4. PLANT: PARTS AND FUNCTIONS
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TEACHING TASK
NEET LEVEL QUESTIONS

Multiple Choice Questions

1. What type of root consists of a main, thick root from which small roots grow?
   a) Fibrous root b) Taproot
   c) Adventitious root d) Aerial root

Correct Answer: (b) Taproot

Explanation: Taproots have a primary thick root with smaller lateral roots (e.g., carrot, radish).

2. Which type of root consists of many thin roots that appear bushy?
   a) Taproot b) Fibrous root
   c) Adventitious root d) Prop root

Correct Answer: (b) Fibrous root

Explanation: Fibrous roots are thin, bushy, and spread out (e.g., grass, wheat).

3. What do some roots store for the plant?
   a) Water b) Food c) Light d) Air

Correct Answer: (b) Food

Explanation: Roots like carrots and beets store starch and sugars.

4. Which function is NOT performed by roots?
   a) Holding a plant erect b) Absorbing water and minerals
   c) Producing flowers d) Storing food

Correct Answer:(c) Producing flowers

Explanation: Flowers are produced by stems, not roots.

5. What do roots absorb from the soil?
   a) Air and sunlight b) Water and minerals
   c) Food and carbon dioxide d) Nitrogen and oxygen

Correct Answer:(b) Water and minerals

Explanation: Roots absorb water and dissolved nutrients (e.g., nitrogen, phosphorus).

6. What kind of stems do trees typically have?
   a) Weak and thin b) Soft and thick
   c) Thick and strong d) Thin and flexible

Correct Answer:(c) Thick and strong

Explanation: Trees have woody, sturdy stems (trunks) for support.

7. What do creepers need to grow upwards?
   a) More sunlight b) Support
   c) Fertilizers d) Thick stems

Correct Answer:(b) Support

Explanation: Creepers (e.g., pumpkin) need external support to climb.

8. Which of the following is NOT a function of the stem?

a) Supports the upper parts of a plant
b) Carries water and minerals from the roots
c) Carries food made in the leaves
d) Absorbs water and minerals from the soil

Correct Answer:(d) Absorbs water and minerals from the soil

Explanation: Absorption is a root function; stems transport absorbed nutrients.

9. Which type of plants are described as having weak, soft, and thin stems?
a) Trees b) Shrubs c) Creepers d) Herbs

Correct Answer:(d) Herbs

Explanation: Herbs (e.g., basil, mint) have non-woody stems.

NEET ADVANCED LEVEL QUESTIONS

(i) More than One Answer Type:

10. Which of the following plants have taproots?
a) Tomato b) Wheat c) Brinjal d) Onion
e) Capsicum

Correct Answers: (a) Tomato, (c) Brinjal, (e) Capsicum

Explanation: Dicots like tomatoes and brinjals have taproots; wheat (monocot) and onion (bulb) have fibrous roots.

11. Which functions are performed by the stem in a plant?
a) Supporting the upper parts of a plant
b) Carrying water and minerals from the roots to other parts of the plant
c) Carrying food made in the leaves to other parts of the plant
d) Absorbing nutrients from the soil

Correct Answers:(a) Support, (b) Water/mineral transport, (c) Food transport

Explanation: Stems do not absorb nutrients directly (roots do).

(ii) Fill In the Blanks:

12. Plants such as grass, wheat have _____ roots.

Answer: fibrous

13. The stem carries water and minerals from the _____ to the other parts of the plant.

Answer: roots

(iii) Matching Type:

14.

s.no	Column I	Column II
1.	Tomato	A. Fibrous root
2.	Wheat	B. Taproot
3.	Onion	C. Stores food
4.	Carrot	D. Does not store food
5.	Brinjal	E. Main, thick root
6.	Grass	F. Many thin roots

