7. Living and non living Things

TEACHING TASK (Page 19 – 22)

Multiple Choice Questions

1) Which of the following is a characteristic of rocks?

A) Ability to reproduce B) Response to stimuli C) Growth D) Cellular organization

Answer: None (Corrected Answer: None of the options are characteristics of rocks)

Solution: Rocks are non-living entities and do not exhibit characteristics of living things such as reproduction, response to stimuli, growth, or cellular organization. The question seems to lack a correct option, but based on the choices, none apply to rocks.

2) Which of the following organisms does NOT exhibit movement?

A) Cheetah B) Oak tree C) Eagle D) Fish

Answer: B) Oak tree

Solution: While animals like cheetahs, eagles, and fish exhibit active movement (running, flying, swimming), oak trees, being plants, are generally stationary and do not exhibit locomotion. Plants may show passive movements (e.g., tropisms), but they lack voluntary movement.

3) What is a defining characteristic of living things?

A) Inability to adapt B) Lack of metabolism C) Cellular organization D) Inorganic structure

Answer: C) Cellular organization

Solution: Living things are characterized by cellular organization, meaning they are composed of one or more cells, which are the basic units of life. The other options (inability to adapt, lack of metabolism, inorganic structure) are not characteristics of living organisms.

4) What process do animals primarily use for energy acquisition?

A) Respiration B) Fermentation C) Photosynthesis D) Predation

Answer: A) Respiration

Solution: Animals primarily acquire energy through cellular respiration, a process that breaks down glucose to produce ATP, the energy currency of cells. Photosynthesis is primarily used by plants, fermentation is a

secondary process, and predation is a means of obtaining food, not energy production.

5) Which of the following organisms exhibits growth?

A) Rock B) Cloud C) Oak tree D) Water

Answer: C) Oak tree

Solution: Growth is a characteristic of living organisms. Oak trees, being plants, exhibit growth throughout their lives. Rocks, clouds, and water are non-living and do not grow.

6) What is a key characteristic that distinguishes living things from non-living things?

A) Reproduction B) Resistance to change C) Inorganic composition D) Stability

Answer: A) Reproduction

Solution: Reproduction, the ability to produce offspring, is a key characteristic of living things, distinguishing them from non-living entities, which cannot reproduce. The other options do not define living organisms.

7) What characteristic is common to both plants and animals?

A) Ability to reproduce sexually B) Requirement for sunlight C) Lack of response to stimuli D) Non-cellular organization

Answer: None (Corrected Answer: Growth or Metabolism)

Solution: Both plants and animals exhibit growth and metabolism. However, among the given options, none accurately describe a shared characteristic. Sexual reproduction is not universal (some plants reproduce asexually), sunlight is not required by animals, response to stimuli is present in both, and both have cellular organization.

8) Which of the following is a characteristic of living things?

A) Lack of response to stimuli B) Inorganic composition C) Ability to adapt D) Immobility

Answer: C) Ability to adapt

Solution: The ability to adapt to environmental changes is a characteristic of living organisms, enabling survival and reproduction. The other options are not typical of living things.

9) What do plants primarily use for energy production?

A) Oxygen B) Glucose C) Nitrogen D) Carbon dioxide

Answer: None (Corrected Answer: Sunlight)

Solution: Plants primarily use sunlight for energy production through photosynthesis, where carbon dioxide and water are converted into glucose and oxygen. None of the given options directly state sunlight, but carbon dioxide (D) is a key input in the process.

10) What is a distinguishing feature of living organisms?

A) Lack of growth B) Inorganic structure C) Reproduction D) Absence of response to stimuli

Answer: C) Reproduction

Solution: Reproduction is a hallmark of living organisms, distinguishing them from non-living things. The other options do not describe living characteristics.

Advanced Level Questions

More than One Answer Type

11) What is the process by which living things do NOT maintain a stable internal environment?

a) Homeostasis b) Metabolism c) Growth d) Adaptation

Answer: b) Metabolism, c) Growth, d) Adaptation

Solution: Homeostasis is the process by which living organisms maintain a stable internal environment. Metabolism, growth, and adaptation are essential processes but do not directly maintain internal stability.

12) Which is NOT characteristic of living things involves the process of using energy to perform various functions?

a) Growth b) Reproduction c) Metabolism d) Response to stimuli

Answer: None (Corrected Answer: All are characteristics, but metabolism directly involves energy use)

Solution: Metabolism is the process that directly involves using energy to perform functions like growth, reproduction, and response to stimuli. All options are characteristics of living things, but the question's phrasing suggests metabolism is the primary process for energy use.

13) Which of the following is NOT an example of a non-living thing?

a) Bacteria b) Mountain c) Rose bush d) Goldfish

Answer: a) Bacteria, c) Rose bush, d) Goldfish

Solution: Bacteria, rose bushes, and goldfish are living organisms, exhibiting characteristics like growth and metabolism. Mountains are non-living.

Reason and Assertion Type

14) Assertion: Living things require energy to perform various functions.

Reason: Metabolism, the process of acquiring and utilizing energy, is essential for sustaining life.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Living things require energy for functions like growth and reproduction, and metabolism is the process that provides this energy, making the reason a correct explanation.

15) Assertion: Plants and animals share some characteristics with humans.

Reason: Both plants and animals exhibit growth and reproduction, albeit through different mechanisms.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Plants, animals, and humans share characteristics like growth and reproduction, though their mechanisms differ (e.g., photosynthesis in plants vs. predation in animals).

16) Assertion: Rocks do not possess the characteristics of living things.

