GRADE VII

Competency Based Questions

Ch -8 Reproduction in Plants

Multiple Choice Questions (MCQ's)

1) Which of the following parts of a plant take part in sexual reproduction?
   (i) Flower
   (ii) Seed
   (iii) Fruit
   (iv) Branch
   Choose the correct answer from below.
   (a) (i) and (ii)
   (b) (i), (ii) and (iii)
   (c) (iii) and (iv)
   (d) (ii), (iii) and (iv)
2) Lila observed that a pond with clear water was covered up with green algae within a week. By which method of reproduction did the algae spread so rapidly?
   (a) Budding
   (b) Sexual reproduction
   (c) Fragmentation
   (d) Pollination
3) Seeds of drumstick and maple are carried to long distances by wind because they possess
   (a) winged seeds
   (b) large and hairy seeds
   (c) long and ridged fruits
   (d) spiny seeds.
4) Which of the following statements is/are true for sexual reproduction in plants?
   (i) Plants are obtained from seeds.
   (ii) Two plants are always essential.
   (iii) Fertilisation can occur only after pollination.
   (iv) Only insects are agents of pollination. Choose from the options

given below.
(a) (i) and (iii)
(b) (i) only
(c) (ii) and (iii)
(d) (i)and(iv)

5) Pollination refers to the
(a) transfer of pollen from anther to ovary
(b) transfer of male gametes from anther to stigma
(c) transfer of pollen from anther to stigma
(d) transfer of pollen from anther to ovule.

6) The ovaries of different flowers may contain
(a) only one ovule
(b) many ovules
(c) one to many ovules
(d) only two ovules.

Assertion and Reason

Assertion- there are two types of reproduction- sexual and asexual reproduction.

Reason- in sexual reproduction only single parent are involved.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

2.) Assertion- vegetative propagation is the method of asexual reproduction in plants.

Reason- In vegetative propagation new plants are produced from different vegetative parts such as leaves , stems and roots.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

3) Assertion- a bisexual flowers has both the male and the female reproductive parts.

Reason- the male gametes are found in side the ovule and females gametes are found inside the pollen grains.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

4) Assertion- pollination takes place in plants with the help of wind, water and insects.

Reason- pollination is the process of transfer of pollen grains from the anther of one flower to the stigma of the same or another flower.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

Case Based Study

Case Study 1

The production of new individuals from their parents is known as reproduction. Most plants have roots, stems and leaves. These are called the vegetative parts of a plant. After a certain period of growth, most plants bear flowers. You may have seen the mango trees flowering in spring. It is these flowers that give rise to juicy

mango fruit we enjoy in summer. We eat the fruits and usually discard the seeds. Seeds germinate and form new plants .Flowers perform the function of reproduction in plants. Flowers are the reproductive parts.

There are several ways by which plants produce their offspring. These are categorized into two types: (i) asexual ,and (ii) sexual reproduction. In asexual reproduction plants can give rise to new plants without seeds, whereas in sexual reproduction, new plants are obtained from seeds.

Que. 1) The production of new individual due to the fusion of male and female gamete is known as…….

(a) Asexual reproduction

(b) Sexual reproduction

(c) Reproduction

(d) Germination

Que. 2) Which of the following is a part of the plant?

(a) Stem

b) Root

(c) Leaves

(d) All of the above

Que. 3)
In…….**reproduction plants can give rise to new individuals without fertilization.**

(a) Asexual reproduction

(b) Apomixis

(c) Parthenocarpy

(d) Vegetative propagation

Que. 4) Which part is involved in the reproduction of plants?

Que. 5) Name the vegetative parts of plants?

Case Study 2

Stamens are the male reproductive part and pistil is the female reproductive part. Flowers which contain either only pistil or only stamens are called unisexual flowers. Flowers which contain both stamens and pistil are called bisexual flowers. Corn, papaya and cucumber produce unisexual flowers, whereas mustard, rose and petunia have bisexual flowers. Both male and female unisexual flowers maybe present in the same plant or indifferent plants .Anther contains pollen grains which produce male gametes. A pistil consists of stigma, style and ovary. Ovary contains one or more ovules. The

Female gamete or the egg is formed in an ovule. In sexual reproduction a male and a female gamete fuse to form a zygote.

Que. 1) Pistil is the……..**reproductive part and stamen is the**……..….**reproductive part of flower.**

(a) Female, male

(b) Male, female

(c) Male, male

(d) Male, ovule

Que. 2) Papaya produces which type of flowers?

(a) Hermaphrodite

(b) Unisexual

(c) Bisexual

(d) No flower

Que. 3) Where is female gamete formed?

(a) Stamen

(b) Pistil

c) Ovule

(d) Ovum

Que. 4) How a zygote is formed in sexual reproduction?

Que. 5) What is the composition of pistil?

Case Study 3

Generally, pollen grains have a tough protective coat which prevents them from drying up. Since pollen grains are light, they can be carried by wind or water. Insects visit flowers and carry away pollen on their bodies. Some of the pollen lands on the stigma of a flower of the same kind. The transfer of pollen from the anther to the stigma of a flower is called pollination. If the pollen lands on the stigma of the same flower or another flower of the same plant, it is called self-pollination.

When the pollen of a flower lands on the stigma of a flower of a different plant of the same kind, it is called cross pollination the cell which results after fusion of the gametes is called a zygote. The process of fusion of male and female gametes (to form a zygote) is called fertilization. The zygote develops into an embryo.

Que. 1) Pollen grains have a……**protective coat which prevents the pollen grain form**……..**.**

(a) Tough, drying up

(b) Soft, drying up

(c) Flexible, drying up

(d) Strong, moisture

Que. 2) What develops into an embryo?

(a) Pollen

(b) Ovum

(c) Zygote

(d) Pistil

Que. 3) Which of the following acts as an agent for pollination?

(a) Insect

(b) Water

(c) Wind

(d) All of the above

Que. 4) Define pollination?

Que. 5) How many types of pollination are there, name them?

Case Study 4

After fertilization, the ovary grows into a fruit and other parts of the flower falloff. The fruit is the ripened ovary. These seeds develop from the ovules. The seed contains an embryo enclosed in a protective seed coat. Some fruits are fleshy and juicy such as mango and orange. Some fruits are hard like almonds and walnuts in nature same kind of plants grow at different places. This happens because seeds are dispersed to different places. Sometimes after a walk through a forest or a field or a park, you may have found seeds or fruits sticking to your clothes.

If all seeds of a plant were to fall at the same place and grow then. There would be severe competition for sunlight, water ,minerals and space. As a result the seeds would not grow into healthy plants .Plants benefit by seed dispersal. It prevents competition between the plant and its own seedlings for sunlight, water and minerals. It also enables the plants to invade new habitats for wider distribution.

Que. 1) After fertilization the ovary develops into……..**and the other parts of the flower fall off.**

(a) Fruit

(b) Seed

(c) Ovule

(d) Clothes

Que. 2) The embryo is protected by a…….**.**

(a) Seed coat

(b) Weather coat

(c) Ovule

(d) None

Que. 3) Which fruit is fleshy and juicy?

(a) Mango

(b) Banana

(c) Almond
d) Tomato

Que. 4) What is a fruit?

Que. 5) If all seeds of the plant will fall off and grow then what would happened?

Case Study 5

Seeds and fruits of plants are carried away by wind, water and animals. Winged seeds such as those of drumstick and maple, light seeds of grasses or hairy seeds of aak(*Madar*) and hairy fruit of sunflower, get blown off with the wind to faraway places. Some seeds are dispersed by water. These fruits or seeds usually develop floating ability in the form of spongy or fibrous outer coat as in coconut. Some seeds are dispersed by animals, especially spiny seeds with hooks which get attached to the bodies of animals and are carried to distant places. Examples are *Xanthium* and *Urena*. Some seeds are dispersed when the fruits burst with sudden jerks. The seeds are scattered far from the parent plant. This happens in the case of castor and balsam.

Que. 1) Which fruit have the ability to float?

(a) Coconut

(b) Mango

(c) Papaya

(d) None

Que. 2) Seeds and fruits of plants are carried away by which of the following factors?

(a) Wind

(b) Water

(c) Animal

(d) All

Que.
3) ……..……**types of seeds are dispersed by animals.**

(a) Spiny seeds

(b) Spongy seeds

(c) Soft seeds

(d) Hard seeds

Que. 4) Winged seeds are transported to faraway places by winds is it true or false?

Que. 5) Which type of seed or fruit develop floating abilities?

