

# *Bloom Science Olympiad Sample Paper 1*

Maximum Time : 60 Minutes

Maximum Marks : 60

## INSTRUCTIONS

1. There are 50 Multiple Choice Questions in this paper divided into two sections :  
**Section A** 40 MCQs; 1 Mark each  
**Section B** 10 MCQs; 2 Marks each
2. Each question has Four Options out of which **ONLY ONE** is correct.
3. All questions are compulsory.
4. There is no negative marking.
5. No electric device capable of storing and displaying visual information such as calculator and mobile is allowed during the course of the exam.

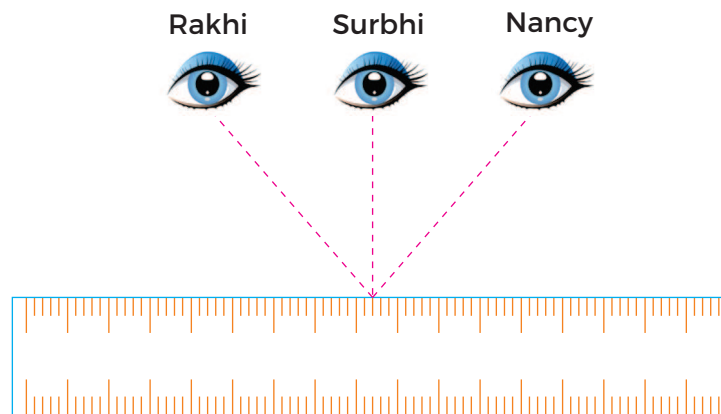
Roll No.

Student's Name

## Section-A (1 Mark each)

1. A compass has a small balanced pointer that always points in North-south direction. This is because
  - (a) gravity makes the needle point this way
  - (b) the compass needle points to cold places
  - (c) the Earth has a magnetic field
  - (d) the stars exert a force on the needle
2. The process of conversion of water vapours into liquid is called
  - (a) condensation
  - (b) decantation
  - (c) sedimentation
  - (d) evaporation
3. Jagrati's hand bag accidentally come into contact with fire, releasing a strong odour of burning hair. The material used for making the bag must have come from
  - (a) bast
  - (b) petrochemicals
  - (c) fleece
  - (d) bolls
4. Which of the following rot completely and do not smell?
  - (a) Left over food
  - (b) Broken glass
  - (c) Aluminium wrapper
  - (d) Polythene bags
5. Which of the following represent correctly lamina of a leaf?
  - (a) The main vein present on the mid rib of the leaf
  - (b) Broad expanded green part of the leaf
  - (c) Small leaves at the base of petioles
  - (d) Chloroplast which contains the chlorophyll pigment
6. Which joint allows maximum variety of movements as compared to other type of joints?
  - (a) Ball and socket joints
  - (b) Hinge joints
  - (c) Pivot joints
  - (d) Gliding joints
7. Which of the following statement is true?
  - (a) Path of electricity is called orbit.
  - (b) Electricity flows in circuit with gaps.
  - (c) Electricity is the flow of negative charges.
  - (d) All of the above
8. Water is formed by the chemical composition of which atom?
  - (a) Sulphur and nitrogen
  - (b) Oxygen and hydrogen
  - (c) Carbon and hydrogen
  - (d) Nitrogen and oxygen

9. Three girls are reading the scale for measurement of some quantity as shown in the figure. Which of the girl is reading the scale correctly?



