SEED DISPERSAL

TEACHING TASK (Page 27 – 30)

Multiple Choice Questions

1) Which adaptation helps seeds disperse through wind?

Answer: C) Wing-like outgrowths

Explanation: Seeds dispersed by wind often have adaptations like wing-like outgrowths (e.g., in maple seeds) or hairy structures (e.g., in dandelion) that allow them to be carried by air currents. Fleshy coverings attract animals, heavy weight hinders wind dispersal, and hooks/thorns are for animal dispersal.

2) What do animals do with fleshy fruits that contain seeds?

Answer: D) Eat them

Explanation: Animals are attracted to fleshy fruits, consume them, and often disperse the seeds through their digestive system or by carrying them away. Burying or leaving them untouched is less common for fleshy fruits.

3) How are lotus seeds dispersed?

Answer: C) Through water currents

Explanation: Lotus seeds have adaptations like air-filled spaces or buoyant structures that allow them to float and be carried by water currents, typical for aquatic plants.

4) How are neem seeds dispersed through birds?

Answer: C) Through their digestive system

Explanation: Birds eat neem fruits, and the seeds pass through their digestive system, being excreted in different locations, aiding dispersal.

5) What is one method of human-mediated seed dispersal mentioned in the passage?

Answer: D) Import and export

Explanation: The passage highlights import and export of grains as a human-mediated seed dispersal method, such as through trade or transport of agricultural products.

6) What happens to seeds that sink in water?

Answer: C) They remain in place

Explanation: Seeds that sink in water do not float or get carried away by currents; they settle at the bottom and remain in place, often failing to disperse effectively.

7) What is the role of the outer covering of seeds dispersed by bursting fruits?

Answer: D) To protect seeds

Explanation: The outer covering of seeds in bursting fruits primarily protects the seeds until the fruit bursts, scattering them. It does not attract animals, repel water, or directly spread seeds.

8) Which process ensures seeds are dispersed by animals?

Answer: B) Digestive system

Explanation: Many seeds are dispersed when animals eat fruits, and the seeds pass through their digestive system, being deposited elsewhere. Bursting, floating, or sinking are not animal-mediated processes.

9) Why are seeds dispersed through wind usually light and small?

Answer: D) To be carried away easily

Explanation: Light and small seeds, or those with structures like wings or hairs, are easily carried by wind, facilitating long-distance dispersal.

10) What is the primary reason for dispersal of seeds by animals?

Answer: C) To ensure germination

Explanation: Animal-mediated seed dispersal spreads seeds to new locations, increasing the likelihood of germination in suitable conditions away from the parent plant, reducing competition.

More than One Answer Type

11) How do humans contribute to the dispersal of seeds?

Answer: A) Planting seeds in gardens, B) Import and export of grains, C) Transferring seeds from one place to another

Explanation: Humans contribute to seed dispersal by planting seeds in gardens, importing/exporting grains (e.g., wheat, maize), and transferring seeds during travel or trade. Harvesting fruits and vegetables (D) is not directly related to seed dispersal.

12) How do seeds travel worldwide with human assistance?

Answer: A) By airplanes, B) By ships

Explanation: Seeds are transported globally via airplanes and ships during trade or migration. Birds (C) and floating in water (D) are natural dispersal methods, not human-assisted.

13) How do seeds of fleshy fruits get dispersed by animals?

Answer: A) Animals eat the fruit and carry the seeds away, B) Seeds stick to animal bodies and get transported **Explanation**: Fleshy fruits are eaten by animals, and seeds are dispersed through their digestive system or by sticking to fur/feathers. Bird beaks (C) and bursting (D) are not primary mechanisms for fleshy fruit dispersal.

Assertion and Reason Type

14) Assertion: Seeds dispersed through bursting fruits often have a fibrous outer covering.

Reason: This outer covering helps seeds float on water and move with water currents.

Answer: C) Assertion is true, but Reason is false.

