

NEW ERA PUBLIC SCHOOL (2021)Subject :- ScienceTopic :- Reproduction in PlantsClass :- 7thLesson no :- 12Solved Assignment of Unit-III→ Short Answer Questions:-D. Answer in brief.Q1. What is the difference between asexual and sexual reproduction?Ans:- Asexual reproduction:- The process of reproduction in which an organism reproduces on its own without the help of another individual is called asexual reproduction. Only a single parent is required to carry out asexual reproduction.Sexual reproduction:- The process of reproduction in which two individuals are needed for the production of offspring is called sexual reproduction.Q2:- What is vegetative propagation?Ans:- The process by which new plants grow from the vegetative parts of a plant such as the stem, the root and the leaf is called vegetative propagation or vegetative reproduction.Q3:- How is grafting used to develop new plants?Ans:- Grafting is one of the method of artificial vegetative propagation. In this method, a small part of one plant called scion is inserted into the

stem or root system of another plant called stock fixed into the soil. They both are then firmly tied together. After some days, their tissues join with each other and develop as new variety of plant.

Q4:- What is pollination?

Ans:- The process by which pollen grains are transferred from anther to stigma is called pollination.

Q5:- What is the difference between self-pollination and cross-pollination?

<u>Ans:-</u>	<u>Self-pollination</u>	<u>Cross-pollination</u>
	When pollen from the anther of a flower is transferred to the stigma of same flower or to the stigma of another flower on the same plant, the process is called self-pollination.	When pollen from the anther of a flower is transferred to the stigma of a flower on another plant, the process is called cross-pollination. This requires pollinators, like insects, wind or water.

→ Draw Diagram — Fig 12.15 (a) self-pollination
(b) cross-pollination on Pg. no 141 on book.

Q6:- Why are seeds and fruits dispersed?

Ans:- Seeds and fruits are dispersed in order to ensure that the seedlings are distributed over a wide area. This avoids overcrowding and increases the chances of survival of the seedlings.

Q7:- How do the fine hairs that surround cotton seeds help in their dispersal?

Ans:- The fine hair that surrounds cotton seed help in reducing the weight of the seed and make it light. The fine hair helps in dispersal through wind as these hair help the seed to fly lightly and can go over long distance to germinate.

Q8:- How are peas dispersed?

Ans:- Peas are dispersed by the explosion of fruits. Fruits of pea plants burst open or explode when they are dry. The seeds are thus scattered away from the mother plant.

Q9:- What is germination?

Ans:- When a seed gets suitable temperature, air and water, it sprouts and grows into a new plant. This process is called germination.

→ Long Answer Questions:-

E. Answer in detail.

Q1:- Write a short note on spore formation in plants?

Ans:- Fungi (such as mushrooms and moulds), ferns and mosses reproduce by spore formation. They produce tiny spherical cells called spores that grow into new individuals. Spores have a thick wall that helps them to withstand unfavourable conditions.

(4)

They are so light that they can float through the air. In mosses and ferns, the spores are produced inside special structures called capsules.

Q2:- Describe how some plants reproduce through roots, stems or leaves.

Ans:- Propagation through the root:- Plants like the sweet potato, carrot, turnip and radish reproduce through the root. The root has stored food that is used to produce new shoots.

Propagation through the stem:- The potato is a tuber, that is, a modified underground stem with buds on its surface, called eyes. New shoots develop from the eyes.

Propagation through the leaves:- In Bryophyllum, new plants are produced from leaves, which have buds on their margins. These buds give rise to new plants.

Q3:- Explain the following briefly:

(i) Grafting:- It is one of the method of artificial vegetative Propagation. In this method, a small part of one plant called scion is inserted into the stem or root system of another plant called stock fixed into the soil. They both are then firmly tied together. After some days, their tissues join with each other and develop as new variety of plant.

ii) cutting:- In this method, a healthy young branch with a few nodes is cut off and most of its leaves are removed. It is stuck into moist soil. This cutting will now develop roots and grow into a new plant.

iii) layering:- In layering, a young branch is bent and pressed into moist soil. After a few days or weeks, roots develop from the covered part. Now the branch can be cut and the new plant can be moved where needed.

Q4:- What is tissue culture?

Ans:- Tissue culture is a modern method of vegetative reproduction. In this method, a piece of tissue is cut from the plant and kept in a nutrient medium under controlled conditions. This tissue grows into a mass of cells. The mass of cells is then placed in a different nutrient medium which makes it develop into a new plantlet. The plantlet is now grown in soil. Plants like chrysanthemum and orchids are propagated by this method.

Q5:- What are the advantages and disadvantages of vegetative Propagation?

Ans:- There are many advantages to vegetative Propagation.

1. Plants grown this way require less time to mature than those grown from seeds.

2. The new plants developed from a single plant are exactly like the parent plant. Thus this is a good method of propagating plants with certain desired characteristics. (6)

3. Individuals having better characteristics, like toughness and tasty fruit, can be produced by grafting two separate varieties.

