

# OLYMPIAD Mock Test

# 3

Name : \_\_\_\_\_

Max. Marks : 50

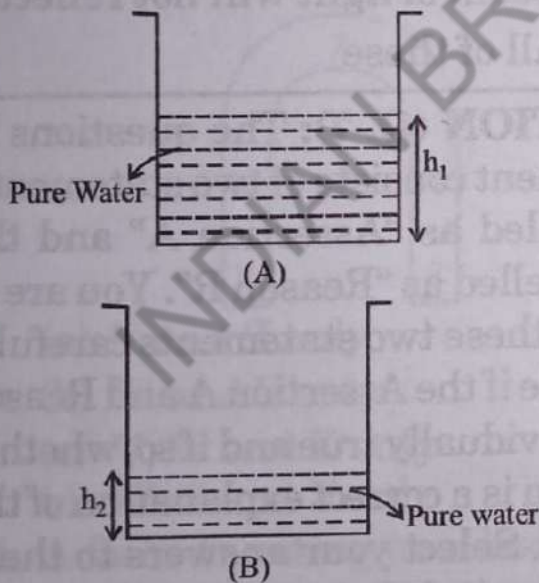
Number of Questions : 50

Time : 2 Hours

There is no negative marking in the test.

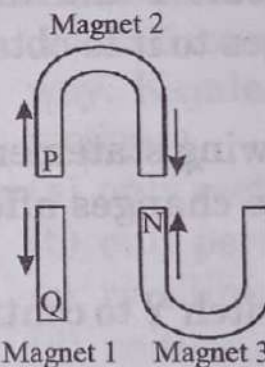
## PHYSICS

1. Container (A) and (B), contain pure water but in different quantity. If both of the containers have same shape, same size and kept at same surface but height from the ground  $h_1 > h_2$ .



Which container will have more pressure?

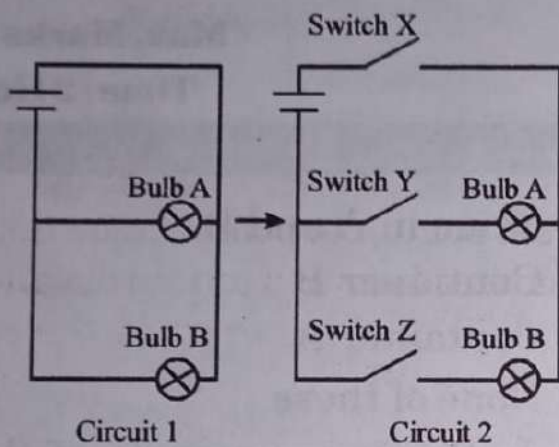
- (a) Same in A and B  
(b) Container B  
(c) Container A  
(d) None of these
2. Study the arrangements of three magnets below.



What could the poles at P and Q be?

	P	Q
(a)	N	N
(b)	N	S
(c)	S	N
(d)	S	S

3. If an object placed in the path of light allowed almost the whole of the light falling on it to pass through it, then the object is classified as  
 (a) transparent (b) translucent  
 (c) opaque (d) none of these
4. Study the circuits below.



Amar set up Circuit 1 and then made some changes to it to obtain Circuit 2.

Which of the following statements explain(s) how the changes affect the circuit?

- A. We can use Switch Y to control Bulb A.  
 B. We can use Switch Z to control Bulb B.  
 C. We can use Switch X to control Bulb A and Bulb B.  
 D. Bulb A and Bulb B can now be lit independently of each other.

- (a) A only  
 (b) C only  
 (c) A and B only  
 (d) A, B, C and D
5. An object has moved from one position to another position then  
 (a) its distance is zero  
 (b) its displacement is zero  
 (c) neither its distance nor displacement is zero  
 (d) none of these
6. What will be the angle of reflection if more than one beam of light is falls on the rough surface?  
 (a) Beam of light will reflect at the same angle of reflection  
 (b) Beam of light will diffuse  
 (c) Beam of light will not reflect  
 (d) All of these

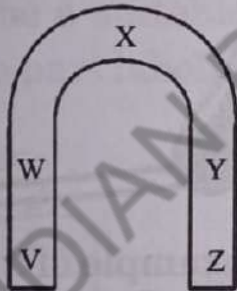
**DIRECTION (Q. 7):** The questions in this segment consists of two statements, one labelled as "Assertion A" and the other labelled as "Reason R". You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the reason is a correct explanation of the assertion. Select your answers to these items using codes 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.

