



INDIAN SCHOOL AL WADI AL KABIR

CLASS: VII	DEPARTMENT: SCIENCE 2020 - 21	DATE: 20.12.2020
WORKSHEET NO.: 14 With answers	Topic: Reproduction in plants	Note: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC:	ROLL NO.

I. OBJECTIVE TYPE QUESTIONS:

- 1) Pollination refers to the :
 - (i) Transfer of pollen from anther to ovary.
 - (ii) Transfer of female gametes from anther to stigma.
 - (iii) **Transfer of pollen from anther to stigma.**
 - (iv) Transfer of pollen from anther to ovule.
- 2) The 'eye' of the potato plant is what
 - (i) The root is to any plant.
 - (ii) The bud is to a flower.
 - (iii) **The bud is to Bryophyllum leaf.**
 - (iv) The anther is to stamen.
- 3) A pond with clear water was covered with green algae within a week. By which method of reproduction did the algae spread so rapidly?
 - (i) Budding
 - (ii) Sexual reproduction
 - (iii) **Fragmentation**
 - (iv) Pollination
- 4) Mature ovary forms the:
 - (i) Seed
 - (ii) Stamen
 - (iii) Pistil
 - (iv) **Fruit**
- 5) Which of the following statements is/are true for sexual reproduction in plants?
 - (a) Plants are obtained from seeds.
 - (b) Two plants are always essential.
 - (c) Fertilisation can occur only after pollination.
 - (d) Only insects are agents of pollination.Choose from the options given below.
 - (i) **(a) and (c)**
 - (ii) (a) only
 - (iii) (b) and (c)
 - (iv) (a) and (d)
- 6) Seeds of drumstick and maple are carried to long distances by wind because they possess:
 - (i) **winged seeds**
 - (ii) large and hairy seeds
 - (iii) long and ridged fruits
 - (iv) spiny seeds
- 7) Germination occurs when:
 - (i) An already dormant embryo is activated.
 - (ii) The cotyledons emerge above the ground.
 - (iii) Either hypocotyls or epicotyls emerges above ground.
 - (iv) **Vascular tissue begins the transport of water and minerals.**

Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below-

- i) Both A and R are true and R is the correct explanation of the assertion.
- ii) Both A and R are true but R is not the correct explanation of the assertion.
- iii) A is true but R is false.
- iv) A is false but R is true

- 8) Assertion (A): Spores are reproductive structures in some fungi.
Reason (R): Spores have thick walls to survive unfavourable conditions. (ii)
- 9) Assertion (A): Flowers pollinated by insects are colourless and small in size.
Reason(R): Seeds with spines are dispersed by humans and animals. (iv)
- 10) Assertion (A): Some plants reproduced by growing vegetative parts into new plants.
Reason(R): In sexual reproduction there is fusion of similar gametes. (iii)

II. BASIC CONCEPT LEVEL QUESTIONS:

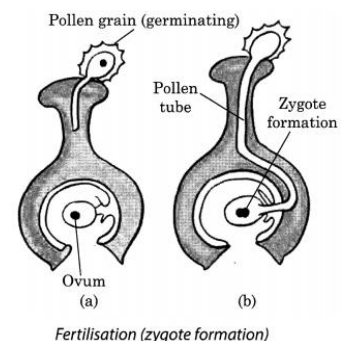
- 1) Name the following:
 - a) Two organisms which reproduce by budding (Hint: hydra and yeast)
 - b) The method by which moss and ferns reproduce (hint : spore formation)
 - c) The type of flower which has both the male and female reproductive parts (bisexual flower)
 - d) Plant which multiplies by fragmentation (spirogyra)
- 2) What happens when a leaf of Bryophyllum falls on moist soil? [Hint: When a 'leaf of Bryophyllum falls on moist soil, new plants arise from the buds present in the margin of leaves. Reproduction in plants that occurs with the help of vegetative parts like stems, roots, leaves or buds is known as vegetative reproduction.]
- 3) Write two examples of plants in which roots can give rise to a plant. [Hint: Dahlia and sweet potato are two examples of plants in which roots can give rise to plant]
- 4) List the agents which help in cross pollination (Hint: wind, water, animals, insects)
- 5) What are spores? How spores can survive for a long time? [Hint: Spores are asexual bodies. Each spore is covered by a hard-protective coat to withstand unfavourable conditions such as high temperature and low humidity, so they can survive for a long time. Under favourable conditions, a spore germinates and develops into a new individual.]
- 6) Give an example of each of the following:
 - a) Dispersal by wind (Hint: drumstick, cotton, grasses)
 - b) Dispersal by animals (Hint: xanthium, tomato, guava)
 - c) Dispersal by water (Hint: coconut, lotus)

