



Grade 6

WORLD SCIENCE CHAMPIONSHIP

2024

Total Questions: 50

Total Marks: 50

Time: 1hr

Set: B

General Instructions for the Examinee

Opening Instructions:

Welcome to the world Maths Championship. Before we commence, please pay close attention to the following instructions:

- Electronic devices such as cell phones and MP3 players must be turned off.
- Do not share or exchange materials with other students.
- Unauthorized aids are strictly prohibited and its use can lead to disqualification.
- Calculators are not allowed for Grade 1-5
- Scientific Calculators are allowed for Grade 6-8
- Refrain from consulting notes, textbooks, teachers, or other students regarding the exam materials.

Instructions for Filling Student Details in OMR Sheet and Signing the Attendance sheet:

There will be a ten-minute break for students to fill in the details

Filling Student Details:

- Please refer to the instructions at the back of the OMR sheet for proper completion your details.

Signing Attendance sheet:

- Ensure you have signed the attendance sheet and OMR sheet provided.
- Invigilator should also sign your OMR sheet in the space provided.

marks - Total 35 marks.

- Grades 5 to 8: 50 questions of 1 mark each, there is no negative marking and if you skip/leave a question no marks will be given but also no marks will be deducted as -ve marks - Total 50 marks.
- Darken the circle corresponding to your chosen answer on the OMR sheet.
- Ensure you darken circles completely. Questions that do not have the darker circle are considered unanswered and will be counted wrong.
- You have 60 minutes to complete the exam.
- Note that you can choose only one answer – if you mark another response, that question will be disqualified.
- If you finish before the time is up, raise your hand, and the invigilator will collect your sheet for scoring. When you are finished and your OMR Sheet is collected, please leave the room quietly.

Instruction for Taking Examination:

- The question paper has been sealed by a reverse jacket. You have to cut on the right side to open the paper at the time of commencement of the examination. Check whether all the pages of the question paper are intact.
- This Examination is multiple-choice based, with either 4 options, 3 options or 2 options for each question.
- Each grade level has specific question formats and durations:
 - Grades 1 to 4: 35 questions of 1 mark each, there is no negative marking and if you skip/leave a question no marks will be given but also no marks will be deducted as -ve



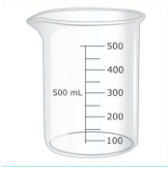

Thank you for your attention, and best of luck with the World Maths Championship!

Question: 1 of 50

QID: 166

Marks : 1

Select the beaker.




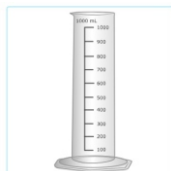
- A. 
- B. 
- C. 
- D. 

Question: 2 of 50

QID: 168

Marks : 1

Select the dropper pipette..

- A. 
- B. 
- C. 
- D. 

Question: 3 of 50

QID: 252

Marks : 1

The passage below describe an experiment. Gordon drank coffee out of a paper cup. He remembered that his coffee shop had cardboard sleeves for their coffee cups. He wondered if using a sleeve would help keep the coffee warm. Gordon placed a cardboard sleeve on each of three paper cups. He left three other cups without sleeves. Then, he poured the same amount of coffee into each of the six cups. He measured the temperature of the coffee in each cup every minute for ten minutes. In this experiment, which were part of a control group?



- A. the cups that did not get cardboard sleeves
- B. the cups that got cardboard sleeves

Question: 4 of 50

QID: 254

Marks : 1

The passage below describes an experiment. Read the passage and think about the variables that are described. Lindsey got a slingshot for her birthday, and she was learning to use it by launching a rubber ball in a local park. Lindsey noticed that the ball traveled farther when she pulled the sling back more. She wondered how much farther the ball would travel for each additional inch she pulled the sling back. Lindsey launched the ball from the slingshot six times and measured how far the ball traveled each time. On the first two launches, she pulled the sling back four inches. On the next two launches, she pulled the sling back five inches. On the final two launches, she pulled the sling back six inches. Which of the following was an independent variable in this experiment? Hint: An independent variable is a variable whose effect you are investigating. A dependent variable is a variable that you measure.