7. **Assertion (A)** : Silver is not used to make electric wires.

**Reason (R)** : Silver is a bad conductor.

8. On which one of the following factors speed of a running car depends?  
 (a) Distance travelled by the car  
 (b) Time taken to travel that distance  
 (c) Weight of the car  
 (d) Both (a) and (b)
9. Which parts of the magnet below can attract the most number of pins?



- (a) V and Z only  
 (b) W and Y only  
 (c) V, W and X only  
 (d) W, X and Y only
10. A force  $F_1$  acting on a body of 2 kg produces an acceleration of  $2.5 \text{ m/sec}^2$ . Another force  $F_2$  acting on the

body of mass 5 kg produces an acceleration of  $2 \text{ m/sec}^2$ . Find the ratio of  $F_2/F_1$ .

- (a) 2 (b) 4  
 (c) 6 (d) 8

11. Our body is:

- (a) Good conductor of electricity.  
 (b) Bad conductor of electricity.  
 (c) Sometimes good and sometimes bad conductor.  
 (d) None of these

12. Kamlesh moves on a straight road from point A to point C. She takes 20 minutes to cover a certain distance AB and 30 minutes to cover the rest of distance BC. She then turns back and takes 30 minutes to cover the distance CB and 20 minutes to cover the rest of the distance to her starting point. She makes 5 rounds on the road the same way. Kamlesh concludes that her motion is

- (a) only rectilinear motion.  
 (b) only periodic motion.  
 (c) rectilinear and periodic both.  
 (d) neither rectilinear nor periodic.

13. Which of the following can never form a circular shadow?

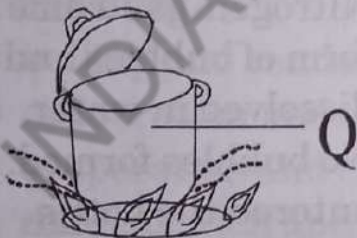
- (a) A ball  
 (b) A flat disc  
 (c) A shoe box  
 (d) An ice cream cone



19. Halley's comet appear after every 76 years. It is a ..... change.
- (a) permanent
  - (b) chemical
  - (c) reversible
  - (d) periodic

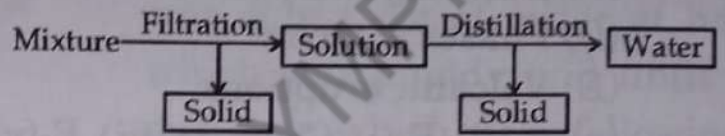
20. We group the materials for our convenience and also for some other reasons. Materials are grouped together on the basis of
- (a) similarities in their properties
  - (b) differences in their properties
  - (c) both on similarities and difference in their properties
  - (d) None of the above is correct

21. Which of the following materials would not be a suitable choice for making the part labelled Q?



- (a) Steel
- (b) Glass
- (c) Wood
- (d) Ceramics

22. In a classroom, a student did the following activity to separate the constituents of a mixture. What according to you are the constituents of mixture?



- (a) Water + Sand + Glass
  - (b) Sand + Sugar + Water
  - (c) Stones + Rice + Water
  - (d) Oxygen + Hydrogen + Salt
23. Study the following phenomena.

- I. Planetary motion
- II. Blinking of traffic lights
- III. Motion of fan blades rotating
- IV. Swinging of a pendulum

What is common among the above given phenomena?

- (a) They are all chemical changes.
- (b) They are all physical changes.
- (c) They are all periodic changes.
- (d) They are all undesirable changes.

24. Match column I and column II and choose the correct option from codes given below the columns.

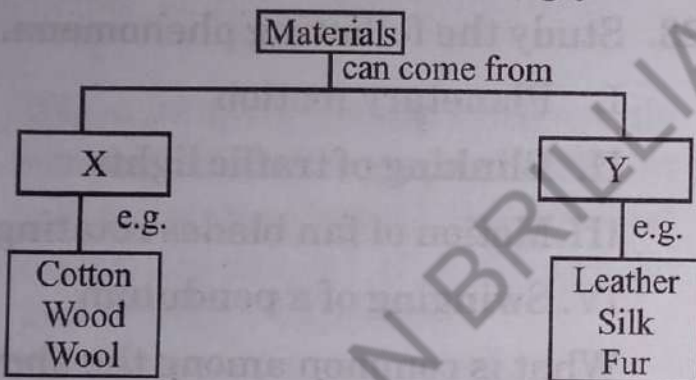
**Column-I**

- (A) Change of water to vapour  
 (B) Ripening of fruits  
 (C) Bursting of crackers  
 (D) Phases of moon  
 (E) Volcanic eruptions  
 (a) A-(ii), B-(i), C-(iv), D-(iii), E-(v)  
 (c) A-(ii), B-(i), C-(iv), D-(v), E-(iii)