Reason: Rocks do not exhibit growth, reproduction, response to stimuli, or cellular organization, which are defining features of living organisms.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Rocks lack the characteristics of living things, as they do not grow, reproduce, respond to stimuli, or have cellular organization, making the reason accurate.

Matrix Matching Type

17) Match Column A with Column B:

1. Movement – C. Unlike animals, plants generally do not exhibit this characteristic.

2. Energy Acquisition – D. Living beings need energy to perform various functions.

3. Growth – A. Both plants and animals experience this process, albeit with differences.

4. Reproduction – B. Plants reproduce through seeds, spores, or vegetative parts.

Solution: Movement is limited in plants, energy acquisition is essential for all living beings, growth is common but differs between plants and animals, and reproduction in plants involves seeds, spores, or vegetative parts.

Comprehension Type

18) Questions:

i. What fundamental characteristic distinguishes living organisms from inanimate objects?

Answer: Cellular organization, growth, reproduction, metabolism, and response to stimuli distinguish living organisms from inanimate objects.

Solution: The passage lists these as fundamental characteristics of life.

ii. Explain the significance of reproduction in living organisms.

Answer: Reproduction ensures the continuation of species and fosters biodiversity by producing offspring.

Solution: The passage emphasizes that reproduction perpetuates species beyond individual lifespans.

iii. Why is metabolism integral to life, according to the passage?

Answer: Metabolism harnesses energy to sustain vital functions and maintain cellular processes.

Solution: The passage describes metabolism as the sum of biochemical processes that provide energy for life.

LEARNERS TASK (Page 22 - 25)

Multiple Choice Questions

1) Which of the following is a characteristic of living things?

A) Movement B) Inertia C) Stability D) Density

Answer: A) Movement

Solution: Movement, including locomotion in animals or tropisms in plants, is a characteristic of living things. Inertia, stability, and density are properties of non-living objects.

2) What distinguishes living things from non-living things?

A) Lack of response to stimuli B) Ability to reproduce C) Inorganic composition D) Resistance to growth

Answer: B) Ability to reproduce

Solution: Reproduction is a key feature of living organisms, unlike non-living things, which lack this ability.

3) Which of the following is NOT a characteristic of living things?

A) Growth B) Reproduction C) Inanimate structure D) Metabolism

Answer: C) Inanimate structure

Solution: Inanimate structure implies a non-living nature, whereas growth, reproduction, and metabolism are characteristics of living things.

4) What process do living things use to produce energy?

A) Digestion B) Photosynthesis C) Combustion D) Evaporation

Answer: B) Photosynthesis (for plants), A) Digestion (for animals, indirectly via respiration)

Solution: Plants use photosynthesis to produce energy-rich glucose, while animals use digestion to obtain nutrients, which are then converted to energy via respiration. The question's context suggests photosynthesis for plants.

5) Which of the following is a non-living thing?

A) Tree B) Rock C) Dog D) Bacteria

Answer: B) Rock

Solution: Rocks are non-living, while trees, dogs, and bacteria are living organisms.

6) What characteristic distinguishes living organisms from non-living objects?

A) Ability to adapt B) Rigidity C) Inorganic composition D) Immobility

Answer: A) Ability to adapt

Solution: Adaptation to environmental changes is a hallmark of living organisms, unlike non-living objects.

7) Which of the following is NOT a characteristic of living things?

A) Response to stimuli B) Metabolism C) Inertia D) Growth

Answer: C) Inertia

Solution: Inertia is a property of non-living matter, not a characteristic of living things.

8) Which of the following is true about plants?

A) They cannot reproduce B) They do not have cellular organization C) They require sunlight for energy D) They are non-living

Answer: C) They require sunlight for energy

Solution: Plants require sunlight for photosynthesis to produce energy. They can reproduce, have cellular organization, and are living organisms.

9) What do plants use to produce food?

A) Oxygen B) Carbon dioxide C) Water D) Sunlight

Answer: D) Sunlight

Solution: Sunlight is the primary energy source for photosynthesis, where plants convert carbon dioxide and water into glucose.

10) What characteristic is shared by both plants and animals?

A) Ability to photosynthesize B) Movement C) Hibernation D) Chlorophyll production

Answer: None (Corrected Answer: Growth or Metabolism)

Solution: Neither photosynthesis nor chlorophyll production is shared by animals, movement is limited in plants, and hibernation is specific to some animals. Growth or metabolism would be the correct shared characteristic.

Advanced Level Questions

More than One Answer Type

11) Which of the following is a characteristic of living things?

a) Growth b) Reproduction c) Inorganic composition d) Response to stimuli

Answer: a) Growth, b) Reproduction, d) Response to stimuli

Solution: Growth, reproduction, and response to stimuli are characteristics of living things. Inorganic composition is not.

12) Which characteristic distinguishes living things from non-living things by their ability to NOT create offspring?

a) Growth b) Reproduction c) Metabolism d) Response to stimuli

Answer: None (Corrected Answer: b) Reproduction)

Solution: Reproduction is the characteristic that involves creating offspring, distinguishing living from non-living things. The question's phrasing is unclear, but reproduction is the key differentiator.

13) Which of the following is NOT a non-living thing?

a) Oak tree b) Chair c) Dog d) Rose bush

Answer: a) Oak tree, c) Dog, d) Rose bush

Solution: Oak trees, dogs, and rose bushes are living organisms, while chairs are non-living.

Reason and Assertion Type

14) Assertion: Movement is a characteristic that distinguishes animals and humans from plants.

Reason: Unlike plants, animals and humans have the ability to move from place to place, which is crucial for their survival and interaction with the environment.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Animals and humans exhibit locomotion, unlike most plants, which are stationary. The reason explains why movement is a distinguishing feature.