Answer:
1. Tomato - B. Taproot
Explanation: Tomato has a main thick root (taproot system).
2. Wheat - A. Fibrous root
Explanation: Wheat has a fibrous root system with many thin roots.
3. Onion - C. Stores food
Explanation: Onion is a modified stem that stores food in its bulb.
4. Carrot - E. Main, thick root
Explanation: Carrot is a root vegetable with a thick taproot that stores food.
5. Brinjal - D. Does not store food
Explanation: Brinjal has a taproot system, but it does not store food in the root.
6. Grass - F. Many thin roots
Explanation: Grass has a fibrous root system made up of many thin roots.““
(iv) Answer the Following Questions
15. Explain about roots and its types
Answer:
Taproot: Single thick root with lateral branches (e.g., carrot). Found in dicots.
Fibrous root: Thin, bushy roots (e.g., grass). Common in monocots.
Adventitious root: Roots growing from non-root tissues (e.g., prop roots of banyan).
16. Explain about the functions of stem
Answer:
Support: Holds leaves, flowers, and fruits upright.
Transport:
Xylem: Carries water/minerals (roots ? leaves).
Phloem: Transports food (leaves ? other parts).
Storage: Stores water (cactus) or food (potato tubers).
Photosynthesis: Green stems perform photosynthesis (e.g., opuntia).

LEARNER'S TASK
NEET LEVEL QUESTIONS
Multiple Choice Questions
1. What is the part of the plant that usually grows below the ground?
a) Leaf b) Flower c) Root d) Stem
Correct Answer:(c) Root
Explanation: Roots typically grow underground to anchor the plant and absorb water/minerals.
2. Which plant has a taproot?
a) Grass b) Wheat c) Tomato d) Onion
Correct Answer:(c) Tomato
Explanation: Tomato is a dicot with a main taproot system (unlike monocots like grass/wheat with fibrous roots).
3. Which plant has fibrous roots?
a) Carrot b) Brinjal c) Capsicum d) Onion
Correct Answer:(d) Onion
Explanation: Onion is a monocot with thin, bushy fibrous roots.

4. Which of these roots can be eaten by human beings?
   a) Grass b) Wheat c) Radish d) Capsicum

Correct Answer:(c) Radish

Explanation: Radish is an edible taproot (carrot and beetroot are other examples).

5. Which of these plants does NOT have a taproot?
   a) Brinjal b) Tomato c) Turnip d) Wheat

Correct Answer: (d) Wheat

Explanation: Wheat has fibrous roots (a monocot characteristic).

6. What is the main part of the shoot?
   a) Root b) Leaf c) Stem d) Flower

Correct Answer: (c) Stem

Explanation: The shoot system consists of stems, leaves, and flowers, with stems as the central supporting structure.

7. Why do trees have thick and strong stems?
   a) To hold the tree straight and upright b) To store food
   c) To attract insects d) To produce flowers

Correct Answer: (a) To hold the tree straight and upright

Explanation: Woody stems (trunks) provide structural support against gravity and wind.

8. Which of these plants is an example of a creeper?
   a) Potato b) Sugarcane c) Banana d) Sweet pea

Correct Answer:(d) Sweet pea

Explanation: Sweet pea is a creeper that grows along the ground/climbs with support (unlike erect plants like banana).

9. Which of the following stems can be eaten by humans?
   a) Potato b) Sweet pea c) Money plant d) Banana

Correct Answer: (a) Potato

Explanation: Potato is an edible underground stem (tuber). Banana stems are also edible but less common.

NEET ADVANCED LEVEL QUESTIONS

(i) More than One Answer Type

10. Which of the following functions are performed by roots?
    a) Holding a plant erect b) Producing flowers
    c) Absorbing water and minerals d) Storing food
e) Photosynthesis

Correct Answers:(a) Holding a plant erect, (c) Absorbing water and minerals, (d) Storing food

Explanation: Roots anchor plants and absorb nutrients; some store food (e.g., carrot). They do not produce flowers or perform photosynthesis.

11. Which of the following statements are true about strong stems?
    a) They are thick and strong.
    b) They hold the tree straight and upright.
    c) They need support to grow upwards.
    d) They store extra food prepared by the plant.

Correct Answers:(a) They are thick and strong, (b) They hold the tree upright, (d)

They store extra food
Explanation: Strong stems (like tree trunks) provide support and may store food (e.g., sugarcane). Creepers (c) need external support.