- A. the distance the ball traveled
- B. the distance the sling was pulled back

Question: 5 of 50

QID: 300

Marks : 1

People can use the engineering-design process to develop solutions to problems. One step in the process is testing if a potential solution meets the requirements of the design. The passage below describes how the engineering-design process was used to test a solution to a problem. Read the passage. Then answer the question below. Stefan was a mechanical engineer who was designing a weather station to record temperature, precipitation, and wind speed. The weather station would be used in a town where the highest recorded temperature was 40°C. Stefan wanted to make sure the weather station would work even in unusually warm weather. So, he set an indoor test chamber to 50°C with low moisture and no wind. He left the weather station in the chamber overnight. The next day, he checked to see if the weather station displayed accurate measurements after 24 hours at 50°C. Which of the following could Stefan's test show?



- A. if the weather station would work when the temperature was 50°C
- B. how well the weather station would work when it was windy

Question: 6 of 50

QID: 305

Marks : 1

piece of chalk has a mass of 10 grams and a volume of 5 cubic centimetres What is its density?

- A. 4 grams per cubic centimetres
- B. 2 grams per cubic centimetres
- C. 3 grams per cubic centimetres
- D. 5 grams per cubic centimetres

Question: 7 of 50

QID: 306

Marks : 1

A piece of asphalt has a mass of 242 grams and a volume of 121 cubic centimetres . What is its density?

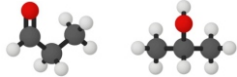
- A. 2 grams per cubic centimetres
- B. 4 grams per cubic centimetres
- C. 3 grams per cubic centimetres
- D. 1 grams per cubic centimetres

Question: 8 of 50

QID: 315

Marks : 1

The models below represent two molecules composed of carbon atoms, hydrogen atoms, and oxygen atoms. Complete the statement. These molecules make up _____



- A. the same substance
- B. different substances

Question: 9 of 50

QID: 316

Marks : 1

Select the chemical formula for this molecule.

- A. ClCl
- B. HCl
- C. ICl
- D. ICl₂

Question: 10 of 50

QID: 325

Marks : 1

This passage describes a chemical reaction. Read the passage. Then, follow the instructions below. The Space Shuttle program sent astronauts on 135 missions using a fleet of five shuttles between 1981 and 2011. The engines of each shuttle, like other modern rocket engines, used liquid hydrogen as fuel. When liquid hydrogen combines with liquid oxygen, an enormous amount of energy is released, along with water vapor. The shuttles used this energy to launch into space. Complete the sentence. In this chemical reaction, hydrogen is a _____

- A. reactant
- B. product

Question: 11 of 50

QID: 326

Marks : 1

This passage describes a chemical reaction. Read the passage. Then, follow the instructions below. Gasoline provides the energy that powers many car engines. In an engine, gasoline and oxygen are mixed together and burned, creating carbon dioxide gas and water vapor. This process releases energy that the engine uses to turn the wheels, making the car move. Complete the sentence. In this chemical reaction, gasoline is a _____

- A. product
- B. reactant

Question: 12 of 50

QID: 389

Marks : 1

Francesca drove her tractor at a steady speed for 2 minutes. Her tractor moved 84meters in that time. What was the tractor's speed?

- A. 44 meters per minute.
- B. 42 meters per minutes.
- C. 40 meters per minute.
- D. 46 meters per minutes.

Question: 13 of 50

QID: 390

Marks : 1

For 4 hours, a submarine moved underwater at a speed of 40 kilometers per hour . In that time, how far did the submarine move?

- A. 150 kilometers
- B. 170 kilometers
- C. 160 kilometers
- D. 180 kilometers

Question: 14 of 50

QID: 336

Marks : 1

Read the text about an animal in motion. **gecko used its sticky feet to crawl from the bottom of a window to the top of the window.** Complete the statement. Assume that the gecko's mass did not change. The gravitational potential energy stored between the gecko and Earth _____ as the gecko crawled on the window.

- A. increased
- B. decreased

Question: 15 of 50

QID: 538

Marks : 1

Read the text about an animal in motion. **mole dug a path from its underground burrow directly to the surface of the ground above its burrow.** Complete the statement. Assume that the mole's mass did not change. The gravitational potential energy stored between the mole and Earth _____ as the mole dug toward the surface

- A. stayed the same
- B. decreased
- C. increased

Question: 16 of 50

QID: 1271

Marks : 1

The images below show two pairs of magnets. The magnets in different pairs do not affect each other. All the magnets shown are made of the same material, but some of them are different sizes and shapes. Think about the magnetic force between the magnets in each pair. Which of the following statements is true?



