UNICUS OLYMPIADS

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Sample Paper

Class 7

Unicus Global Science Olympiad (UGSO)

Time: 60 minutes

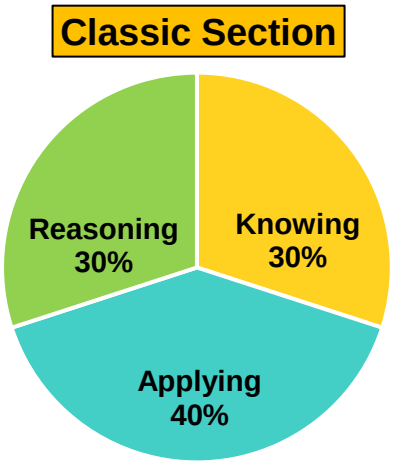
Pattern and Marking Scheme			
Section	**Total Questions**	**Marks per Question**	**Total Marks**
Classic Section	30	1	30
Scholar Section	15	2	30
Grand Total	**45**		60

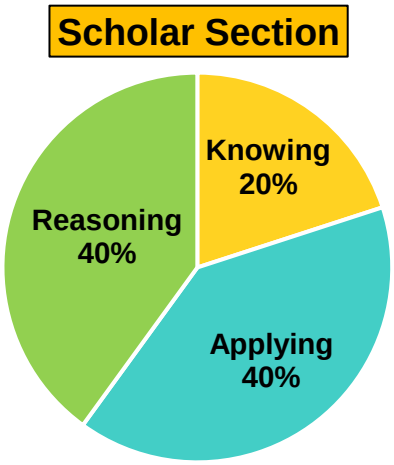
Unicus Global Science Olympiad (UGSO)

The **Unicus Global Olympiad** is organised around two dimensions:

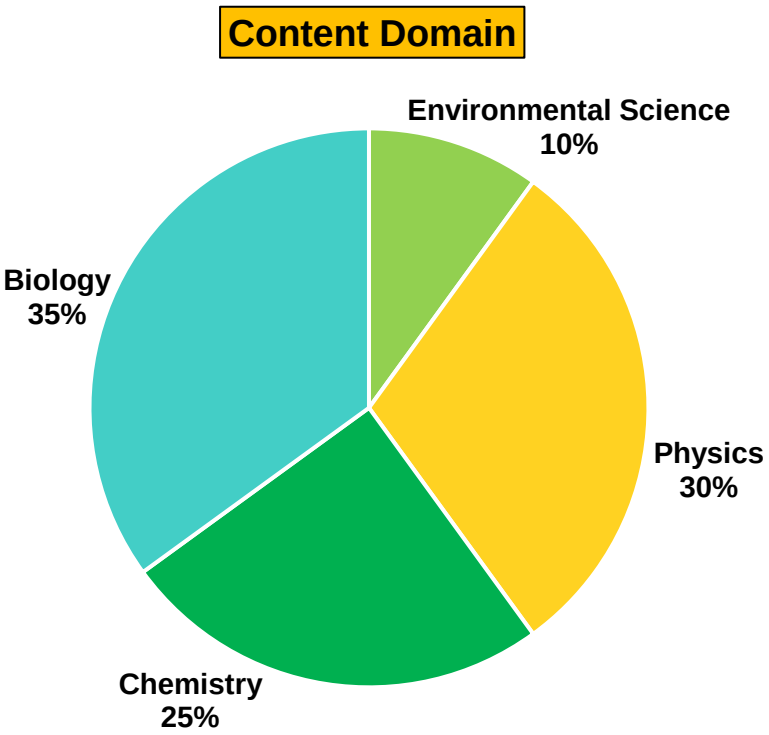
1. Content dimension, specifying the subject matter domains to be assessed
2. Cognitive dimension, specifying the thinking processes to be assessed

Target percentages of the question paper devoted to cognitive domains





Target percentages of the question paper devoted to content domains



For more details, visit https://www.unicusolympiads.com/.

Classic Section (Each Question is 1 Mark)

Cognitive Domain: Knowing	Content Domain: Physics

1. In a vacuum flask, the double-walled design with a vacuum in between helps keep beverages hot. Which mode of heat transfer is primarily minimised by this design?

a. Conduction – The vacuum prevents heat transfer through direct contact.
b. Convection – The lack of air molecules reduces heat transfer by air currents.
c. Radiation – The reflective surfaces inside the flask bounce heat radiation back.
d. Absorption – The vacuum absorbs heat energy, preventing it from reaching the inner wall.

Cognitive Domain: Reasoning	Content Domain: Physics

2. An experiment is set up to determine how different building materials affect indoor temperature during summer. The indoor temperatures of rooms made with brick, wood, glass, and concrete are recorded during a hot day. The room with glass walls has significantly higher temperatures compared to others. What does this suggest about the glass compared to other materials?

