that were developed in response to the pressing need to eliminate toxic and flammable substances, such as sulfur dioxide and ammonia, in refrigeration units and air conditioners. The most common commercial CFCs, marketed under the trade name Freon, are trichlorofluoromethane (CFC-11) and dichlorodifluoromethane (CFC-12). Commercial CFCs are non-flammable, non-corrosive, non-toxic, and odourless, and their vapor pressures and heats of vaporization make them very suitable for refrigeration applications. They are also widely used as aerosol propellants, cleansing agents for electrical and electronic components, and foaming agents in shipping-plastics manufacturing.

Based on the information from the text, complete the table below.

CFCs	
Atomic contents	1 _____
	2 _____
	3 _____
Properties	4 _____
	5 _____
	6 _____
	7 _____
Usage	8 _____
	9 _____
	10 _____

[10 marks]

Question 2

Read the following text and complete the given task.

Lung cancer is a disease of uncontrolled cell growth in tissues of the lung. This growth may lead to metastasis, which is the invasion of adjacent tissue and infiltration beyond the lungs. The vast majority of primary lung cancers are carcinomas of the lung, derived from epithelial cells. Lung cancer, the most common cause of cancer-related death in men and the second most common in women (after breast cancer), is responsible for 1.3 million deaths worldwide annually. The most common symptoms are shortness of breath, coughing (including coughing up blood), and weight loss.

The main types of lung cancer are *small cell lung carcinoma* and *non-small cell lung carcinoma*. This distinction is important, because the treatment varies; non-small cell lung carcinoma (NSCLC) is sometimes treated with surgery, while small cell lung carcinoma (SCLC) usually responds better to chemotherapy and radiation. The main causes of lung cancer (and cancer in general) include carcinogens (such as those in tobacco smoke), ionizing radiation, and viral infection. This exposure causes cumulative changes to the DNA in the tissue lining the bronchi of the lungs (the bronchial epithelium). As more tissues become damaged, eventually a cancer develops.

Based on the information from the text, complete the table below.

LUNG CANCER		
Definition	1 _____	
Symptoms	2 _____	
	3 _____	
	4 _____	
Causes	5 _____	
	6 _____	
Types	7 _____	8 _____
Treatment	9 _____	10 _____

[10 marks]

Section B

[30 marks]

*[Time suggested: 45 minutes]**Read the information given and complete the task.***Definition**

- the increase in the average temperature of Earth's near-surface air and oceans

Causes

- the burning of fossil fuel
- the increase of greenhouse gases such as carbon dioxide, methane and nitrogen oxide

Effects

- global temperature rise
- extreme weather conditions – droughts and floods
- disruption of habitats
- rising sea levels

Write a **report** on global warming.

In your report, you **must**:

- use **all** the information
- elaborate by giving relevant information
- provide any additional information

Your report **should not be less than 200 words**.

[illegible]

[illegible]

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Questions 1 – 25 are based on the given stimuli. Study the information carefully and choose the **best** answer.

The skin responds in several different ways. If your body temperature is too high, the skin releases sweat from sweat glands onto its surface. As the sweat evaporates, it drains heat from the body and cools you down. Blood vessels in the dermis gets wider and act like radiators so that more heat is lost from blood. If your body temperature is too low, these blood vessels get narrower so that you will not lose heat. The blood vessels under the skin narrow to reduce heat loss, and hairs on the skin are pulled upright (giving you goose bumps) to trap a layer of warm air. In addition, you shiver – your body muscles contract and generate heat.

1 In order for the body to keep warm

- I** the skin contracts
 - II** the muscles contract
 - III** the blood vessels widen
-
- A** **I & II**
 - B** **I & III**
 - C** **II & III**
 - D** **I, II & III**

There's scientific proof that the greater the music's intensity the more pleasure it brings, according to research from the University of Manchester. It's all down to the vestibular system, which is responsible for balance but also carries vibration; when sound waves set it off, it sends a positive message to the brain. In reality though, clubs and rock gigs can reach over 100 decibels; the longer you listen to loud music, the more damage you do. It is considered safe to listen to 85 decibels for 8 hours, but if it increases to 88 decibels, you should halve the length of time.

2 Listening to loud music for a longer time can

- A** be safe
- B** bring more pleasure
- C** damage your hearing
- D** balance the sound waves

Light materials such as wood and cork float because they are not as dense as water. Ships can be built from heavy materials such as steel, yet still float. This is because the air inside the hull or body of the ship makes the ship lighter than the water it displaces.