- A. The magnitude of the magnetic force is smaller in Pair 1.
- B. The magnitude of the magnetic force is smaller in Pair 2.
- C. The magnitude of the magnetic force is the same in both pairs.

Question: 17 of 50

QID: 1391

Marks : 1

The images below show two pairs of magnets. The magnets in different pairs do not affect each other. All the magnets shown are made of the same material. Think about the magnetic force between the magnets in each pair. Which of the following statements is true?



- A. The magnitude of the magnetic force is greater in Pair 1.
- B. The magnitude of the magnetic force is greater in Pair 2.
- C. The magnitude of the magnetic force is the same in both pairs.

Question: 18 of 50

QID: 551

Marks : 1

Two tennis balls are identical except for their temperatures. Which tennis ball has **more** thermal energy?

- A. the colder tennis ball
- B. the hotter tennis ball

Question: 19 of 50

QID: 552

Marks : 1

Two cherry pies are identical except for their temperatures. Which cherry pie has **less** thermal energy?

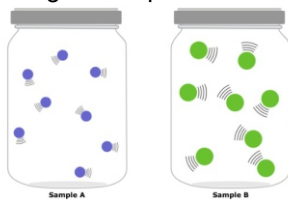
- A. the colder cherry pie
- B. the hotter cherry pie

Question: 20 of 50

QID: 622

Marks : 1

The diagrams below show two pure samples of gas in identical closed containers. Each particle in sample A has less mass than each particle in sample B. All of the particles are moving at the same average speed. Which sample has the higher temperature?



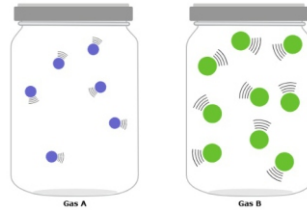
- A. sample A; its particles have the higher average kinetic energy
- B. sample B; its particles have the higher average kinetic energy
- C. neither; the particles have the same average kinetic energy

Question: 21 of 50

QID: 624

Marks : 1

The diagrams below show two pure samples of gas in identical closed, rigid containers. Gas B has a higher temperature than gas A. There are also more particles in gas B than in gas A. Which has the higher gas pressure?



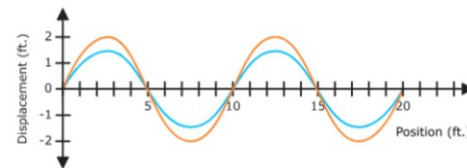
- A. gas A
- B. gas B
- C. neither; their gas pressures are the same

Question: 22 of 50

QID: 633

Marks : 1

To get a more intense workout, Maya need to transfer more energy to the battle ropes. One way Maya does this is by moving her arms farther up and down to make the waves in the ropes taller. In this graph, the **blue** line models a wave Maya created with a battle rope earlier in her workout. The **orange** line models a wave Maya creates by moving her arms farther up and down. Describe what happens when Maya moves her arms farther up and down. Complete the sentence. Maya transfers more energy to the rope and _____ of the wave.



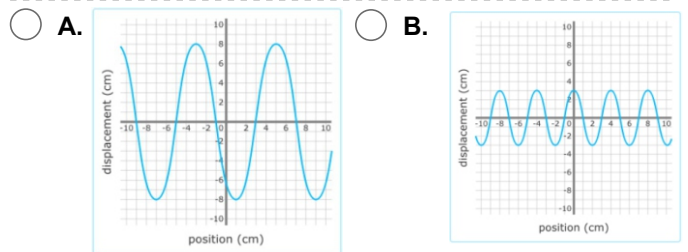
- A. increases the frequency
- B. decreases the frequency
- C. increases the amplitude
- D. decreases the amplitude

Question: 23 of 50

QID: 636

Marks : 1

The graphs below describe two waves. The waves are traveling at the same speed. Select the graph of the wave with the greater amplitude.