A. Glass has a higher thermal insulation.
B. Glass has a lower heat capacity.
C. Glass allows more solar radiation to penetrate.
D. Glass reflects more heat than other materials.

a. Only A
b. Only C
c. Both A and B
d. Both C and D

Cognitive Domain: Applying	Content Domain: Physics

3. A student observes that a swing in the playground completes 30 swings in 3 minutes. If each swing is identical in duration, which type of motion does the swing exemplify, and what is its period?

a. Circular motion; 6 seconds
b. Periodic motion; 10 seconds
c. Linear motion; 6 seconds
d. Periodic motion; 6 seconds

Cognitive Domain: Knowing	Content Domain: Physics

4. You are designing a circuit for a solar-powered garden light. The wire connecting the solar panel to the light must efficiently transmit the generated electricity. Which material would be the most appropriate choice for the wire based on its electrical conductivity and cost-effectiveness?

a. Gold
b. Silver
c. Copper
d. Platinum

Cognitive Domain: Reasoning	Content Domain: Physics

5. A student observes that a nichrome wire connected to a battery glows brighter when dipped into a saltwater solution compared to when dipped in pure water. Which of the following correctly explains this observation?

A. Saltwater has a lower resistance, allowing more current to flow and heat the wire.
B. The saltwater reacts with the nichrome wire, creating a brighter glow.
C. The electric current decomposes the saltwater, releasing energy that heats the wire.
D. Pure water absorbs heat from the wire, making it appear less bright.

a. Only A
b. Only C
c. Both A and C
d. Both C and D

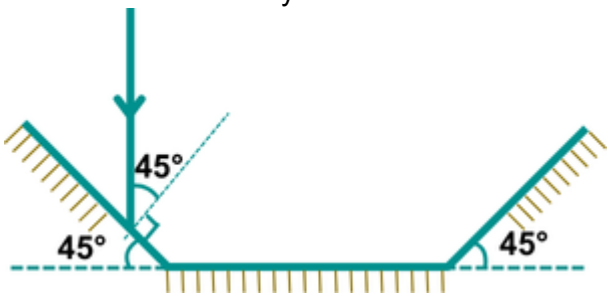
Cognitive Domain: Applying	Content Domain: Physics

6. Imagine two observers, Alice and Bob, standing on opposite sides of a river. Alice sees a large rock partially submerged in the water. From Bob's perspective, the rock will appear:

a. Completely submerged due to the refraction of light bending the light rays further as they exit the water.
b. Closer to the bank than its actual position due to refraction at the water's surface.
c. Larger in size compared to its actual size due to the magnifying effect of water.
d. The rock's position and size will not be affected by the presence of the river.

Cognitive Domain: Reasoning	Content Domain: Physics

7. A ray of light is approaching a set of three mirrors as shown in the diagram. The light ray is approaching the first mirror at an angle of 45 degrees with the mirror surface. How many times will the ray reflect before it exits the system?



a. 1
b. 2
c. 3
d. Infinitely many

Cognitive Domain: Knowing	Content Domain: Physics

8. Sound waves can be reflected. When sound waves bounce off a flat, hard surface, what happens to the sound?

a. The sound becomes louder due to the reflection.
b. The sound changes pitch due to the reflection.
c. The sound can be reflected and cause an echo.
d. The sound wave disappears after reflection.

Cognitive Domain: Applying	Content Domain: Physics

9. A music teacher plays a note at different volumes in a classroom and then in the school auditorium. In which location and why would the sound of the note likely last longer?

a. Classroom, because smaller spaces reflect sound more quickly.
b. Auditorium, due to more space and fewer objects to absorb the sound.
c. Auditorium, because larger spaces amplify sound.
d. Classroom, as less air space concentrates the sound energy.

Cognitive Domain: Reasoning	Content Domain: Physics

10. If a person standing between two parallel buildings shouts and hears the first echo in 2 seconds and the second echo in 3 seconds, how much farther is the second building compared to the first if the speed of sound is 340 m/s?

a. 85 m
b. 340 m
c. 255 m
d. 170 m

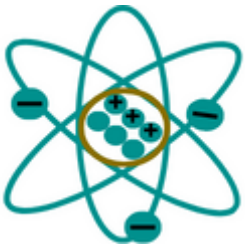
Cognitive Domain: Knowing	Content Domain: Chemistry