COMPETENCY BASED QUESTIONS

Grade VII

Ch-7 Transportation in Plants and Animals

1) The muscular tube through which stored urine is passed out of the body is called
   (a) kidney
   (b) ureter
   (c) urethra
   (d) urinary bladder.
2) They are pipe-like, consisting of a group of specialised cells. They transport substances
   and form a two-way traffic in plants. Which of the following terms qualify for the features mentioned above?
   (a) Xylem tissue
   (b) Vascular tissue
   (c) Root hair
   (d) Phloem tissue
3) The absorption of. nutrients and exchange of respiratory gases between blood and tissues takes place in
   (a) veins
   (b) arteries
   (c) heart
   (d) capillaries.
4) In which of the following parts of human body are sweat glands absent?
   (a) Scalp
   (b) Armpits
   (c) Lips
   (d) Palms
5) In a tall tree, which force is responsible for pulling water and minerals from the soil?
   (a) Gravitational force
   (b) Transportation force

(c) Suction force
(d) Conduction force

6) Aquatic animals like fish excrete their wastes in gaseous form as
(a) oxygen
(b) hydrogen
(c) ammonia
(d) nitrogen.

7) Look at figure 11.1. Draw another figure of the same set-up as would be observed after a few hours.

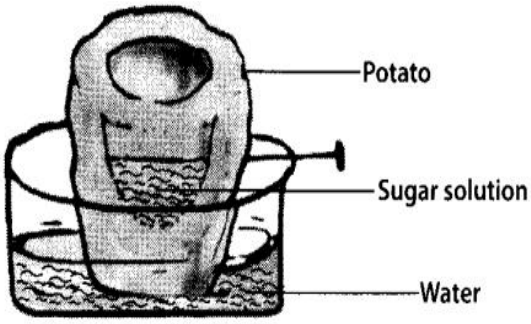


Fig 11.1

Case Study Questions

Case Study 1

The heart is an organ which beats continuously to act as a pump for the transport of blood, which carries other substances with it. Imagine a pump working for years without stopping! Absolutely impossible. Yet our heart works like a pump non-stop.The heart is located in the chest cavity with its lower tip slightly tilted towards the left. Heart is roughly the size of fist .The heart has four chambers.

The two upper chambers are called the atria (singular: atrium) and the two lower chambers are called the ventricles. The partition between the chambers helps to avoid mixing up of blood rich in oxygen with the blood rich in carbon dioxide.

Que. 1) Which organs acts as a pump in the body to transport blood to all the different tissues, muscles and cells?

(a) Lungs

(b) Liver

(c) Heart

(d) All of the above

Que. 2) The two upper chambers of heart are called as……..…….**.**

(a) Ventricles

(b) Atria

(c) Lungs

(d) None

Que. 3) The size of heart equivalent to which part of the human body?

(a) Lungs

(b) Kidney

(c) Fist

(d) Hands

Que. 4) How many chambers does heart have and name them?

Que. 5) Does the heart ever get fatigued in the entire life time of a human?

Case Study 2

The wastes dissolved in water are removed as urine. From the kidneys, the urine goes into the urinary bladder through tube-like ureters. It is stored in thebladder and is passed out through the urinary opening at the end of a

Muscular tube called urethra.The kidneys, ureters, bladder and urethra form the excretory system. An adult human being normally passes about 1–1.8 L of urine in 24hours. The urine consists of 95% water,2.5% urea and 2.5% other waste products.We have all experienced that we sweat on a hot summer day.The sweat contains water and salts. Boojho has seen that sometimes in summer, whitepatches are formed on our clothes, especially in areas like underarms.These marks are left by salts present in the sweat.

The way in which waste chemicals are removed from the body of the animal depends on the availability of water. Aquatic animals like fishes ,excrete cell waste as ammonia which directly dissolves in water. Some land animals like birds, lizards, snakes excrete a semi-solid, white coloured compound (uric acid). The major excretory product in humans is urea.

Que. 1) Which organ is the part of excretory system given below?

(a) Kidney

(b) Heart

(c) Lungs

(d) All of the above

Que. 2) How many litres of urine a normal human adult passes in 24hrs?

(a) 1-1.8L

(b) 5L

(c) 3L

(d) 2L

Que. 3) ……..……anim als like fishes excrete cell waste as……..……..which directly dissolves in water.

(a) Aquatic, ammonia

(b) Aquatic, urea

(c) Aquatic, uric acid

(d) Aquatic, Nitrate

Que. 4) What is the composition of urine?

Que. 5) Name the animals which excrete white coloured compound and also give the name of white compound.

Case Study 3

Blood is the fluid which flows in blood vessels. It transports substances like digested food from the small intestine to the other parts of the body. It carries oxygen from the lungs to the cells of the body. It also transports

Waste for removal from the body. Blood is composed of a fluid, called plasma in which different types of cells are suspended. One type of cells are the red blood cells (RBC) which contain a red pigment called Hemoglobin.

Hemoglobin binds with oxygen and transports it to all the parts of the body and ultimately to all the cells. It will be difficult to provide oxygen efficiently to all the cells of the body without haemoglobin. The presence of haemoglobin makes blood appear red.

Que. 1) Which fluid flows in blood vessels?

(a) Plasma

(b) RBC

(c) Blood

(d) All of the above

Que. 2) Haemoglobin binds with…….

and transport it to all the parts of body and to all the…….**.**

(a) Tissues, cells

(b) Organs, cells

(c) Muscles, cells

(d) Oxygen,cells

Que. 3) What makes blood appear red in colour?

(a) Antigen

(b) Iron

(c) Haemoglobin

(d) None of the above

Que. 4) What role does blood play in the body?

Que. 5) How is oxygen transported in the body?

Case Study 4

There are different types of blood vessels in the body. You know that during inhalation a fresh supply of oxygen fills the lungs. Oxygen has to be transported to the rest of the body. Also, the blood picks up the waste materials including carbon dioxide from the cells. This blood has to go back to the heart for transport to the lungs for removal of carbon dioxide as you have. So, two types of blood vessels, arteries and veins are present in the body. Arteries carry oxygen-rich blood from the heart to all parts of the body. Since the blood flow is rapid and at a high pressure, the arteries have thick elastic walls.

The number of beats per minute is called the pulse rate. A resting person, usually has a pulse rate between72 and 80 beats per minute. Veins are the vessels which carry carbon dioxide-rich blood from all parts of the body back to the heart. The veins have thin walls. There are valves present in veins which allow blood to flow only towards the heart.

Que. 1) How many types of blood vessels are present in the human body?

(a) 4

(b) 5

(c) 7

(d) 2

Que. 2) What is the breathing rate of a normal resting person?

(a) 75-80

(b) 90

(c) 100

(d) 50

Que. 3) ……..……

…..**is present in the veins that allow only unidirectional flow of blood in the human body.**

(a) Plasma

(b) Valves

(c) Joint
All of the above

Que. 4) Which blood vessel carry fresh oxygen form heart to all the parts of the body?

Que. 5) Why does the arteries have thick elastic walls?

Case Study 5

The walls of the chambers of the heart are made up of muscles. These muscles contract and relax rhythmically. This rhythmic contraction followed by its relaxation constitute a heartbeat .Remember that heartbeats continue every moment of our life. If you place your hand on the left side of the chest, one can feel his or her heartbeat.The doctor feels your heartbeats with the help of an instrument called a stethoscope.

A doctor uses the stethoscope as a device to amplify the sound of the heart .It consists of a chest piece that carries a sensitive diaphragm, two ear pieces and a tube joining the parts. Doctors can get clues about the condition of heart by listening through a stethoscope.

Que. 1) The walls of the chambers of…….**are made up of**……..

(a) Heart, muscles

(b) Lungs, muscles

(c) Kidney, fibres

(d) Heart, fibres

Que. 2) Which instrument is used by a doctor to listen or amplify the sound of heart?

(a) MRI

(b) Stethoscope

(c) BP machine

(d) None

Que. 3) In which side of the chest a person can feel his or her heart beat?

(a) Right side

(b) Left side

(c) Upper left

(d) Lower left

Que. 4) What constitute a heartbeat?

Que. 5) How can a doctor judge condition of heart?

Assertion Reason Type Questions

1. **Assertion- there are two types of cells are the RBC and WBC. Reason- RBC contain a red pigment haemoglobin and WBC fight against germs which enter our body.**

a) Assertion and reason both are correct statement and reason is correct explanation forassertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

2.) Assertion- there are two types of blood vessels arteries and veins are present in the body.

Reason- arteries carry deoxygenated blood from the heart to all parts of the body.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

3.) Assertion- the doctor feels the heart beats with the help of an instruments stethoscope.

Reason- a stethoscope is used to amplify the sound od heart .

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

4.) Assertion- the animals like sponges and hydra do not possess any circulatory system.

Reason- they are small animals therefore not have circulatory system.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

5.) Assertion- a lot of water is lost by plants in the form of vapour through stomata.

