#### L-5 Acids, Bases, and Salts

I. Tick the correct option. Which of the following is an acid-base indicator? 1. (b) Lime water(c) Turmeric (d) Baking soda (a) Vinegar The colour change of blue litmus in acidic solution is . 2. (a)Blue (b) Purple (c) Red (d) Pink 3. Sodium bicarbonate is commonly called as . (a) Slaked lime (b) Lime water (c) Washing soda (d) Baking soda 4. The chemical name of calamine solution is (b) Zinc carbonate (c) Magnesium carbonate (a) Calcium carbonate (d) Sodium carbonate Which of the following can be used to neutralise an acid? 5. (b) Sodium hydroxide(c) vinegar (a) water (d) common salt Fill in the blanks. II. 1. Litmus is extracted from China rose indicator turns \_\_\_\_\_\_solution to dark pink and \_\_\_\_\_\_solution 2. to green. 3. \_\_\_\_\_ Acid is present in tamarind and grapes. 4. Ant's sting has \_\_\_\_\_ \_\_\_\_\_ acid and can be treated with \_\_\_\_\_\_solution. 5. can cause damage to historical monuments, buildings, plants, and animals. III. Name the following. 1. It gives a pink colour when the solution is basic but remains colourless when the solution is acidic 2. The base used in window cleaner – 3. The chemical name of Lime water -4. Any two acids present in acid rain -5. Colorless and synthetic indicator used in laboratory -The base present in soap – 6. 7. Substances which are neither acidic nor basic -8. Three naturally occurring indicators -9. Substances which are bitter in taste and feel soapy on touching -10. Substances which are sour in taste -IV. Complete the table with the appropriate words given below: (formic acid, ascorbic acid, citric acid, curd, vinegar, spinach, grapes) Name of acid Found in 1. Acetic acid 2. Ant's sting 3. Oxalic acid 4. Tartaric acid Citrus fruits such as oranges, 5. lemons, etc. 6. Lactic acid

Amla, citrus fruits

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7.

## V. Read the following statements carefully and choose the correct answer:

1. Assertion: Blue litmus paper turns into red colour in acidic solution and redlitmus paper turns blue in basic solution.

**Reason:** The substances which are used to test whether the given substance acidic or basic are called indicators.

- a) Assertion and reason both are correct statements and reason is the correct explanation for assertion.
- b) Assertion is a correct statement, but reason is not correct explanation for assertion.
- c) Assertion is correct statement, but reason is wrong statement.
- d) Assertion and Reason both are wrong statements.

# 2. Assertion: Ammonia is found in many household products, such as window cleaners. Reason: Ammonia is acidic in nature.

- a) Assertion and reason both are correct statements and reason is the correct explanation for assertion.
- b) Assertion is a correct statement, but reason is not correct explanation for assertion.
- c) Assertion is correct statement, but reason is wrong statement.
- d) Assertion and Reason both are wrong statements

## 3. Assertion: Lemon juice turns red litmus to blue.

Reason: In Acidic solution red litmus paper turns Blue while the blue litmuspaper remains unchanged.

- a) Assertion and reason both are correct statements and reason is the correct explanation for assertion.
- b) Assertion is a correct statement, but reason is not correct explanation for assertion.
- c) Assertion is correct statement, but reason is wrong statement.
- d) Assertion and Reason both are wrong statements

## 4. Assertion: When an ant bites, it injects the acidic liquid into the skin. Reason: Ant stings have Formic acid.

- a) Assertion and reason both are correct statements and reason is the correct explanation for assertion.
- b) Assertion is a correct statement, but reason is not correct explanation for assertion.
- c) Assertion is correct statement, but reason is wrong statement.
- d) Assertion and Reason both are wrong statements

## **Case Study Questions**

Rani noticed that a local factory was discharging its liquid waste into theriver. She visited the factory and advised the people working there to treatthe factory waste before discharging into the water body.