11. A science student attempts to write the chemical formula for a compound formed from magnesium and nitrogen. Given that magnesium forms Mg^{2+} ions and nitrogen forms N^{3-} ions, the correct chemical formula for this compound would be:

a. Mg_3N_2
b. Mg_2N_3
c. MgN
d. MgN_2

Cognitive Domain: Applying	Content Domain: Chemistry

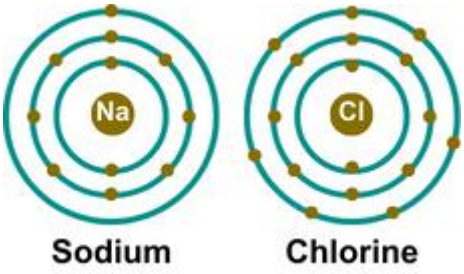
12. You're in science class learning about atoms and subatomic particles. Your teacher shows you a diagram of an atom on the board (shown in the picture below).
Based on the information provided and your knowledge would you be able to determine the approximate mass number of this atom?



a. No, the mass number cannot be determined.
b. Yes, the mass number is 6.
c. Yes, the mass number is 3.
d. Yes, the mass number is 9.

Cognitive Domain: Applying	Content Domain: Chemistry

13. In a classroom experiment, students observe that when sodium (Na) is combined with chlorine (Cl), a white solid forms. They are provided with the electron shell diagrams for sodium and chlorine before the reaction (given below).
Based on the information provided, what conclusion can be drawn about the type of bond formed between sodium and chlorine?



a. No bond is formed; the white solid is a mixture.
b. A covalent bond is formed by sharing electrons.
c. An ionic bond is formed by the transfer of electrons from sodium to chlorine.
d. We cannot predict the type of bond that forms between atoms.

Cognitive Domain: Knowing	Content Domain: Chemistry

14. Burning heartburn medication (antacid) typically contains calcium carbonate ($CaCO_3$). When an antacid reacts with excess stomach acid (hydrochloric acid, HCl), what is the majority product besides water?

a. Calcium chloride ($CaCl_2$)
b. Carbon dioxide (CO_2)
c. Sodium bicarbonate ($NaHCO_3$)
d. Sodium Hydroxide (NaOH)

Cognitive Domain: Applying	Content Domain: Chemistry

15. You're a baker and notice your bread isn't rising as well as usual. You have access to some salts and compounds at your home. Which substance, if added to your flour, would MOST LIKELY improve the rise of your bread?

a. Sodium chloride to make the dough rise
b. Sodium bicarbonate and acid salts to produce carbon dioxide gas
c. Magnesium sulphate to interact with the yeast
d. Calcium chloride to provide additional food for the yeast, stimulating gas production

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Cognitive Domain: Reasoning	Content Domain: Chemistry

16. In science class, you're learning about acids and bases. Your teacher gives you the following list of properties:

I. Creates a sour taste in food.
II. Creates a bitter taste in food.
III. Changes the colour of red litmus paper to blue.
IV. Changes the colour of blue litmus paper to red.
V. Can be very corrosive.
VI. Can conducts electricity in solution

Identify which properties belong to acids, bases, or both and select the accurate option.

	Only HNO_3	Only KOH	Both HNO_3 and KOH
A.	I, IV, V	II, III	VI
B.	II, III	I, IV, V	VI
C.	II, III	I, IV	V, VI
D.	I, IV	II, III	V, VI

a. A
b. B
c. C
d. D

Cognitive Domain: Applying	Content Domain: Chemistry

17. Food spoilage is a common example of a chemical change. It often involves the growth of microorganisms like bacteria and fungi that break down the food through chemical reactions. Scientists are developing new methods to preserve food by creating packaging materials that limit the availability of oxygen.
How does limiting oxygen availability help prevent food spoilage?

a. It slows down the rate of chemical reactions caused by the microbes.
b. It removes the water content from the food, making it inhospitable for microbes.
c. It prevents the food from drying out, maintaining its texture.
d. It kills the microbes directly by suffocating them.

Cognitive Domain: Knowing	Content Domain: Biology

18. Consider the following statements and choose if they are true or false.

1. Most dietary diseases are contagious and can be easily spread from person to person.
2. Fortified foods are a reliable way to ensure you get enough essential vitamins and minerals.
3. All dietary diseases are caused by unhealthy eating habits.

a. 1 - True, 2 - True, 3 - False
b. 1 - False, 2 - True, 3 - False
c. 1 - False, 2 - True, 3 - True
d. 1 - True, 2 - True, 3 - True

Cognitive Domain: Knowing	Content Domain: Biology

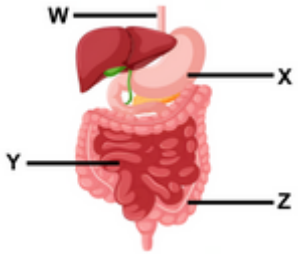
19. Perry takes a bite of bread and doesn't find it particularly sweet. But after chewing on it for a while, he notices a sweeter taste. Why does the bread taste sweeter the longer he chews?