Reason- transpiration generated a force which pulls up roots from the soil to react the stem and leaves.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

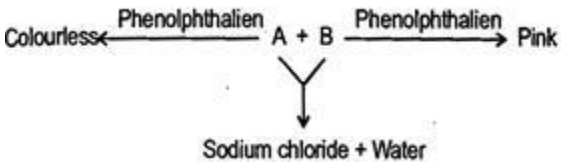
Shivalik Public School
Class – VII
Subject – Science
Chapter- Acids, Bases & Salts (Questionnaire)

MCQs:

1. When a man with stomach pain went to the doctor, the physician identified acidity. Which of the following would be the suitable remedy for him?
(a) Lemonade drink
(b) Baking soda
(c) Aerated drink
(d) Vinegar

2. What changes in colour are produced when a basic solution is combined with the China rose indicator?
(a) It turns blue
(b) It turns dark pink
(c) It turns green
(d) No change

3. On the basis of following diagram answer the question given below: Study the following chart and Identify 'A' and 'B'**.**



A	**B**
(a) Sodium hydroxide	Sodium chloride
(b) Hydrochloric acid	**Sodium hydroxide**
(c) Sodium hydroxide acid	Aluminum hydroxide
(d) Hydrochloric acid	Sodium chloride

4. Which one of the following fruits contains ascorbic acid?
(a) Spinach
(b) Grapes
(c) Unripe mangoes
(d) Amla

5. Why is organic matter added to the soil?
(a) Because organic matter is basic in nature

(b) Because organic matter releases acids in the soil
(c) Due to the neutral nature of organic matter

6. (d) Because organic matter is crucial for soil.
Which of the following chemicals is present in the calamine solution?
(a) Zinc hydroxide
(b) Zinc oxide
(c) Zinc carbonate
(d) Zinc sulphate

Assertion/Reason Questions:
Assertion: A simple statement.
Reason: Reason is the explanation for the assertion.
Study the two statements labeled as Assertion (A) and Reason (R). Point out if:

- (a) Both, A and R, are true and R is the correct explanation of A
- (b) Both, A and R, are true but R is not the correct explanation of A
- (c) If A is true but R is false
- (d) If A is false but R is true

1. Assertion (A): Acid turns blue litmus red and bases turn red litmus blue.
Reason (R): Substances which are neither acidic nor basic are called neutral.
(b)Both A and R are true but R is not the correct explanation of A.
2. Assertion (A): The substances which show the nature of a solution as acidic or basic with the change in colour are called indicators.
Reason (R): Red litmus turns blue in a solution containing Vitamin C.
(c)A is true but R is false.
3. Assertion (A): A salt is produced when an acid is neutralized by a base.
Reason (R): A salt can be acidic, basic or neutral.
(b)Both A and R are true but R is not the correct explanation of A.

4. Assertion (A): Baking soda creates acidity in stomach.
Reason (R): Baking soda is a base.
(d)A is false, R is true.

5. Assertion (A): Neutralization reaction is accompanied by evolution of heat.
Reason (R): Neutralization reaction is a reaction between an acid and a base to form salt and water.
(b)Both A and R are true but R is not the correct explanation of A.

Case Study Based:

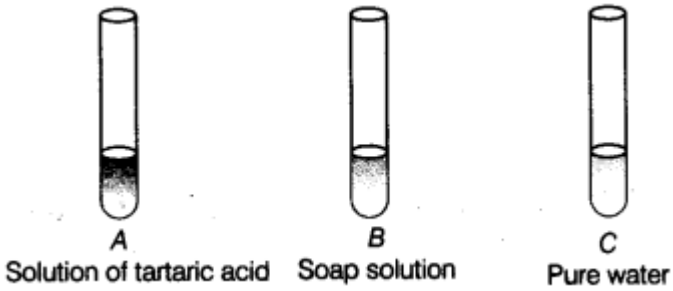
1. Nitesh was playing with his friends in the garden. Suddenly, Nitesh was stung by a honeybee and was in great pain. Immediately, his friends call his mother. She applied baking soda solution on the affected area and then took him to the doctor.
(a) What could be the reason for this burning pain?
The reason for this burning pain is honeybee sting which causes pain and irritation. This is due to the formic acid injected into the skin by the honeybee.
(b) Why Nitesh's mother applied baking soda solution on the affected area?
The effect of an acid can be neutralized by rubbing the affected area by baking soda solution which is a mild base.

2. Paheli observed that most of the fish in the pond of her village were gradually dying. She also observed that the wastes of a factory in their village are flowing into the pond which probably caused the fish to die.
(a) Explain why the fish were dying?
If the waste of a factory flows into the water bodies, it can cause a threat to the lives of sea creatures. Since factory waste contains many acids which kills the fish.
(b) If the factory waste is acidic in nature, how can it be neutralized?
It can be neutralized by adding basic substances.

3. You are provided with three test tubes A, B and C as shown in figure with different liquids. What will you observe when you put
(a) a piece of blue litmus paper in each test tube?
(b) a piece of red litmus paper in each test tube?
(c) few drops of phenolphthalein solution to each test tube?

Test tube	Effect on blue litmus	Effect on red litmus	Effect on phenolphthalein

	paper	paper	solution
A	Turns red	Remains red	Colourless
B	Remains blue	Turns blue	Pink colour
C	Remains blue	Remains red	Colourless



4. One day Rahul's mother after taking meal felt pain and irritation in her stomach. His father was out of station. Rahul was an intelligent boy. He remembered his teacher's statement and gave his mother some baking soda solution which gave her a relief from pain and irritation.

   (a) What could be the reason of pain in Rahul's mother stomach?
   Too much of acid in her stomach may have caused pain.

   (b) Which information given by Rahul's teacher helped him to treat his mother's stomach pain?
   Rahul's teacher has told that our stomach contains hydrochloric acid which helps in digesting food. But too much of this acid causes indigestion.
   Sometimes, indigestion is painful and some mild base should be taken to get relief from this pain.

   (c) Why he selects baking soda as a cure?
   He gave her mother baking soda solution which was easily available in the kitchen. This solution acts as a mild base and helps in neutralizing the excessive acid in the stomach.

5. Deepa's family runs a small-scale pickle-making business at home. They use a large amount of vinegar, which is an acid, for

pickling vegetables. The leftover vinegar is usually poured down the drain. Deepa's friend suggests that it is harmful to pour acids directly into the drainage system.

(a) Why is vinegar used in pickles?

Vinegar acts as a preservative, it extends the shelf life of food items by killing bacteria.

(b) Help Deepa understand the consequences of such disposal methods and propose an alternative solution.

When acids like vinegar are disposed off in this manner, they can have several negative consequences, such as corrosion of pipes and environmental impact. To address this issue, Deepa's family should adopt a more responsible method of disposing of the leftover vinegar. They can neutralize the vinegar by adding a base, such as baking soda, and then safely dispose of the neutralized solution down the drain or in a designated container for household waste.

Shivalik Public School
Class – VII
Subject – Science
Chapter- Heat (Questionnaire)

MCQs:

1. Liquids and gases transfer the heat by:
   (a) Radiation
   (b) Conduction
   (c)Convection
   (d)None of these
2. Paheli and Boojho measured their body temperature. Boojho found his to be 98.6°F and Paheli recorded 37°C. Which of the following statement is true?
   (a) Boojho has a higher body temperature than Paheli.
   (b) Boojho has a lower body temperature than Paheli.
   (c) Both have normal body temperature.
   (d) Both are suffering from fever.
3. The hand which is over the flame feels hotter because hot air moves in:
   (a) Downward direction
   (b)Upward direction
   (c)Circular direction
   (d)Does not move at all
4. The process by which we get heat while sitting in front of a room heater is:
   (a) Conduction
   (b) Convection
   (c) Radiation
   (d) All of these
5. What is the use of kink in a thermometer?
   (a) **It prevents mercury level from falling on its own**.
   (b) It raises the mercury level.
   (c) It makes the thermometer looks good.
   (d) It acts as a joint to the glass tube for keeping mercury and the scale together.

Assertion/Reason Questions:

Assertion: A simple statement.

Reason: Reason is the explanation for the assertion.

Study the two statements labeled as Assertion (A) and Reason (R). Point out if:

- (a) Both, A and R, are true and R is the correct explanation of A
- (b) Both, A and R, are true but R is not the correct explanation of A
- (c) If A is true but R is false
- (d) If A is false but R is true

1. Assertion (A): The range of clinical thermometer is between 35°C and 42°C.
   Reason (R): The normal temperature of human body is about 37°C. Our body temperature cannot fall below 35°C or rise above 42°C.
   (a) Both A and R are true and R is the correct explanation of A.
2. Assertion (A): When hot water is poured in a thick glass tumbler then the tumbler breaks.
   Reason (R): Glass is a bad conductor of heat.
   (a) Both A and R are true and R is the correct explanation of A.
3. Assertion (A): Food can be cooked faster in vessels with copper bottoms.
   Reason (R): Copper is the best conductor of heat.
   (a) Both A and R are true and R is the correct explanation of A.
4. Assertion (A): Dark coloured objects absorb more heat than the light coloured objects.
   Reason (R): We feel more comfortable in light coloured clothes in summer.
   (b) A and R are true but R is not the correct explanation of A.
5. Assertion (A): Aluminium, Copper and Iron are bad conductors of heat.
   Reason (R): The materials through which heat is passed are known as good conductors of heat.
   (d)A is false but R is true.

