



Grade 7

OLYMPIAD 2023 - 24

SCIENCE

Total Questions: 50

Total Marks: 50

Time: 1hr

Set: A

Question: 1 of 50

QID: 21518

Marks: 1

Select the correct statement:

- A. In winter, the winds flow from the land to the Ocean
- B. The coastline of India is not vulnerable to cyclones
- C. A cyclone is formed by a very high-pressure area with very high speed winds revolving around it.
- D. None of the above

Question: 2 of 50

QID: 21536

Marks: 1

Read the given statement and reason and choose correct option: Statement: If the distance (d) 500 m is traversed in time (t) 100 seconds then the speed is 5 m/s Reason: Speed is equal to the time taken (t) over the distance traveled (d).

- A. Both Statement and reason are true and is correct explanation of statement.
- B. Both Statement and reason are true, but reason is not the correct explanation of statement.
- C. Statement is true, but reason is false.
- D. Statement is false, but reason is true.

Question: 3 of 50

QID: 21492

Marks: 1

What is the odd one out: Banana, Orange, Grape, Kiwi?

- A. Banana
- B. Orange
- C. Grape
- D. Kiwi

Question: 4 of 50

QID: 21528

Marks: 1

How does a buffer solution help maintain pH stability?

- A. By neutralizing acids only
- B. By neutralizing bases only
- C. By resisting changes in pH
- D. By increasing pH rapidly

Question: 5 of 50

QID: 21506

Marks: 1

Why does a prism split white light into its component colors?

- A. Refraction occurs at different angles for different colors
- B. Prism absorbs certain colors
- C. White light is polarized
- D. Dispersion occurs in the prism

Question: 6 of 50

QID: 21497

Marks: 1

Is the following statement true or false?

The hydrosphere includes all living things on Earth.

- A. True
- B. False

Question: 7 of 50

QID: 21504

Marks: 1

Why do coastal areas experience milder temperature variations compared to inland areas?

- A. Proximity to water moderates temperature
- B. Coastal areas have less sunlight
- C. Coastal areas have more vegetation
- D. Inland areas have more wind

Question: 8 of 50

QID: 21525

Marks: 1

What is the main function of the process of spinning in the production of fibers?

- A. To align fibers in a parallel arrangement
- B. To make fibers softer
- C. To make fibers stronger
- D. To separate fibers from seeds

Question: 9 of 50

QID: 21530

Marks: 1

How does pollination differ from fertilization in the reproductive process of plants?

- A. Pollination involves the transfer of pollen; fertilization is the union of male and female gametes
- B. Pollination is the development of seeds; fertilization is the transfer of pollen
- C. Pollination and fertilization are synonymous terms
- D. Pollination is the fusion of male and female gametes; fertilization is the transfer of pollen

Rearrange the letters to form a meaningful word: SYMOTCH.

- A. MATCHY
- B. CHYMOTS
- C. MYSTOCH
- D. CHYMOST

Why is it important to insulate electrical wires?

- A. To increase current flow
- B. To decrease resistance
- C. To prevent electric shock and fires
- D. To improve conductivity

Why are forests often referred to as the "lungs of the Earth"?

- A. They produce oxygen through photosynthesis
- B. They release carbon dioxide during respiration
- C. They regulate global temperature
- D. They provide habitat for animals

Which traits did *Palaeocypris* have? Select the traits you can observe on the fossil.



This picture shows a fossil of an ancient plant called *Palaeocypris*. This fossil shows one of the plant's branches.

Fossils of *Palaeocypris* have been found in rocks that are more than 150,000,000 years old.

- A. branches
- B. short, thin leaves
- C. branches and short, thin leaves
- D. cones

Question: 14 of 50

QID: 21513

Marks: 1

What is the primary function of the cotton plant's fibers?

- A. Attracting pollinators
- B. Protection against insects
- C. Seed dispersal
- D. Absorbing sunlight

Question: 15 of 50

QID: 21512

Marks: 1

Why do animals in colder climates often have thicker fur?

- A. To look more appealing
- B. To regulate body temperature
- C. To scare off predators
- D. To store food

Question: 16 of 50

QID: 21496

Marks: 1

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

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

Question: 17 of 50

QID: 21499

Marks: 1

Why does a metal spoon feel colder than a wooden spoon?

- A. Metals absorb more heat
- B. Metals have higher thermal conductivity than wood
- C. Metals reflect light
- D. Metals have higher heating point

Question: 18 of 50

QID: 21503

Marks: 1

How does the Earth's rotation influence the direction of winds in different hemispheres?