Vegetative reproduction has some disadvantages too. It can lead to overcrowding, for example, if too many runners are produced by the parent plant. Due to the lack of genetic variation, an entire population of plants might become susceptible to an infection or parasite.

Q:- What are the features of the flowers of plants that are

(i) Insect-pollinated:- The flowers of insect-pollinated plants like mustard and papaya plants are usually large, brightly coloured and scented. This attracts insects to the flower to feed on the nectar.

(ii) Wind-pollinated:- The flowers of wind-pollinated plants like rice and wheat plants are small, do not have nectar and are not colourful. The flowers are usually found in dense clusters near the ends of branches. They have a long and sticky stigma to easily trap air-borne pollen grains. They have well-

exposed stamens so that the pollen grains can be carried away easily by the wind.

Q7:- What is fertilisation? Describe how the ovum is fertilised.

Ans:- The fusion of the male gamete and the female gamete is called fertilisation.

When a pollen grain lands on a stigma, it sends out a tube-like structure called a pollen tube. The pollen tube grows into the stigma and style, and reaches the ovary. The male gamete from the pollen grain reaches the ovary through the pollen tube. It fuses with the female gamete (ovum) in the ovule and forms the zygote. In this way, ovum is fertilized.

→ Draw Diagram - Fig 12.17 (Fertilisation in a flower) on Pg. no 142

Q8:- Describe how a fruit is formed?

Ans:- After fertilisation, the ovary grows into the fruit and the ovules develop into the seeds. The fruit is actually a ripened and mature ovary. It encloses seeds. Seeds are attached to the fruits by a stalk which on maturity gets detached. Each seed contains an embryo. The embryo contains a radicle (that develops into the root), plumule (that develops into the shoot) and one or two cotyledons that store food for germination.

→ Draw Diagram - Fig 12.10 (Parts of a seed) on Pg. no 142

→ Objective Type Questions:-

A Multiple choice Questions.

KEY:-

1. d

5. d

9. b

2. b

6. b

10. a

3. a

7. a

4. a

8. a

B. Fill in the blanks:-

1. binary fission

7. anther

2. Budding

8. pollen grain, stigma

3. capsules

9. wind

4. eyes

10. water

5. gamete

11. Maple, drumstick.

6. Fertilization.

C. Say whether the statements are true or false.

1. False

6. True

2. False

7. False

3. True

8. False

4. False

9. True

5. True

10. False

Topic :- Time and Motion

Lesson no :- 13

→ Short Answer Questions :-

D. Answer in brief.

Q1:- What are periodic events? Give three examples.

Ans:- Events that take place after regular interval of time are called periodic events e.g. rising of sun every morning, revolution of the earth and oscillation of simple pendulum.

Q2:- What property of a simple pendulum makes it useful in measuring time?

Ans:- Periodic oscillation of a simple pendulum makes it useful in measuring time.

Q3:- What factors determine the time period of a simple pendulum?

Ans:- The time period of a simple pendulum depends on the length of the string of the pendulum.

Q4:- Define speed and express the relationship between distance and time as an equation.

Ans:- Speed is the distance moved by a body in a unit of time.

$$\text{Speed} = \frac{\text{Distance travelled}}{\text{Time taken}}$$

If a body moves a distance d in time t :

$$\text{Speed, } s = \frac{d}{t}$$

Q5:- When is an object said to be moving in uniform motion?

Ans:- When a body travels in a straight line and covers equal distances in equal intervals of time, it is said to be in uniform motion.

Q6:- What is the function of a speedometer?

Ans:- Speedometer shows the speed of the vehicle in km/h at any point in time.

Q7:- The distance-time graph of an object is found to be a straight, sloping line. What can you say about the motion of the object?

Ans:- It is in uniform motion.

→ Long Answer Questions:-

E. Answer in detail.

Q1:- Write a short note on sundials?

Ans:- An early device that was used to tell the time of day was the sundial. A sundial consists of a flat surface on which a triangular structure is placed vertically. The shadow of the vertical structure falls on the flat surface and is used to tell time. The five Jantar Mantars in India have sundials.

Q2:- Distinguish between the speed and average speed of a moving object.

Ans:-

<u>Speed</u>	<u>Average speed</u>
1. Speed is the distance moved by a body in a given time.	1. Average speed is the total distance covered by a body divided by the total time taken.
2. $\text{Speed} = \frac{\text{distance travelled}}{\text{time taken}}$	2. $\text{Average speed} = \frac{\text{total distance travelled}}{\text{total time taken}}$

Q4:- Differentiate between uniform and non-uniform motion.

Ans:-

<u>Uniform motion</u>	<u>Non-Uniform motion</u>
1. When a body travels in a straight line and covers equal distances in equal intervals of time, it is said to be in uniform motion.	1. When a moving body does not cover equal distances in equal intervals of time, it is said to be in non-uniform motion.
2. Whenever a body is executing uniform motion, it is moving with a constant (unchanged) speed	2. Whenever a body is executing non-uniform motion, it is moving with a variable (changing) speed

→ Objective Type Questions:-
A. Multiple choice Questions.