15) Assertion: Living organisms can adapt to their surroundings over time.

Reason: Adaptation allows living organisms to adjust to changes in their environment, enhancing their chances of survival and reproduction.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Adaptation is a key feature of living organisms, and the reason correctly explains its role in survival and reproduction.

16) Assertion: Cellular organization is a fundamental characteristic of all living things.

Reason: Living organisms are composed of one or more cells, which serve as the structural and functional units of life.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Cellular organization is a defining feature of life, as all living organisms are made of cells, which are the basic units of life.

Matrix Matching Type

17) Match Column A with Column B:

1. Reproduction – C. Humans, animals, and plants share this characteristic, albeit in different ways.

2. Response to Stimuli – A. Living beings can adapt to changes in their environment.

3. Cellular Organization – D. Living organisms are composed of one or more cells.

4. Homeostasis – B. Living things maintain a stable internal environment.

Solution: Reproduction is shared by all living things, response to stimuli enables adaptation, cellular organization defines life, and homeostasis maintains internal stability.

Comprehension Type

18) Questions:

i. How do plants and animals differ in terms of movement?

Answer: Plants are generally stationary, rooted in the ground, while animals exhibit voluntary locomotion.

Solution: The passage highlights that plants lack the ability to move from place to place, unlike animals.

ii. What distinguishes the growth patterns of plants from those of animals?

Answer: Plants exhibit continuous growth throughout their lives, while animals grow within defined periods, ceasing at adulthood.

Solution: The passage explains the continuous growth of plants versus the limited growth period in animals.

iii. Describe the contrasting methods of reproduction in plants and animals.

Answer: Plants reproduce via seeds, spores, or vegetative parts, while animals primarily use sexual reproduction involving gamete fusion.

Solution: The passage details the reproductive methods specific to plants and animals.

TEACHING TASK (Page 28 - 31)

Multiple Choice Questions

1) What is the main function of roots, stems, and fruits in plants?

A) Storing food B) Capturing sunlight C) Absorbing water D) Reproduction

Answer: None (Corrected Answer: Multiple functions)

Solution: Roots absorb water and nutrients, stems transport nutrients and provide support, and fruits aid in reproduction (seed dispersal). No single option covers all functions.

2) Which of the following is NOT a characteristic of living things?

A) Response to stimuli B) Cellular organization C) Inanimate structure D) Growth

Answer: C) Inanimate structure

Solution: Inanimate structure is not a characteristic of living things, which are defined by response to stimuli, cellular organization, and growth.

3) What is the primary difference between movement in plants and animals?

A) Plants move faster than animals B) Animals move voluntarily, while plants move passively C) Plants can only move in one direction D) Animals can move without energy

Answer: B) Animals move voluntarily, while plants move passively

Solution: Animals exhibit voluntary locomotion, while plants show passive movements like tropisms or seed dispersal.

4) What part of the plant is responsible for photosynthesis?

A) Root B) Stem C) Leaf D) Flower

Answer: C) Leaf

Solution: Leaves contain chloroplasts, where photosynthesis occurs, converting sunlight into energy.

5) Which of the following is a method of natural seed dispersal?

A) Cooking B) Explosion C) Dancing D) Sleeping

Answer: B) Explosion

Solution: Explosion (e.g., in some pods) is a natural seed dispersal method, unlike cooking, dancing, or sleeping.

6) How do fish primarily move?

A) Flying B) Jumping C) Swimming D) Crawling

Answer: C) Swimming

Solution: Fish primarily move by swimming, using fins and tails to navigate water.

7) What is the primary source of energy for animals?

A) Sunlight B) Water C) Food D) Air

Answer: C) Food

Solution: Animals obtain energy by consuming food, which is broken down via respiration to produce ATP.

8) Which of the following is NOT a characteristic of living things?

A) Reproduction B) Cellular organization C) Inanimate structure D) Metabolism

Answer: C) Inanimate structure

Solution: Inanimate structure is not a feature of living things, which are characterized by reproduction, cellular organization, and metabolism.

9) What is the primary function of stems in plants?

A) Absorbing water B) Storing food C) Transporting nutrients D) Capturing sunlight

Answer: C) Transporting nutrients

Solution: Stems primarily transport water, nutrients, and sugars between roots and leaves, though they may also store food in some plants.

10) What is the process by which animals acquire energy from food?

A) Photosynthesis B) Respiration C) Fermentation D) Combustion

Answer: B) Respiration

Solution: Animals acquire energy from food through cellular respiration, breaking down glucose to produce ATP.

Advanced Level Questions

More than One Answer Type

11) Which organisms exhibit NOT continuous growth throughout their entire lives?

A) Kittens, pups, and chicks B) Seeds germinating into plants C) Some plants growing day by day into trees D) Human children growing into adults

Answer: A) Kittens, pups, and chicks, D) Human children growing into adults

Solution: Animals like kittens, pups, chicks, and humans have defined growth periods, ceasing at adulthood. Plants, including those from seeds, often grow continuously.

12) What parts of the human body continue to grow throughout life?

A) Hair B) Nails C) Teeth D) Bones

Answer: A) Hair, B) Nails

Solution: Hair and nails continue to grow throughout life, while teeth and bones stop growing after adulthood.

13) Which of the following statements are true regarding growth in living beings?

A) Non-living things cannot grow B) Growth is a characteristic feature of all living things C) Growth patterns vary among species D) Growth ceases once adulthood is reached in all living beings

Answer: A, B, C

Solution: Non-living things do not grow, growth is a universal feature of living things, and growth patterns vary (e.g., continuous in plants, limited in animals). Growth does not cease in all living beings (e.g., plants).