A. Sugar is added through his saliva as he chews.
B. The action of chewing is activating the sweetness receptors on his tongue.
C. Amylase in saliva is breaking down the bread into simpler sugars that taste sweeter.

a. A only
b. B only
c. C only
d. A and B only

Cognitive Domain: Applying	Content Domain: Biology

20. Look at the diagram showing the human digestive system. One of the organs, labelled Y, plays a vital role in digestion. Imagine a patient has surgery where part of organ Y is removed. Unfortunately, the patient experiences weight loss in the weeks following the surgery. Why might removing part of organ Y cause weight loss?



a. Organ Y stores food. With less of it, there's less space to store food.
b. Organ Y controls appetite. Removing part of it disrupts appetite regulation, causing weight loss.
c. Organ Y produces all the digestive juices needed to break down food. Without it food won't be broken down properly, leading to weight loss.
d. Organ Y absorbs nutrients from food. With less of it, the body might not absorb enough nutrients, leading to weight loss.

Cognitive Domain: Knowing	Content Domain: Biology

21. Your class is participating in a health challenge, and one suggestion is to get a flu vaccine every year. Why is getting a flu vaccine an effective preventive measure against respiratory illness?

a. The vaccine directly kills the influenza virus.
b. The vaccine introduces a weakened or inactive form of the virus, training the immune system to fight it.
c. The vaccine boosts overall immunity, protecting against all types of respiratory illnesses.
d. The vaccine reduces the severity of symptoms if you do contract the flu.

Cognitive Domain: Applying	Content Domain: Biology

22. You're at a track and field event cheering on your friend who's about to compete in a 100-meter sprint. Their body will need energy throughout the entire race, from the starting burst to crossing the finish line.

Which of the following processes are occurring in your friend's muscle cells to provide energy?

A. Breaking down glucose for immediate energy without oxygen
B. Taking in oxygen for long-term energy production
C. Storing glucose for later use

a. A, B and C
b. A and C only
c. B only
d. A and B only

Cognitive Domain: Reasoning	Content Domain: Biology

23. Some students visited a wildlife museum to learn about respiration in different animals. One student recorded their observations in the table below but seems to have some mistake. Identify the incorrect pairing of organism, respiratory structure, and function and choose the option that replaces it with an accurate example.

	Organism	Respiratory Structure	Function
A.	Fish	Gills	Absorb oxygen from water and release carbon dioxide
B.	Sparrow	Tracheal tubes	Deliver oxygen directly to body tissues and remove carbon dioxide
C.	Frog (Adult)	Lungs	Take in oxygen from the air and release carbon dioxide
D.	Snake	Moist skin	Exchange gases directly with the environment

a. Sparrow: Grasshopper, Snake: Earthworm
b. Sparrow: Crabs, Snake: Earthworm
c. Frog: Humans, Snake: Leeches
d. Sparrow: Cockroach, Frog: Humans

Cognitive Domain: Applying	Content Domain: Biology

24. A group of students set up an experiment to observe which flowers in their school garden attracted the most bees. They noted the colour, shape, and size of each flower type. If bees predominantly visit deep, blue flowers with a tubular shape, what could be a potential reason for their preference?

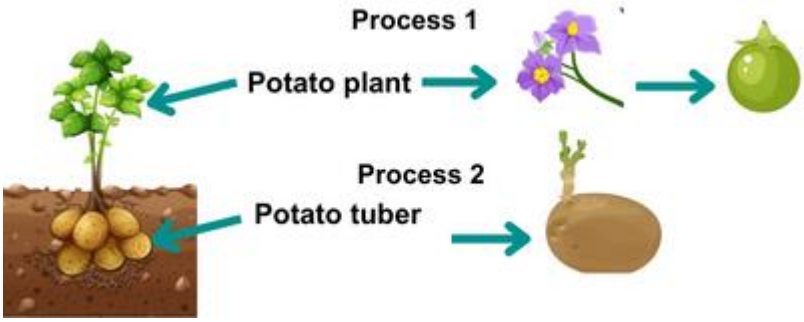
A. Tubular shapes hold more nectar, which attracts bees.
B. Bees can see blue more clearly than other colours.
C. Deep flowers provide better protection against predators.

a. A only
b. A and B only
c. B and C only
d. A, B and C

Cognitive Domain: Reasoning	Content Domain: Biology

25. A white potato plant can reproduce through two methods as shown in the illustration below. Considering these propagation methods, which of the following statements is true about the potatoes grown from these processes?