Case Study Based:

1. During summer vacations, a group of students went on a trip to the forests. At a campsite, there were two tents of different shades. One made with black fabric and the other with white fabric.
   (a) Which coloured tent the students should prefer for resting on a hot summer afternoon and why? **On a hot summer afternoon, a tent made up of white fabric will be preferred because white colour absorbs least amount of heat. Thus, the tent will not get heat up more.**
   (b) Would they like to prefer the same tent during winters? **No, a black fabric tent will be preferred in winters because dark colours absorb maximum amount of heat thereby keeping us warm in winters.**
2. Sara and her friends are camping in the mountains. They want to keep themselves warm during the cold night. Sara suggests sitting on a thick layer of newspapers.
   (a) Explain how sitting on newspapers can help in keeping them warm? **Newspapers are poor conductors of heat, due to which they trap air between them. When they will sit on the newspapers, the layer of newspapers acts as insulator, reducing the transfer of heat from their bodies to the cold ground. As a result, less heat is lost to the ground.**
   (b) Based on the above concept, which will keep us warmer in winters- single layer of clothing or multiple layers? **Multiple layers of clothing will keep us warmer in winters because the air gets trapped between the layers of clothes which further prevents the flow of heat from body to the surroundings.**
3. Rohan noticed that his younger brother was playing with a clinical thermometer as a toy. He immediately stopped his brother and explained why it is important to handle clinical thermometers carefully.
   (a) What reasons can Rohan give to his brother for not playing with clinical thermometer?
   Rohan can explain to his brother that clinical thermometers are made of glass, which can break easily if dropped or mishandled. Broken glass can cause injury and expose the hazardous liquid mercury which is toxic and can be harmful if it comes in contact with the skin or ingested.
   (b) Write some precautions which need to be observed while handling the thermometer?
      - **Always handle the thermometer with care as it**

may break if gets hits against hard substance.

- **Never hold the thermometer by its bulb while reading it.**
- **Always was the thermometer before and after its use.**
- **Ensure that before use the mercury level should be below 35°C.**

4. Neha's family is using a room heater during winter. They place the heater near the floor, but the room still feels cold. Neha suggests moving the heater to a higher position, after which they started feeling warmth in the room.

(a) Name the method of heat transfer involved in this case?

Convection method

(b) Explain why moving the heater to a higher position can be more effective in heating the room?

Moving the heater to a higher position can be more effective in heating the room. When the heater is placed near the floor, it primarily heats the air close to the floor. As warm air rises, it tends to accumulate near the ceiling, while the cooler air remains near the floor. This creates an uneven distribution of warm air in the room, resulting in the room still feeling cold. By moving the heater to a higher position, the warm air will be released at a higher level, allowing it to circulate more evenly throughout the room through convection. This will result in a more effective and uniform heating of the entire room.

5. Rajiv is preparing a hot beverage in a glass cup. He uses a spoon made of stainless steel to stir the drink. However, Rajiv realizes that the spoon becomes too hot to touch after a few minutes of stirring. He decides to use a spoon made of wood instead.

(a) How the steel spoon became too hot?

Steel being a metal is a good conductor of heat and conductors allow the heat to pass through them due to which the steel spoon got heated up.

(b) Explain why using a wooden spoon is a better choice?

Wood is a poor conductor of heat so it will not conduct heat, resulting in the handle remaining relatively cool. By using a wooden spoon, Rajiv can avoid burning his hand and enjoy stirring the beverage comfortably.

6. A small quantity of curd is mixed with warm milk for setting curd. The curd's microbes help set the mixture's temperature between 35°C and 40°C. The setting of curd becomes difficult in cold places where the room temperature usually remains much below the range.

(a) Suggest a way to set curd in such a situation.

The container can be wrapped in a woolen cloth so that the mixture could remain warm for a longer period of time. As woolen fabrics have much space to trap air and air being a bad conductor will not allow the heat to pass out. Thus, milk will remain warm which helps in setting the curd.

CHAPTER:11- LIGHT

Multiple choice questions

1. Which of the following statements is true?
   a) A plane mirror sometimes forms an inverted image.
   b) A concave mirror always forms a virtual erect and diminished image.
   c) A concave lens forms a virtual, erect and diminished image
   d) A convex lens always forms a real image.

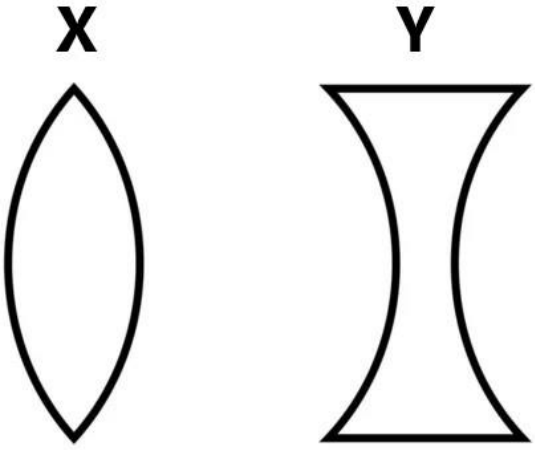
2. A reflecting surface is curved outwards. Which of the following mirrors is it likely to be?
   a) Concave
   b) Plane
   c) Convex
   d) Both (a) and (b)

3. In physics lab, Gita rotates Newton's disc rapidly and a boy observes it. What will his observation be?
   a) Seven colours of light look like two colours of black and white
   b) Seven colours of light look like single colour of white
   c) Seven colours of light look like single colour of black
   d) Seven colours seem to blend into each other looking like a rainbow

4. What enables us to see objects?
   a) Light absorbed by an object
   b) Light dispersed by an object
   c) Light that enters our eyes after reflection from object
   d) Light refracted through the object

5. What is the nature of propagation of light?
   a) Curvilinear
   b) Rectilinear
   c) Circular
   d) Random

6. Looking at the pictures given below, choose the correct option



a) X- convex, converging, Y- concave, diverging
b) X- concave, converging, Y- convex, diverging
c) X- convex, diverging, Y- concave, converging
d) X- convex. diverging, Y- convex, converging

Assertion- Reasoning Questions

Directions: Each of these questions contain two statements, Assertion and Reason. Each of these questions also has four alternative choices, only one of which is the correct answer. You have to select one of the codes (a), (b), (c) and (d) given below.
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

1. ***Assertion:*** When a ray of light approaches a smooth polished surface and the ray bounces, it is called reflection.
   Reason: This is due to the ability of light to move in straight as well as curved lines.
2. ***Assertion:*** Anything from which light rays are coming is called an object.
   Reason: On placing an object in front of a convex mirror, it always forms a virtual image.
3. ***Assertion:*** Concave mirrors are used in telescopes and headlights.
   Reason: Concave mirrors reflect light inwards or in other words, converges it.
4. ***Assertion:*** The alphabets on an ambulance are inverted.
   Reason: On seeing the objects in the concave rear view mirror, the words appear normal and are easy to read.
5. ***Assertion:*** Concave lens is used in a magnifying glass.
   Reason: The image formed by concave lens is always virtual, erect and smaller than the object.
6. ***Assertion:*** Virtual images cannot be obtained on a screen.
   Reason: For a virtual image, the rays of light never converge after reflection.

Case Studies

I. Rohit was once ravelling with his father in a car. He noticed that his father uses the rear-view mirror to look for cars and other vehicles that are coming from behind them. But then he remembered the mirror that they have at home. He recalled that the mirror at home shows the object in front of it but the size is always the same. So how can a car so big be seen in a rear-view mirror which is so small. He asked his father about this and his father answered that the mirrors used at home and in a car are different. The mirror at home is a plane mirror in which the image formed is always virtual, same sized and erect. But the mirror in a car is a convex mirror. A convex mirror is a type of spherical mirror in which the image of the object is always smaller in size. Due to this, the driver is able to look at cars behind even if the size of the mirror is much smaller than the car.

1. Give the characteristics of an image formed by a convex mirror.
2. Which surface (inner/outer) of a spoon acts a convex mirror?
3. Would it be practical for us to use convex mirrors for solar furnaces? Why?

II. The students of class 7 were performing an experiment in two groups. Their teacher asked the first group to take a concave mirror and hold it facing the Sun. The teacher asked them to try to get the light reflected by the mirror on a sheet of paper. The students were instructed to adjust the distance of the paper until they get a sharp bright spot on it. They held the mirror and the sheet of paper steady for a few minutes. To their surprise, they saw that the paper started burning after some time. They tried to perform the same experiment with a candle flame and obtain its image on a screen. On of the students pointed out that the image of the candle flame is flipped. The second group on the other hand was trying to perform the same experiments with a convex mirror.