3 The word **dense** means

- A full
- B thick
- C heavy
- D lighter

Matter can exist in three distinct states- solid, liquid and gas. The state is determined by temperature. A solid is rigid and retains its shape. A liquid is fluid, has a definite volume, and will take the shape of its container. A gas fills a space, so its volume will be the same as the volume of its container.

4 How does temperature affect matter?

- A It mould its state
- B It retains its shape
- C It changes its shape
- D It determines its volume

Hairdressers know that East Asians have the thickest hair in the world, and now the scientists know why. Geneticists in Thailand, Indonesia and Japan found Asian hair 30% thicker than African and 50% thicker than European. They then turned to the HapMap Project, where scientists throughout the world compared gene variations and discovered that 88% of Asians had a variation or mutation in a gene named EDAR which is involved in the creation of hair follicles.

5 Which group of people has the least thick hair?

- A Asian
- B African
- C Japanese
- D European

Sleep is your body's way of resting after a day of thinking and moving. During sleep, your muscles relax, your breathing slows, and your heart rate decreases. If you miss a night's sleep, your reactions will slow and you'll feel pretty cranky. Your brain does not turn off completely when you sleep, which is why you dream.

- 6 Which one of these does not happen when you sleep?
- A muscles become relax
 - B heart beat decreases
 - C breathing fast
 - D dream

Simple tissues are also referred to as ground tissues. They include the tissues known as parenchyma, collenchyma, and sclerenchyma. Parenchyma tissue is composed of parenchyma cells, which are found throughout the plant. They are particularly abundant in the stems and roots. An important class of parenchyma cells makes growth tissues called meristem and cambium. These tissues give rise to all other tissues in the plant body.

- 7 Ground tissues contain
- A cells
 - B meristem
 - C cambium
 - D simple tissues

Ground water is simply water under the ground where the soil is completely filled or saturated with water. This water is also called an aquifer. Ground water moves underground from areas where the elevation is high to places that are lowland areas. Water movement is slow and might move anywhere from less than a millimeter up to a mile a day.

- 8 An aquifer moves very slowly because
- A it is underground
 - B water is saturated
 - C the elevation is high
 - D it moves less than a millimeter

Below the turbopause at an altitude of about 100 km, the Earth's atmosphere has a more-or-less uniform composition (apart from water vapour); this constitutes the homosphere. However, above about 100 km, the Earth's atmosphere begins to have a composition which varies with altitude. Thus higher mass constituents, such as oxygen and nitrogen, fall off more quickly than lighter constituents such as helium, molecular hydrogen, and atomic hydrogen. Thus there is a layer, called the heterosphere, in which the earth's atmosphere has varying composition. As the altitude increases, the atmosphere is dominated successively by helium, molecular hydrogen, and atomic hydrogen. The precise altitude of the heterosphere and the layers it contains varies significantly with temperature.

- 9 One of the composition in the heterosphere is
- A helium
 - B oxygen
 - C nitrogen
 - D hydrogen
- 10 According to the abstract above,
- A homosphere consists of lighter constituents
 - B oxygen and nitrogen will dissolve and turned into light constituents
 - C the atmosphere contains constituents that are lighter in higher altitude
 - D the lighter constituents combine with heavy constituents to form heterosphere

Fast food meals may be quick and easy but they are loaded with fat. According to Australian scientists, we need to restrict the intake of these meals as our arteries may stiffen within hours. Though the effect lasted for only a few hours, they believe that regularly eating high fat meals could lead to permanent changes and raise the high blood pressure and heart attack.

- 11 The immediate effect of regularly eating high fat meals is
- A heart attack
 - B stiffening of the arteries
 - C increased high blood pressure
 - D permanent changes of the heart

Ice is actually a very unique material. The one property that makes the solid form of water so unusual is that, unlike most materials, the solid occupies a greater volume of space than an equal amount of the liquid form. This means that the density of liquid water is greater than the density of ice. The lower density of ice, relative to water, is why ice floats in a glass of water. However, ice becomes liquid under pressure.

- 12 One unique property of ice is that
- A it cannot float
 - B its density is greater
 - C it occupies more space than water
 - D it can only float in a glass of water

The primates are the most dominant mammals in mangrove forest. The long-tailed macaques eat almost any food, even small animals including crabs. They are known as crab-eating monkeys. The silver-tailed monkeys are arboreal herbivores. Their main diet consists of leaves, fruits and shoots.