**Column-II**

- (i) Chemical change  
 (ii) Physical change  
 (iii) Periodic change  
 (iv) Fast chemical change  
 (v) Non-periodic change  
 (b) A-(i), B-(iv), C-(ii), D-(iii), E-(v)  
 (d) A-(iv), B-(i), C-(v), D-(iii), E-(ii)

25. Study the classification chart below. Which of the following materials has been classified wrongly?



- (a) Fur (b) Silk  
 (c) Wool (d) Cotton
26. Which of the following part of cotton plant is used to obtain cotton fibre?  
 (a) Fruit (b) Flower  
 (c) Seed (d) Stem

27. While doing an experiment Reena took an empty plastic bottle, turned it upside down and dipped its open mouth into a bucket filled with water. She then tilted the bottle slightly and made the following observations.

- (i) Bubbles of air came out from the bottle.  
 (ii) Some water entered the bottle.  
 (iii) Nitrogen gas came out in the form of bubbles and oxygen got dissolved in water.  
 (iv) No bubbles formed, only water entered the bottle.

Which observations is/are correct?

- (a) (i) and (ii) (b) (iv) only  
 (c) (iii) and (iv) (d) (i) only

28. Following changes were observed during lighting of a candle

- (i) Wax was melting.
- (ii) Candle was burning.
- (iii) Size of the candle was reducing.

Of the above, the changes that can be reversed are

- (a) (i) and (ii)
- (b) (ii) and (iii)
- (c) (iii) only
- (d) (i) only

29. Rihana always carries water in a transparent plastic bottle to her school, during summer. One day she left her bottle in the school. The bottle still had some water left in it. The following day, she observed some water droplets on the inner surface of the empty portion of the bottle. These droplets of water were formed due to

- (a) boiling and condensation.
- (b) evaporation and saturation.
- (c) evaporation and condensation.
- (d) condensation and saturation.

30. Which of the following materials are transparent?

- (i) Magnifying glass
- (ii) Mirror

(iii) Stainless steel plate

(iv) Glass tumbler

- (a) (i) and (ii)
- (b) (i) and (iii)
- (c) (i) and (iv)
- (d) (iii) and (iv)

31. Divya was feeling thirsty but there was only a pot of water at home which was muddy and unfit for drinking. Which of the following is the correct sequence of methods that can be used to make this water fit for drinking .

- (a) Loading, boiling, filtration
- (b) Filtration, loading, decantation, boiling
- (c) Sedimentation, decantation, filtration
- (d) Sedimentaion, decantation, filtration, loading

## BIOLOGY

32. Study the diagram shown:

In order for the seed to reach the stage shown, which of the following conditions are necessary?



- A Correct temperature  
 B Sunlight  
 C Oxygen  
 D Water

- (a) A and B only  
 (b) A and C only  
 (c) A, C and D only  
 (d) A, B C and D

33. Which of the following ways help to control and maintain the daily production of rubbish at a minimum?

- A: Reusing products.  
 B: Recycling materials.  
 C: Incineration of rubbish.  
 D: Burying rubbish in landfills.  
 E: Reducing the use of materials.

- (a) A and C only  
 (b) B and E only  
 (c) A, B and E only  
 (d) A, C, D and E only

34. Ritu often complains of dry skin and is unable to see properly in dim light. She is suffering from

- (a) anaemia.  
 (b) night-blindness.  
 (c) beri- beri.  
 (d) None of these.

35. The figure given below has flowers that are pollinated by \_\_\_\_\_.



- (a) water (b) animal  
 (c) wind (d) insect

36. The diagram below shows a platypus.



In which location are you likely to find the platypus?