Explanation: Seeds dispersed by bursting (e.g., balsam) often have a fibrous or tough outer covering to protect them during explosive dispersal. However, this covering is not for floating on water, as bursting seeds are not typically water-dispersed.

15) Assertion: Import and export of grains like wheat, pulses, maize, and paddy aid in the dispersal of seeds through human beings.

Reason: Human activities do not play a significant role in the dispersal of seeds.

Answer: C) Assertion is true, but Reason is false.

Explanation: Import and export of grains is a significant human-mediated seed dispersal method. The Reason is incorrect as human activities, like trade and agriculture, play a major role in seed dispersal.

16) Assertion: Not all seeds germinate to grow into plants.

Reason: Plants produce a large number of seeds to ensure that all seeds germinate successfully.

Answer: C) Assertion is true, but Reason is false.

Explanation: It is true that not all seeds germinate due to environmental challenges or competition. However, the Reason is false because plants produce many seeds to increase the chances that *some* seeds germinate, not to ensure *all* do.

Matrix Matching Type

17) Match the following:

Answer: i) Lotus seeds – A. Seeds dispersed through water currents. ii) Calotropis seeds – C. Seeds with a light, hairy structure for wind dispersal. iii) Balsam seeds – B. Seeds dispersed by bursting from pods. iv) Neem seeds – D. Seeds dispersed through bird digestive systems.

Explanation:

Lotus seeds float and are carried by water currents.

Calotropis seeds have hairy structures for wind dispersal.

Balsam seeds are dispersed by explosive bursting of pods.

Neem seeds are eaten by birds and dispersed via their digestive systems.

Comprehension Type

18) Questions based on the passage:

i. What purpose does the overproduction of seeds serve for plants?

Answer: Overproduction of seeds ensures that at least some seeds find suitable conditions for germination and growth, increasing the likelihood of species survival despite environmental challenges.

ii. Why would our landscapes be dominated by only a few types of plants if every seed successfully grew into a plant?

Answer: If every seed germinated, plants of the same species would compete intensely for resources like space, sunlight, and water, leading to only a few dominant species surviving and outcompeting others, reducing biodiversity.

iii. How does the process of seed overproduction function as a biological insurance policy for plants?

Answer: By producing a large number of seeds, plants increase the probability that some seeds will land in favourable conditions, germinate, and grow into mature plants, ensuring species continuation despite losses from unfavourable conditions or predation.

LEARNERS TASK (Page 30 – 33)

Multiple Choice Questions

1) Which part of the flower turns into fruit?

Answer: B) Ovary

Explanation: After fertilization, the ovary of the flower develops into the fruit, which encloses the seeds. The stamen, petal, and sepal have other roles in reproduction or attraction.

2) What develops from the ovule?

Answer: B) Seed

Explanation: The ovule, after fertilization, develops into the seed, containing the embryo of the new plant.

3) How did the tomato plant grow on the rooftop, according to the passage?

Answer: B) Birds dropped the seeds.

Explanation: The passage implies that tomato seeds were likely dropped by birds, a common dispersal method for fleshy fruits like tomatoes.

4) What is the primary purpose of seed dispersal?

Answer: D) To spread seeds to different locations for growth.

Explanation: Seed dispersal ensures seeds are spread away from the parent plant to reduce competition and increase chances of germination in new, suitable locations.

5) How are seeds dispersed through bursting fruits?

Answer: C) The fruits explode, throwing seeds.

Explanation: Bursting fruits (e.g., balsam) explode when mature, forcibly ejecting seeds to disperse them over a distance.

6) Why do plants produce a large number of seeds?

Answer: C) To guarantee some seeds grow into new plants.

Explanation: Plants produce many seeds to ensure that at least some will germinate and grow into new plants, compensating for losses due to environmental factors or predation.

7) What is the purpose of seeds dispersing through bursting fruits?

Answer: C) To spread seeds over long distances.

Explanation: Bursting fruits scatter seeds away from the parent plant, reducing competition and increasing the chances of germination in new areas.