- A. It has no effect
- B. Causes winds to move east to west
- C. Causes winds to move west to east
- D. Causes winds to move north to south

Question: 19 of 50

QID: 21533

Marks: 1

How do plants obtain nitrogen for their growth?

- A. Nitrogen fixation by bacteria
- B. Absorption from the soil
- C. Uptake from the air
- D. Photosynthesis

Question: 20 of 50

QID: 21493

Marks: 1

A cast-iron pan has a volume of 75 cubic centimeters and a mass of 540 grams. Calculate its density.

_____ grams per cubic centimeter

- A. 7.2
- B. 5.0
- C. 7.8
- D. 5.4

Question: 21 of 50

QID: 21524

Marks: 1

Why does rusting of iron involve both oxygen and water?

- A. Oxygen reacts with iron directly
- B. Water provides the energy for the reaction
- C. Both are necessary for the oxidation process
- D. Rusting is not influenced by oxygen and water

Question: 22 of 50

QID: 21505

Marks: 1

How does the angle of incidence affect the reflection of light?

- A. It has no effect
- B. Higher angles result in more reflection
- C. Lower angles result in more reflection
- D. Higher angles result in more refraction

Question: 23 of 50

QID: 21511

Marks: 1

How does the greenhouse effect contribute to global warming?

- A. It reflects sunlight away
- B. It traps heat in the atmosphere
- C. It cools the Earth's surface
- D. It prevents the formation of clouds

Question: 24 of 50

QID: 21532

Marks: 1

Why is it essential to practice water conservation in agriculture?

- A. To increase soil fertility
- B. To prevent soil erosion
- C. To reduce the demand for freshwater resources
- D. To enhance plant growth

Question: 25 of 50

QID: 21507

Marks: 1

How does the concentration of an acid affect its pH value?

- A. Higher concentration, lower pH
- B. Higher concentration, higher pH
- C. Concentration has no effect on pH
- D. pH is inversely proportional to concentration

Question: 26 of 50

QID: 21526

Marks: 1

Why is the process of digestion essential in obtaining nutrients from food?

- A. To break down food into smaller molecules
- B. To speed up metabolic reactions
- C. To increase the size of food particles
- D. To eliminate waste products

Question: 27 of 50

QID: 21500

Marks: 1

How does the mass of an object affect its potential energy when it is lifted to a higher position?

- A. Mass has no effect
- B. Potential energy increases with mass
- C. Potential energy decreases with mass
- D. Potential energy is inversely proportional to mass

Question: 28 of 50

QID: 21523

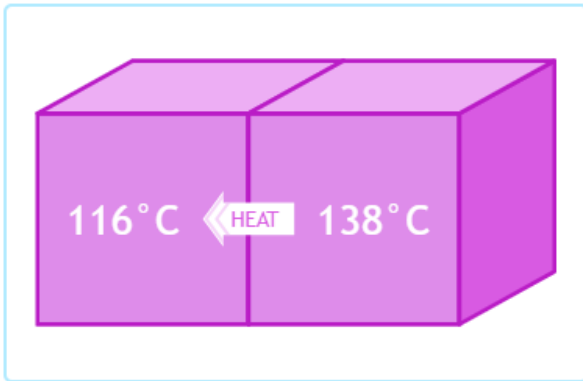
Marks: 1

Why is the pH scale logarithmic?

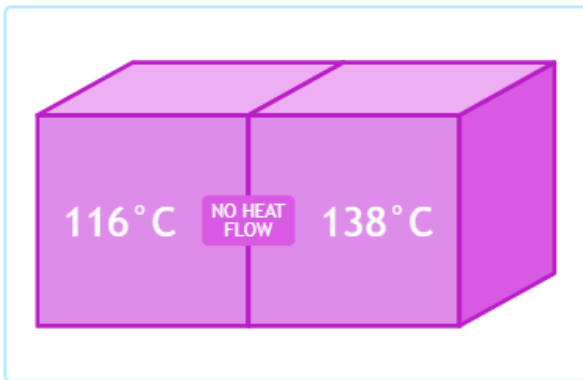
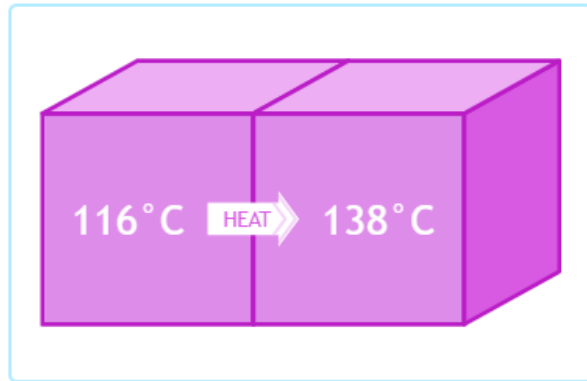
- A. It simplifies calculations
- B. It is based on the properties of logarithms
- C. It makes acids and bases easier to identify
- D. It covers a wide range of values

Two solid blocks are heated to the temperatures shown. The blocks are placed so they touch. Which diagram shows the direction heat will flow?