Reason and Assertion Type

14) Assertion: Plants exhibit movements despite not having the ability to physically relocate.

Reason: Plants can disperse seeds through natural mechanisms such as wind, water, animals, or explosive means, leading to the appearance of movement.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Plants show passive movements like seed dispersal, which the reason accurately explains.

15) Assertion: Both plants and animals require food for survival and growth.

Reason: Plants absorb water and minerals from the soil and utilize sunlight to produce food through photosynthesis, while animals consume organic matter for energy and nutrients.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Both plants and animals need food, with plants producing it via photosynthesis and animals consuming organic matter, as explained by the reason.

16) Assertion: Growth is a characteristic feature of all living things.

Reason: Living organisms, including animals, plants, and humans, undergo growth and development at various stages of their lives, albeit with different growth patterns.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Growth is a universal feature of living things, with varying patterns, as the reason explains.

Matrix Matching Type

17) Match the type of seed dispersal with the corresponding method:

1. Seeds are carried by the wind – C. Wind Dispersal

2. Seeds float and travel via water – A. Water Dispersal

3. Seeds attach to animals or are eaten and later excreted – D. Animal Dispersal

4. Seed pods burst open, scattering seeds – B. Explosive Dispersal

Solution: Each dispersal method matches its description.

Comprehension Type

18) Questions:

i. How does the passage describe the concept of continuous growth in humans?

Answer: Humans grow continuously, becoming taller like trees, with limbs stretching and heads reaching clouds.

Solution: The passage imagines humans growing indefinitely, akin to trees.

ii. What challenges are mentioned in the passage regarding continuous growth in humans?

Answer: Challenges include adjusting doorways, ceilings, roads, desks, and cars, as well as finding fitting clothing and navigating crowded spaces.

Solution: The passage lists logistical and practical issues due to continuous growth.

iii. What does the passage suggest about the social implications of continuous growth?

Answer: Height could become a measure of status and power, with taller individuals potentially reigning supreme.

Solution: The passage speculates on social hierarchies based on height.

LEARNERS TASK (Page 31 - 34)

Multiple Choice Questions

1) Which of the following organisms exhibits growth throughout its entire life?

A) Human B) Oak tree C) Rock D) Chair

Answer: B) Oak tree

Solution: Oak trees exhibit continuous growth, while humans stop growing in height after adulthood, and rocks and chairs are non-living.

2) What is the primary source of food for plants?

A) Soil B) Water C) Sunlight D) Air

Answer: C) Sunlight

Solution: Sunlight is the primary energy source for photosynthesis, enabling plants to produce food.

3) What is the process by which plants prepare their food in the presence of sunlight?

A) Fermentation B) Respiration C) Photosynthesis D) Combustion

Answer: C) Photosynthesis

Solution: Photosynthesis is the process by which plants use sunlight to convert carbon dioxide and water into glucose.

4) Which of the following is NOT a movement exhibited by animals?

A) Flying B) Swimming C) Root growth D) Walking

Answer: C) Root growth

Solution: Root growth is a plant process, not an animal movement.

5) How do plants primarily spread their seeds?

A) Jumping B) Wind dispersal C) Swimming D) Running

Answer: B) Wind dispersal

Solution: Wind dispersal is a common method for plants to spread seeds, unlike jumping, swimming, or running.

6) What characteristic is common to both plants and animals?

A) Movement B) Photosynthesis C) Response to stimuli D) Inorganic composition

Answer: C) Response to stimuli

Solution: Both plants and animals respond to stimuli (e.g., tropisms in plants, reflexes in animals).

7) How do insects primarily move?

A) Swimming B) Flying C) Crawling D) Running

Answer: B) Flying, C) Crawling (depending on the insect)

Solution: Many insects primarily move by flying or crawling, depending on the species.

8) What is the primary function of roots in plants?

A) Capturing sunlight B) Absorbing water and nutrients C) Storing food D) Transporting nutrients

Answer: B) Absorbing water and nutrients

Solution: Roots primarily absorb water and nutrients from the soil.

9) Which of the following is NOT a characteristic of living things?

A) Growth B) Movement C) Reproduction D) Inorganic structure

Answer: D) Inorganic structure

Solution: Inorganic structure is not a characteristic of living things, which are organic and exhibit growth, movement, and reproduction.

10) What is the primary method of seed dispersal by animals?

A) Wind dispersal B) Water dispersal C) Explosion D) Animal attachment

Answer: D) Animal attachment

Solution: Animal dispersal often involves seeds attaching to animals or being eaten and excreted.

Advanced Level Questions

More than One Answer Type

11) What are some natural ways of seed dispersal?

A) Wind dispersal B) Water dispersal C) Animal dispersal D) Explosive dispersal

Answer: A, B, C, D

Solution: All listed methods are natural ways plants disperse seeds.

12) Which plant parts are involved in storing food?

A) Roots B) Stems C) Leaves D) Fruits

Answer: A, B, D

Solution: Roots (e.g., carrots), stems (e.g., tubers), and fruits (e.g., seeds) store food, while leaves primarily perform photosynthesis.

13) What are the sources of plant food?

A) Absorption of water and minerals from the soil B) Preparation of food in the presence of sunlight C) Photosynthesis D) Consumption of other organisms

Answer: A, B, C

Solution: Plants obtain food through absorption of water and minerals (A), photosynthesis (B, C). They do not consume other organisms (D).

Reason and Assertion Type

14) Assertion: Humans cease growing in height after reaching adulthood, unlike some plants that continue to grow throughout their lives.