- 1. Products of a neutralization reaction are always....
  - a) An acid and a base
  - b) An acid and a salt
  - c) A salt and water
  - d) A salt and a base

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- 2. Which one of the following is a base?
  - a) Litmus
  - b) Calcium hydroxide
  - c) Vinegar
  - d) Water

3. Neutralization reaction is a chemical change that cannot be reversed (True / False )

4. What is neutralization reaction?

5. What remedy do you think Rani would have suggested to factory people?

## L 6 PHYSICAL AND CHEMICAL CHANGES

## I. FILL IN THE BLANKS

1. \_\_\_\_\_ & \_\_\_\_\_ are the two kinds of general changes that take place in our surroundings.

2. On burning Magnesium ribbon the ash formed is \_\_\_\_\_\_.

3. Souring of milk is a \_\_\_\_\_.

4. The turning of limewater milky is the standard test of \_\_\_\_\_\_.

5. When Magnesium oxide is dissolved in water \_\_\_\_\_\_ is formed.

6. The reaction of Copper Sulphate with Iron produces \_\_\_\_\_\_

7. \_\_\_\_\_ absorbs ultra violet radiations and breakdown to Oxygen.

## **II. NAME THE FOLLOWING**

1. The gas produced when baking soda is added to vinegar.

2. The natural protective shield to human beings against radiation.

- 3. The mixture of Chromium, Nickel, Manganese, Carbon and Iron.
- 4. Another name for chemical change.
- 5. Common name of Sodium Hydrogen Carbonate.

6. A change in which one or more new substances are formed.

7. A brownish film acquired on Iron when kept open.

## **III. MULTIPLE CHOICE QUESTIONS**

1. The process of depositing a layer of zinc on Iron is called \_\_\_\_\_

(Galvanisation, Rusting, Crystallisation)

2. All new substances are formed as a result of \_\_\_\_\_\_.

(Physical change, Chemical change, None of these)

3. \_\_\_\_\_ is always accompanied by the production of heat.

(Rusting, Physical change, Burning)

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4. When CO<sub>2</sub> is passed through lime water \_\_\_\_\_\_ is formed.

(Calcium hydroxide, Calcium Carbonate, Sodium Carbonate)

5. The properties such as shape, size, colour and state of a substance are its \_\_\_\_\_\_.

(Physical, Chemical, None of these)

6. \_\_\_\_\_ change is irreversible and permanent.

(Physical, Chemical, Both)

7. \_\_\_\_\_\_ affects Iron articles and slowly destroys them.

(Galvanisation, Rusting, Burning)

8. The process of forming large crystals of pure substances from solution.

(Galvanisation, Rusting, Crystallisation)

## IV. WRITE TRUE OR FALSE. IF FALSE CORRECT THE STATEMENT

- 1. Rust is iron.
- 2. Magnesium Hydroxide changes blue litmus red.
- 3. Iron Sulphate solution is blue in colour.
- 4. Explosion of firework is a physical change.
- 5. Crystallisation is a chemical change.

## V. GIVE THE CHEMICAL NAME OF

1. Baking soda	3. Vinegar
2. Rust	4.Lime water

## VI. GIVE THE CHEMICAL FORMULA OF

- 1. Calcium Carbonate3. Iron Oxide
- 2. Magnesium Hydroxide

## **VIII. COMPLETE THE EQUATIONS**

Magnesium (Mg) + \_\_\_\_\_ → Magnesium Oxide
 Magnesium Oxide (MgO) + water (H2O) →

3. \_\_\_\_\_ + Iron  $\rightarrow$  Iron Sulphate + Copper

4. Vinegar + Baking soda  $\rightarrow$  \_\_\_\_\_ + other substances

5. Carbon dioxide (CO2) + lime water  $\{(CaOH2)\} \rightarrow \_\_\_+$  water

6. Iron (Fe) + \_\_\_\_\_ + water (H2O)  $\rightarrow$  rust (Iron Oxide Fe2O3)

## IX. CLASSIFY AS PHYSICAL AND CHEMICAL CHANGES

1. Burning of candle	2. Folding of a cloth	3. Curdling of milk	4. Photosynthesis
5. Digestion of food	6. Stretching of rubber	band 7. Rusting of iron	8. Rolling of chapatti
9. Moving of furniture	10. Writing on the blac	ek board	

## X. Assertion Reasoning.

#### Choose the correct answer from the following options.

a) Only A is correct.

b) Only R is correct

c) Both A and R are correct and R is the correct explanation of A.

d) Both A and R are correct but R is not the correct explanation of A.