8) Which structure helps seeds float on water?

Answer: B) Air-filled spaces.

Explanation: Seeds that disperse by water often have air-filled spaces in their outer covering (e.g., coconut), enabling them to float and be carried by currents.

9) How do orchid seeds disperse?

Answer: D) Through floating in the air.

Explanation: Orchid seeds are tiny, light, and dust-like, allowing them to float in the air for wind dispersal.

10) What do animals do with seeds that have hooks or thorns?

Answer: C) Transport them.

Explanation: Seeds with hooks or thorns stick to animal fur or feathers and are transported to new locations, aiding dispersal.

More than One Answer Type

11) Which adaptations help seeds to be dispersed by wind?

Answer: A) Light and small size, B) Hairy structures, C) Wings

Explanation: Wind-dispersed seeds are light and small (e.g., orchid), have hairy structures (e.g., dandelion), or wings (e.g., maple) to be carried by air. Hooks/thorns (D) are for animal dispersal.

12) How are seeds dispersed by water?

Answer: A) Seeds with air-filled spaces in their outer covering, C) Seeds with fibrous parts that help them float

Explanation: Water-dispersed seeds have air-filled spaces (e.g., coconut) or fibrous parts that aid flotation. Heavy seeds (B) sink, and hooks/thorns (D) are for animal dispersal.

13) Which animals are involved in dispersing seeds?

Answer: A) Birds, B) Insects, C) Mammals, D) Reptiles

Explanation: Birds (e.g., eating fruits), insects (e.g., carrying small seeds), mammals (e.g., via fur or digestion), and reptiles (e.g., eating fruits) all contribute to seed dispersal.

Assertion and Reason Type

14) Assertion: Coconut seeds can float on water and move from place to place, often growing near sea shores.

Reason: These adaptations help seeds get carried away by the wind.

Answer: C) Assertion is true, but Reason is false.

Explanation: Coconut seeds are buoyant and float on water, aiding dispersal near shores. However, the Reason is false as coconuts are not wind-dispersed.

15) Assertion: Some seeds have hooks, thorns, or hairs that stick to animal bodies and get transported.

Reason: Coconut seeds have heavy weight, enabling them to float easily.

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

Explanation: The Assertion is true as hooks/thorns/hairs aid animal-mediated dispersal. The Reason is true for coconuts (heavy but buoyant due to fibrous covering), but it does not explain the Assertion.

16) Assertion: Seeds dispersed by wind are usually light and small, or they have wings or hairy structures.

Reason: Seeds with these adaptations are primarily dispersed by wind.

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

Explanation: Wind-dispersed seeds are light, small, or have wings/hairs, and these adaptations enable wind dispersal, making the Reason a correct explanation.

Matrix Matching Type

17) Match the following:

Answer: i) Wheat – A. Not native to India, brought by European travelers. ii) Tomato – B. Commonly grown in home gardens. iii) Sugar cane – C. Native to India, now grown worldwide. iv) Maize – D. Commonly exported by airplanes and ships.

Explanation:

Wheat was introduced to India by travelers.

Tomatoes are common in-home gardens.

Sugar cane is native to India and widely cultivated globally.

Maize is frequently exported via air and sea routes.

Comprehension Type

18) Questions based on the passage:

i. Why is seed dispersal essential for the growth of new plants?

Answer: Seed dispersal is essential to spread seeds to different locations, reducing competition with the parent plant for resources like space, sunlight, and water, thus increasing the chances of successful germination and growth.

ii. How would plants be affected if all their seeds were to grow in the same location simultaneously?

Answer: If all seeds grew in the same location, plants would compete intensely for resources like sunlight, water, and nutrients, leading to stunted growth, reduced survival rates, and potential death of many plants.

iii. Why do plants spread their seeds to different places?

Answer: Plants spread seeds to different places to reduce competition with the parent plant and among siblings, ensuring that some seeds find suitable conditions for germination and growth, enhancing species survival.