A



B



C

 A. A C. C B. B D. Both A & B

The text below describes how an area's environment changed over time. Read the text. Then answer the question.



sediment deposited by a fast-flowing river

A fast-flowing river deposited heavy sediment grains along its banks. Light sediment such as mud was carried away by the strong water current.



sediment deposited in a desert

Over thousands of years, the river dried up, and the area became a desert. In the desert, sediment was deposited by wind.

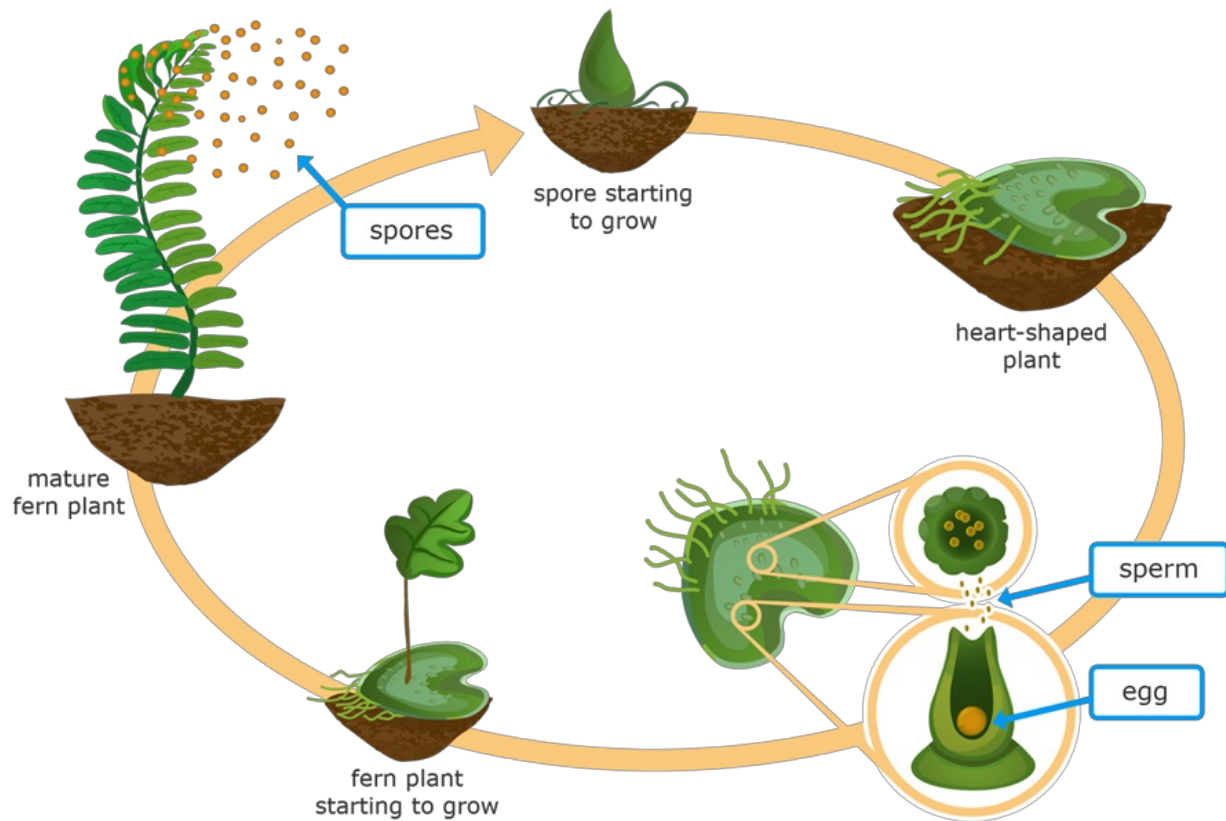
How did the sediment deposited in this area change over time?

- A. First, a layer of sand was deposited. Later, a layer of sand and pebbles was deposited.
- B. First, a layer of sand and pebbles was deposited. Later, a layer of sand and sand was deposited.

Why does a concave lens diverge light rays?

- A. It has a convex shape
- B. It is thicker in the center
- C. It is thinner in the center
- D. It does not affect light rays

This diagram shows the life cycle of a fern.



Mature fern plants have flat leaves. What are fern leaves called?