**1. Assertion** (A): Breaking of a glass tumbler is a chemical change.

Reason (R): When a glass tumbler breaks, the pieces cannot be joined to get back the original plate.

2. Assertion (A): The process of burning of paper is a chemical change.

**Reason** (**R**): The products formed by burning a paper cannot be converted back to original paper.

**3.** Assertion (A): The rusting of iron can be prevented through galvanization.

Reason (R): The process which converts iron to iron oxide in the presence of moisture and air is called rusting.

4. Assertion (A): Crystallisation is an example of chemical change.

**Reason** (**R**):Large crystals of copper sulphate can be obtained from copper sulphate powder by the process of crystallization.

## 5. Assertion (A): The Ozone layer protects us from the harmful UV radiation.

Reason (R): The breaking down of Ozone into oxygen is a chemical change.

XI. Case Study: An activity is performed by teacher of class 7. She took a small piece of a thin strip or ribbon of magnesium. After cleaning its tip with sandpaper, the tip is brought near a candle flame. It burns with a brilliant white light.

- 1) Burning of any substance is a/an
  - a) Chemical change
  - b) Physical change
  - c) Irreversible change
  - d) Both chemical and irreversible change
- 2) Magnesium oxide + water =
  - a) None if these
  - b) Magnesium hydroxide
  - c) Magnesium dioxide
  - d) Magnesium trioxide
- 3) Which is an example of a chemical change?
  - a) Melting of wax
  - b) Taking a glass of water and freezing it by placing it in the freezer
  - c) Filling up a balloon with hot air
  - d) A plant collects sunlight and turns it into food
- 4) \_\_\_\_\_ is a new substance formed on burning of magnesium
- 5) Magnesium hydroxide is an acid
  - a) True
  - b) False

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## CLASS: 7

- 6) In a chemical change:
  - a) Energy is either absorbed or given out
  - b) Energy is always given out
  - c) Energy is always absorbed
  - d) Energy change do not occur

7) When a new substance is formed with different properties than the original substance the change is called a\_\_\_\_\_

- a) Undesirable change
- b) Chemical change
- c) Desirable change
- d) Physical change

## **L**-11 TRANSPORTATION IN PLANTS AND ANIMALS

#### I. Fill in the blanks

- 1. The rhythmic contraction of the heart followed by its relaxation is called \_\_\_\_\_
- 2. The \_\_\_\_\_\_ transport, substances in plant.

3. \_\_\_\_\_ are the extremely thin blood vessels which connect arteries to veins

4. Platelets play major role in blood \_\_\_\_\_

5. Throbbing movements due to blood flow in arteries are called \_\_\_\_\_\_.

6. \_\_\_\_\_ help in preventing the blood from flowing back.

7. The lower chambers of the heart are called the \_\_\_\_\_.

8. The sensitive part of the stethoscope is called\_\_\_\_\_

9.\_\_\_\_\_\_side of the heart has oxygen rich blood.

10. \_\_\_\_\_carries the waste from the body of Hydra.

11. The \_\_\_\_\_\_ in the kidneys filter the blood.

12. Urine consists of \_\_\_\_\_ percentage of urea.

13. In summer, white patches seen on the shirt is due to the presence of \_\_\_\_\_\_ in sweat.

14 \_\_\_\_\_\_is the excretory product in birds, lizards and snakes.

15. The process of filtering blood through artificial kidneys is called \_\_\_\_\_

16. The \_\_\_\_\_\_ increases the surface area of the roots for the absorption of water and minerals

17. \_\_\_\_\_\_ are the blood vessels that carry blood from the heart to various parts of body.

18. The human heart beats about \_\_\_\_\_\_ times per minute

## **II. NAME THE FOLLOWING**

1. The process that generates a force which pulls up water absorbed by the roots from the soil.

- 2. The fluid component of blood
- 3. The red pigment present in RBC
- 4. The major excretory organ in human beings
- 5. The only artery that carries carbon dioxide rich blood.
- 6. The excretory product in fishes

7. Tissue responsible for the transport of food to various parts of the plant.

8. The part of the plant that prepares food

## **III. ASSERTION- REASON QUESTIONS**

Choose the correct answer from the following options.