(ii) Fill In the Blanks:
12. _____ roots consist of a main, thick root from which small roots grow
Answer: Tap
13. Some plants, like the money plant, have very weak, soft, and thin stems. These plants are called _____.
Answer: Creepers

(iii) Matching Type:

14.

s.no	Column I	Column II
1.	Banana	a. Thick and strong
2.	Money plant	b. Stores food and can be eaten
3.	Tree trunk	c. soft and thick stem
4.	Sugarcane	d. Weak, soft, and thin stem
5.	Function of the stem	e. Carries water and minerals

Answer:
1. Banana - c. Soft and thick stem
Explanation: Banana has a pseudo-stem made of leaf sheaths; it is soft and thick.
2. Money plant - d. Weak, soft, and thin stem
Explanation: Money plant has a weak and flexible stem that needs support to grow.
3. Tree trunk - a. Thick and strong
Explanation:A tree trunk is a woody, thick, and strong stem that supports branches.
4. Sugarcane ? b. Stores food and can be eaten
Explanation: Sugarcane stem stores sugar and is edible.
5. Function of the stem ? e. Carries water and minerals
Explanation: The stem transports water and minerals from roots to other parts of the plant.

(iv) Answer the Following Questions
15. Explain about stem
Answer:
Definition: The stem is the ascending part of the plant that develops from the plumule.
Types:
Herbaceous: Soft, green (e.g., sunflower).

Woody: Hard, thick (e.g., trees).
Modified stems: Tubers (potato), rhizomes (ginger), runners (strawberry).
Features: Nodes (leaf attachment points) and internodes (spaces between nodes).
16. Explain about the functions of roots

Answer:

Anchorage: Fixes the plant in soil.
Absorption: Takes up water and minerals via root hairs.
Storage: Stores food (e.g., carrot, beetroot).
Conduction: Transports water/nutrients to stems via xylem.
Special functions:
Aerial roots (orchids) absorb moisture from air.
Prop roots (banyan) provide additional support.

TEACHING TASK
NEET LEVEL QUESTIONS
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Multiple Choice Questions

1. Which type of venation is common in dicot plants like roses and maple trees?

a) Reticulate venation b) Parallel venation
c) Circular venation d) Radial venation

Correct Answer:(a) Reticulate venation

Explanation: Dicots typically have a net-like vein pattern (reticulate), while monocots have parallel venation.

2. What is the primary purpose of the waxy cuticle covering the leaf surface?

a) To enhance photosynthesis b) To protect against UV radiation
c) To regulate transpiration d) To promote nutrient absorption

Correct Answer: (c) To regulate transpiration

Explanation: The cuticle reduces water loss by evaporation while allowing light penetration.

3. Which part of the leaf transports nutrients between the leaf and the rest of the plant?

a) Blade (Lamina) b) Petiole c) Veins d) Venation

Correct Answer: (c) Veins

Explanation: Veins contain vascular bundles (xylem and phloem) for transport.

4. What type of plants have leaves with reticulate venation?

a) Monocots b) Dicots c) Gymnosperms d) Ferns

Correct Answer: (b) Dicots

Explanation: Reticulate venation is a key characteristic of dicotyledonous plants.

5. Which process helps plants regulate internal water balance and cool the plant?

a) Photosynthesis b) Transpiration
c) Gas exchange d) Nutrient storage

Correct Answer:(b) Transpiration

Explanation: Transpiration releases water vapor, cooling the plant and maintaining water flow.