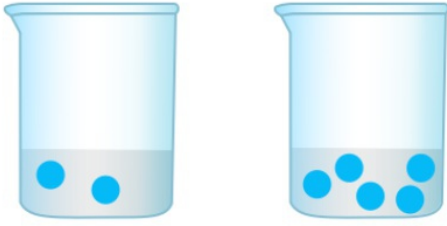
- A.
- B.

Question: 24 of 50

QID: 784

Marks : 1

The diagram below is a model of two solutions. Each blue ball represents one particle of solute. Which solution has a higher concentration of blue particles?



Solvent volume: 20 mL

Solvent volume: 20 mL

Solution A**Solution B**

- A. solution A
- B. solution B
- C. neither, their concentrations are the same

Question: 29 of 50

QID: 774

Marks : 1

Read the description of a trait. Lisa has dark skin. What information supports the conclusion that Lisa inherited this trait?

- A. Lisa's parents have dark skin. They passed down this trait to Lisa.
- B. Lisa and her father both have dark hair.

Question: 30 of 50

QID: 774

Marks : 1

Look at the following trait: Suzie knows how to grow sunflowers. What information supports the conclusion that Suzie acquired this trait?

- A. Both Suzie and her father grow sunflowers.
- B. Last summer, Suzie's neighbor showed her how to grow sunflowers.
- C. Suzie likes to visit sunflower fields.

Question: 25 of 50

QID: 643

Marks : 1

Does *Danio rerio* have cells that have a nucleus?



This organism is *Danio rerio*. It is a member of the animal kingdom.

Danio rerio is commonly called a zebrafish. Young zebrafish are see-through! Scientists can easily observe their insides. This trait makes zebrafish a useful organism for scientists to study.

- A. yes
- B. no

Question: 31 of 50

QID: 951

Marks : 1

Animals often behave in certain ways that can increase their reproductive success. Read the passage about a specific animal behavior. Then, follow the instructions below. Why might guarding the nest increase the reproductive success of a female long-tailed sun skink? Complete the claim below that answers this question and is best supported by the passage. Guarding the nest increases the chances that _____



a long-tailed sun skink

Long-tailed sun skinks are lizards that live in southeast Asia. Most female skinks abandon their nests after laying eggs. But female skinks that live on a particular island with many egg-eating snakes behave differently. These skinks may guard their nests for several days after laying eggs.

When female skinks on the island guard their nests, fewer eggs are eaten by egg-eating snakes. If a female is at her nest when a snake approaches, she will attack the snake. Often, she can wrestle the snake out of her nest and away from her eggs.

- A. the female will be injured by a snake
- B. the female's eggs will hatch
- C. the female will lay more eggs

Question: 26 of 50

QID: 754

Marks : 1

Select the part whose main job is to control which substances enter and leave the cell.

- A. mitochondria
- B. cell membrane
- C. vacuole
- D. chloroplast

Question: 27 of 50

QID: 755

Marks : 1

Select the part whose main job is to send instructions to different parts of the cell

- A. vacuole
- B. ribosome
- C. chloroplast
- D. nucleus

Question: 28 of 50

QID: 764

Marks : 1

What a bat is hibernating, how fast does its heart pump?



Horseshoe bats hibernate in cold underground caves during the winter. When a bat is hibernating, it might look asleep. But hibernation is not the same as sleep. During hibernation, the bat's body temperature goes down. The bat stays still for months. Its cells do not need as much oxygen or produce as much waste as they do when the bat is not hibernating.

- A. more quickly than when the bat is not hibernating
- B. more slowly than when the bat is not hibernating
- C. the same as speed as when the bat is not hibernating

Question: 32 of 50

QID: 952

Marks : 1

Animals often behave in certain ways that can increase their reproductive success. Read the passage about a specific animal behavior. Then, follow the instructions below. Why might raising cubs with other lionesses in a pride increase an African lioness's reproductive success? Complete the claim below that answers this question and is best supported by the passage. Raising cubs with other lionesses in a pride increases the chances that _____.



African lionesses and their cubs

African lions live in groups called **prides**. In a pride, female lions, or **lionesses**, may give birth to cubs around the same time. When this happens, the lionesses help raise each other's cubs. The lionesses work together to feed and protect all the cubs for about two years.