- (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 (A): Arteries have a thick elastic wall.

Reason (R): In arteries blood flow is rapid and at high pressure.

- Q2. Assertion (A): Pulmonary artery carries impure blood to the lungs.
  - Reason (R): Pulmonary vein carries impure blood from lungs to the heart.
- Q3. Assertion (A): Heart is a tissue which acts as a pump.
  - Reason (R): Heart is roughly the size of a human fist.
- Q4. Assertion (A): Rhythmic beating of various chambers of the heart maintains circulation of blood.

Reason (R): Pulse rate per minute indicates the rate of heartbeat.

## IV. CASE STUDY

Small droplets of water were seen inside the plastic bags that were tied around the branch with the leaves of a plant, while the other plastic bag that is tied to a branch without leaves does not have any droplets. This shows that water vapour is released by the leaves.

Answer the following.

- 1. Name the process of losing water from the leaves.
- 2 The pores on the leaves through which water is lost.
- 3. Vascular tissue that helps in the transport of water and minerals in plants
- I. Choose the correct option:

## L12 Reproduction in Plants

- 1. Vegetative reproduction of potato takes place in the
- a. Roots b) stem c) leaves d) bud
- 2. The production of new individuals from their parents is known as
- a) Reproduction b) Production c) Vegetative propagation d) Sprouting
- 3. Spore formation takes place in
- a. Algae b) Fern c) Fungi c) Yeast
- 4. The cell which results after fusion of gametes is
- a. Zygote b) Embryo c) Pistil d) none
- 5. Flowers which contain either the pistil or stamens are called
- a. Unisexual flowers b) Bisexual flowers c) asexual d) none
- 6. Yeast reproduces by
- a. Spore formation b) Budding c) Fragmentation d) None

- 7. 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
- 8. 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
- 9. Small bulb like projection coming out from the yeast cell is called
- a) Budb) Sporec) Noded) None10. Propagation by leaf buds takes place in
  - a) Rose b) Onion c) Potato d) Bryophyllum

## II. Name the following

- 1. Production of new individuals from their parents.
- 2. The two modes of reproduction
- 3. The process of fusion of male and female gametes
- 4. Transfer of pollen grains from anther to stigma of flower.
- 5. Bulb like projections of yeast cell.
- 6. Male reproductive part of the flower
- 7. Female reproductive part of the flower
- 8. Flower which contain both stamens and pistil

#### **III.** Fill in the blanks

- 1. Production of new individual from the vegetative part of plant is called ------
- 3. Ovary develops into ------ and ovules develops into -----
- 4. A flower that contains only the male reproductive part is called ------
- 5. The fertilized egg is called ------ and develops into an -----
- 6. ----- and ----- are examples of seed dispersal by animals.

## IV. Match the following.

- 1. Bud a. Maple
- 2. Eyes b. Spirogyra
- 3. Fragmentation c. Yeast
- 4. Wings d. Bread mould

5. Spores e. Potato

#### V. Assertion reason questions- Choose the answer from the following options

(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 (A): Vegetative propagation is a method of asexual reproduction in plants.

Reason (R): In asexual reproduction new plants are obtained without use of seed or spore.

Q2. Assertion (A): A flower may either have a male or a female part.

**Reason** (**R**) : A flower having both male and female parts is called a bisexual flower.

Q3. Assertion (A): Yeast grows and multiplies every few hours if sufficient nutrients are available.

**Reason** (**R**) : When water and nutrients are available algae grow and multiply rapidly through budding.

Q4. Assertion (A) : Parts of pistil are anther and filament.

Reason (R): Unisexual flowers are those which contain either stamen or pistil.

Q5. Assertion (A) : Seeds germinate and form new plants.

**Reason** (**R**) : A spore germinates and develops into a new individual.

#### **VI Case study Question**

Generally, pollen grains have a tough protective coat that prevents them from drying up. Since pollen grains are light, they can be carried by wind or water. Insects visit flowers and carry 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, it is called self-pollination. When the pollen of a flower lands on the stigma of another flower of the same plant or 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.