Reason: While humans have a defined growth period and cease to grow in height after adulthood, certain parts of the body like hair and nails continue to grow continuously.

Answer: B) Both Assertion and Reason are true, but Reason is NOT the correct explanation for Assertion.

Solution: The assertion is true, but the reason discusses hair and nails, which does not explain why humans stop growing in height compared to plants.

15) Assertion: Photosynthesis is the process by which plants produce food.

Reason: Plants utilize sunlight to convert water and carbon dioxide into glucose, a form of energy, in their leaves through the process of photosynthesis.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Photosynthesis is the food production process, and the reason accurately describes it.

16) Assertion: Movement in plants is primarily facilitated by natural mechanisms such as seed dispersal.

Reason: Plants disperse seeds through various means such as wind, water, animals, or explosive mechanisms, enabling them to spread and grow in different locations.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Seed dispersal is a form of plant movement, as explained by the reason.

Matrix Matching Type

17) Match the type of movement with the corresponding living being:

1. Fly using wings – D. Birds

2. Swim using fins and tails – C. Fish

3. Crawl or slither using their bodies and limbs – B. Reptiles

4. Walk, run, or jump using legs – E. Mammals

5. Close and open flowers – A. Plants

Solution: Each movement type matches the appropriate organism.

Comprehension Type

18) Questions:

i. What is the primary process by which plants produce their own food?

Answer: Photosynthesis

Solution: The passage identifies photosynthesis as the primary food production process in plants.

ii. Where do plants primarily absorb water and essential minerals from?

Answer: Soil

Solution: The passage states that plants absorb water and minerals through their root systems from the soil.

iii. What role does glucose play in the life of a plant?

Answer: Glucose provides energy for growth and development and serves as a building block for compounds like cellulose.

Solution: The passage describes glucose as an energy source and a component of cell walls.

TEACHING TASK (Page 38 - 41)

Multiple Choice Questions

1)How do plants primarily reproduce?

A) Laying eggs B) Giving birth to young ones C) Germinating seeds D) Splitting into two

Answer: C) Germinating seeds

Solution: Plants primarily reproduce through seeds, which germinate to form new plants.

2) What is the classification of animals that lay eggs to produce young ones?

A) Oviparous B) Viviparous C) Omnivorous D) Carnivorous

Answer: A) Oviparous

Solution: Oviparous animals lay eggs, unlike viviparous (live birth), omnivorous (diet), or carnivorous (diet).

3) What is the primary method of seed dispersal by wind?

A) Jumping B) Floating C) Bursting D) Flying

Answer: B) Floating

Solution: Wind dispersal involves seeds floating or being carried by the wind.

4) What is the primary function of gills in fish?

A) Exchanging gases B) Absorbing nutrients C) Capturing prey D) Storing food

Answer: A) Exchanging gases

Solution: Gills in fish facilitate gas exchange, extracting oxygen from water.

5) What is the main source of energy for animals?

A) Sunlight B) Water C) Air D) Food

Answer: D) Food

Solution: Animals derive energy from food through respiration.

6) How do birds primarily breathe?

A) Through lungs B) Through gills C) Through stomata D) Through nostrils

Answer: A) Through lungs

Solution: Birds breathe using lungs, aided by air sacs for efficient respiration.

7) What is the primary function of roots in plants?

A) Photosynthesis B) Absorbing water and nutrients C) Exchanging gases D) Storing food

Answer: B) Absorbing water and nutrients

Solution: Roots primarily absorb water and nutrients from the soil.

8) Which of the following is NOT a characteristic of living things?

A) Movement B) Breathing C) Cellular organization D) Growth

Answer: None (Corrected Answer: None, as all are characteristics in context)

Solution: Movement, breathing (respiration), cellular organization, and growth are all characteristics of living things. The question may intend a different option.

9) How do fish primarily move?

A) Crawling B) Flying C) Swimming D) Jumping

Answer: C) Swimming

Solution: Fish move primarily by swimming using fins and tails.

10) What is the primary function of stems in plants?

A) Storing food B) Absorbing water C) Transporting nutrients D) Exchanging gases

Answer: C) Transporting nutrients

Solution: Stems transport water, nutrients, and sugars between roots and leaves.

Advanced Level Questions

More than One Answer Type

11) What are examples of animal responses to stimuli?

A) Responding to light B) Responding to sound C) Responding to touch D) Responding to temperature changes

Answer: A, B, C, D

Solution: Animals respond to various stimuli, including light, sound, touch, and temperature.

12) Which animals lay eggs to produce young ones?

A) Birds B) Fish C) Reptiles D) Mammals

Answer: A, B, C

Solution: Birds, fish, and reptiles are oviparous, while most mammals are viviparous (except monotremes).

13) What are some natural ways of seed dispersal?

A) Wind dispersal B) Water dispersal C) Animal dispersal D) Underground dispersal

Answer: A, B, C

Solution: Wind, water, and animal dispersal are natural methods; underground dispersal is not a standard term.

Reason and Assertion Type

14) Assertion: Seeds are considered living entities despite appearing dormant.

Reason: Seeds possess characteristics of living beings such as the ability to take in food, longevity, and the capability to germinate and develop into whole plants.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Seeds are living and can germinate, as explained by the reason.

15) Assertion: Dead plants or animals are in an intermediate state between living and non-living things.

Reason: Dead plants or animals undergo decomposition, forming non-living constituents, but they still retain some characteristics of living beings, such as the potential for decomposition and nutrient release.

Answer: B) Both Assertion and Reason are true, but Reason is NOT the correct explanation for Assertion.