1. What precautions should the students of group 1 observe when performing the experiment?
2. What is a real image? In which case would a real image be formed?
3. What would be the observations of group 2 when they perform the experiments?

III. In the year 1665, Newton discovered by his experiments with glass prisms that white light (like sunlight) consists of a mixture of lights of seven colours. Newton found that if a beam of white light is passed through a glass prism, then the white light splits to form a band of seven colours on a white screen. The band of seven colours formed on a white screen, when a beam of white light is passed through a glass prism, is known as a spectrum of white light. The seven colours of the spectrum are Red, Orange, Yellow, Green, Blue, Indigo and Violet. So, dispersion of light is the phenomenon of splitting up of white light into seven colours on passing through a transparent medium like a glass prism. The formation of a spectrum of seven colours indicates that white light is a mixture of seven colours. White light can be sunlight. So, now we can say that sunlight consists of seven colours. We can mix these colours to get white light.

1. The occurrence of which natural phenomenon can be attributed to dispersion of light?
2. Name all the colours that constitute white light.
3. Can the observation of multiple colours in bubbles, spilled petrol and CDs be due to dispersion of light?

ANSWER KEY

Multiple choice questions

1. (c)	2. (a)	3. (b)	4. (c)	5. (b)	6. (a)

Assertion Reasoning Questions

1. (c)	2. (b)	3. (a)	4. (c)	5. (d)	6. (a)

Case Studies

I. 1. The nature of the image formed by the convex mirror is virtual, erect, and diminished.
2. Outer surface
3. No. Solar furnaces require a mirror that converges light rays. But a convex mirror on the other hand is a diverging mirror.

II. 1. Never look directly towards the Sun or its image as it may damage your eyes. You may look at the image of the Sun when it is thrown on a screen or a wall.
2. An image formed on a screen is called a real image. A concave mirror can form a real image.
3. The paper does not burn as the heat is not being concentrated at any point. Also, no image of the sun can be obtained on a screen as the image formed is virtual.

III. 1. Rainbows
2. Violet, Indigo, Blue, Green, Yellow, Orange, Red
3. Yes.

COMPETANCY BASED QUESTIONS
CLASS 7
Ch:2 "Nutrition in Animals"

Q1:MULTILE CHOICE QUESTIONS:

(1) The swallowed food moves downwards in the alimentary canal because of :
(a) force provided by the muscular tongue
(b) the flow of water taken with the food
(c) gravitational pull
(d) the contraction of muscles in the wall of foodpipe.

(2) The acid present in the stomach
(a) **kills the harmful bacteria that may enter along with the food**
(b) protects the stomach lining from harmful substances
(c) digests starch into simpler sugars
(d) makes the medium alkaline

(3) The finger-like outgrowths of Amoeba helps to ingest food. However, the finger-like outgrowths of human intestine helps to :
(a) digest the fatty food substances
(b) make the food soluble
(c) absorb the digested food
(d) absorb the undigested food

(4) The absorption of nutrients or food components in its simpler form takes place in:
(a) blood vessels of small intestine wall
(b) large intestine wall
(c) gall bladder
(d) liver

(5) Cud is the name given to the food of ruminants which is :
(a) swallowed and undigested
(b) swallowed and partially digested
(c) properly chewed and partially digested
(d) properly chewed and completely digested

Q2:Assertion-Reason Questions:

(1)Assertion: One should not eat hurriedly
Reason: We should not eat hurriedly because if we ingest food in hurry or we talk or laugh while eating we experience hiccups, coughing or choking sensation.
Choose the correct option:

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

(2)Assertion: You were blindfolded and asked to identify the drinks provided in two different glasses. You could identify drink A as lime juice and B as bitter gourd juice.
Reason: Inspite of being blindfolded, one could identify two different drinks with the help of salivary glands present in the mouth.
Choose the correct option:

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

(3)Assertion:'A' got her gall bladder removed surgically as she was diagnosed with stones in her gall bladder. After the surgery, she faced problems in digestion of certain food items when consumed in bulk.

Reason: After surgical removal of gall bladder, 'A' would face problems in digestion of fat and fatty substances when consumed in bulk. This is because the bile juice stored in the gall bladder helps in digestion of fats.

Choose the correct option:

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

(4)Assertion: Ruminants such as cows and buffaloes swallow their food slowly and then sit restfully and digest their food.

Reason: Ruminants such as cows and buffaloes swallow their food slowly and store it in a part of the stomach called rumen. The cellulose of the food is digested here by the action of certain bacteria which are not present in humans.

Choose the correct option:

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

(5)Assertion: The finger-like projections called villi are present in the inner walls of the small intestine.
Reason: The villi increase the surface area. The large surface area of small intestine helps in the rapid absorption of the digested food.

Choose the correct option:

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

Q3:Case-Study base Questions:

Q1: The food passes through a continuous canal which begins at the buccal cavity andends at the anus. The canal can be divided into various compartments: (1) the buccal cavity, (2) food pipe or oesophagus, (3) stomach, (4) small intestine, (5) large intestine ending in the rectum and (6) the anus. Is it not a very long path. These parts together form the alimentary canal (digestive tract). The food components gradually get digested as food travels through the various compartments. The inner walls of the stomach and the small intestine, and the various glands associated with the canal such as salivary glands, the liver and the pancreas secrete digestive juices.The digestive juices convert complex substances of food into simpler ones. The digestive tract and the associated glands together constitute the digestive system.

(1) The food passes through an alimentary canal which is a……type of canal.

(a) Discontinuous

(b) Continuous

(c) Straight

(d) Round

(2) Which parts or glands of the human body secretes the digestive juices which are required for the breakdown of food in the body?

(a) Liver

(b) Pancreas

(c) Salivary gland

(d) All of the above

(3).....juice convert complex food substances into simpler ones.

(a) Digestive juice

(b) Pancreatic juice

(c) Liver juice

(d) Salivary juice

(4) The canal can be divided into how many compartments?

Ans: The canal can be divided into various compartments: (1) the buccal cavity, (2) food pipe or oesophagus, (3) stomach, (4) small intestine, (5) large intestine ending in the rectum and (6) the anus

(5) Name the glands which are associated with the canal?

Ans:The various glands associated with the canal such as salivary glands, the liver and the pancreas .

Q2: Normally bacteria are present in our mouth but they are not harmful to us. However, if we do not clean our teeth and mouth after eating, many harmful bacteria also begin to live and grow in it. These bacteria break down the sugars present from the leftover food and release acids. The acids gradually damage the teeth. This is called tooth decay. If it is not treated in time, it causes severe toothache and in extreme cases results in tooth loss. Chocolates, sweets, soft drinks and other sugar products are the major culprits of tooth decay.

Therefore, one should clean the teeth with a brush and dental floss (a special strong thread which is moved between two teeth to take out trapped food particles) at least twice a day and rinse the mouth after every meal. Also, one should not put dirty fingers or any unwashed object in the mouth.

(1) Normally Bacteria that are present in human mouth are ..... to the human teeth.

(a) Harmful

(b) Not harmful

(c) Good

(d) None of the above

(2) The bacteria breakdown.....substances present in the leftover of food.

(a) Sugars

(b) Acids

(c) Protein

(d) All of the above

(3) One should not put……in the mouth.

(a) Dirty fingers

(b) Dirty food

(c) Plastic

(d) Germs

(4) What are the major culprits of tooth decay?

Ans:Chocolates, sweets, soft drinks and other sugar products are the major culprits of tooth decay.

(6) How many times the teeth should be cleaned ?

Ans: We should cleaned the teeth at least twice a day and rinse the mouth after every meal.

Q4: The working of the stomach was discovered by a strange accident. In 1822, a man named Alexis St. Martin was badly hit by a shot gun. The bullet had seriously damaged the chest wall and made a hole in his stomach. He was brought to an American army doctor William Beaumont. The doctor saved the patient but he could not close the hole properly and left it bandaged. Beaumont took it as a great opportunity to see the inside of the stomach through the hole. He made some wonderful observations.Beaumont found that the stomach was churning food. Its wall secreted a fluid which could digest the food. He also observed that the end of the stomach opens into the intestine only after the digestion of the food inside the stomach is completed.

(1) The working of stomach was found by…….

(a) William Beaumont

(b) Alexis St. Martin

(c) Both (a)&(b)

(d) None of the above

(2) Alexis St. Martin was badly hit by a……weapon which caused a fatal wound in his chest and stomach.

(a) Gun

(b) Shot gun

(c) Bullet

(d) All of the above

(3) William Beaumont was from which country?

(a) Africa

(b) Russia

(c) America

(d) Australia

(4) What did Beaumont found?

Ans:Beaumont found that the stomach was churning food. Its wall secreted a fluid which could digest the food. He also observed that the end of the stomach opens into the intestine only after the digestion of the food inside the stomach is completed.

(5) Why did a hole formed in the stomach of Alexis St. Martin?

Ans:The bullet had seriously damaged the chest wall and made a hole in his stomach.