Q1) Pollen grains have a.....protective coat which prevents the pollen grains from\_\_\_\_\_

- (a) Tough, drying up
- (b) Soft, drying up
- (c) Flexible, drying up
- (d) Strong, moisture

Q2) What develops into an embryo?

- (a) Pollen
- (b) Ovum
- (c) Zygote
- (d) Pistil

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

- (a) Insect
- (b) Water
- (c) Wind
- (d) All of the above

Q 4) Define pollination?

## L 13 Motion and Time

## I. FILL IN THE BLANKS

- 1) The basic unit of speed is \_\_\_\_\_.
- 2) A faster moving object covers more distance in \_\_\_\_\_time.
- 3) If the speed of an object keeps changing in equal interval of time, while moving along a straight line, its motion is said to be in .
- 4) The to and fro motion of an object from the position of rest is called a\_\_\_\_\_.
- 5) One complete to and fro motion of a pendulum from rest position is called one\_\_\_\_.
- 6) The basic unit of time is \_\_\_\_\_.
- The metallic ball in pendulum is called \_\_\_\_\_\_the pendulum.8.The symbol of all units is written in \_\_\_\_\_.
- 8) Motion along a curved path is called\_.
- 9) The working of a pendulum clock is based on the \_\_\_\_\_\_ of its pendulum.11.Motion of the hammer of an electric bell is \_\_motion.

## II. ANSWER THE FOLLOWING

- 1) What type of graph is used to represent motion of an object?
- 2) What is the SI unit of distance?
- 3) What is the motion of our hands while running?
- 4) What do you mean by the statement; "car is moving with the speed of 50 Km per hour"?
- 5) Give an example of oscillatory notion.
- 6) A simple pendulum takes 32 s to complete 20 oscillations. What is the time period of the pendulum?
- 7) What are the points that should be kept in mind while choosing scale for drawing graph?

## III. <u>NAME THE FOLLOWING</u>

- 1) The device on vehicles to track the distance covered.
- 2) The device used to measure speed.
- 3) An object that shows oscillatory motion.

## IV. STATE TRUE OR FALSE

1.For a body/ an object in non-uniform motion, the graph is not a straight line.

2.Speed = Distance/ Time.

3. The time period of a given pendulum is not constant.

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## V. Classify the following as motion along a straight line, circular or oscillatory motion:

- Motion of our hands while running. : -
- Motion of a horse pulling a cart on a straight road. :-
- Motion of a kid in a merry-go-round. : -
- Motion of a child on a see-saw. : -
- Motion of the hammer of an electric bell.-
- Motion of a train on a straight bridge : -

## VI Case Study –

1) A car is moving at a speed of 50 kilometers per hour, which implies that it will cover a distance of 50 kilometers per hour. Vehicles moving in the same direction on the road 50 kilometers in one hour. However, a car seldom moves at a constant speed for one hour. It starts moving slowly and then picks upspeed. So, when we say that the car has a speed of 50 kilometers per hour.

1) A bus travels 54 km in 90 minutes. The speed of the bus is

- a) 0.6 m/s
- b) m/s
- c) 10 m/s
- d) 3.6 m/s

2)The distance traveled by the vehicles is recorded by

- a) speedometer
- b) motometer
- c) odometer
- d) monometer

3. An object moving along a straight line with a constant speed is said to be in \_\_\_\_\_

4. Speed is the total distance covered divided by the total time taken.a)True b) False

## VII Assertion - Reasoning - Choose the correct answer from the following options.

(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.

- A- The distance moved by an object in unit time is called its speed.
   R Faster vehicles have higher speeds.
- 2) A- The speedometer records the speed of the vehicle generally in km/h.R- The Odometer measures the distance moved by the vehicle in one hour.

R- If an object moving along a straight line covers equal distance in equal intervals of time it is saidto be uniform

motion.

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<sup>3)</sup> A- The distance-time graph for the motion of an object moving with a constant speed is not a straight line.