- (a) Rakhi                      (b) Surbhi                      (c) Nancy                      (d) All of these
10. Painful joints on wrist, elbow and knee are characteristics of  
(a) marasmus                      (b) kwashiorkor                      (c) pellagra                      (d) rickets
11. Which of the following happens when the garbage is dumped into the rivers?  
(a) Fishes and water plants die  
(b) Water becomes unfit for drinking  
(c) The inlets and ground water sources are blocked  
(d) All of the above
12. What is called the bouncing back of a beam of light, when it falls on a smooth polished surface?  
(a) Law of reflection                      (b) Reflection of light  
(c) Refraction of light                      (d) Translucent object
13. Seerat with her family goes on a trip and after reaching the location her father says that "We travelled 100 km". Which instrument is used by her father to measure the distance?  
(a) Speedometer                      (b) Ohmmeter  
(c) Odometer                      (d) Amperemeter
14. The microscopic animals which live in water are called?  
(a) Hydrophytes                      (b) Phytoplanktons                      (c) Zooplanktons                      (d) Xerophytes
15. If you pour a few drops of petrol on your palm, it will feel cool as the petrol evaporates. This change is known as  
(a) endothermic change                      (b) exothermic change  
(c) chemical reaction                      (d) slow reaction
16. Select the incorrect match regarding adaptive feature in different regions.  
(a) Concentrated urine : Deserts                      (b) Sloping branches : Mountains  
(c) Drip tips : Rainforest                      (d) Fleshy stem : Grassland

- 17.** Which of the following statements about shadow is incorrect?
- (a) The shadow of an object is formed on the opposite sides of the light source.
  - (b) The position of the shadow changes with the position of the light source.
  - (c) The position of the shadow changes with the movement of the object.
  - (d) A transparent body produces a shadow.
- 18.** Winnowing method is used only for which mixture?
- (a) Homogeneous solid-solid mixtures
  - (b) Homogeneous solid-liquid mixtures
  - (c) Heterogeneous solid-liquid mixture
  - (d) Heterogeneous solid-solid mixture
- 19.** Study the given diagram and find out in which glass the light is allowed to pass through it.



Water



Mango juice



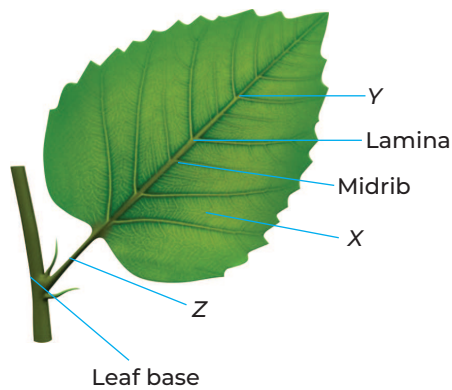
Green tea



Milk

- (a) I and III
  - (b) I and III
  - (c) I, II and III
  - (d) I and II
- 20.** Which of the following represents a correct order of a food chain?
- (a) Lion → Grass → Rabbit
  - (b) Rabbit → Deer → Jackel
  - (c) Peacock → Grass → Eagle
  - (d) Grains → Hen → Jackel
- 21.** The coloured plastic covering on an electric wire make the wire?
- (a) Safe to touch
  - (b) Long lasting
  - (c) More attractive
  - (d) Resistant to corrosion
- 22.** Which of the following process helps to maintain the balance of oxygen and carbon dioxide in atmosphere?
- (a) Condensation and photosynthesis
  - (b) Photosynthesis and respiration
  - (c) Transpiration and condensation
  - (d) Water cycle and respiration
- 23.** Select the incorrect statement about jute plant.
- (a) Jute plants are grown in rainy season.
  - (b) Jute fibre is obtained from the leaves of jute plants.
  - (c) They are harvested during the flowering stage.
  - (d) Jute is often called as the 'golden fibre'.
- 24.** Select the option that contains only biennial plants.
- (a) Mint, *Petunia*
  - (b) Mustard, wheat
  - (c) Maize, sweet pea
  - (d) Radish, turnip

- 25.** When a ball rolls on the ground, which two types of motion works?  
 (a) Periodic and circular motion (b) Translatory and rotatory motion  
 (c) Curvilinear and rectilinear motion (d) Rotatory and revolutionary motion
- 26.** The device used to prevent the flow of excess current in a circuit is  
 (a) switch (b) fuse (c) bulb (d) battery
- 27.** When we boil tulsi leaves in water, water acquires a characteristic smell of leave because  
 (a) smell of leaves diffuse in water (b) stored wastes in the leaves dissolve in water  
 (c) leaves melt in water (d) leaves pollute water
- 28.** Rakesh went for an adventurous trip, where he lost his direction. Which of the following should he use to reach his destination?  
 (a) Using dry cell (b) Using magnetic compass  
 (c) Using bar magnet (d) Using U-shaped magnet
- 29.** Identify X, Y and Z in the given diagram.