Q5: The stomach is a thick-walled bag. Its shape is like a flattened J and it is the widest part of the alimentary canal. It receives food from the food pipe at one end and opens into the small intestine at the other. The inner lining of the stomach secretes mucous, hydrochloric acid and digestive juices. The mucous protects the lining of the stomach.The acid kills many bacteria that enter along with the food and makes the medium in the stomach acidic and helps the digestive juices to act. The digestive juices breakdown the proteins into simpler substances.

(1) The stomach is a……bag.

(a) Thin walled

(b) Thick walled

(c) Round

(d) J shaped

(2) The…….protects the lining of the stomach.

(a) Fluid

(b) Membrane

(c) Mucous

(d) None of the above

(3) Which is the widest part of alimentary canal of the human digestive system that is used for churning of food in the body?

(a) Liver

(b) Intestine

(c) Stomach

(d) Food pipe

(4) What is the function of acid in the stomach?

Ans:The acid kills many bacteria that enter along with the food and makes the medium in the stomach acidic and helps the digestive juices to act.

(5) What does the inner lining of the stomach secretes?

Ans: The inner lining of the stomach secretes mucous, hydrochloric acid and digestive juices.

CHAPTER:10- Electric current and its effects

Multiple choice questions

1. Which appliance does not use an electromagnet?
   a) Television
   b) Radio
   c) Electric bell
   d) Electric heater

2. A fuse is fixed in a circuit in order to:
   a) Decrease the amount of current
   b) Increase the amount of current
   c) Increase the power consumed in the circuit
   d) Safeguard against excessive current

3. Which of the following will you prefer to make an electromagnet?
   a) Steel
   b) Silver
   c) Soft Iron
   d) Nickel

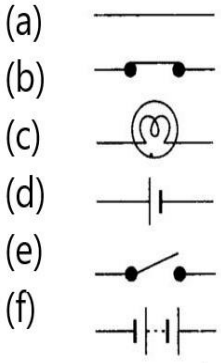
4. The table lists a few electrical appliances

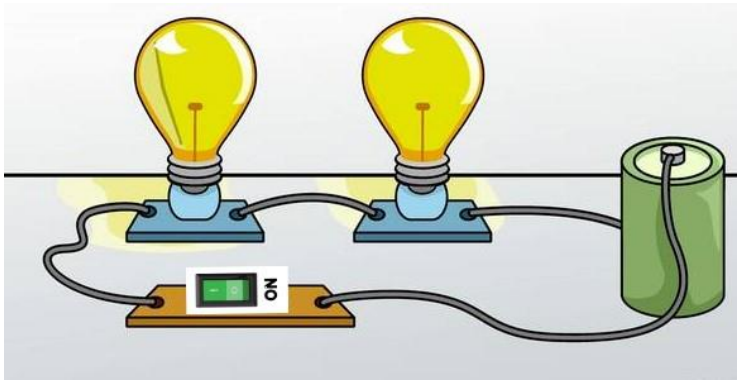
Fan	Cloth Iron	Electric oven	Room Heater
Television	Electric Bell	Refrigerator	Cooler

   Which of these appliances contains a heating element?
   a) Room heater, Television, Fan
   b) Cloth iron, Electric oven, Room heater
   c) Cloth iron, Cooler, Electric bell
   d) Refrigerator, Television, Electric bell

5. The symbol of a cell is given as  . What does the shorter/ thicker vertical line in the symbol of the cell represent?
   a) The positive terminal
   b) The negative terminal
   c) The direction of current
   d) The terminal to which switch is connected

6. Looking at the sybmols given in below, which symbols would you use to make the circuit shown.





a) D, C, B, A
b) E, F, C, A
c) D, E, C, B
d) A, C, E, D

Assertion- Reasoning Questions

Directions: Each of these questions contain two statements, Assertion and Reason. Each of these questions also has four alternative choices, only one of which is the correct answer. You have to select one of the codes (a), (b), (c) and (d) given below.
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

1. ***Assertion:*** Fuse is a safety device which prevents damage to electrical circuits and possible fires.
   Reason: The fuse wire blows off and breaks the circuit and prevents fire and damage.
2. ***Assertion:*** On placing a compass near a current carrying wire, the compass needle gets deflected.
   Reason: The deflection is due to the magnetic effect of the compass which increases in the presence of electricity.
3. ***Assertion:*** All conductors can form electromagnets when electric current is passed through them.
   Reason: Materials that offer minimum resistance and allow electric current to flow through them are called conductors.
4. ***Assertion:*** An electric fuse is a safety device that operates to provide protection against the overflow of current in an electrical circuit.
   Reason: Proper fuses carrying ISI mark should be used in buildings.
5. ***Assertion:*** Excessive current causes overload in the circuit leading to short circuits.
   Reason: Connection of many devices to a single socket can lead to excessive current.
6. ***Assertion:*** LEDs are electricity efficient and are thus used excessively.
   Reason: LED bulbs consume more electricity as compared to incandescent bulbs or fluorescent tubes.

Case Studies

I. Shreya, a student of class VII was performing an activity wherein she made a circuit consisting of a switch, battery and two nails attached to a wooden base. She took about 10 cm long piece of nichrome wire and tied it between the nails. Shreya touched the wire and noted her observation. Later, current in the circuit was switched on by moving the switch to the 'ON' position. After a few seconds she touched the wire again. The last step included switching off the current and touching the wire after a few minutes.

1. What will Shreya observe on touching the wire for the first time?
2. Why should the switch not be kept in the ON position for a long time?
3. Can Shreya use zinc in place of nichrome in this setup?

II. Take around 75 cm long piece of insulated (plastic or cloth covered or enamelled) flexible wire and an iron nail, say about 6–10 cm long. Wind the wire tightly around the nail in the form of a coil. Connect the free ends of the wire to the terminals of a cell through a switch. Place some pins on or near the end of the nail. Now switch on the current and note your observation. We see that the pins are now attracted towards the nail. Next, switch off the current. This time, we note that the pins are no longer clinging to the iron nail. Thus, the iron nail acts as a magnet when current is passed through it. This phenomenon is called electromagnetism and the iron nail in this case is called an electromagnet.

1. Which principal justifies the observation in the above activity?
2. How can an electromagnet be used in a junkyard?
3. An MRI machine works on the principle of electromagnetism. What is an MRI useful for?

III. The electric doorbell which we all have observed in our day-to-day life is said to be a simple circuit that triggers a sound on the completion of a circuit by pressing the button. The first thing is the switch is pressed and the current flows through the circuit. Next, the electromagnet is powered and generates a magnetic field that attracts the iron strip towards it. Then the striker strikes the gong. When the striking arm strikes the gong then the contact is broken and the current stops flowing through the circuit. This causes the electromagnet to generally lose its magnetic field. Next, the connected spring arm returns the striker to its original rest position. The contact is generally said to be restored and the slow current flow is through the circuit, provided the main switch is still pressed. The process is said to be repeated from the beginning.

1. When the switch is held on, what causes the hammer to continue striking?
2. Which part of the electric bell acts and an electromagnet?
3. Where else can this mechanism be used?

ANSWER KEY

Multiple choice questions

1. (d)	2. (d)	3. (c)	4. (b)	5. (a)	6. (a)

Assertion Reasoning Questions

1. (a)	2. (c)	3. (d)	4. (b)	5. (a)	6. (c)

Case Studies

I. 1. The wire will be hot to touch.
2. The cell may become weak very quickly.
3. No, as zinc has a low melting point and will melt quickly.

II. 1. Magnetic effect of electric current.
2. The electromagnets are used to separate magnetic material from the junk.
3. To diagnose diseases by getting pictures of human body.

III. 1. Repetition of breaking and completion of the circuit
2. The coil acts as an electromagnet in an electric bell.
3. Alarms, railway crossings, water level or flood indicators etc.

GRADE VII

Competency Based Questions

Ch -8 Reproduction in Plants

Multiple Choice Questions (MCQ's)

1) Which of the following parts of a plant take part in sexual reproduction?
   (i) Flower
   (ii) Seed
   (iii) Fruit
   (iv) Branch
   Choose the correct answer from below.
   (a) (i) and (ii)
   (b) (i), (ii) and (iii)
   (c) (iii) and (iv)
   (d) (ii), (iii) and (iv)
2) Lila observed that a pond with clear water was covered up with green algae within a week. By which method of reproduction did the algae spread so rapidly?
   (a) Budding
   (b) Sexual reproduction
   (c) Fragmentation
   (d) Pollination
3) Seeds of drumstick and maple are carried to long distances by wind because they possess
   (a) winged seeds
   (b) large and hairy seeds
   (c) long and ridged fruits
   (d) spiny seeds.
4) Which of the following statements is/are true for sexual reproduction in plants?
   (i) Plants are obtained from seeds.
   (ii) Two plants are always essential.
   (iii) Fertilisation can occur only after pollination.
   (iv) Only insects are agents of pollination. Choose from the options

given below.
(a) (i) and (iii)
(b) (i) only
(c) (ii) and (iii)
(d) (i)and(iv)

5) Pollination refers to the
(a) transfer of pollen from anther to ovary
(b) transfer of male gametes from anther to stigma
(c) transfer of pollen from anther to stigma
(d) transfer of pollen from anther to ovule.