Lionesses have to protect their cubs from male lions that are not part of their pride. These male lions may attack and kill the cubs to try to take over the pride. When a pride has multiple lionesses, the cubs are less likely to be killed in an attack. When a pride has only one lioness, the cubs are more likely to be killed.

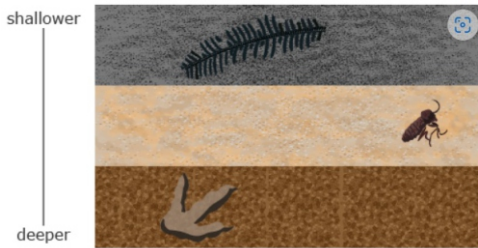
- A. the lioness will feed the cubs of other lionesses
- B. the lioness's cubs will survive attacks
- C. the lioness's cubs will be around other cubs

Question: 33 of 50

QID: 959

Marks : 1

This diagram shows fossils in an undisturbed sedimentary rock sequence. Which of the following fossils is older? Select the more likely answer.



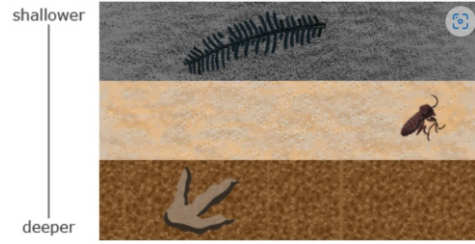
- A.  fern
- B.  dinosaur footprint



Question: 34 of 50

QID: 964

Marks : 1

This diagram shows fossils in an undisturbed sedimentary rock sequence. Which of the following fossils is younger? Select the more likely answer.



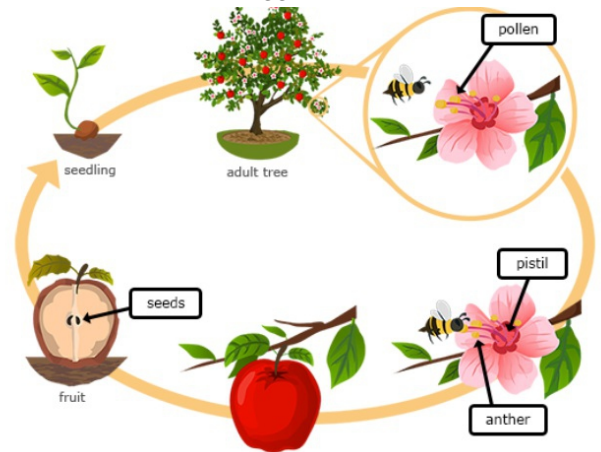
- A.  insect
- B.  dinosaur footprint

Question: 35 of 50

QID: 982

Marks : 1

This diagram shows the life cycle of an apple tree. Which part of a flower can make eggs?



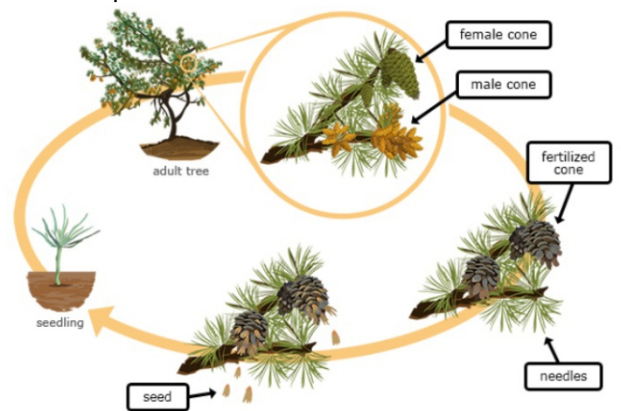
- A. the female part
- B. the male part

Question: 36 of 50

QID: 984

Marks : 1

This diagram shows the life cycle of a pine tree. Which cones make pollen?