- 13 Arboreal herbivores mean feeding on
- A fish
 - B crabs
 - C small animals
 - D shoots, fruits and leaves

Bacteria are found in all environments, including unusually hostile ones such as volcanoes and alkali lakes. Thanks to advances in biotechnology, bio-engineered bacteria are now being used to produce vitamins, medicines, pesticides and biodegradable plastics. Certain types of genetically-modified bacteria can be used to rehabilitate environments in a process known bioremediation.

- 14 From the extract above, bio-engineered bacteria are
- A advanced bacteria
 - B used in bioremediation
 - C specially grown bacteria
 - D hostile and found in volcanoes

Friction is a force that slows down moving things. There is a force of friction whenever two things are moving against each other. A heavy box is difficult to push along the floor because there is a large force of friction between the box and the floor. Friction can be a useful force. Friction between the air and the parachute is called air resistance. Air resistance can be reduced by giving things a smoother, streamlined shape.

- 15 Air resistance is caused by
- A dragging a box on the floor
 - B friction between stationary objects
 - C objects with a smoother, streamlined shape
 - D friction between the air and a moving object

Garra Rufa fishes are famed for being able to alleviate the symptoms of skin diseases. They feed on dry and dead skins, leaving the healthy skin to grow.

- 16 Which of the following describes the characteristic of Garra Rufa fish?
- A It stops the symptoms of skin diseases
 - B It promotes skin diseases
 - C It makes the skin grow
 - D It eats dead skins

Through a process called pollination, the flowering plants reproduce with the help of insects that feed on nectar inside a flower. When an insect sits on a flower, pollen from the anthers, which is the male part of the flower, sticks on their legs. When they visit the next flower, the pollen brushes off on to the stigma, which is the female part of the flower.

- 17 What is the role of insects in pollination process?
- A They feed on the nectar
 - B They transfer pollen from the anthers to the stigma of the flower
 - C They make pollen from the anthers that stick on their legs
 - D They sit on a flower

Metal	Reaction with water
Sodium	Reacts violently with cold water, becoming so hot that it melts and whizzes around on a layer of hydrogen.
Magnesium	Reacts slowly with cold water forming magnesium oxide and hydrogen
Iron	Reacts extremely slowly with cold water (days or weeks) to produce iron oxide (rust) and hydrogen
Copper	Does not react with water and so it is often used for water pipes

18 What would be the order of the metals from the least active to the most active?

- A** Copper → magnesium → sodium → iron
B Iron → magnesium → sodium → copper
C Sodium → magnesium → iron → copper
D Copper → iron → magnesium → sodium

An upside down rainbow often described as 'smile in the sky' is an unusual sight. The circumzenithal arc occurs when the sun shines at a right angle through high clouds (approximately 6100-7600 metres high) made of ice crystals about the size of salt grains, which refract the light into brilliant spectrum of colours. The arc is only visible when the sky is free of low level clouds and when the sun sits less than 33 degrees above the horizon.

19 Which of the following conditions cause the formation of upside down rainbow?

- I** The sky is absent of low level clouds
II The sun makes ice crystals in the sky
III The sun shines at a right angle through high clouds
IV The sun is visible at less than 33 degrees above the horizon

A I & II
B III & IV
C I, II & III
D I, III & IV

Benzene can either be colourless or light yellow. It has a sweet smell and is highly flammable. Too much benzene can suppress your bone marrow and damage your immune system. It is a recognized cause of leukaemia. If you breathe in high levels of benzene, you may feel drowsy and confused. Your heart rate may be irregular and you may tremble. Some people slip into unconsciousness and death at very high levels.

20 What happens when one takes in extremely high level of benzene?

- A** One can die
- B** One feels drowsy
- C** One becomes confused
- D** One can lapse into a coma

Sleep apnoea is a common condition in which children are deprived of quality sleep and left 'exhausted' in the day time. Not only does it affect children's behaviour and mood, sleep apnoea may also hinder their learning progress as they lack energy and cannot concentrate on school work.

21 Which of the following statements is true about sleep apnoea?

- A** It makes a child happy
- B** It makes a child energetic
- C** It conditions a child's quality sleep
- D** It affects a child's concentration in school

Alcohols dissolve in water due to the formation of hydrogen bonds. Hydrogen bonds are stronger than the Van der Waal forces that are responsible for covalent bonding but are weaker than the electrostatic forces responsible for ionic bonding.

22 High solubility of alcohol in water is because of

- A** electrostatic bonds
- B** hydrogen bonds
- C** covalent bonds
- D** ionic bonds

Geothermal energy has a major environmental benefit because it offsets air pollution that would have been produced if fossil fuels were the energy source. Geothermal energy has a very minor impact on the soil – the few acres used look like a small light-industry building complex. Since the slightly cooler water is reinjected into the ground, there is only a minor impact, except if there is a natural geyser field close by.

