OLYMPIAD Mock Test 2

Name : _____

Number of Questions : 50

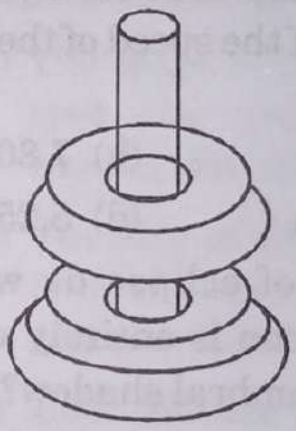
Max. Marks : 50

Time : 2 Hours

There is no negative marking in the test.

PHYSICS

1. In an electric circuit, the two terminals of the electric cell are
   (a) connected directly to each other
   (b) connected to the filament of the bulb
   (c) connected to the two terminals of the bulb
   (d) All the above are correct
2. The brightness of a bulb does not depend on _____ .
   (a) the arrangement of the batteries in a circuit.
   (b) the number of batteries used in a circuit.
   (c) the length of the wire used in a circuit.
   (d) the number of bulbs used in a circuit.
3. William places Magnet R on a stand and then slowly places Object Q on top of it. He notices that Object Q does not stick to Magnet R but instead floats above it.



Which of the following statements best explains why Object Q does not stick to Magnet R ?

(a) Object Q is an electromagnet.

(b) Object Q is made of steel and Magnet R exerts a repulsive force on magnetic materials like steel and iron.

(c) Object Q is a magnet. The unlike poles of Object Q and Magnet R are facing each other, thereby exerting a repulsive force between them.

(d) Object Q is a magnet. The like poles of Object Q and Magnet R are facing each other, thereby exerting a repulsive force between them.

4. How much distance a car travels in 10 minutes if the speed of the car is 40 kmph?

(a) 6.67 km (b) 7.80 km

(c) 10.50 km (d) 5.25 km

5. What kind of eclipse do we see when the moon is entirely within the Earth's umbral shadow?

(a) Partial lunar

(b) Partial solar

(c) Total lunar

(d) Total solar

6. Select the correct statement :

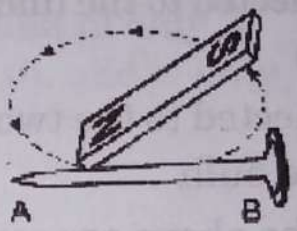
(a) Electrical sockets are made up of conductors, while plug tops are made up of insulators

(b) Electrical sockets are made up of insulators, while plug tops are made up of conductors

(c) Wire coverings are made up of conductors, while fuse wires are made up of insulators

(d) Fuse wires are made up of conductors, while bulb filament is made up of insulators

7. A nail is magnetized as shown in the figure. Which polarity will develop at A and B?



(a) A – North, B – North

(b) A – North, B – South

(c) A – South, B – South

(d) A – South, B – North

8. If no force acts on a body, it will :

(a) get deshaped

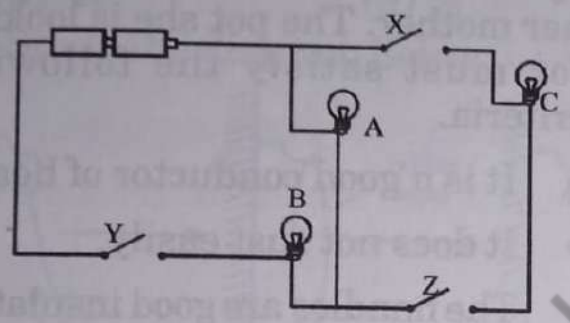
(b) move with increasing speed

(c) either remain at rest or move in a straight line

(d) break

9. An instrument in a vehicle which is used to measure the distance travelled by the vechicle from zero is called–
   (a) Speedometer
   (b) Ohmmetre
   (c) Odometre
   (d) Amperemetre

10. Study the circuit below.



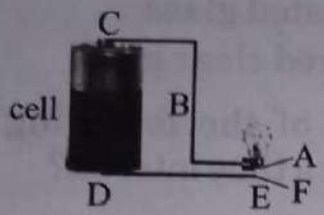
If switches X and Y are closed, which bulbs will light up?
   (a) A and B only
   (b) A and C only
   (c) B and C only
   (d) A, B and C