6. What gives the green color to most leaves?
a) Chlorophyll b) Carotenoids
c) Anthocyanins d) Xanthophylls
Correct Answer:(a) Chlorophyll
Explanation: Chlorophyll absorbs sunlight for photosynthesis and reflects green light.
7. What is the main function of a leaf?
a) Absorption of sunlight b) Storage of water
c) Production of oxygen d) Making food for the plant
Correct Answer:(d) Making food for the plant
Explanation: Leaves perform photosynthesis to produce glucose (food).
8. What is the process by which a leaf makes food in the presence of sunlight?
a) Transpiration b) Respiration c) Photosynthesis d) Absorption
Correct Answer:(c) Photosynthesis
Explanation: Converts CO_2 + water --> glucose + oxygen using sunlight.
9. Through which structure does a plant breathe in air?
a) Chlorophyll b) Veins c) Stomata d) Side veins
Correct Answer:(c) Stomata
Explanation: Tiny pores on the leaf surface allow gas exchange (CO_2 in, O_2 out).
10. What do most fruits contain inside them?
a) Water b) Sugar c) Seeds d) Leaves
Correct Answer:(c) Seeds
Explanation: Fruits protect and disperse seeds (e.g., apple cores, watermelon seeds).
11. Which fruit has many seeds inside it?
a) Banana b) Orange c) Papaya d) Watermelon
Correct Answer: (d) Watermelon
Explanation: Watermelons contain numerous seeds, unlike bananas (seedless) or oranges (~10 seeds).
12. What happens when a seed gets air, water, and sunlight?
a) It withers b) It grows c) It decays d) It shrinks
Correct Answer:(b) It grows
Explanation: Germination requires water (activates enzymes), oxygen (respiration), and warmth.
13. What does each seed contain inside it?
a) Water b) Food c) Air d) Light
Correct Answer: (b) Food
Explanation: Seeds store nutrients (e.g., cotyledons in beans) for the embryo.
14. Which of the following are examples of edible seeds ?
a) Apples and bananas b) Wheat and barley
c) Roses and daisies d) Rocks and sand
Correct Answer:(b) Wheat and barley
Explanation: Cereals are edible seeds. Apples/bananas are fruits; roses/daisies are ornamental.

NEET ADVANCED LEVEL QUESTIONS

(i) More than One Answer Type

15. What is the primary function of veins in a leaf? Select all that apply:
    a) Water absorption b) Structural support
    c) Nutrient transport d) Gas exchange

Correct Answers: (b) Structural support, (c) Nutrient transport
Explanation: Veins provide rigidity and transport water/nutrients. They don't absorb water or exchange gases directly.

16. Which of the following statements about fruits are true?
    a) Some fruits have only one seed b) All fruits contain seeds
    c) Bananas have seeds inside them d) Oranges have no seeds

Correct Answers:(a) Some fruits have one seed (e.g., mango), (c) Bananas have tiny vestigial seeds
Explanation: Not all fruits have seeds (seedless grapes), and oranges can be seedless or seeded.

(ii) Fill In the Blanks:

17. The flat part of a leaf is called the leaf _____.
Answer: blade (or lamina)

18. Most plants grow from their _____.
Answer: seeds

(iii) Matching Type:

19.

s.no	Column I	Column II
1.	most fruits contain	a. Seeds
2.	seeds contain	b. Bud
3.	What blooms into a flower	c. Baby plant

Answer:
1. Most fruits contain - a. Seeds
Explanation: Fruits usually develop from flowers and contain seeds inside.
2. Seeds contain - c. Baby plant
Explanation: Inside every seed is a tiny baby plant (embryo) that can grow into a new plant.
3. What blooms into a flower - b. Bud
Explanation: A bud is an undeveloped part of a plant that grows and opens into a flower.

(iv) Answer the Following Questions:

20. Explain about leaf and its function
Answer:

Structure:
Blade (Lamina): Flat surface for sunlight absorption.
Petiole: Connects blade to stem; transports nutrients.
Veins: Provide support and transport (xylem: water; phloem: food).
Stomata: Pores for gas exchange (CO_2/O_2) and transpiration.
Functions:
Photosynthesis: Produces glucose using sunlight.
Transpiration: Regulates water and temperature.
Gas Exchange: Releases O_2 and absorbs CO_2.
Storage: Stores water (succulents) or nutrients.
Adaptations:
Needle-like leaves (pine): Reduce water loss.
Tendrils (pea plant): Support climbing.

LEARNER'S TASK
NEET LEVEL QUESTIONS
Multiple Choice Questions

1. What is the primary function of leaves in plants?
   a) Water storage b) Gas exchange
   c) Nutrient absorption d) Photosynthesis

Answer: (d) Photosynthesis

Explanation: Leaves are the primary sites for photosynthesis, where plants convert sunlight, carbon dioxide, and water into glucose and oxygen.

2. Which part of the leaf is responsible for capturing sunlight?
   a) Petiole b) Veins c) Blade (Lamina) d) Venation

Answer: (c) Blade (Lamina)

Explanation: The broad, flat part of the leaf (blade or lamina) contains chlorophyll and captures sunlight for photosynthesis.