6) The ovaries of different flowers may contain
(a) only one ovule
(b) many ovules
(c) one to many ovules
(d) only two ovules.

Assertion and Reason

Assertion- there are two types of reproduction- sexual and asexual reproduction.

Reason- in sexual reproduction only single parent are involved.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

2.) Assertion- vegetative propagation is the method of asexual reproduction in plants.

Reason- In vegetative propagation new plants are produced from different vegetative parts such as leaves , stems and roots.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

3) Assertion- a bisexual flowers has both the male and the female reproductive parts.

Reason- the male gametes are found in side the ovule and females gametes are found inside the pollen grains.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

4) Assertion- pollination takes place in plants with the help of wind, water and insects.

Reason- pollination is the process of transfer of pollen grains from the anther of one flower to the stigma of the same or another flower.

a) Assertion and reason both are correct statement and reason is correct explanation for assertion.

b) Assertion and reason both are correct statement and reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

Case Based Study

Case Study 1

The production of new individuals from their parents is known as reproduction. Most plants have roots, stems and leaves. These are called the vegetative parts of a plant. After a certain period of growth, most plants bear flowers. You may have seen the mango trees flowering in spring. It is these flowers that give rise to juicy

mango fruit we enjoy in summer. We eat the fruits and usually discard the seeds. Seeds germinate and form new plants .Flowers perform the function of reproduction in plants. Flowers are the reproductive parts.

There are several ways by which plants produce their offspring. These are categorized into two types: (i) asexual ,and (ii) sexual reproduction. In asexual reproduction plants can give rise to new plants without seeds, whereas in sexual reproduction, new plants are obtained from seeds.

Que. 1) The production of new individual due to the fusion of male and female gamete is known as…….

(a) Asexual reproduction

(b) Sexual reproduction

(c) Reproduction

(d) Germination

Que. 2) Which of the following is a part of the plant?

(a) Stem

b) Root

(c) Leaves

(d) All of the above

Que. 3)
In…….**reproduction plants can give rise to new individuals without fertilization.**

(a) Asexual reproduction

(b) Apomixis

(c) Parthenocarpy

(d) Vegetative propagation

Que. 4) Which part is involved in the reproduction of plants?

Que. 5) Name the vegetative parts of plants?

Case Study 2

Stamens are the male reproductive part and pistil is the female reproductive part. Flowers which contain either only pistil or only stamens are called unisexual flowers. Flowers which contain both stamens and pistil are called bisexual flowers. Corn, papaya and cucumber produce unisexual flowers, whereas mustard, rose and petunia have bisexual flowers. Both male and female unisexual flowers maybe present in the same plant or indifferent plants .Anther contains pollen grains which produce male gametes. A pistil consists of stigma, style and ovary. Ovary contains one or more ovules. The

Female gamete or the egg is formed in an ovule. In sexual reproduction a male and a female gamete fuse to form a zygote.

Que. 1) Pistil is the……..**reproductive part and stamen is the**……..….**reproductive part of flower.**

(a) Female, male

(b) Male, female

(c) Male, male

(d) Male, ovule

Que. 2) Papaya produces which type of flowers?

(a) Hermaphrodite

(b) Unisexual

(c) Bisexual

(d) No flower

Que. 3) Where is female gamete formed?

(a) Stamen

(b) Pistil

c) Ovule

(d) Ovum

Que. 4) How a zygote is formed in sexual reproduction?

Que. 5) What is the composition of pistil?

Case Study 3

Generally, pollen grains have a tough protective coat which prevents them from drying up. Since pollen grains are light, they can be carried by wind or water. Insects visit flowers and carry away pollen on their bodies. Some of the pollen lands on the stigma of a flower of the same kind. The transfer of pollen from the anther to the stigma of a flower is called pollination. If the pollen lands on the stigma of the same flower or another flower of the same plant, it is called self-pollination.

When the pollen of a flower lands on the stigma of a flower of a different plant of the same kind, it is called cross pollination the cell which results after fusion of the gametes is called a zygote. The process of fusion of male and female gametes (to form a zygote) is called fertilization. The zygote develops into an embryo.

Que. 1) Pollen grains have a……**protective coat which prevents the pollen grain form**……..**.**

(a) Tough, drying up

(b) Soft, drying up

(c) Flexible, drying up

(d) Strong, moisture

Que. 2) What develops into an embryo?

(a) Pollen

(b) Ovum

(c) Zygote

(d) Pistil

Que. 3) Which of the following acts as an agent for pollination?

(a) Insect

(b) Water

(c) Wind

(d) All of the above

Que. 4) Define pollination?

Que. 5) How many types of pollination are there, name them?

Case Study 4

After fertilization, the ovary grows into a fruit and other parts of the flower falloff. The fruit is the ripened ovary. These seeds develop from the ovules. The seed contains an embryo enclosed in a protective seed coat. Some fruits are fleshy and juicy such as mango and orange. Some fruits are hard like almonds and walnuts in nature same kind of plants grow at different places. This happens because seeds are dispersed to different places. Sometimes after a walk through a forest or a field or a park, you may have found seeds or fruits sticking to your clothes.

If all seeds of a plant were to fall at the same place and grow then. There would be severe competition for sunlight, water ,minerals and space. As a result the seeds would not grow into healthy plants .Plants benefit by seed dispersal. It prevents competition between the plant and its own seedlings for sunlight, water and minerals. It also enables the plants to invade new habitats for wider distribution.

Que. 1) After fertilization the ovary develops into……..**and the other parts of the flower fall off.**

(a) Fruit

(b) Seed

(c) Ovule

(d) Clothes

Que. 2) The embryo is protected by a…….**.**

(a) Seed coat

(b) Weather coat

(c) Ovule

(d) None

Que. 3) Which fruit is fleshy and juicy?

(a) Mango

(b) Banana

(c) Almond
d) Tomato

Que. 4) What is a fruit?

Que. 5) If all seeds of the plant will fall off and grow then what would happened?

Case Study 5

Seeds and fruits of plants are carried away by wind, water and animals. Winged seeds such as those of drumstick and maple, light seeds of grasses or hairy seeds of aak(*Madar*) and hairy fruit of sunflower, get blown off with the wind to faraway places. Some seeds are dispersed by water. These fruits or seeds usually develop floating ability in the form of spongy or fibrous outer coat as in coconut. Some seeds are dispersed by animals, especially spiny seeds with hooks which get attached to the bodies of animals and are carried to distant places. Examples are *Xanthium* and *Urena*. Some seeds are dispersed when the fruits burst with sudden jerks. The seeds are scattered far from the parent plant. This happens in the case of castor and balsam.

Que. 1) Which fruit have the ability to float?

(a) Coconut

(b) Mango

(c) Papaya

(d) None

Que. 2) Seeds and fruits of plants are carried away by which of the following factors?

(a) Wind

(b) Water

(c) Animal

(d) All

Que.
3) ……..……**types of seeds are dispersed by animals.**

(a) Spiny seeds

(b) Spongy seeds

(c) Soft seeds

(d) Hard seeds

Que. 4) Winged seeds are transported to faraway places by winds is it true or false?

Que. 5) Which type of seed or fruit develop floating abilities?

COMPETENCY BASED QUESTIONS
CLASS VII
CHAPTER-13 (Waste Water Story)

ASSERTION REASONING:
Following questions consist of two statements –Assertion (A) and Reason (R).
Answer these questions selecting the appropriate option given below:
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true

Q1 Assertion- The treatment of waste water is known as Sewage treatment.
Reason- Cleaning of water is the process of removing pollutants before it enters water body.

Q2 Assertion- We should not consume contaminated water.
Reason- Dirty water contains toxic chemicals that can cause diseases.

Q3 Assertion-Liquid waste released by houses is called sewage.
Reason- Waste that originates from kitchen is called sludge.

Q4 Assertion- To improve sanitation, low cost onsite sewage disposal systems needs to be encouraged.
Reason- Water borne diseases are polio, diphtheria, cholera.

Q5 Read the paragraph carefully and answer the questions given below.
Sewage is wastewater released by homes, industries, hospitals, offices and other users. It also includes water that has run down the street during a storm or heavy rain. The water that washes off roads and rooftops carry harmful substances with it. Sewage is a liquid waste. Most of it is water, which has dissolved and suspended impurities. In a home or a public building generally one set of pipes brings clean water and another set of pipes takes away wastewater. Imagine that we could see through the ground. We would see a network of big and small pipes, called sewers, forming the sewerage. It is like a transport system that carries sewage from the point of being produced to the point of disposal, i.e. treatment plan. Manholes are located at every 50 m to 60 m in the sewerage, at the junction of two or more sewers and at points where there is a change in direction.