- A. male cones
- B. pollinated cones

Question: 37 of 50

QID: 1009

Marks : 1

All organisms get chemical energy from food. Some organisms get food by eating other organisms. Others, including most plants, make their own food through a process called **photosynthesis**. Plant cells carry out photosynthesis to make food, which they use to get energy. Making this food does not create energy. Instead, photosynthesis transforms energy from the Sun into a form that can then be used to power cell growth. Complete the sentence to describe the energy transformation that happens during photosynthesis. When plant cells make food, they transform into _____

- A. chemical energy . . . light energy
- B. light energy . . . chemical energy

Question: 38 of 50

QID: 1181

Marks : 1

Read the passage. Then answer the question below. The tallest sand dunes in North America are in Colorado. In this desert region, the top few inches of sand are usually dry, but the lower layers remain moist year-round. Ord's kangaroo rats spend their entire lives in these dunes. They collect seeds from grasses and prairie sunflowers, and then bury the seeds in the moist layers of sand. Later, the rats come back to eat their buried seeds. The seeds absorb enough moisture from the sand that the kangaroo rats never need to drink water! Which of the following best describes a community in the Great Sand Dunes?



- A. the grasses and the prairie sunflowers
- B. the grasses, the water, and the sand dunes
- C. the Ord's kangaroo rats

Question: 39 of 50

QID: 1238

Marks : 1

Read the passage. Then answer the question. Julia butterflies get most of their nutrients by eating nectar from flowers. But a Julia butterfly cannot get enough salt from nectar to survive. The butterfly finds some of the salt it needs in the tears of a reptile called a spectacled caiman. To get the salt, the butterfly lands on a caiman's head and uses its straw-like mouthparts to drink tears directly from the caiman's eye! The caiman is not helped or harmed by the butterfly. While the butterfly drinks, the caiman often does not move or even blink. Which type of relationship is formed when a Julia butterfly drinks a spectacled caiman's tears?



- A. commensal
- B. mutualistic
- C. parasitic

Question: 40 of 50

QID: 1241

Marks : 1

Imagine a small island named Seafoam Island that is facing the following problem: Seafoam Island is surrounded by a tropical coral reef called Seafoam Reef. Many tourists come to see Seafoam Reef, and Seafoam Island's residents earn money from these visitors. But as tourism has increased, more boats have started anchoring over the reef. The boats' anchors have hit and damaged corals. Scientists on Seafoam Island have projected that if nothing is done to stop anchor damage, most of the coral in Seafoam Reef will eventually be damaged or killed.



The Seafoam Island Government Council has the job of finding a solution to the coral damage problem. However, finding the best solution is not easy. Seafoam Island has several major **interest groups**, or groups of people with important and distinct concerns about the problem. Each group has different requirements for a solution. One major interest group is concerned about the reef's **biodiversity**, or the number of species that live on the reef. This group wants a solution that protects many different species. Another major interest group is concerned about the **ecosystem services** the reef provides, including jobs for Seafoam Island residents. This group wants a solution that keeps residents from losing money from tourism. The council wants to find a solution that will satisfy as many of the major interest groups on Seafoam Island as possible. What should the council do first?

- A. The council should find a solution that will protect as many species on Seafoam Reef as possible
- B. The council should determine each major interest group's requirements for the solution.
- C. The council should figure out which solution will save Seafoam Island the most money.

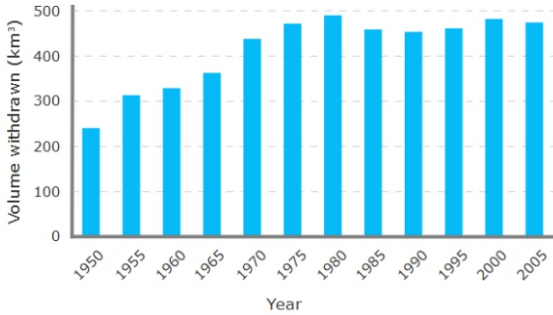
Question: 41 of 50

QID: 1244

Marks : 1

Fresh water is a natural resource that humans use every day. Fresh water has many uses, including drinking, cleaning, taking care of livestock, irrigating farms, and generating electricity. Since 1950, the United States Geological Survey (USGS) has tracked the volume of fresh water used in the United States. The graph below shows the volume of fresh water withdrawn, or taken by humans for any use, in a given year. The data were collected every five years, starting in 1950 and ending in 2005. Select the statement that is supported by the data.

Volume of fresh water withdrawn per year in the U.S.



- A.** The volume of fresh water withdrawn per year increased every five years between 1950 and 2005.
- B.** The volume of fresh water withdrawn per year increased steadily until 1980.