Solution: Dead organisms are not truly intermediate, but the reason describes decomposition, which is a separate process.

16) Assertion: Plants and animals excrete waste materials as a part of their life processes.

Reason: Excretion is necessary for removing waste materials produced during various life activities, ensuring the proper functioning and maintenance of living organisms.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Excretion is a vital process in both plants and animals, as the reason explains.

Matrix Matching Type

17) Match the plant response with the corresponding stimulus:

1. Flowers blooming in the morning – C. Light

2. Trees shedding leaves in autumn – A. Temperature changes

3. Touch-me-not plant closing its leaves when touched – B. Touch

4. Earthworm moving away from light – D. Sunlight

Solution: Each response matches the appropriate stimulus, though earthworms are animals, not plants.

Comprehension Type

18) Questions:

i. What is the sticky substance observed on the stems of trees like Acacia, Neem, and Drumstick?

Answer: Gum or resin

Solution: The passage identifies these as plant excretions.

ii. How do plant excretions like gums and resins differ from animal waste?

Answer: Plant excretions have valuable uses, unlike animal waste, which is often foul-smelling and less useful.

Solution: The passage contrasts the utility of plant secretions with animal waste.

iii. What are some of the uses of plant secretions like gums and resins?

Answer: Uses in traditional medicine and industrial products.

Solution: The passage mentions these applications.

LEARNERS TASK (Page 41 - 44)

Multiple Choice Questions

1) What is the primary method of breathing in fish?

A) Inhaling air through nostrils B) Absorbing oxygen through the skin C) Extracting oxygen from water through gills D) Inhaling oxygen directly from the air

Answer: C) Extracting oxygen from water through gills

Solution: Fish use gills to extract oxygen from water for respiration.

2) How do plants primarily exchange gases for respiration?

A) Through the nose B) Through stomata C) Through the skin D) Through the mouth

Answer: B) Through stomata

Solution: Plants exchange gases (oxygen and carbon dioxide) through stomata on leaves.

3) What is the process of getting rid of wastes from the body called?

A) Digestion B) Excretion C) Circulation D) Assimilation

Answer: B) Excretion

Solution: Excretion is the process of removing waste materials from the body.

4) What is the primary form of waste excretion in animals?

A) Sweat B) Tears C) Saliva D) Blood

Answer: None (Corrected Answer: Urine or Dung)

Solution: The primary forms of waste excretion in animals are urine and dung, not listed among the options.

5) What is the primary function of stomata in plants?

A) Absorbing water B) Excreting waste C) Exchanging gases D) Capturing sunlight

Answer: C) Exchanging gases

Solution: Stomata facilitate gas exchange for photosynthesis and respiration.

6) What is the primary method of seed dispersal by animals?

A) Wind dispersal B) Water dispersal C) Explosion D) Animal attachment

Answer: D) Animal attachment

Solution: Seeds often attach to animals or are eaten and excreted for dispersal.

7) How do insects primarily move?

A) Swimming B) Flying C) Crawling D) Jumping

Answer: B) Flying, C) Crawling (depending on the insect)

Solution: Insects primarily move by flying or crawling, depending on the species.

8) What is the primary source of food for plants?

A) Soil B) Water C) Sunlight D) Air

Answer: C) Sunlight

Solution: Sunlight drives photosynthesis, the primary food production process in plants.

9) What is the process by which plants prepare their food in the presence of sunlight?

A) Fermentation B) Respiration C) Photosynthesis D) Combustion

Answer: C) Photosynthesis

Solution: Photosynthesis is the process by which plants produce food using sunlight.

10) What is the main function of roots, stems, and fruits in plants?

A) Capturing sunlight B) Absorbing water and nutrients C) Storing food D) Reproduction

Answer: None (Corrected Answer: Multiple functions)

Solution: Roots absorb water and nutrients, stems transport nutrients, and fruits aid in reproduction.

Advanced Level Questions

More than One Answer Type

11) How do animals excrete waste?

A) Dung B) Urine C) Sweat D) Tears

Answer: A, B, C, D

Solution: Animals excrete waste through dung, urine, sweat, and tears.

12) What are characteristics of living seeds?

A) Taking in food B) Longevity C) Germination D) Photosynthesis

Answer: A, B, C

Solution: Seeds take in food (stored nutrients), have longevity, and can germinate. Photosynthesis occurs after germination.

13) How do plants respond to stimuli?

A) Blooming in response to sunlight B) Shedding leaves in response to temperature changes C) Moving towards light D) Retracting when touched

Answer: A, B, C, D

Solution: Plants exhibit all these responses, such as phototropism, thigmotropism, and seasonal changes.

Reason and Assertion Type

14) Assertion: Plants respond to stimuli such as light and temperature changes.

Reason: Observations of plant behavior, including flowering patterns and leaf shedding, demonstrate their responsiveness to environmental stimuli, albeit in slower and different ways compared to animals.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Plants respond to stimuli, as explained by examples like flowering and leaf shedding.

15) Assertion: Animals and plants both exhibit responses to stimuli in their environment.

Reason: Animals and plants have evolved mechanisms to detect and respond to environmental stimuli, enhancing their survival and adaptation to changing conditions.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Both plants and animals respond to stimuli, as the reason explains.

16) Assertion: Seeds demonstrate characteristics of living beings such as taking in food and germination.

Reason: Seeds contain stored food reserves and have the potential to germinate and develop into whole plants when conditions are favorable, indicating their living nature.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Seeds are living, with stored food and germination potential, as explained.