5.1 What are the various sources of sewage?

5.2 Where does the sewers transport the sewage after collecting all the wastewater from various sources?

5.3 Rain water that runs down in the streets during heavy rainfall is also waste water. Is it true or false.

Q6 **Read the paragraph carefully and answer the question given below.**
To improve sanitation, low cost onsite sewage disposal systems are being encouraged. Examples are septic tanks, chemical toilets, composting pits. Septic tanks are suitable for places where there is no sewerage system, for hospitals, isolated buildings or a cluster of 4 to 5 houses. Some organisations offer hygienic on-site human waste disposal technology.

These toilets do not require scavenging. Excreta from the toilet seats flow through covered drains into a biogas plant. The biogas produced is used as a source of energy. The government has laid down certain standards of sanitation but, unfortunately, they are not strictly enforced. However, all of us can contribute in maintaining sanitation at public places. We should not scatter litter anywhere. If there is no dustbin in sight, we should carry the litter home and throw it in the dustbin.

6.1 What do you understand from terms -Septic tanks, chemical toilets and scavenging.

Q7 Given below is the table of contaminant survey explaining types of sewage. Write their point of origin and substances that contaminate

TYPES OF SEWAGE	POINT OF ORIGIN	SUBSTANCES WHICH CONTAMINATE
1 SULLAGE WATER		
2 FOUL WASTE		
3 TRADE WASTE		

Q8 A man travelling in a train threw an empty packet of food on the platform. Do you think this is a proper waste disposal method? Elaborate

Q9. Given below is a jumbled sequence of the processes involved in a wastewater treatment plant. Arrange them in their correct sequence.
(a) Sludge is scraped out and skimmer removes floating grease.
(b) Water is made to settle in a large tank with a slope in the middle.
(c) Large objects like plastic bags are removed by passing wastewater through bar screens.
(d) Sand, grit and pebbles are made to settle by decreasing the speed of incoming wastewater.
(e) Wastewater enters a grit and sand removal tank.

Multiple-choice Questions

Q10 Which of the following is wastewater?
(a) Water trickling from a damaged tap
(b) Water coming out of a shower
(c) Water flowing in a river
(d) Water coming out of a laundry

Q11 The modern household RO-water filters generate a lot of wastewater after filtration, in several urban and rural homes. What can be a possible utility of this water that has higher concentration of mineral salts and trace impurities?
(a) Bathing
(b) Cooking

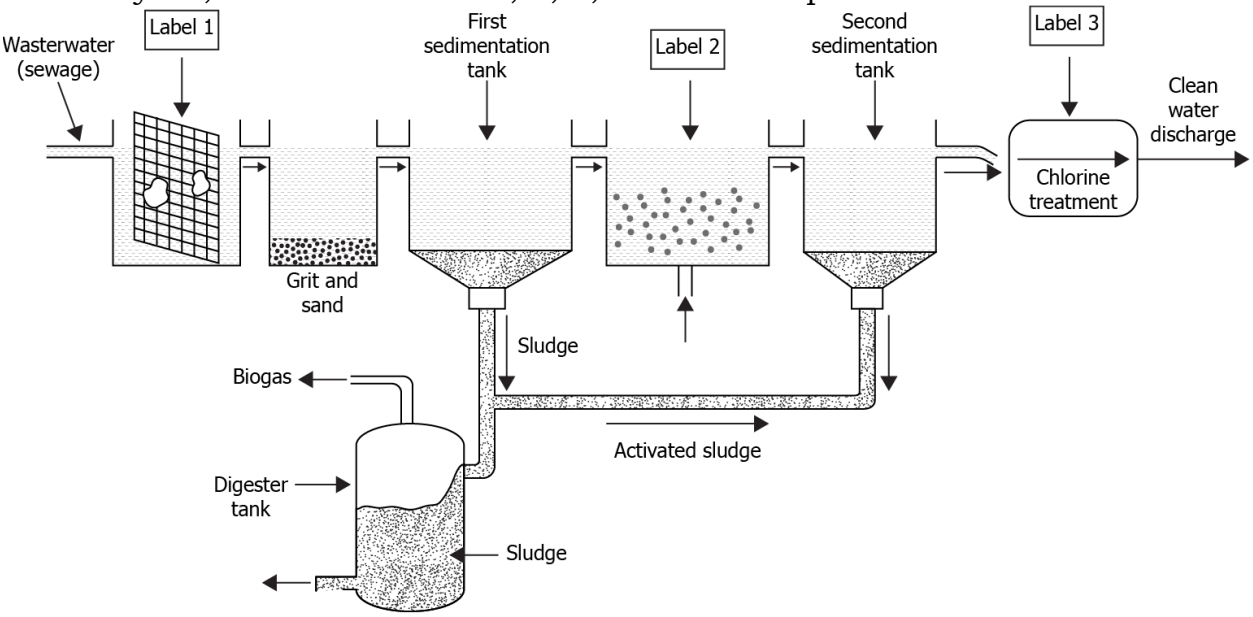
(c) Doing laundry **(d)** Watering plants

Q12 The aerobic bacteria can be grown in clarified water by
(a) filtration (b) sewage
(c) aeration (d) sedimentation

Q13 In a small village, due to contamination of a water resource, several residents simultaneously got affected by dysentery. What measures can be taken in households, to ensure protection from such water borne diseases?
(a) Boil the tap-water before cooking or drinking.
(b) Test the tap-water for bacterial culture growth.
(c) Disinfect the village water supply using UV-light.
(d) Filter the water before irrigating fields of food-crops.

Q14 A textile industry directly drains its wastewater into the sewerage system. This burdens the wastewater treatment plant nearby. What action should local authorities take in order to effectively deal with the situation?
(a) Tell the industry to ban the use of certain industrial effluents
(b) Ask the factory to move and be set up in another municipality
(c) Ask the factory to discharge its wastewater into the local lake
(d) Tell the industry to pre-treat their wastewater before discharge

Q15 Consider the following layout of an urban wastewater treatment plant.
In the layout, what do the labels, 1, 2, and 3 correspond to?



(a)1: Bar screen, 2: Aeration, 3: Disinfection
(c)1: Sand filtration, 2: Settling tank, 3: Sludge collector
(c)1: Settling tank, 2: Anaerobic digestion, 3: Disinfection
(d) 1: Grit removal, 2: Aeration, 3: Third sedimentation tank

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ANSWER KEY Ch- Waste Water Story

A1- (a) Both A and R are true and R is the correct explanation of A.

A2-(a) Both A and R are true and R is the correct explanation of A.

A3-(c) A is true but R is false.

A4-(b) Both A and R are true but R is not the correct explanation of A.

A5.1-Sewage is essentially the wastewater that is released by houses, industries, hospitals, offices and rainwater that has run down the street during a storm or heavy rainfall

A5.2-WWTP or STP
A5.3-True

A6.1- A septic tank is a sewage disposal system that consists of a concrete or metal tank with an outlet submerged in the ground. Domestic sewage enters the tank through another inlet pipe. The solids settle down in the tank and the liquid flows through the outlet pipe into the soil.

A chemical toilet collects human excreta in a holding tank and uses chemicals to minimize odors. These toilets are usually, but not always, self-contained and movable. A chemical toilet is structured around a relatively small tank, which needs to be emptied frequently. When the tank is emptied, the contents are usually pumped into a sanitary sewer or directly to a treatment plant.

Removal of untreated excreta from septic tanks, chemical toilets, cleaning septic tanks, gutters and sewers is called manual scavenging.

A7-

TYPES OF SEWAGE	POINT OF ORIGIN	SUBSTANCES WHICH CONTAMINATE
1 SULLAGE WATER	Kitchen	Cooking oil, fats
2 FOUL WASTE	Toilets	Faeces, urine
3 TRADE WASTE	Industrial and commercial organisations	Chemicals, paints, solvents, motor oil

A8-No, this is not a proper waste disposal method. He should have thrown the packet in the dustbin made for non-biodegradable waste as the food packets are usually made up of plastic which is non-biodegradable.

A9-The correct sequence of wastewater treatment in treatment plant is c,e,d,b,a.
(c) Large objects like plastic bags are removed by passing wastewater through bar screens.
(e) Wastewater enters a grit and sand removal tank.
(d) Sand, grit and pebbles are made to settle by decreasing the speed of incoming wastewater.

(b) Water is made to settle in a large tank with a slope in the middle.
(a) Sludge is scraped out and skimmer removes the floating grease.

Multiple-choice Questions

A10-(d) Water coming out of a laundry
A11- (d) Watering plants
A12 (c) aeration
A13-) **(a)** Boil the tap-water before cooking or drinking.
A14- **(d)**Tell the industry to pre-treat their wastewater before discharge
A15- (a)1: Bar screen, 2: Aeration, 3: Disinfection