III. INTERMEDIATE LEVEL QUESTIONS:

- 1) What is reproduction? Name the methods by which the plants reproduce. [Hint: Reproduction is the process by which individuals produce young ones of their own kind. There are mainly two types of reproduction- asexual and sexual. Asexual reproduction includes vegetative propagation, budding, fragmentation, spore formation]
- 2) What are the advantages of vegetative propagation? [Hint: i) Plants produced by vegetative propagation take less time to grow and bear flowers and fruits earlier than those produced from seeds ii) The new plants are exact copies of the parent plant, as they are produced from a single parent]
- 3) Differentiate between:
 - a) Unisexual flowers and bisexual flowers [Hint: Unisexual flower refers to the flower which has either stamen or carpels.
Example: Papaya flowers.
Bisexual flower refers to the flower which has both stamen and carpels.
Example: Hibiscus.]
 - b) Self- and cross pollination [Hint: **Self-pollination** occurs when the pollen from the anther is deposited on the stigma of the same flower, or another flower on the same plant. **Cross-pollination** is the transfer of pollen from the anther of one flower to the stigma of another flower on a different plant of the same species.]
 - c) Sexual and asexual reproduction [Hint: Sexual reproduction; the mode of reproduction in which new plants are produced from seeds by involvement of both male and female gametes.
(ii) Asexual reproductions. In this mode of reproduction, new plants are produced without seeds by involvement of single parent.]
- 4) What is meant by the term fertilisation? List the stepwise manner leading to formation of an embryo. [Hint: The process in which the male gamete fuses with female gamete to form a new cell (called zygote) is called fertilisation.

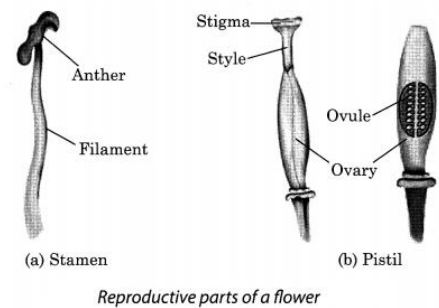
Sexual reproduction [fertilisation) in plants -the different steps that take place during sexual reproduction in plants are

- i) The pollens are deposited on stigma and begins to germinate.
- ii) Pollen tube containing male gametes reaches to the ovary of flower.
- iii) The tip of the pollen tubes gets dissolved and male gametes comes out of the pollen tube.



Fertilisation (zygote formation)

- iv) Inside the ovary male gametes fuse with the female gamete or egg present in the ovule.
 - v) The fusion of both the gametes will result into a fertilised egg cell which is also called as zygote.]
- 5) What is seed dispersal? What will happen if all the seeds of a plant were to fall at a same place and grow? [Hint: Plant produces large number of seeds. When these seeds fall down they starts growing. The process by which the seeds are scattered to different place (far and wide from their parents) is called seed dispersal. If all the seeds of a plant were to fall at the same place and grow, there will be a severe competition for sunlight, water, mineral and space. As a result, the survival for the plants will be difficult and the plants who survive will not grow into a healthy plant.]
- 6) Coconut is a large and heavy fruit. How is it adapted for dispersal by water? [Hint: The seeds of some plants that have an outer fibrous or spongy covering are dispersed through water. They have the ability to float in the water and drift along with its flow, e.g. seeds of water lily, lotus, chestnut (singhara) and coconut are dispersed through water. The coconut fruits have a fibrous outer coat which enables them to float in water and carried away by flowing water to far off places.]
- 7) What is the significance of dispersal of seeds? [Hint: Seed dispersal avoids overcrowding of young plants around their parent plants. It helps in preventing competition between the plants and its own seedlings for sunlight, water and minerals. One of the benefits of seed dispersal is that it enables the plant to grow into new habitats for wider distribution and provides them with better chance of survival.]
- 8) What are the post fertilisation changes in a flower? [Hint: After fertilisation, the ovary grows into a fruit and other parts of the flower fall off. The ripened ovary is called fruit. The seeds develop from the ovules. The seed contains an embryo, which is formed from zygote due to fusion of male and female gametes. The embryo develops into future plant on getting favourable conditions.]
- 9) Explain the reproductive parts of a flower with a labelled diagram. [Hint: Flowers are the reproductive parts of a plant. The stamens are the male reproductive part and the pistil is the female reproductive part. Anther contains pollen grains which produce male gametes. A pistil consists of stigma, style and ovary. The ovary contains one or more ovules. The female gamete or the egg is formed in an ovule. In sexual reproduction a male and a few female gamete fuse to form a zygote.