Matrix Matching Type

17) Match the type of excretion with the corresponding living being:

1. Dung – B. Animals

2. Urine – B. Animals

3. Sweat – B. Animals

4. Sticky substance on stems – C. Plants

Solution: Dung, urine, and sweat are animal excretions, while sticky substances (gum/resin) are plant excretions.

Comprehension Type

18) Questions:

i. What is the purpose of covering half of the glass jar with black paper in the experiment with the earthworm?

Answer: To create a darkened area to observe the earthworm's response to light.

Solution: The passage describes covering the jar to test light sensitivity.

ii. Describe the earthworm's response when light is shed on the jar during the experiment.

Answer: The earthworm moves toward the darkened portion of the jar.

Solution: The passage notes this behavior in response to light.

iii. What does the earthworm's behavior in response to light exposure indicate about its sensitivity?

Answer: It indicates the earthworm's sensitivity to light and ability to perceive environmental changes.

Solution: The passage highlights this sensitivity.

TEACHING TASK (Page 48 -50)

Multiple Choice Questions

1) Which of the following is a common example of microbial assistance in food preparation?

A) Grilling B) Baking C) Fermentation D) Frying

Answer: C) Fermentation

Solution: Fermentation, driven by microorganisms, is used in food preparation (e.g., curd, bread).

2) What is the primary role of buttermilk in curd formation?

A) Adding flavor B) Stimulating microbial growth C) Reducing acidity D) Enhancing texture

Answer: B) Stimulating microbial growth

Solution: Buttermilk contains lactobacillus, which ferments milk to form curd.

3) What is the name of the bacterium commonly observed in curd?

A) Lactobacillus B) Escherichia coli C) Staphylococcus D) Streptococcus

Answer: A) Lactobacillus

Solution: Lactobacillus is responsible for curd formation through fermentation.

4) Where can water samples be collected for observing microorganisms?

A) Swimming pools B) Rivers C) Ponds D) All of the above

Answer: D) All of the above

Solution: Microorganisms can be found in various water sources, including pools, rivers, and ponds.

5) What is the primary reason for observing microorganisms in water samples?

A) Entertainment B) Scientific research C) Environmental monitoring D) Agricultural analysis

Answer: B) Scientific research, C) Environmental monitoring

Solution: Observing microorganisms aids in research and monitoring environmental health.

6) Which of the following is NOT a common shape of microorganisms observed in water samples?

A) Spherical B) Rod-shaped C) Spiral D) Square

Answer: D) Square

Solution: Microorganisms typically have spherical, rod-shaped, or spiral shapes, not square.

7) What is the purpose of preserving food by keeping it dry?

A) To prevent microbial growth B) To enhance flavour C) To increase shelf-life D) To improve texture

Answer: A) To prevent microbial growth

Solution: Drying prevents microbial growth, extending food shelf life.

8) What is the primary function of mould in the decomposition process?

A) Producing oxygen B) Absorbing nutrients C) Breaking down organic matter D) Expelling waste

Answer: C) Breaking down organic matter

Solution: Mould breaks down organic matter, aiding nutrient recycling.

9) What is the primary component of a DIY magnifier made from an electric bulb?

A) Filament B) Glass C) Water D) Metal

Answer: C) Water

Solution: Water in the bulb acts as a lens to magnify objects.

10) Where can microorganisms be found for observation under a microscope?

A) In the air B) In water C) On surfaces D) All of the above

Answer: D) All of the above

Solution: Microorganisms are ubiquitous and can be found in air, water, and on surfaces.

Advanced Level Questions

More than One Answer Type

11) What are components of a microscope?

A) Head/body B) Base C) Eyepiece D) Objective

Answer: A, B, C, D

Solution: All listed parts are components of a microscope.

12) Where can microorganisms be found for observation under a microscope?

A) Rotten bread B) Vegetables C) Curd D) Water samples

Answer: A, B, C, D

Solution: Microorganisms are present in all these locations.

13) What are examples of microbial assistance mentioned in the passage?

A) Idly mixture preparation B) Curd formation C) Bread baking D) Pickle making

Answer: A, B, C, D

Solution: The passage implies microorganisms aid in fermentation processes like idly, curd, bread, and pickles.

Reason and Assertion Type

14) Assertion: Microscopes enable us to observe minute organisms that are not visible to the naked eye.

Reason: Microscopes function as powerful magnifying lenses, enhancing visibility and allowing observation of tiny structures.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Microscopes magnify small organisms, as the reason explains.

15) Assertion: Mould, found on spoiled bread and vegetables, is a living organism.

Reason: Mould exhibits growth and reproduction characteristics, indicating its status as a living entity.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Mould is a living organism, as it grows and reproduces, per the reason.

16) Assertion: Microorganisms play beneficial roles in food preparation processes such as idly mixture fermentation and curd formation.

Reason: Microorganisms like lactobacillus contribute to the fermentation of food materials, enhancing taste and texture.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Microorganisms like lactobacillus aid fermentation, as explained.

Matrix Matching Type

17) Match the term related to microorganisms with its definition or example:

1. Mould – b. Thread-like structures observed on spoiled material

2. Bacteria – d. Tiny organisms with diverse shapes and sizes

3. Microorganisms – a. Living beings visible only under a microscope

4. Lactobacillus – c. Helpful bacterium involved in curd formation

Solution: Each term matches its description or example.

Comprehension Type

18) Questions:

i. How do microorganisms contribute to food preparation processes, and what is an example of their role in curd formation?

Answer: Microorganisms aid in fermentation, with lactobacillus fermenting milk to form curd, enhancing flavor and texture.