## L15 LIGHT

<ul><li>I. CHOOSE THE CORRECT OPTION</li><li>1. The path of light is</li></ul>					
a) Always a straight-line b) a curved line c) a zigzag line d) depends on the medium					
<ul><li>2. Which one shows lateral inversion?</li></ul>					
a) Convex mirror b) Concave mirror c) Plane mirror d) All of these					
<b>3.</b> Image formed by a plane mirror is					
a) virtual and erect b) real and erectc) virtual and inverted d) real and inverted					
<b>4.</b> An image which can be obtained on a screen is called.					
a) Erect b) inverted c) real d) virtual					
5. Image formed by a convex mirror is					
a) erect, virtual and smaller b) inverted, virtual and smaller					
c) erect, real and smaller d) erect, virtual and magnified					
6. Which is used as a side view mirror?					
a) Plane mirror b) concave mirror c) convex mirror d) none of these					
7. A concave lens always forms					
a) erect, virtual and smaller image b) inverted, virtual and smaller					
c) erect, real and smaller image d) inverted, virtual and smaller image					
8. White light is composed of					
a) Seven colours b) three colours c) five colours d) eight colours					
<b>II.</b> FILL IN THE BLANKS					
1. The phenomenon of bouncing back of the rays of light into the same medium on striking a polished surface					
is calledof light.					
2. A image is always inverted.					
<b>3.</b> A virtual image larger than the object can be produced by a					
4. A smooth polished surface which can return the rays of light into the same medium is called					
5. An image that cannot be obtained on a screen is called aimage.					
6. The image formed by amirror is always the same size as that of the object.					
7. The image formed in a plane mirror, the right appears as left and the left appears as right, due to					
<b>8.</b> A lens is thicker in the middle and thinner at the edges.					
<b>III.</b> NAME THE FOLLOWING					

- 1) A transparent medium bounded by two curved surfaces.
- 2) Splitting white light into seven colours.
- 3) A triangular three-dimensional device made of glass.
- 4) An invisible form of energy which causes in us the sensation of vision.

- 5) An image which can be obtained on a screen.
- 6) The size of the image being greater than the object.
- 7) Demonstration apparatus to show colour mixing by rotating disc of colour sectors.
- 8) The spherical mirror used by a dentist.
- 9) The band of seven colours seen when white light is split into its different colours.
- 10) A natural phenomenon showing dispersion.

## **IV.** DEFINE

1. Light	2. Rectilinear propagation of light		3. Reflection of light
4. Prism	5. Dispersion	6. Spectrum	7. Newton's Disc

## V. ASSERTION- REASONING QUESTIONS

(1) Assertion(A)- When the object is placed very close to the lens, the image is formed is virtual, erect, and magnified.

**Reason(R)-** This happens because the convex lens can form real and inverted image when the object place very close.

- 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 (A): Rainbow is an example of the dispersion of sunlight by the water droplets. Reason (R): Light of shorter wavelength is scattered much more than light of larger wavelength.

- 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): Virtual image can't be seen by human eye.

**Reason (R):** Virtual image is formed by diverging rays.

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 (A): When we see an object, the image formed on the retina is real and inverted.

**Reason (R):** If the magnification of a system is less than one, then the image formed is inverted. 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): The air bubble shines in water.

Reason (R): Air bubble in water shines due to refraction of light.

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.

## (6) Assertion : During rainbow formation, the light disperses into its seven constituent colours.

Reason (R): Air has lots of suspended dust particles.

- 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 STUDY

Lenses are transparent and light can pass through them. Lenses are classified as convex lens and concave lens and we can distinguish between these two types of lenses by just touching them. Lenses are widely used in various appliances that we come across in our daily life.

- 1) The lenses used in spectacles of a person are found to be thick in the middle but thinner at the edges. The lens used are
  - (a) convex
  - (b) concave
  - (c) plane
  - (d) none of these.

## 2) The image formed by a lens is always erect, virtual and smaller in size than the object. The lens is

- (a) convex
- (b) concave
- (c) plane
- (d) none of these.

## 3) The image formed by magnifying glass is

- (a) real
- (b) virtual
- (c) either real
- (d) none of these is or virtual correct