Question: 42 of 50

QID: 1249

Marks : 1

Plastic has the following properties: no fixed crystal structure, not a pure substance, made in a factory, solid. Is plastic a mineral?



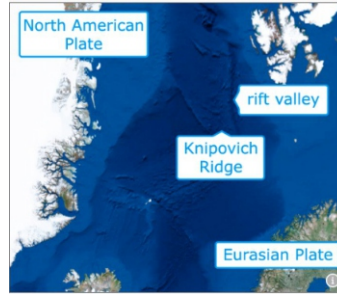
- A.** no
- B.** yes

Question: 43 of 50

QID: 1254

Marks : 1

Read the passage and look at the picture. The Knipovich Ridge and its rift valley mark the northernmost mid-ocean ridge in the Atlantic Ocean. This mid-ocean ridge and rift valley are the result of the Eurasian Plate and the North American Plate moving away from each other. There are several volcanoes in the rift valley, as well as cracks in the crust called hydrothermal vents. At these vents, cold ocean water sinks into the crust, is heated by hot magma, and rises back to the surface. The heated ocean water can reach temperatures up to 700 degrees Fahrenheit! Complete the sentence. The rift valley along the Knipovich Ridge _____ formed at a boundary.



- A.** convergent
- B.** divergent
- C.** transform

Question: 44 of 50

QID: 1256

Marks : 1

Is the following statement true or false?
The biosphere includes all of Earth's rocks and minerals.

- A.** true
- B.** false

Question: 45 of 50

QID: 1257

Marks : 1

An air mass is a large area of Earth's lower atmosphere. An air mass contains air with similar temperatures and similar humidity levels, or amounts of moisture. Which of the following descriptions best fits the definition of an air mass?

- A.** an area above northern Africa that contains dry air with temperatures of about 33°C
- B.** an area above eastern Canada that contains humid air with temperatures between -5°C and 15°C
- C.** an area above the western United States that contains dry air and humid air at roughly the same temperature

Question: 46 of 50

QID: 1259

Marks : 1

The Obed River is in central Tennessee. This region normally receives between three and five inches of rain each year during September, October, and November. Does this passage describe the weather or the climate? Hint: Weather is what the atmosphere is like at a certain place and time. Climate is the pattern of weather in a certain place.



- A. weather B. climate

Question: 47 of 50

QID: 1543

Marks : 1

A natural hazard is an event that occurs naturally and can harm people or the environment. There are many types of natural hazards. To help people plan for the damage natural hazards can cause, scientists make maps to show where and how often these events happen. For example, the map below shows data about tornadoes in the United States. Tornadoes are large columns of rotating air that can form during thunderstorms. Strong tornadoes have high wind speeds and can cause severe damage. Complete the statement. This map does not show _____ of strong tornadoes in each region of the United States between 1950 and 1998. Instead, it shows _____ of strong tornadoes in each region.

- A. the exact numbera range for the number B. a range for the number..... the exact number

Question: 48 of 50

QID: 1248

Marks : 1

How long is a duck? Select the best estimate.

- A. 1 foot B. 1 yard
 C. 1 inch D. 1 mile

Question: 49 of 50

QID: 1542

Marks : 1

Life on Earth comes in many forms, from microscopic bacteria to giant redwood trees. Despite their differences, all living things are made up of the same types of molecules. Many of these molecules contain carbon and are called organic compounds. There are four main groups of organic compounds found in cells. One of these groups is carbohydrates. Which of the following are the primary functions of carbohydrates? Select the two best choices.
 1. to form the rigid cell wall in a plant cell , 2. to store the information needed for an organism's growth and development , 3. to supply energy for a cell's immediate use, 4. to control chemical reactions

- A. 1&4 B. 1&3
 C. 1&2

Question: 50 of 50

QID: 1560

Marks : 1

Carbohydrates come in different sizes. Complex carbohydrates are large compounds made up of many small carbohydrate molecules. These small molecules are sometimes called building blocks. Which of the following are the building blocks of complex carbohydrates?

1. fatty acids
2. simple sugars
3. amino acids
4. starches
5. nucleotides

- A. Simple sugars B. starches
 C. fatty acids & amino acids

--- END OF QUESTION PAPER ---