	Temperature	Amount of water	Amount of light
(a)	low	High	Low
(b)	Moderate	High	High
(c)	High	Low	High
(d)	Moderate	Low	Low

37. The lines on the broad green part of the leaf are called

- (a) lamina (b) veins  
 (c) venation (d) None of these



38. Tommy studies the following organisms.
- Grass
  - Giraffe
  - Goldfish
- Which one of the following statements is true of all three organisms?
- (a) They live on land.
  - (b) They make their own food.
  - (c) They indirectly depend on the Sun for energy.
  - (d) They grow when provided with the essential living conditions.
39. Which of the following statements is true ?
- (a) Bone has a soft substance called bone marrow inside it.
  - (b) The only movable bone in skull is the upper jaw bone.
  - (c) Longest bone in human body is humerus.
  - (d) Floating ribs are joined to the breastbone.
40. In which one of the following process oxidation of food occurs?
- (a) Reproduction
  - (b) Photosynthesis
  - (c) Respiration
  - (d) Transportation
41. Consider the following statements:  
**Statement A:** Green plants prepare their own food.  
**Statement B:** Plants also respire.  
Which one of the following is correct about the above statements?
- (a) Statement A is true and B is false
  - (b) Statement B is true and A is false
  - (c) Both A and B are true
  - (d) Both A and B are false
42. Which one of the following statements is correct:
- Statement A:** Coastal habitats are the aquatic habitats  
**Statement B:** Pond habitats are the terrestrial habitats.
- (a) Statement A
  - (b) Statement B
  - (c) Both statements are correct
  - (d) Both statements are incorrect
43. Presence of huge quantity of water vapour, methane, nitrous oxide and carbon dioxide in the atmosphere that reflect back heat on to the earth surface produces which one of the following?
- (a) Reflection of light
  - (b) Green house effect
  - (c) Holes in the ozone layer
  - (d) All of these

44. Which one of the following microorganisms has the ability to perform photosynthesis?  
(a) Virus (b) Fungi  
(c) Algae (d) Protozoa
45. Which one of the following statements is correct about rainforest habitat?  
(a) Rainforest habitat are hot and wet.  
(b) Rainforest habitat are very cold and covered with snow.  
(c) Rainforest habitat get plenty of rain.  
(d) Both (a) and (c)
46. Which one of the following plants is a hydrophyte?  
(a) Babool (b) Ber  
(c) Lily (d) Wheat
47. Nitrogen is one of the essential component for all life form on the earth. Plant use nitrogen from atmosphere to make an important nutrient which is essential for the growth of plant. Which one of the following essential nutrients it makes by using nitrogen?  
(a) Vitamin (b) Fats  
(c) Protein (d) Starch
48. Which one of the following statements is correct?  
**Statement A:** Clayey soil is more fertile than sandy soil  
**Statement B:** Clayey soil is less fertile than sandy soil  
(a) Statement A  
(b) Statement B  
(c) Both statements are correct  
(d) Both statements are incorrect
49. A science teacher takes the students out for practical activity to know more about the aquatic plants. She shows the students an underwater. She says that underwater leaves do not have waxy waterproof coating and asks them the reason for the same. Here is the reply from the students.  
**Student A:** This is because the whole leaf surface can be used for other purposes.  
**Student B:** This is because the whole leaf surface is required for exchanging gases between the plant and water.  
**Student C:** This is because the whole leaf surface is required for transporting food.  
**Student D:** This is because the whole leaf surface is required for transporting food.

Mock Test-3

s-33

Who has given the correct answer?

- (a) Student A
- (b) Student B
- (c) Student C
- (d) Student D

50. Following are some features of plants:

- (i) They lose a lot of water through transpiration.
- (ii) Their leaves are always broad and flat.

(iii) They lose very little water through transpiration.

(iv) Their roots grow very deep into the soil.

Which of the combination of above features are typical of desert plants?