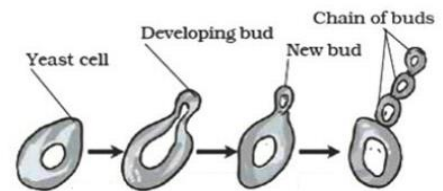


IV. ADVANCED LEVEL QUESTIONS:

- 1) Why do farmers leave space between the seeds while sowing them? [Hint: To avoid overcrowding and to avoid scarcity of nutrients, light, air and space for the seeds.]
- 2) Explain fragmentation with example. [Hint: It is a mode of asexual reproduction. An algae break into two or more fragments. These fragments grow into new individuals. This process continues and they cover a large area in a short period of time]

- 3) How does a new yeast grow by budding? Draw a neat diagram to support your answer.

[Hint: In this method, a small bulb like projection comes out from the parent yeast cell. It is called a bud. The bud gradually grows and gets detached from the parent cell and forms a new yeast cell. This new yeast cell grows, matures and produces more yeast cells]

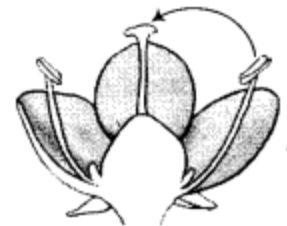


- 4) How do fungi and fern plants reproduce to give rise to new plants?

[Hint: They grow by the process of spore formation. Each spore is covered by a hard protective coat to withstand unfavorable conditions. Under the suitable conditions spores germinate and develop into new individuals]

- 5) Which type of pollination does the given figure indicate?

(Hint: The given figure shows self-pollination, as the pollen grains from anther of the flower are transferred to the stigma of same flower.)



V. EXEMPLAR QUESTIONS:

1. Boojho had the following parts of a rose plant—a leaf, roots, a branch, a flower, a bud and pollen grains. Which of them can be used to grow a new rose plant?

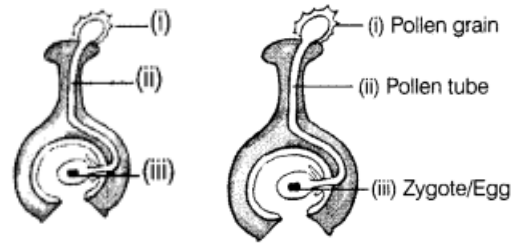
(Hint: The branch can be used to grow a new rose plant, as rose reproduces through vegetative propagation by stem cutting method. The lower end of the stem cutting is buried in soil and the upper part having the bud is kept above the ground. The planted cutting is watered every day. After a few days, the cutting in soil develops roots and bud produces a shoot. In this way a branch cutting of a rose plant grows to become a new rose plant.)

2. One morning as Paheli strolled in her garden she noticed many small plants, which were not there a week ago. She wondered, where they had come from as nobody had planted them there. Explain the reason for the growth of these plants. (Hint: The small plants which were not there in the garden a week ago, may have grown up due to the seed dispersal. The seeds from the tree may have fallen below or have been

dispersed by wind or animals on the ground, which on germination developed into new small plants.)

3. In the figure given, label the part marked (i), (ii) and (iii) and explain the parts labelled.

(Hint: When a pollen grain falls on the stigma of a flower, it grows into a pollen tube downwards through the style towards the egg in ovary. A male gamete moves down the pollen tube and fuses with female gamete in ovary to form a zygote.)



4. When you keep food items like bread and fruits outside for a long time especially during the rainy season, you will observe a cottony growth on them.

(a) What is this growth called?

(b) How does the growth take place?

(Hint: (a) When food items like bread and fruits are kept outside for a long time especially during rainy season, a cottony growth of bread mould (a fungus) is observed.

(b) The growth of fungus takes place by spores present in air, which when comes in contact with moisture on bread germinates and grow to produce new organisms.)

5. Group the seeds given in figure (i) to (iii) according to their means of dispersion.

(a) Seed dispersed by wind

(b) Seed dispersed by water

(c) Seed dispersed by animal.

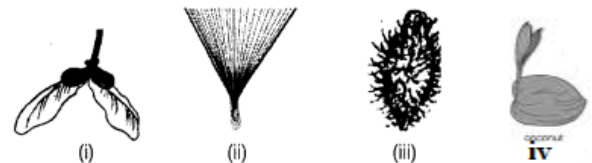
(Hint: The seeds and their means of dispersal are:

(a) **Seed dispersed by wind** -The seed of maple (i) (winged seed which are light in weight) and seed of aak or madar (ii) (hairy outgrowth, which makes it lighter) can be dispersed by wind.

(b) **Seed dispersed by water** - Seeds of coconut (iv) having spongy form and floating ability which are dispersed by water to different places.

(c) **Seed dispersed by animals** Seed of Xanthium (iii) are spiny with on them which gets attached to the bodies of animals and are carried to distant places.

None of the seed given in the figure is dispersed by water.)



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