11. Sunlight shining through the windows of a public library makes the place too bright and glaring. A decision was made to substitute the windows with another material so as to cut down on the glare and brightness. Which of the following materials would be a suitable substitute?
   (a) Soft wood
   (b) Clear plastic
   (c) Frosted glass
   (d) Wired clear glass

12. Which of the following does not express a time interval?
   (a) A day
   (b) A second
   (c) A school period
   (d) Time of the first bell in the school

13. Ram observed the shadow of a tree at 8:00 a.m., 12:00 noon and 3:00 p.m. Which of the following statements is closest to his observation about the shape and size of the shadow?
   (a) The shape of the shadow of the tree changes but the size remains the same.
   (b) The size of the shadow of the tree changes but the shape remains the same.
   (c) Both the size and shape of the shadow of the tree change.
   (d) Neither the shape nor the size of the shadow changes.

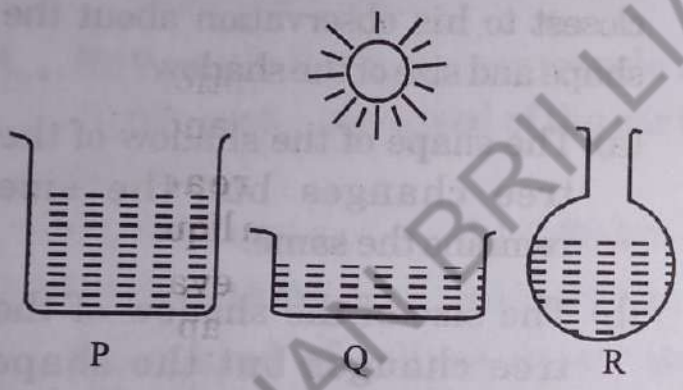
14. In the following circuit the flow of current is in which route?



(a) CBED
(b) DEBC
(c) Either of the above two
(d) None of these

CHEMISTRY

15. 250 mL of water was poured into each of the three containers, P, Q and R.



The containers were placed under direct sunlight for two hours. Which of the following shows the correct arrangement of the containers according to the amount of water left in each container after two hours? Begin with the container with the most amount of water left.

(a) P, R, Q
(b) P, Q, R
(c) Q, P, R
(d) R, P, Q

16. Which of the following is correct for the term 'Lustre'?
(a) Hardness
(b) Softness
(c) Dull appearance
(d) Shiny appearance

17. Jyoti wants to buy a cooking pot for her mother. The pot she is looking for must satisfy the following criteria.

- It is a good conductor of heat.
- It does not rust easily.
- The handles are good insulators of heat.
- While cooking, she is able to see the contents in the pot through the lid without lifting it.

The various parts of the pot are most likely to be made of _____.
(a) rubber, iron and wood
(b) aluminium, glass, copper
(c) clay, ceramics and rubber
(d) stainless steel, glass and plastic

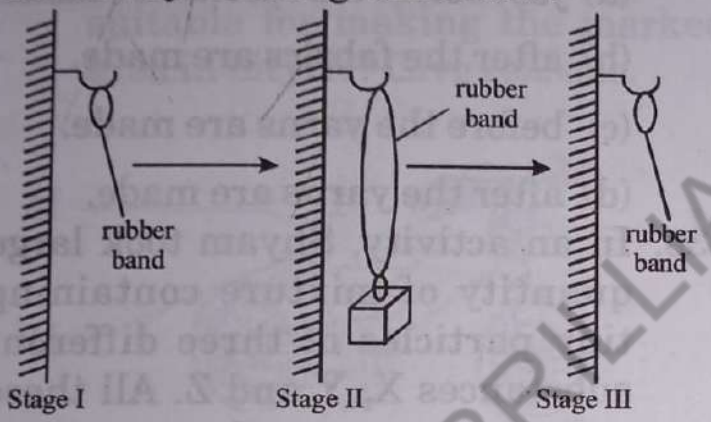
18. Rahul conducted several tests on four different materials. The results were recorded in the table below.

Material	Is it waterproof?	Is it flexible?
P	✓	×
Q	✓	✓
R	×	✓
S	×	×

Which of the following materials is most suitable for making a garden hose?