A. Potatoes grown via process 1 will have a higher yield compared to those grown from process
B. Potatoes grown via process 2 are more likely to retain the traits of the parent plant.
C. Potatoes grown via process 1 will produce flowers more readily.
D. Process 2 is a faster and more reliable propagation method.



a. A and B only
b. B, C and D only
c. B and D only
d. D only

Cognitive Domain: Applying	Content Domain: Environmental Science

26. You're watching a documentary about a daring mountain rescue. The team needs to use a helicopter to reach a climber stranded at a high altitude, but their chopper can't fly high enough.
Why do helicopters struggle to operate effectively at altitudes above 6,000 meters?

a. They run out of fuel faster at high altitudes.
b. Helicopter doors can't be opened safely at such heights.
c. The air is too cold and freezes the helicopter's controls.
d. The thin air at high altitudes makes it harder for the helicopter blades to generate lift.

Cognitive Domain: Reasoning	Content Domain: Environmental Science

27. Yuki is planning a day at the beach and is curious about the wind patterns. A local weather station collected data on temperature and wind speed over a 24-hour period given in the table below.
Based on this data, what can she expect regarding sea and land breezes at the beach?

Time of Day	Coastal temperature (°C)	Sea temperature (°C)	Wind Speed (km/h)
6:00	18	27	5
12:00	32	27	20
18:00	25	25	15
0:00	20	25	10

a. Strongest sea breeze at 12:00, strongest land breeze at 00:00.
b. Strongest sea breeze at 12:00, no significant land breeze.
c. Strongest sea breeze at 18:00, strongest land breeze at 06:00.
d. There's no clear pattern of sea or land breezes throughout the day.

Cognitive Domain: Knowing	Content Domain: Environmental Science

28. Climate on Earth has naturally changed throughout history. What is the main difference between these historical changes and the current trend of climate change?

a. The current change is happening much faster than most historical changes.
b. The current change is happening much slower.
c. The current change is primarily caused by volcanic eruptions.
d. The current change only affects land temperatures and not ocean temperatures.

Cognitive Domain: Applying	Content Domain: Environmental Science

29. You're planning a hike and check the weather forecast. The report says 100% relative humidity. What does 100% relative humidity indicate about the air?

A. The air is completely dry.
B. The air is saturated with water vapour and can't hold any more moisture.
C. There's a guaranteed chance of rain.

a. A only
b. B only
c. A and C only
d. C only

Cognitive Domain: Reasoning	Content Domain: Environmental Science

30. You're planning a beach vacation in November. You've narrowed it down to three locations given in the table below.

Based on climate factors, which location is most likely to have a pleasant weather suitable for a beach vacation in November?

	Latitude	Ocean currents	Prevailing winds
Location A	South Pole	Deep ocean currents	Very light winds or calm
Location B	Higher latitude	Cold currents	Westerly winds
Location C	Near equator	Warm currents	Easterly winds

a. Location A
b. Location B
c. Location C
d. Location A or C

Scholar Section (Each Question is 2 Marks)

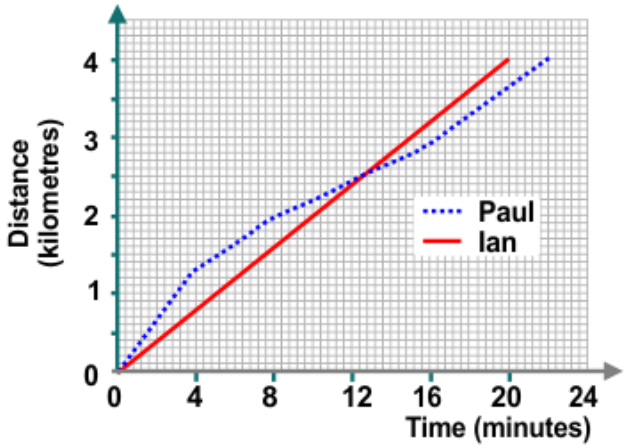
Cognitive Domain: Applying	Content Domain: Physics

31. A manufacturer is developing a new type of cooking pan designed to distribute heat evenly across its surface. Which characteristic of the pan's material should the manufacturer prioritise to achieve this goal, and why?

a. Low specific heat capacity, to allow for rapid temperature changes when cooking
b. Low thermal conductivity, to retain heat and prevent hot spots
c. High specific heat capacity, to absorb and distribute heat evenly
d. High thermal conductivity, to transfer heat quickly and evenly

Cognitive Domain: Reasoning	Content Domain: Physics

32. Ian and Paul took part in a 4 km race.
Ian ran the race at a steady speed.
A. What was Ian's average speed?
B. At what time were both boys level?



a. A - 0.033 m/s, B - 12 min
b. A - 0.033 m/s, B - 12.4 min
c. A - 12 km/h, B - 12 min
d. A - 12 km/h, B - 12.4 min

Cognitive Domain: Applying	Content Domain: Physics

33. Consider the circuit with two identical bulbs (Bulb 1 and Bulb 2) connected in series to a 6-volt battery, and then the same bulbs connected in parallel to the same battery. Which of the following statements is true?

a. Bulb 1 is brighter in series because it receives more voltage.
b. Bulb 2 is dimmer in parallel because it receives less current.
c. Bulbs are brighter in parallel because they each receive full voltage.
d. Bulbs consume more power in series due to higher resistance.