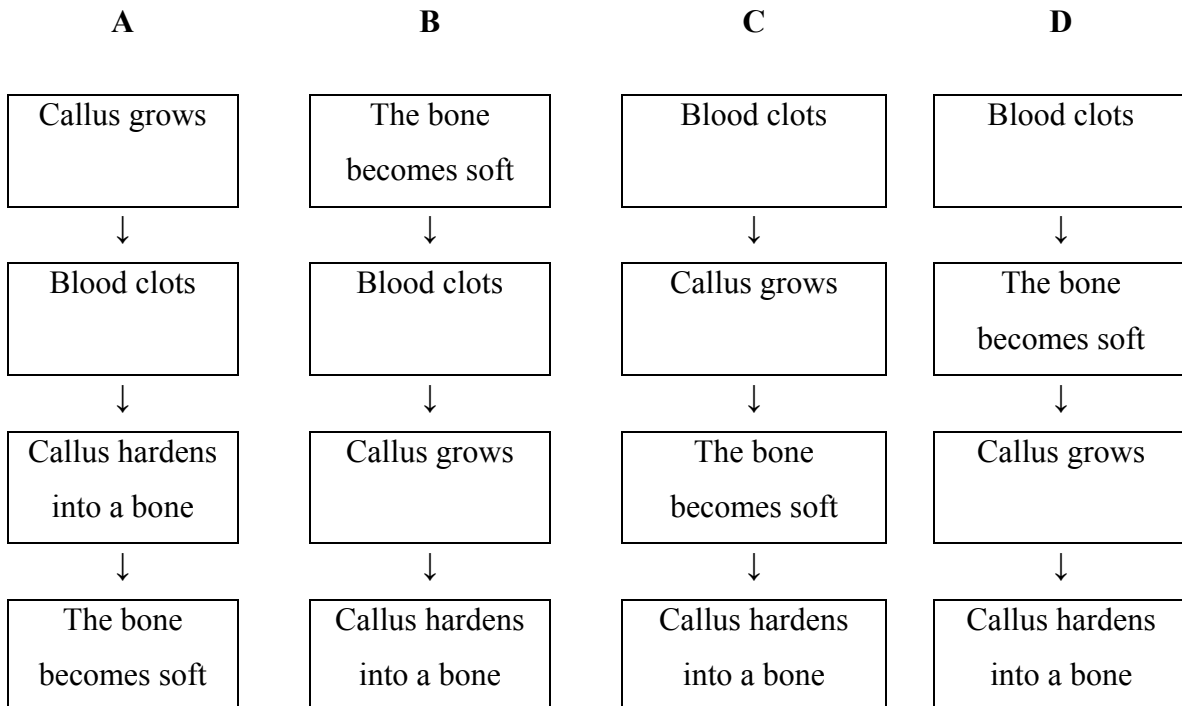
- 23** Which of the following statements is true?
- A** Geothermal energy contributes to air pollution
 - B** Geothermal energy helps to preserve the environment
 - C** Generating geothermal energy will cost the fertility of the soil
 - D** Generating geothermal energy affects the environment gravely

The Milky Way is a flat system of stars, with a central bulge located in the constellation Sagittarius. It is a very flat system in 3-dimensions, because from the inside, its projection on the sky is a very narrow band of faint stars. It does not have a gigantic nucleus because when we look along the Milky Way in the sky, there is no 'ball' of light peeking up from the Milky Way. From the shapes of other galaxies, we can conclude it must be a version of a spiral-type galaxy with an unremarkable central nucleus.

- 24** The Milky Way is shaped approximately like a
- A** gigantic nucleus
 - B** round ball
 - C** flat spiral
 - D** faint star

Broken bones are called fractures. They begin healing themselves as soon as they break. First, blood rushes to the scenes and hardens into a clot around the break. Then the ends of the bones become soft as minerals start to seep out of them into the gap. New bone called callus starts to grow from the broken ends. Finally, the callus starts to harden into true bone and the bone can be used again.

25 Which of the following is the correct sequence for a broken bone to recover?



Questions 26 – 30 are based on the following passage.

Sedimentary rocks make up about three-quarters of the rocks at the Earth's surface. They **(26)** a record of the environments that existed when they formed. By looking at sedimentary rocks of **(27)** ages, scientists can figure out how climate and environments have changed through Earth's history. Fossils of **(28)** living things are preserved in sedimentary rocks too.