3. What is the role of veins in a leaf?
   a) To provide structural support only
   b) To carry water, minerals, and sugars
   c) To regulate gas exchange
   d) To capture sunlight for photosynthesis

Answer: (b) To carry water, minerals, and sugars

Explanation: Veins transport water and minerals (via xylem) to the leaf and carry away sugars (via phloem) produced during photosynthesis.

4. Which type of venation is typical in monocot plants?
   a) Reticulate venation b) Parallel venation
   c) Divergent venation d) Convergent venation

Answer: (b) Parallel venation

Explanation: Monocots (e.g., grasses, corn) have parallel veins, while dicots (e.g., mango, rose) have reticulate venation.

5. What is the function of leaf stomata?
   a) To store water b) To facilitate gas exchange
   c) To transport nutrients d) To capture sunlight

Answer: (b) To facilitate gas exchange

Explanation: Stomata are tiny pores that allow CO2 in (for photosynthesis) and O2/water vapor out (transpiration).

6. What is the smooth and darker upper part of a leaf called?
   a) Leaf blade b) Main vein c) Side veins d) Veins

Answer: (a) Leaf blade

Explanation: The upper surface (leaf blade) is smooth and darker due to more chlorophyll for sunlight absorption.

7. What is the term used for the tiny pores on the underside of a leaf blade?
   a) Veins b) Chloroplasts
c) Stomata d) Cuticles

Answer: (c) Stomata

Explanation: Stomata are mainly on the underside to reduce water loss.

8. What do the veins in a leaf primarily provide?
   a) Water absorption b) Structural support
   c) Nutrient transport d) Gas exchange

Answer: (c) Nutrient transport

Explanation: Veins transport water, minerals, and sugars (nutrients).

9. Which part of the leaf is rougher and lighter in color on the underside?
   a) Main vein b) Leaf blade
   c) Stomata d) Side veins

Answer: (b) Leaf blade

Explanation: The underside has fewer chloroplasts and stomata, making it lighter and rougher.

10. What is the most beautiful part of a plant?
   a) Stem b) Flower c) Leaf d) Root

Answer: (b) Flower

Explanation: Flowers are often colorful and attractive to pollinators.

11. Where does a flower bloom from?
   a) Leaf b) Root c) Bud d) Stem

Answer: (c) Bud

Explanation: Flowers develop from buds on stems or branches.

12. How do most plants grow?
   a) From roots b) From stems c) From seeds d) From leaves

Answer: (c) From seeds

Explanation: Most plants reproduce and grow from seeds, though some can grow from cuttings or spores.

13. What term is used to describe seeds like pulses, wheat, gram, and beans that we eat?

a) Inedible seeds b) Decorative seeds
c) Edible seeds d) Poisonous seeds

Answer: (c) Edible seeds

Explanation: These seeds are consumed as food.

NEET ADVANCED LEVEL QUESTIONS

(i) More than One Answer Type:

14. Which structures are found on the underside of a leaf blade? Select all that apply:

a) Veins b) Chloroplasts c) Stomata d) Cuticles

Answer: (a) Veins, (c) Stomata

Explanation: The underside has veins for transport and stomata for gas exchange.

15. Which of the following are examples of fruits that contain many seeds?

a) Papaya b) Watermelon c) Orange d) Apple

Answer: (a) Papaya, (b) Watermelon

Explanation: Papaya and watermelon are multi-seeded fruits, while oranges and apples typically have fewer seeds.

(ii) Fill In the Blanks:

16. The process by which a leaf makes food in the presence of sunlight is called _____.

Answer: Photosynthesis

17. Each seed contains a baby plant inside it, protected by the outer part of the seed, which also stores _____ for the baby plant.

Answer: Food (or nutrients)

(iii) Matching Type:

18.

s.no	Column I	Column II
1.	Chlorophyll	a. Provides structural support to the leaf
2.	Leaf blade	b. Flat part of the leaf
3.	Veins	c. Responsible for the green colour of leaves
4.	Stomata	d. Process by which a leaf makes food in the presence of sunlight.
5.	Photosynthesis	e. Tiny pores on the underside of the leaf blade

Answer:
1. Chlorophyll - c. Responsible for the green colour of leaves
Explanation: Chlorophyll is a green pigment that helps in capturing sunlight for photosynthesis.
2. Leaf blade - b. Flat part of the leaf
Explanation: The broad, flat part of the leaf is called the leaf blade or lamina.
3. Veins - a. Provides structural support to the leaf
Explanation: Veins support the leaf structure and also transport water and nutrients.
4. Stomata - e. Tiny pores on the underside of the leaf blade
Explanation: Stomata are small openings that allow exchange of gases and water vapor.
5. Photosynthesis - d. Process by which a leaf makes food in the presence of sunlight
Explanation: Photosynthesis is the process plants use to make food using sunlight, carbon dioxide, and water.