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

19. Study the diagram below.



The above experiment shows that a rubber band is _____.

(a) elastic (b) ductile
(c) durable (d) malleable

20. Which method is used to separate the mixtures whose component are of different sizes?

(a) Sieving (b) Winnowing
(c) Threshing (d) Filtration

21. Any change in which the original substance can be obtained by reversing conditions is known as a

(a) reversible change.
(b) periodic change.
(c) physical change
(d) Both (a) and (c)

22. Which of the following gases comprises major fraction of Earth's atmosphere?

(a) Nitrogen
(b) Carbon monoxide
(c) Hydrogen
(d) Oxygen

23. Medium sized weaving machine run on power, used to produce cotton clothes on large scale is called _____.

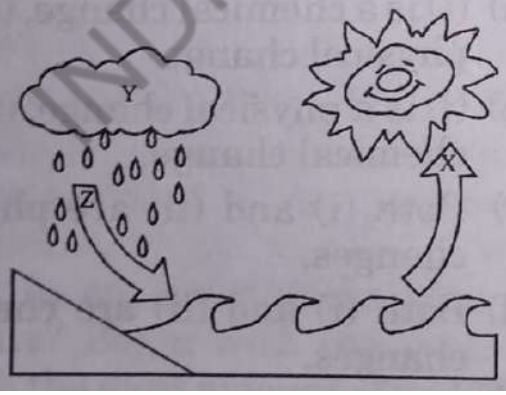
(a) handloom
(b) powerloom
(c) weaving machine
(d) stitching machine

24. Choose the correct option on the basis of statements (i) and (ii)

(i) Hydrogen gas reacts with oxygen gas to form liquid water.
(ii) Liquid water on evaporation changes to water vapour.

(a) (i) is a chemical change, (ii) is a physical change.
(b) (i) is a physical change, (ii) is a chemical change.
(c) Both (i) and (ii) are physical changes.
(d) Both (i) and (ii) are chemical changes.

25. Anaerobic bacteria digest animal waste and produce biogas (Change *A*). The biogas is then burnt as fuel (Change *B*). The following statements are related to these changes. Choose the correct one.
    (a) *A* is a chemical change whereas *B* is a physical change.
    (b) *B* is a chemical change whereas *A* is a physical change.
    (c) Both *A* and *B* are physical changes.
    (d) Both *A* and *B* are chemical changes.
26. The cotton is separated from the seeds in machines called
    (a) gins (b) bins
    (c) bales (d) tins.
27. The process of separating gummy skin from jute fibres is called:
    (a) Carding (b) Ginning
    (c) Bailing (d) Retting.
28. Study the diagram of the water cycle below.



Which of the following do X, Y and Z represent?

	X	Y	Z
(a)	Condensation	Evaporation	Precipitation
(b)	Condensation	Precipitation	Evaporation
(c)	Precipitation	Evaporation	Condensation
(d)	Evaporation	Condensation	Precipitation

29. Bleaching or dyeing are usually done
    (a) just before the fabrics are made.
    (b) after the fabrics are made.
    (c) before the yarns are made.
    (d) after the yarns are made.
30. In an activity, Shyam took large quantity of mixture containing tiny particles of three different substances X, Y and Z. All these substances are of same size, cubical in shape and white in colour. However, X particles are very heavy, insoluble and non-magnetic. Y- particles are very light, insoluble and non-magnetic. Z- particles are iron particles. Which of the following methods will Shyam use to separate X, Y and Z in the fastest manner?

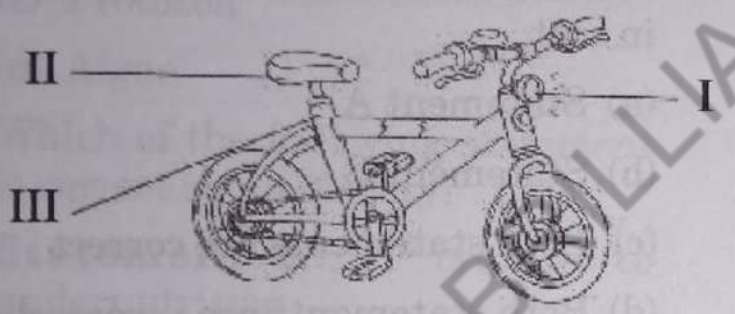
(a) Filtration followed by sublimation.