Many sedimentary rocks are made from the broken bits of other rocks. These are called clastic sedimentary rocks. There are other types of sedimentary rocks whose **(29)** do not come from broken rock fragments. Chemical sedimentary rocks are made of mineral crystals such as halite and gypsum formed by chemical processes. The sediment particles of organic sedimentary rocks are the **(30)** of living things such as clamshells, plankton skeletons, dinosaur bones, and plants.

- 26 A keep
 B store
 C retain
 D preserve

- 27 A different
 B contrast
 C unusual
 D similar

- 28 A old
 B early
 C archaic
 D ancient

- 29 A particles
 B crumbs
 C clumps
 D grains

- 30 A remains
 B carcasses
 C leftovers
 D residue

KERTAS SOALAN TAMAT

**PEPERIKSAAN PERCUBAAN BERSAMA
SIJIL PELAJARAN MALAYSIA 2010**



**ANJURAN
PERSIDANGAN KEBANGSAAN PENGETUA-PENGETUA SEKOLAH
MENENGAH PERLIS**

ENGLISH FOR SCIENCE AND TECHNOLOGY

ANSWER SCHEME

PAPER 1

Section A : Question 1 (10 marks)

1 – 3 IN ANY ORDER

- carbon
- chlorine
- fluorine

4 – 7 IN ANY ORDER

- non-flammable
- non-corrosive
- non-toxic
- odourless

8 – 10 ANY THREE IN ANY ORDER

- refrigeration / refrigeration applications
- aerosol propellants
- cleansing agents for electrical and electronic components
- foaming agents in shipping-plastics manufacturing

Section A : Question 2 (10 marks)

1. a disease of uncontrolled cell growth in tissues of the lung

2 – 4 ANY THREE IN ANY ORDER

- shortness of breath
- coughing
- coughing up blood
- weight loss

5 - 6 ANY TWO IN ANY ORDER

- carcinogens
- ionizing radiation
- viral infection

7 – 8 IN ANY ORDER

- small cell lung carcinoma
- non-small cell lung carcinoma

9 – 10 IN ANY ORDER

- chemotherapy **and** radiation (**and** is mandatory)
- surgery

N/B : Types of lung cancer must match with the treatment(s)

Notes

- spelling of scientific terms are mandatory
- do not penalise for grammatical mistakes
- NO LIFTING OF WHOLE SENTENCES

Section B : Open Response (30 marks)

Description of Criteria for the Assessment of Open Response

BAND/GRADE	CONTENT	LANGUAGE
A 13-15	<ul style="list-style-type: none"> Utilise all the content points Elaborate on all points effectively Demonstrate excellent ability to provide additional information relevant to the topic 	<ul style="list-style-type: none"> Excellent organisation of ideas Appropriate and precise use of S and T terminologies Accurate use of language
B 10 - 12	<ul style="list-style-type: none"> Utilise some content points Elaborate on all points Demonstrate competent ability to provide additional information relevant to the topic 	<ul style="list-style-type: none"> Competent organisation of ideas Competent use of S and T terminologies Clear and largely accurate use of language
C 7 - 9	<ul style="list-style-type: none"> Utilise some content points Elaborate some content points Satisfactory ability to provide relevant additional information on the topic 	<ul style="list-style-type: none"> Satisfactory organisation of ideas Satisfactory use of S and T terminologies Sufficiently accurate use of language
D 4 - 6	<ul style="list-style-type: none"> Utilise few content points Limited elaboration of content points Limited ability to provide additional information relevant to the topic 	<ul style="list-style-type: none"> Limited attempt to organize of ideas Limited use of S and T terminologies Largely inaccurate use of language
E 0 - 3	<ul style="list-style-type: none"> Utilise minimal or no content points No elaboration of content points No relevant additional information 	<ul style="list-style-type: none"> No attempt to organize ideas Poor use of S and T terminologies Language barely accurate

Mark distribution

Content	15
<u>Language</u>	<u>15</u>
<u>Total</u>	<u>30</u>

SULIT

PAPER 2 (30 marks)

- | | |
|-------|-------|
| 1. A | 16. D |
| 2. C | 17. B |
| 3. C | 18. D |
| 4. C | 19. D |
| 5. D | 20. A |
| 6. C | 21. D |
| 7. A | 22. B |
| 8. C | 23. B |
| 9. A | 24. C |
| 10. C | 25. D |
| 11. B | 26. B |
| 12. C | 27. A |
| 13. D | 28. B |
| 14. B | 29. A |
| 15. D | 30. A |