Solution: The passage describes this role of lactobacillus.

ii. In what ways do microorganisms participate in nutrient recycling within ecosystems, and why is their role significant?

Answer: Microorganisms decompose organic matter, recycling nutrients, which is significant for ecosystem balance.

Solution: The passage highlights their role in decomposition.

iii. Provide examples of how microorganisms are utilized in the field of medicine, highlighting their importance in combating diseases.

Answer: Microorganisms produce antibiotics and vaccines, crucial for combating pathogens.

Solution: The passage mentions these medical applications.

LEARNERS TASK (Page 51- 53)

Multiple Choice Questions

1) What is the primary function of a magnifying lens?

A) To make objects appear smaller B) To make objects appear larger C) To change the color of objects D) To make objects disappear

Answer: B) To make objects appear larger

Solution: A magnifying lens enlarges the appearance of objects.

2) What is the main component of a DIY magnifier made from an electric bulb?

A) Filament B) Glass C) Water D) Metal

Answer: C) Water

Solution: Water in the bulb acts as a lens to magnify.

3) What is the purpose of using a microscope?

A) To make objects appear smaller B) To observe minute objects not visible to the naked eye C) To change the color of objects D) To make objects appear larger

Answer: B) To observe minute objects not visible to the naked eye

Solution: Microscopes enable observation of tiny structures.

4) Which of the following is NOT a structural component of a microscope?

A) Eyepiece B) Base C) Objective D) Aperture

Answer: D) Aperture

Solution: Aperture is not a standard structural component; eyepiece, base, and objective are.

5) What is the function of the eyepiece in a microscope?

A) To adjust focus B) To support the microscope C) To observe the specimen D) To hold the slide in place

Answer: C) To observe the specimen

Solution: The eyepiece is used to view the magnified specimen.

6) Where can microorganisms be found for observation under a microscope?

A) In the air B) In water C) On surfaces D) All of the above

Answer: D) All of the above

Solution: Microorganisms are found in air, water, and on surfaces.

7) What is the primary method of reproduction for microorganisms?

A) Laying eggs B) Giving birth to young ones C) Germinating seeds D) Reproducing through cell division

Answer: D) Reproducing through cell division

Solution: Microorganisms primarily reproduce via cell division (e.g., binary fission).

8) Which of the following substances is commonly observed under a microscope as a result of decomposition?

A) Fruits B) Vegetables C) Mould D) Metal

Answer: C) Mould

Solution: Mould, a microorganism, is observed during decomposition.

9) What is the primary role of bacteria in the fermentation process?

A) Producing oxygen B) Breaking down carbohydrates C) Absorbing nutrients D) Expelling waste

Answer: B) Breaking down carbohydrates

Solution: Bacteria ferment carbohydrates to produce energy and byproducts like lactic acid.

10) How is curd primarily formed from milk?

A) Boiling B) Freezing C) Fermentation D) Mixing

Answer: C) Fermentation

Solution: Curd is formed by bacterial fermentation of milk.

Advanced Level Questions

More than One Answer Type

11) How can bacteria be observed under a microscope?

A) Collecting water samples from a pond B) Taking watery substance from curd C) Placing a drop of water from a borewell on a slide D) Covering a slide with another slide to create a "slide sandwich"

Answer: A, B, C

Solution: Bacteria can be observed in pond water, curd, and borewell water samples. “Slide sandwich” is a preparation technique, not a source.

12) What are characteristics of bacteria?

A) Various shapes B) Always harmful C) Lactobacillus found in curd D) Can only be observed in water samples

Answer: A, C

Solution: Bacteria have various shapes (e.g., cocci, bacilli) and include beneficial types like lactobacillus. Not all are harmful, and they are not limited to water samples.

13) Where can microorganisms be found in the experiment with water samples?

A) Pond water B) Well water C) Borewell water D) River water

Answer: A, B, C, D

Solution: Microorganisms are present in all these water sources.

Reason and Assertion Type

14) Assertion: Bacteria exhibit diverse shapes, with lactobacillus being an example of a helpful bacterium found in curd.

Reason: Different bacterial species possess distinct morphological characteristics, contributing to their varied shapes.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Bacteria have diverse shapes, and the reason explains this diversity.

15) Assertion: Water samples from different sources contain varying quantities of microorganisms.

Reason: Factors such as environmental conditions and nutrient availability influence the abundance of microorganisms in water sources.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: Different water sources have varying microbial populations due to environmental factors, as explained.

16) Assertion: Microscopic observation of water samples reveals differences in the types and quantities of microorganisms present.

Reason: Variation in water sources results in diverse microbial populations, leading to differences in observed microorganisms.

Answer: A) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion.

Solution: The assertion is supported by the reason, which explains microbial diversity in water sources.

Matrix Matching Type

17) Match the component of a microscope with its description:

1. Eyepiece – c. Part that contains the lenses through which you look

2. Objective – b. Part that magnifies the image further

3. Coarse adjustment knob – d. Part used to focus the image roughly

4. Stage – a. Part where the specimen is placed

Solution: Each component matches its function in a microscope.

Comprehension Type

18) Questions:

i. What materials are needed to create a DIY magnifier using a used electric bulb?

Answer: A used electric bulb and water

Solution: The passage describes using a bulb and filling it with water.

ii. How does filling half of the bulb with water contribute to the magnifying effect of the DIY magnifier?

Answer: Water acts as a lens, bending light to enlarge the image.

Solution: The passage explains the magnifying effect of the water-filled bulb.

iii. What is the observed effect when viewing a book through the water-filled bulb of the DIY magnifier?

Answer: Letters appear larger and easier to read.

Solution: The passage describes this magnifying effect.