Cognitive Domain: Knowing	Content Domain: Physics

34. In a science museum, a concave mirror is used to project the image of a historical artifact. The mirror displays a much larger image when the artifact is placed close to the mirror, but still beyond the focal point. What happens to the image if the artifact is moved very close to the mirror, at a point between the focal point and the mirror surface?

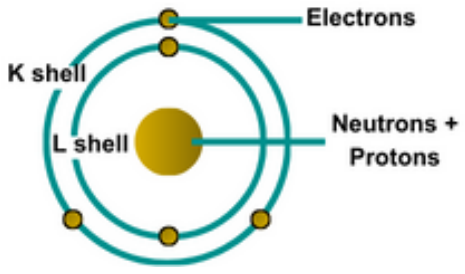
a. The image becomes smaller and inverted.
b. The image disappears.
c. The image becomes virtual, erect, and larger.
d. The image becomes real, erect, and smaller.

Cognitive Domain: Reasoning	Content Domain: Chemistry

35. An unknown element (Element X) was subjected to various experiments to understand its atomic structure. The findings are summarised in the table below.
Analyse the following atomic models. Choose the model that best represents the Element X.

Central Nucleus	Orbit	Number of shells	Atomic Number
Positively charged and neutral particles present	Negatively charged particles present	2	5

a.



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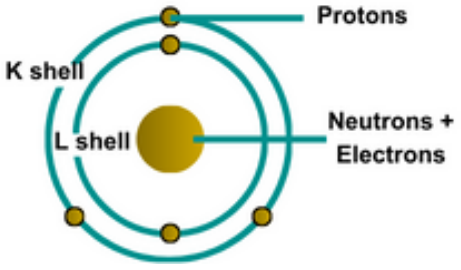

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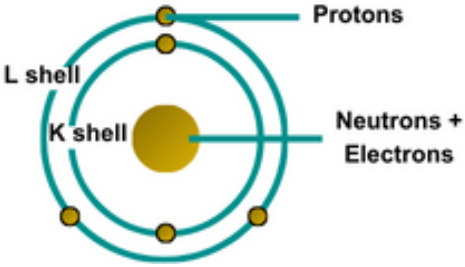

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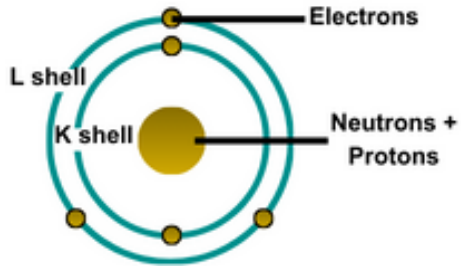
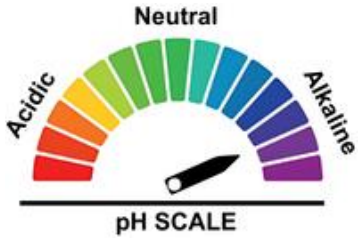


Cognitive Domain: Applying	Content Domain: Chemistry

36. During a science experiment, you have two solutions: Solution A with a pH of 2 and Solution B with a pH of 11. You're curious about what happens if you mix them together so you carefully combine Solution A and Solution B. Select the pH scale that most accurately indicates the resulting mixture's pH.

a.



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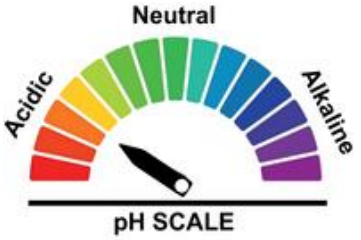

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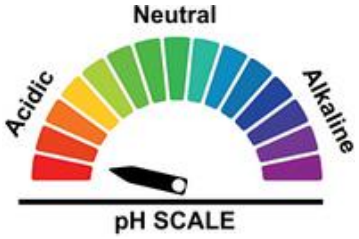

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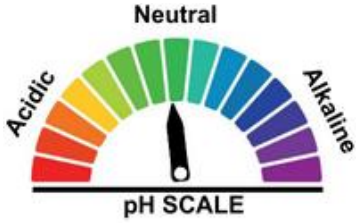
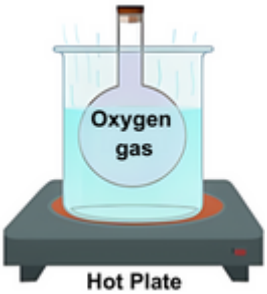
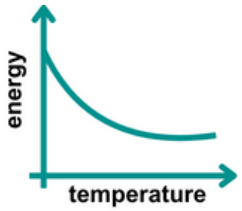


Cognitive Domain: Reasoning	Content Domain: Chemistry

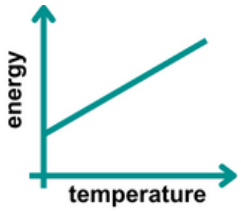
37. You are working in a lab studying the effects of physical changes on gases. In an experiment, you heat a sealed container filled with oxygen gas. You expect the thermal energy of the gas molecules to change due to the heating.
Which graph best represents the change in the energy of the oxygen molecules as the temperature of the gas increases?