(b) Winnowing followed by sublimation.

(c) Winnowing followed by magnetic separation.

(d) Filtration followed by magnetic separation.

31. The given figure illustrates a bicycle. Which of the following combinations of materials is suitable for making the marked area in bicycle? Give reasons.



(a) I-Metal; II-Plastic; III-Glass

(b) I-Glass; II-Leather; III-Metal

(c) I-Rubber; II-Nylon; III-Metal

(d) I-Leather; II-Wood; III-Metal

BIOLOGY

32. Which of the following is the most suitable method of reproducing an African violet plant?

(a) From a seed

(b) From a root

(c) From a leaf

(d) From an underground stem

33. Which of the following measures can help to reduce air pollution?

A: Use of windmills

B: Use of solar cells

C: Use of insecticides and pesticides

D: Use of hydroelectric power station

(a) A and C only

(b) B and D only

(c) A, B and D only

(d) A, B C, and D

34. The polar bear and the arctic fox have white fur during winter. Which of the following is their white fur useful for?

A. To attract prey

B. To help them to lose heat quickly

C. To keep them warm

D. To help them camouflage

(a) A and B only

(b) C and D only

(c) A, B and C only

(d) B, C and D only

35. Some human activities have negative effects on our environment. Which of the following is such an example?
    (a) Using bacteria to ferment cheese.
    (b) Cultivating plants that are resistant to pesticides.
    (c) Burying a large amount of rubbish underground.
    (d) Recycling paper to reduce the cutting down of trees.

36. When Joan was cooking, she was mostly using her _____

    A. skeletal system
    B. muscular system
    C. digestive system
    D. Circulatory system
    (a) A and B only
    (b) A and D only
    (c) B and C only
    (d) A, C and D only

37. Select the one that is incorrect about cartilage.
    (a) It is a firm but flexible skeletal material.
    (b) It is as hard as bones.
    (c) It can be bent.
    (d) It is found in the joints of our body.

38. Which one of the following statements is correct?

    Statement A: Stomata is present in leaves.

    Statement B: Stomata is present in root.

    (a) Statement A
    (b) Statement B
    (c) Both statements are correct
    (d) Both statements are incorrect

39. Which one of the following is correct for the term 'Xerocoles'?
    (a) Animals which live in fresh water
    (b) Animals which live in mountains
    (c) Animals which live in forest
    (d) Animals which live in desert

40. It is a low-lying open area of ground where city's garbage is normally dumped. Name it
    (a) Landfill
    (b) Disposal field
    (c) Open field
    (d) Both (b) and (c)

41. *Amoeba*, *Paramecium*, *Entamoeba*, *Plasmodium* are the example of:
    (a) Bacteria
    (b) Virus
    (c) Protozoa
    (d) Algae

42. Which of the following statement is correct about obesity?

    Statement A: It is due to undernutrition

    Statement B: It occurs because of eating too much junk food.

    (a) Both the statement A and B are correct
    (b) Statement A is correct and B is incorrect
    (c) Statement A is incorrect and B is correct
    (d) Both the statement A and B are incorrect

43. Snakes
    (a) move with the help of ribs and scales
    (b) slither on the ground by looping side ways
    (c) Both the above
    (d) None of these

44. The rest period which many seeds undergo before they begin to grow is called
    (a) Viability (b) Germination
    (c) Pollination (d) Dormancy

45. Which of the following statement is true about the formation of soil?

    Statement A: The rock particles which are larger than silt particles form sand.

    Statement B: The largest size rock particles which are present in soil are called gravel.
    (a) Statement A and B both are correct
    (b) Statement A is correct and B is incorrect
    (c) Statement B is incorrect and B is correct
    (d) Statement A and B b th are incorrect

46. Which one of the following parts of flower contains male sex cell?
    (a) Stigma (b) Pollen grains
    (c) Filament (d) All of these

47. Based on the following statements, which one of the following options is correct?

Statement A: Fats are stored under the skin.

Statement B: Ghee provides fat.