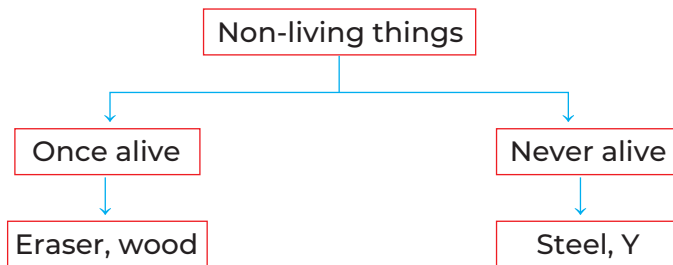
	X	Y	Z
(a)	Network of veins	Petiole	Vein
(b)	Vein	Network of veins	Petiole
(c)	Network of veins	Vein	Petiole
(d)	Petiole	Vein	Network of veins

- 30.** What is the main energy conversion in the battery as it is being charged?



	X	Y
(a)	Chemical potential energy	Electrical energy
(b)	Electrical potential energy	Potential energy
(c)	Electrical energy	Chemical energy
(d)	Potential energy	Electrical energy

31. Study the given flow chart below.



Which one of the following is an example of Y?

- (a) Glass bottle      (b) Cotton shirt      (c) Exercise book      (d) Dried flower

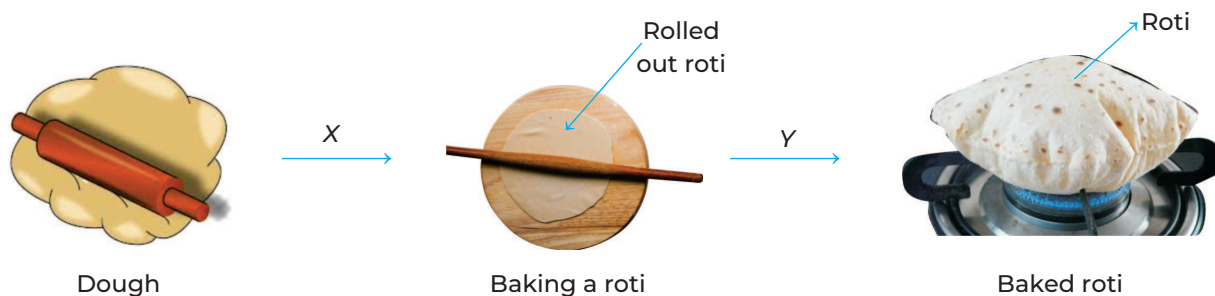
32. Read the following statements and choose the correct option.

**Statement I** Silk is obtained from plants.

**Statement II** Wool is obtained from sheep.

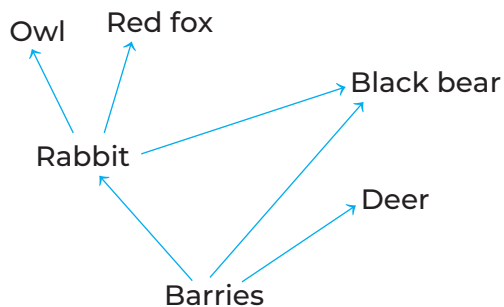
- (a) Only statement I is correct      (b) Only statement II is correct  
 (c) Both statements are correct      (d) Both statements are incorrect

33. Refer to the given diagram and find out X and Y.



X	Y
(a) Physical change	Chemical change
(b) Sublimation	Evaporation
(c) Boiling	Condensation
(d) Chemical change	Physical change

34. The diagram below shows a simple food web, which animal is classified as an omnivore?



- (a) Deer      (b) Red fox      (c) Rabbit      (d) Black bear

**35.** Chanchal bought a magnet from the school workshop and placed it next to each of the objects and then she wanted to test if they were magnets. This is what she observed?