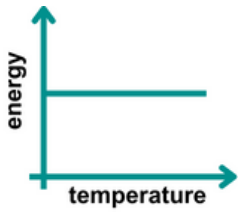
a.



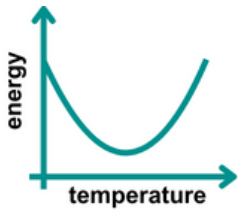
b.



c.

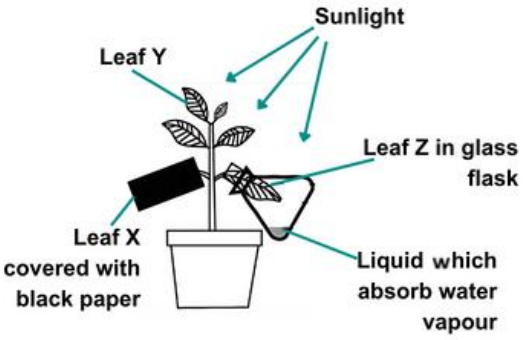


d.



Cognitive Domain: Reasoning	Content Domain: Biology

38. A student performed an experiment to investigate photosynthesis. The setup involved a plant with leaves labelled X, Y, and Z. These leaves were initially confirmed to have no starch. The plant was then watered and placed in a sunny location for several days. Finally, the student tested the leaves for the presence of starch.
Based on your knowledge and the information provided, which of the following accurately predicts the results of the starch test?



a. Starch in leaf X - Absent, Starch in leaf Y - Present, Starch in leaf Z - Present
b. Starch in leaf X - Absent, Starch in leaf Y - Present, Starch in leaf Z - Absent
c. Starch in leaf X - Present, Starch in leaf Y - Absent, Starch in leaf Z - Present
d. Starch in leaf X - Present, Starch in leaf Y - Absent, Starch in leaf Z - Absent

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Cognitive Domain: Applying	Content Domain: Biology

39. You're in biology class learning about respiration. Your teacher asks you about how oxygen gets from the air we breathe into our bloodstream.
Which of the following correctly describes the process and movement of oxygen in the lungs?

	Movement of oxygen	Process
A.	Lungs → Blood	Osmosis
B.	Blood → Lungs	Osmosis
C.	Lungs → Blood	Diffusion
D.	Blood → Lungs	Diffusion

a. A
b. B
c. C
d. D

Direction (for questions 40 to 42): Carefully read through the passage and answer the following questions.

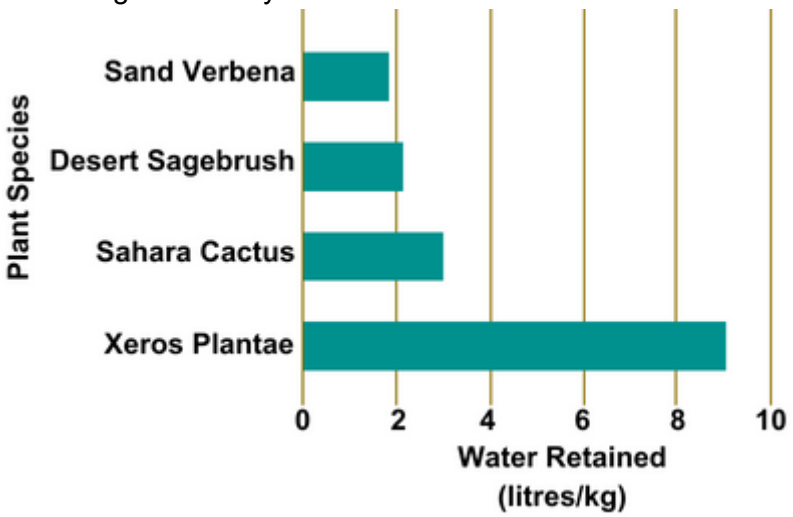
Remarkable Adaptations: How Animals and Plants Survive in Extreme Environments

In the depths of the Amazon Rainforest, where the sunlight struggles to pierce the thick canopy, researchers have discovered a unique species of frog, *Cryptobatrachus mysticus*, which has developed an extraordinary ability to see in near darkness. This adaptation allows it to hunt insects that other predators cannot, giving it a significant survival advantage. Meanwhile, in the arid Sahara Desert, the Xeros Plantae, a newly identified cactus species, shows an incredible water retention capability. Scientists have measured its moisture levels

and found that it can store up to three times its weight in water. The data in graph given below illustrates the comparative water retention abilities of Xeros Plantae against other desert plants during a drought period.