(iv) Answer the Following Questions
19. Explain about flower and its function
Answer:
A flower is the reproductive part of a plant. Its main functions are:

Reproduction: Flowers produce seeds through pollination (transfer of pollen from anther to stigma).

Attraction: Bright colors and fragrances attract pollinators (bees, birds).

Fruit Formation: After fertilization, the ovary develops into a fruit containing seeds.

Parts of a Flower:

Petals: Attract pollinators.

Stamen (male part): Anther (produces pollen) and filament.

Pistil (female part): Stigma (receives pollen), style, and ovary (contains ovules).

TEACHING TASK
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Multiple Choice Questions

1. What does a seed absorb during germination?
   a) Sunlight b) Soil c) Water d) Carbon dioxide

Answer: (c) Water

Explanation: Seeds absorb water, which softens the seed coat and triggers metabolic processes for growth.

2. What is the primary source of food for a seed during germination?
   a) Soil b) Sunlight
   c) Air d) Stored nutrients in the seed

Answer: (d) Stored nutrients in the seed

Explanation: The seed uses stored nutrients (cotyledons or endosperm) for energy until it can photosynthesize.

3. What softens the outer shell of the seed during absorption?
   a) Sunlight b) Air c) Water d) Nutrients

Answer: (c) Water

Explanation: Water imbibition softens the seed coat, allowing the embryo to emerge.

4. What emerges first from the seed during germination?
   a) Leaves b) Shoots c) Roots d) Soil

Answer: (c) Roots

Explanation: The radicle (embryonic root) emerges first to anchor the plant and absorb water/nutrients.

5. What does the root of the plant search for in the soil?
   a) Air b) Sunlight
   c) Water and nutrients d) Seeds

Answer:(c) Water and nutrients

Explanation: Roots grow downward to absorb water and essential minerals from the soil.

6. What role do the leaves play in the plant's growth?
   a) Absorbing water
   b) Anchoring the plant
   c) Breathing and photosynthesis
   d) Searching for nutrients

Answer: (c) Breathing and photosynthesis

Explanation: Leaves perform gas exchange (respiration) and photosynthesis (food production).

7. What does the shoot of the plant eventually become?
   a) Leaves b) Soil c) Flowers d) Stem and leaves

Answer: (d) Stem and leaves

Explanation: The shoot (plumule) grows upward, developing into the stem and leaves.

LEARNER'S TASK

Multiple Choice Questions

1. What is the first step in the process of germination?
   a) Absorption b) Planting c) Swelling d) Roots

Answer: (a) Absorption

Explanation: Water absorption (imbibition) is the first step, activating enzymes for growth.

2. Where does a seed get its energy during germination?
   a) Water b) Sunlight c) Nutrients d) Soil

Answer:(c) Nutrients

Explanation: The seed relies on stored nutrients (e.g., starch in cotyledons) until photosynthesis begins.

3. What part of the plant grows upward toward the sunlight?
   a) Roots b) Leaves c) Shoots d) Soil

Answer:(c) Shoots

Explanation: Shoots exhibit phototropism (growth toward light).

4. What provides the energy for photosynthesis?
   a) Soil b) Water c) Sunlight d) Carbon dioxide

Answer:(c) Sunlight

Explanation: Sunlight is the energy source converted into chemical energy (glucose) during photosynthesis.

5. Which of the following is NOT a requirement for germination?
   a) Sunlight b) Water c) Soil d) Air

Answer: (a) Sunlight

Explanation: Seeds germinate in darkness (e.g., underground). Light is only needed later for photosynthesis.

6. What is the main purpose of the seed's outer shell?
   a) To protect the seed b) To anchor the plant
   c) To absorb sunlight d) To make food

Answer:(a) To protect the seed

Explanation: The seed coat shields the embryo from physical damage, pathogens, and dehydration.