(a) Statement A is False and Statement B is True

(b) Both, Statement A and Statement B are True

(c) Both, Statement A and Statement B are False

(d) Statement B is False and Statement A is True

48. If you happen to go to a desert, what changes do you expect to observe in the urine you excrete? You would

(i) excrete small amount of urine.

(ii) excrete large amount of urine.

(iii) excrete concentrated urine.

(iv) excrete very dilute urine.

Which of the above would hold true?

(a) (i) and (iii) (b) (ii) and (iv)

(c) (i) and (iv) (d) (i) and (ii)

49. Find the odd one out

(a) Ovary, style, stigma

(b) Filament, anther, pollen

(c) Beetroot, potato, onion

(d) Beetroot, carrot, radish

50. Which of the following are characteristics of living beings ?

(i) Respiration

(ii) Reproduction

(iii) Adaptation

(iv) Excretion

Choose the correct answer from the options below:

(a) (i), (ii) and (iv) only

(b) (i) and (ii) only

(c) (ii) and (iv) only

(d) (i), (ii), (iii) and (iv)

MOCK TEST-2

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

PHYSICS

1. (c) In an electric circuit, the two terminals of the electric cell are always connected to the two terminals of the bulb.

2. (c) Multiple batteries arranged in series increase the current flowing through the circuit. Multiple batteries arranged in parallel do not increase the current flowing through the circuit. As more batteries are used, the current will increase if the batteries are arranged glow series and the bulb will glow brighter. When more bulbs are arranged in series, the brightness of each bulb decreases. Bulbs arranged in parallel increases the overall brightness of the circuit.

3. (d) Object Q is a magnet. Object Q and Magnet R have their like poles facing each another and the poles exert a force of repulsion. This force keeps them apart and Object Q floats above Magnet R.

4. (a) Distance = speed × time

$$40\text{kmph} \times \frac{10}{60}\text{hr} = 6.67\text{km}$$

5. (c) Since size of earth is bigger than that of moon. So the region of total darkness umbral is more than the region of partial darkness (penumbral) kind of eclipse is called total lunar eclipe.

6. (a) Sockets are made of electrical conductors while plug tops are made of insulators.

7. (b) 'One touch method' of preparing the magnet is shown in the figure. In this method the pole produced at the end of the nail, where the friction starts is same as the pole of the magnet which is in contact with nail. Hence north pole will be produced at A and south at B.

8. (c) When no force acts on a body, then it will either remain at rest or move in a straight line.

9. (c) Odometre is the device used to measure distance in vehicles.

10. (a) When switches X and Y are closed, the pathway containing bulb C and switch Z is still open. Thus, electricity will only flow in the closed path containing bulbs A, B and switch Y.

11. (c) The original glass windows allow all the light to pass through into the library and makes it too glaring. Frosted glass is a suitable substitute because it is translucent and allows only a little light to pass through. The amount of light passing through the library windows would be reduced and the library would not be too bright and glaring. Clear plastic and wired clear glass would not cut down the amount of light entering the library and are not good choices to use as substitutes. Soft wood is opaque and does not allow light to pass through at all. Thus, using soft wood does not meet the needs of the library.

12. (d) Time can be expressed only when there is starting point and an end point.

13. (c) Light falling on the tree changes with time.

14. (a) C is the positive terminal of the cell and D is the negative terminal of the cell.

CHEMISTRY

15. (d) The most amount of water left in the container indicates that the rate of evaporation in that container is the lowest. The rate of evaporation of water is affected by the exposed surface area of the water. Looking at the containers, container R has the smallest exposed surface area followed by container P, then container Q. This means that container R has the lowest rate of evaporation resulting in the most amount of water left in the container after two hours. Container Q has the largest exposed surface area and would therefore have the highest rate of evaporation and the least amount of water left behind after two hours. In other words, when the exposed surface area is bigger, the rate of evaporation is greater.

16. (d) Shiny appearance is the appropriate term for lusture.

17. (d) The body of the pot should be made of a good conductor of heat such as a metal. However, the chosen metal should not rust easily. Therefore, stainless steel is chosen to make the body of the pot. The handles of the pot should be made of a good insulator of heat so that it does not get too hot to hold the pot. A suitable material to make the handles would be plastic. The lid should be made of a transparent material as the contents of the pot must be able to be seen. This transparent material needs to have a high melting point to withstand the heat from cooking. Therefore, glass is a suitable material.