- A. Spore Cases
- B. Fronds

Question: 33 of 50

QID: 21508

Marks: 1

What happens when an acid is mixed with a base?

- A. Formation of a gas
- B. Formation of water and a salt
- C. Release of light
- D. Explosion

Question: 34 of 50

QID: 21520

Marks: 1

Why does the handle of a cooking pot not get as hot as the pot itself?

- A. The handle is made of a better conductor
- B. The handle is insulated
- C. The handle is farther from the heat source
- D. The handle has a higher specific heat

How do arteries and veins differ in their function in the circulatory system?

- A. Arteries carry oxygenated blood away from the heart; veins carry deoxygenated blood to the heart
- B. Arteries carry deoxygenated blood to the heart; veins carry oxygenated blood away from the heart
- C. Arteries and veins perform the same function
- D. Arteries carry blood within the heart; veins carry blood outside the heart

Why does ice melt faster when salt is added to it?

- A. Salt decreases the freezing point
- B. Salt increases the density
- C. Salt absorbs heat
- D. Salt decreases the melting point

How does the process of sublimation differ from melting?

- A. Sublimation involves a change from solid to gas
- B. Melting involves a change from solid to liquid
- C. Sublimation occurs at higher temperatures
- D. Melting occurs at lower temperatures

Each kidney has about one million filtering units called as?

- A. Sieve tubes
- B. Nephrons
- C. Ureters
- D. Hepatocytes

Why is the small intestine well-suited for nutrient absorption?

- A. It has a large surface area
- B. It secretes digestive enzymes
- C. It is a long tube
- D. It is lined with muscles

Question: 40 of 50

QID: 21515

Marks: 1

Enzyme _____ breaks down starch from the food into simple sugar.

- A. Lipase B. amylase
 C. pepsin D. trypsin

Question: 41 of 50

QID: 21495

Marks: 1

What is the missing word in the sequence: Saturn, Jupiter, Mars, _____, Venus?

- A. Mercury B. Earth
 C. Uranus D. Neptune

Question: 42 of 50

QID: 21510

Marks: 1

What is the chemical change involved in the process of photosynthesis?

- A. $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$ B. $\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
 C. $\text{N}_2 + \text{O}_2 \rightarrow \text{NO}_2$ D. $\text{H}_2\text{SO}_4 + \text{NaOH} \rightarrow \text{H}_2\text{O} + \text{Na}_2\text{SO}_4$

Question: 43 of 50

QID: 21537

Marks: 1

Suppose we take two identical-sized rods (one wooden rod and another iron rod) and wrap each one of them in a piece of paper and heat, these rods with a candle flame. On being heated, the paper around the iron rod does not burn but the one around the wooden rod catches fire. Which of the following is the possible reason for this?

- A. Iron being a good conductor, conducts away heat given to the paper. B. Wood is an insulator, the heat does not get transferred to the wood
 C. Both A & b are Correct D. None of them

Question: 44 of 50

QID: 21534

Marks: 1

- 1-The process where a substance undergoes a permanent change in composition.
2-Layers of Earth's atmosphere, starting from the surface.

1 & 2 are the concepts from

- A. Chemical Change & Force B. Atmosphere & Environmental Issues
 C. Chemical change & Atmospheric Layers D. None of these

Paint has the following properties:

- liquid
- human- made
- no fixed crystal structure
- not a pure substance

Is paint a mineral?

- A. No
- B. Yes
- C. Can't decide
- D. Paint is a pure substance

Lemonade is prepared by mixing lemon juice and sugar in water. We add ice to it to make it cool. Which of the following statements is correct ?

- A. We add ice after dissolving sugar because when we add ice, temperature decreases which affects the solubility of sugar.
- B. We add ice before dissolving sugar as there is no effect on the solubility of sugar.
- C. We add ice after dissolving sugar because when we add ice, temperature increases which affects the solubility of sugar.
- D. There is no effect of adding ice on the solubility of sugar.

Deforestation leads to:

- A. Increased rainfall
- B. Soil erosion
- C. Enhanced biodiversity
- D. Lower carbon dioxide levels

What is the purpose of cellular respiration?

- A. Production of oxygen
- B. Release of energy from food
- C. Synthesis of glucose
- D. Formation of carbon dioxide

What happens to the brightness of a bulb in a circuit when more resistors are added in series?

- A. Brightness increases
- B. Brightness decreases
- C. Brightness remains the same
- D. Brightness depends on the type of resistor

Why is a fuse used in an electric circuit?

- A. To increase current
- B. To decrease resistance
- C. To prevent overheating and fires
- D. To enhance conductivity

-- END OF QUESTION PAPER --