- (a) (i) and (ii)
- (b) (ii) and (iv)
- (c) (ii) and (iii)
- (d) (iii) and (iv)

## MOCK TEST-3

### ANSWERS KEY

1	(c)	11	(a)	21	(c)	31	(b)	41	(c)
2	(b)	12	(c)	22	(b)	32	(c)	42	(a)
3	(a)	13	(c)	23	(c)	33	(c)	43	(b)
4	(d)	14	(b)	24	(a)	34	(b)	44	(c)
5	(c)	15	(d)	25	(c)	35	(c)	45	(d)
6	(b)	16	(a)	26	(a)	36	(b)	46	(c)
7	(c)	17	(c)	27	(a)	37	(b)	47	(c)
8	(d)	18	(d)	28	(d)	38	(d)	48	(a)
9	(a)	19	(d)	29	(c)	39	(a)	49	(b)
10	(a)	20	(c)	30	(c)	40	(c)	50	(d)

### PHYSICS

1. (c) Since, pressure is directly proportional to the depth of liquid column.  
So, container A will have more pressure.
2. (b) For magnets 2 and 3 to attract, the pole on the right of magnet 2 must be a S-pole and P must be a N-pole. For magnets 1 and 2 to repel each other, the two poles facing each other must be like poles. Thus Q must be a S-pole.
3. (a) An object which allows most of the light to pass through it is called as transparent object.
4. (d) Adding switches to the circuit allows the bulbs to be switched on and off at will. We can control the bulbs individually with Switch Y and Switch Z. Switch X is the main or master switch of the circuit. This is because it can switch on or off all the lights provided Switch Y and Switch Z are switched on.
5. (c) As there is the change in position of an object hence it has both distance and displacement.
6. (b) A rough surface diffuses incident beam of light. Therefore, option (b) is correct and rest of the options are incorrect.
7. (c) Silver is a good conductor of electricity but it is not used to make electric wires because it is expensive.
8. (d) Speed of a car =  $\frac{\text{Distance travel}}{\text{Time taken}}$
9. (a) A horseshoe magnet has varying magnetic strengths at different positions. The magnetic strength is always the strongest at the poles. Therefore, a horseshoe magnet has the strongest magnetic strength at the poles which is at the two ends. The horseshoe magnet will pick up the greatest amount of magnetic objects at the ends than in the middle of the bar magnet. Points V and Z which are the poles of

the magnet are have the greatest magnetic strength. These two points can attract the greatest number of pins. Point X, which is in the middle of the horseshoe magnet, has the weakest magnetic strength and can only attract the least number of pins. Points W and Y which lie between the poles and the middle of the magnet will attract more pins than Point X but less pins than Points V and Z.

10. (a) Force = mass  $\times$  acceleration

11. (a) Current can flow through our body so it is a good conductor of electricity.

12. (c) Motion is along straight line. So it is rectilinear and it repeats itself after several time interval. So it is periodic.

13. (c) Shoe box can never form an circular shadow due to its rectangular of shape.

14. (b) The greatest concentration of iron filings will be at B as the strength is maximum at poles of the magnet and B is closest to the pole (N).

## CHEMISTRY

15. (d) The given objects represent an iron nail and a needle. They both are hard and can be attracted by magnets.

16. (a) Washing powder is soluble in water.

17. (c) The melted wax undergoes combustion as the cotton thread gets burnt. The combustion produces carbon dioxide and

water vapour. The burning of wax is a chemical change.

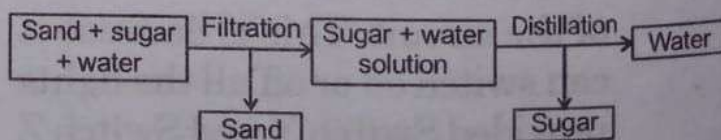
18. (d) A burning of matchstick is a chemical and irreversible change in which heat energy is released. It is an exothermic reaction and a fast change.

19. (d) The appearance of Halley's comet after every 76 years is a periodic change. The changes that occur at regular intervals of time are called periodic changes.

20. (c) Materials are grouped together on the basis of similarities and differences in their properties.

21. (c) Wood catches fire when heated directly over a flame. It is therefore the least suitable for making part labelled Q. The other materials, glass, steel and ceramics are able to absorb and retain heat from the fire.