18. (b) We use a hose to bring water from a tap to the place where water is needed. A hose needs to be long to reach places that are too far from the top. For storage purposes, a hose needs to be flexible so that it can be coiled up and would then only occupy a small space in storage. Since the hose transports water, it needs to be waterproof.

19. (a) A ductile material is one that can be stretched a long way before it breaks or fractures. It will also retain to shape that you stretch it to. In the above case, the rubber band returns to the original shape when the weight is removed. A rubber band is therefore not ductile but elastic. Elasticity is the ability of a material to return to its original shape after it has been stretched. Malleability is the ability of a material to be hammered into sheets without breaking. Durability is the ability of a material to withstand wear and tear or decay.

20. (a) Sieving is done to separate components of different sizes: Different sized sieves are available. .

21. (d) In both types of changes (i.e. reversible change and physical change) we can get back the original substance by reversing the conditions.

22. (a) It takes up nearly four-fifth of the space that air fills.

23. (b) Powerloom

24. (a) Formation of water by reaction of hydrogen and oxygen is a chemical change. Change of liquid water to water vapour is a physical change.

25. (d) Anaerobic bacterial digestion of animal waste and burning of biogas both are chemical changes as new products are formed in both the processes.

26. (a) The process of separating cotton fibres from the seeds is called ginning and the machines used for this purpose are called gins.

27. (d) The process of separation of gummy skin from jute fibre is called retting

28. (d) X = evaporation,
Y = condensation
Z = precipitation (rain fall, snow fall etc.)

29. (b) Dyeing or bleaching should be done in the last stage after the fabrics are made and before the clothes are cut out of it. This is done to avoid loss and inconvenience in handling materials.

30. (c) X particles are heavy and Y particles are light. These can be removed by using winnowing. In this process particles being lighter separated out and remaining mixture contains X and Z particles. Z being magnetic can be separately by magnetic separation.

31. (b) The label I in the figure represents a head light, made of glass.
The label II represents a seat, which is usually made of leather, while label III is made of metal.

BIOLOGY

32. (c) The African violet is an example of a plant that can reproduce from leaves.

33. (c) Statement (a), (b) and (d) reduce the burning of fossil fuels to produce electricity. When there is less burning, less carbon dioxide will be produced and this reduces air pollution. Statement (c) actually contributes to air pollution.

34. (b) White fur keeps the bodies of polar bear and arctic fox warm. White colour deceives enemies by giving a false look as a snowy structure.

35. (c) The landfill is the most common process of waste disposal. But burying a large amount of rubbish results in delay in decomposition process which in turn causes soil pollution.

36. (a) When we do something we use our hands and legs. During action, both skeletal and muscular system function together in hands or legs.

37. (b) It is not as hard as bones.

38. (a) Stomata are tiny openings present in leaves for gaseous exchange.

39. (d) Xerocoles are referred as those animals who are adapted for desert life. They can survive lack of water and excessive heat.

40. (a) The landfill is the most popularly used method of waste disposal. This process includes burying the waste material deep in soil for decomposition.

41. (c) Protozoa is a group of organisms that are motile and unicellular eukaryotic. They are not visible with naked eyes such as – *Amoeba* and *Plasmodium* etc.

42. (c) Obesity is the result of over eating of high calorie junk food. Junk foods contain very high levels of trans fats, salts and sugar.

43. (c)

44. (d) It is called dormancy.

45. (a) The formation of soil includes a process in which rock breaks into stones, stones break into gravels, gravels into silt and silt into sand. And finally sand breaks into fine particles forming soil.

46. (b) Pollen grains are produced within anther which is male part of the flower. Pollen grains are powdery in structure and are of different colour.

47. (b) Ghee is the best source of fat. In our body, the fat is stored under the skin. This stored fat is utilized when there is lack of fat in our food.

48. (a) When we go in desert area, generally we find that urine shows yellowish colour (due to concentration) and the quantity is also reduced.

49. (c) Beetroot is an underground root whereas potato and onion are underground stems.

50. (d) The characteristic features of living beings are respiration, reproduction, adaptation and excretion etc.