KEY:-

- | | | |
|------|------|-------|
| 1. c | 5. a | 9. c |
| 2. b | 6. d | 10. c |
| 3. b | 7. d | |
| 4. d | 8. c | |

B. Fill in the blanks:-

- | | |
|------------------|--------------------|
| 1. pendulum | 5. speed |
| 2. balance wheel | 6. speed |
| 3. quartz | 7. X-axis, Y-axis. |
| 4. metre/sec | |

C. Say whether the statements are true or false.

1. False
2. False
3. False
4. False
5. False
6. True

(13)

Topic:- Electric Currents and Circuits
Lesson no:- 14

→ Short answer questions:-

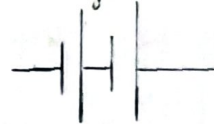
D. Answer in brief.

Q1:- What is an electric circuit?

Ans:- An electric circuit is a closed path in which the electric current flows. A circuit is usually made by linking electrical components together with pieces of wire.

Q2:- Draw the circuit symbols for:

i) a battery of two cells



ii) a switch in the 'off' position



iii) a bulb

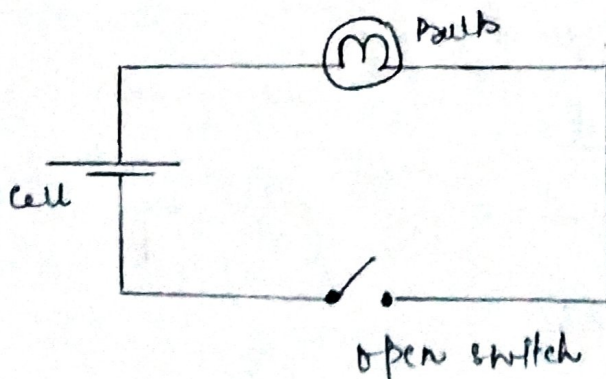


iv) a connecting wire



Q3:- Draw a simple circuit diagram of a circuit that includes a bulb and an open switch.

Ans:-



(14)

Q4:- Name three electrical devices each that utilize the following effects of current.

(i) heating effect.

Ans:- The three electrical devices that utilize the heating effect of current are electric bulb, toaster and electric iron.

(ii) magnetic effect.

Ans:- The three electrical devices that utilize the magnetic effect of current are electric bells, hard disk drives and speakers.

Q5:- What is an electromagnet?

Ans:- A coil of wire wound around a magnetic core, which acts as a magnet as long as an electric current flows through the coil, is called an electromagnet.

Q6:- In an electromagnet, what is the advantage of the iron core?

Ans:- The iron core serves to increase the magnetic field created.

→ Long Answer Questions:-

E. Answer in detail.

Q2:- Why is a fuse wire necessary in a circuit?
How does it work?

Ans:- Every electric circuit has a maximum amount of electricity that it can carry. Sometimes, due to a short circuit, a great increase of current can occur suddenly in the circuit. The wires then get overheated and the insulation may catch fire. The fire can spread and cause heavy damage to life and property. To prevent this, a fuse is included in every circuit.

The fuse is a safety device used in an electric circuit to prevent a large amount of current from flowing through a circuit. It consists of an alloy that has a low melting point fitted on a surface made of porcelain or glass. When the current in a circuit increases because of some fault, the wire becomes hot and melts, thus breaking the circuit before lasting damage is done. After correcting the fault, the broken fuse wire should be replaced by a proper fuse wire and not by any other kind of wire.

Q:- Draw the structure of an electric bulb and describe how it works.

Ans:- The electric bulb has a coiled filament that is made of tungsten metal enclosed in a glass bulb containing an inert gas at low pressure.

The filament offers high resistance to the

flow of current and therefore becomes very hot when current is passed through it. When current flows in the filament, it becomes white-hot and gives out light. Tungsten has a very high melting point and does not melt even when white-hot.

→ Draw Diagram - Fig. 14.6 (An electric bulb)
on Pg. no 163 on book.

Q5:- With the help of a diagram, explain the working of an electric bell.

Ans:- The electric bell is a simple device that uses an electromagnet to make sound. It is used as a doorbell in homes.

Working:- 1. When the switch is pressed, the circuit is complete and current flows through the circuit. This activates the electromagnet.

2. The soft iron bar is attracted towards the electromagnet and the hammer hits the gong. This movement breaks the circuit and current stops flowing through the circuit. This inactivates the electromagnet.

3. The spring pulls the soft iron bar back to its original position so that contact is made and the circuit is complete. The electromagnet is activated again and pulls the soft iron bar towards it, which makes the hammer hit the gong again. So the hammer repeatedly strikes the gong producing a ringing.

sound as long as the switch is kept pressed.
→ Draw Diagram Fig 14.14 (Working of an electric bell)

→ Objective Type Questions:-

A. Multiple choice Questions:-

- | | |
|------|------|
| 1. d | 5. c |
| 2. a | 6. b |
| 3. c | 7. b |
| 4. d | 8. b |

B. Fill in the blanks:-

1. circuit
2. closed
3. short
4. high

C. Say whether the statements are true or false.

1. False
 2. True
 3. False
 4. False
 5. True
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