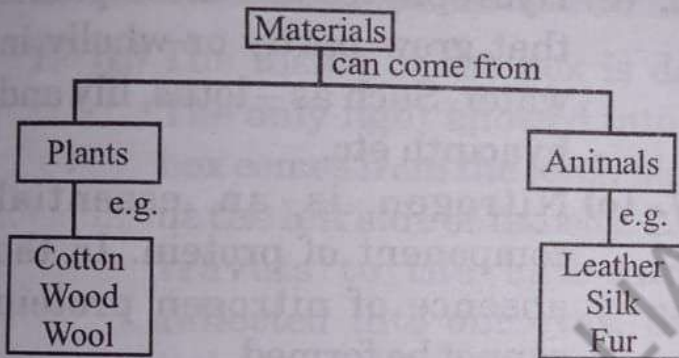
22. (b) The mixture consists of sand, sugar and water. Sugar being soluble in water will form a sugar solution. During filtration, the sand will be separated by filter paper as residue while sugar solution will pass through. During distillation, pure water can be collected leaving the sugar separate. Distillation is the process to obtain pure form of liquid from a solution.



23. (c) All the given phenomena are examples of periodic changes. Periodic changes are changes that occur at regular intervals of time.

24. (a) A-(ii); B-(i); C-(iv); D-(iii); E-(v)

25. (c) If we observe the classification chart carefully, we will see that the materials are classified according to sources they come from. Those materials that are grouped under X come from plants, whereas those that are grouped under Y come from animals.



Wool is obtained from sheep. It should therefore be classified in Group Y. Silk comes from the cocoons of silkworms. Fur comes from the outer body covering of mammals. Leather comes from the skin or hide of animals.

26. (a) Fruit of cotton plant called cotton boll is used for obtaining cotton fibre. Cotton bolls on maturing open and give cotton.

27. (a) On tilting the bottle bubbles of air came out of bottle and some water entered the bottle.

28. (d) Melting of wax is a reversible change as melted wax can be solidified on cooling.

29. (c) Water droplets on the inner surface of the empty portion of the bottle is due to evaporation and condensation of the water.

30. (c) Magnifying glass and glass tumbler are transparent materials.

31. (b) Water is first filtered to remove solid impurities from water. Small suspended impurities are then removed by loading. Loading helps the suspended clay particles to settle down rapidly and clear water can be removed by decantation. Water is then boiled to remove harmful germs and to make water fit for drinking.

## BIOLOGY

32. (c) The diagram shows a seedling. When a seed germinates, a seedling is produced. For germination to take place, the seed would require water, oxygen and the right temperature. Sunlight is not needed at this stage because no green leaves are present for the seedling to carry out photosynthesis.

33. (c) By practising reusing, recycling and reducing methods, less rubbish would be produced. Incineration and burying rubbish in landfills are not methods to reduce the production of rubbish. Incineration is a waste treatment method and a landfill is a site where waste materials are buried.

34. (b) These are the symptoms of night-blindness caused due to deficiency of vitamin A.
35. (c) The flower does not have large petals. Having large flower petals is a characteristic of insect-pollinated plants. The female parts that receive pollen grains are large. This is a characteristic of wind-pollinated flowers.
36. (b) The platypus has webbed feet and is likely to be found in a very wet environment. It does not have very thick fur coat hence it is probably adapted to moderate temperatures.
37. (b) The lines on the broad green part of leaf are called veins.
38. (d) Grass, giraffe and gold fish need essential living conditions such as nutrition and suitable atmosphere for proper growth.
39. (a) Bone marrow is a soft substance present inside bone.
40. (c) Respiration is an oxidation process because there is need of oxygen for this activity.
41. (c) Green plants prepare their food by the process of photosynthesis and there is occurring respiration in all living being for the evolution of energy.
42. (a) Aquatic habitats are concerned with ecosystem related with water bodies such as river, sea, lake and pond etc.
43. (b) The greenhouse effect is a process by which thermal radiation from earth surface is absorbed. It results in elevation of surface temperature.
44. (c) The process of photosynthesis can take place only in those living organisms that have chlorophyll such as algae, green plants etc.
45. (d) Rainforest habitat shows hot and wet climate with heavy rainfall. This results in rich vegetation.
46. (c) Hydrophytes are those plants that grow partly or wholly in water. Such as – lotus, lily and hyacinth etc.
47. (c) Nitrogen is an essential component of protein. In the absence of nitrogen protein cannot be formed.
48. (a) Soil fertility depends upon water holding capacity and humus availability. This quality is shown by clayey soil so it is more fertile in comparison to sandy soil.
49. (b) The leaves of aquatic plants do not have waxy coating on the surface because whole surface is required for gas exchange between plant and water.
50. (d) Desert plants lose very little water due to lack of stomata and roots grow very deep into the soil in search of water.