Further north, in the icy realms of the Arctic, the Arctic fox has been observed using its white fur as camouflage against predators and to sneak up on prey during the heavy snowfalls of winter. This evolutionary trait enhances its stealth and survival rates in a harsh landscape where visibility is often near zero.

These examples highlight the diverse ways in which organisms adapt to their environmental challenges, enhancing their ability to survive and thrive under extreme conditions.



Cognitive Domain: Knowing	Content Domain: Biology

40. The white fur of the Arctic fox is an example of:

a. Learned behaviour passed down through generations.
b. A response to a specific environmental change in the fox's lifetime.
c. A physical adaptation that provides a survival advantage.
d. A random change that has no impact on the fox's survival.

Cognitive Domain: Applying	Content Domain: Biology

41. If a new environmental preservation area in the Amazon is being planned, which of the following adaptations should be most considered to ensure the survival of native species like *Cryptobatrachus mysticus*?

a. Enhancing sunlight penetration through the canopy.
b. Reducing the humidity of the environment.
c. Introducing new insect species as additional food sources
d. Maintaining the natural darkness of the habitat.

Cognitive Domain: Reasoning	Content Domain: Biology

42. If the amount of rainfall in the Sahara decreases by 50% over the next decade, which of the following plants would show the greatest decrease in water retention according to the data provided?

a. Sand Verbena
b. Xeros Plantae
c. Sahara Cactus
d. Desert Sagebrush

Direction (for questions 43 to 45): Carefully read through the passage and answer the following questions.

Understanding the Science of Storms and Cyclones

In the early hours of Thursday morning, the Meteorological Department issued a warning about an impending cyclonic storm, expected to hit the coastal regions by the weekend. The atmospheric pressure recorded over the sea near the coast showed a significant drop, indicating the potential formation of a cyclone. Weather experts are monitoring the situation closely and have provided the data (given in the table below) to illustrate the brewing storm.

Experts explain that cyclones are large air masses rotating around a strong centre of low atmospheric pressure. They are formed over warm tropical oceans, and are driven by heat from the sea. The energy of the storm comes from the condensation of water vapor in the massive clouds and rain systems surrounding the low-pressure centre. This process is further amplified by the Earth's rotation, which steers the cyclone towards the coast.

Date	Location	Atmospheric Pressure (Pa)	Wind Speed (km/h)
May-08	Northern Coast	1002	45
May-09	Northern Coast	995	55
May-10	Northern Coast	990	65
May-11	Central Coast	980	75
May-12	Central Coast	970	85

Cognitive Domain: Knowing	Content Domain: Environmental Science

43. Which scientific concept explains the influence of the Earth's rotation on the direction of the cyclone?

a. Gravitational pull
b. Coriolis effect
c. Centrifugal force
d. Thermal convection

Cognitive Domain: Applying	Content Domain: Environmental Science

44. Based on the passage, why might the cyclone weaken once it reaches the central coast?

a. The Earth's rotation will no longer influence its movement.
b. Colder temperatures over land will disrupt the condensation process.
c. The supply of warm ocean water to fuel the storm will be cut off.
d. The atmospheric pressure will begin to increase rapidly.

Cognitive Domain: Reasoning	Content Domain: Environmental Science

45. Analyse the rate of change in atmospheric pressure from May 8 to May 12. Which statement best describes this trend?

a. The atmospheric pressure remains constant.
b. The decrease in atmospheric pressure is irregular and unpredictable.
c. The atmospheric pressure drops consistently by 7 hPa each day.
d. The rate of decrease in atmospheric pressure accelerates each day.

Answer Key

1.	a	**2.**	b	**3.**	d	**4.**	c	**5.**	a	**6.**	b	**7.**	b
8.	c	**9.**	b	**10.**	d	**11.**	a	**12.**	b	**13.**	c	**14.**	a
15.	b	**16.**	d	**17.**	a	**18.**	b	**19.**	c	**20.**	d	**21.**	b
22.	d	**23.**	a	**24.**	d	**25.**	c	**26.**	d	**27.**	a	**28.**	a
29.	b	**30.**	c	**31.**	d	**32.**	d	**33.**	c	**34.**	c	**35.**	d
36.	c	**37.**	b	**38.**	a	**39.**	c	**40.**	c	**41.**	d	**42.**	a
43.	b	**44.**	c	**45.**	d								