<b>Object</b>	<b>Observation</b>
A	No reaction
B	Repelled
C	Attracted

Which of the following object(s) is definitely a magnet?

- (a) Only B                      (b) Only C                      (c) A and C                      (d) B and A

**36.** Shadow is formed due to

- (a) the rectilinear propagation of light                      (b) the parallel propagation of light  
(c) the passing of light through object                      (d) All of these

**37.** Study the given diagram and answer the name of the process taking place in the figure.



- (a) Loading                      (b) Filtration  
(c) Sedimentation                      (d) Evaporation

**38.** Body and legs of cockroach have an outer skeleton which is very hard and called as

- (a) endoskeleton                      (b) exoskeleton  
(c) mesoskeleton                      (d) chitin

**39.** What is called the cover of air around the Earth?

- (a) Weather                      (b) Climate  
(c) Atmosphere                      (d) None of these

**40.** Identify the relationship and find out the X.

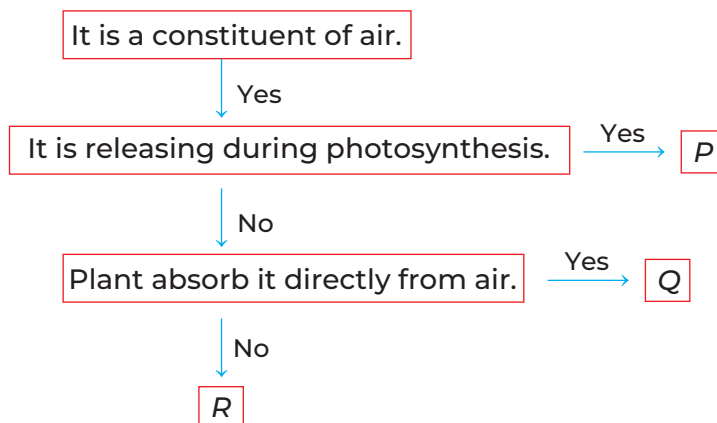
Threshing : Separate grains from their stalks

X : Separate husk from grains

- (a) Hand picking                      (b) Winnowing  
(c) Sieving                      (d) Loading

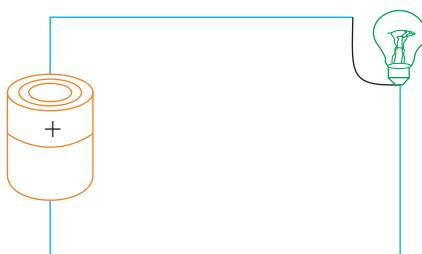
## Section-B (2 Marks each)

41. Refer to the given flow chart.



Identify *P*, *Q* and *R* and select the incorrect statement.

- (a) During the process of burning, *P* is used up and *Q* is given out.
  - (b) Autotrophs could be the only source of *P* in the atmosphere.
  - (c) *Q* is used in fire extinguishers as it extinguishes fire.
  - (d) In atmospheric air, *R* is present in highest percentage whereas *P* is present in lowest percentage.
42. The given figure shows a light bulb connected to a cell. Which of the following shows the energy changes that take place when a bulb glows?



- (a) Chemical energy → Electrical energy → Heat energy → Light energy
- (b) Chemical energy → Electrical energy → Light energy → Heat energy
- (c) Electrical energy → Chemical energy → Light energy → Heat energy
- (d) Electrical energy → Chemical energy → Heat energy → Light energy



**43. Process X** Cooling a mixture of air and kerosene vapours, so that liquid kerosene condenses out.

**Process Y** Burning a mixture of air and kerosene vapours.

What type of changes are represented by processes X and Y?

	Process X	Process Y
(a)	Chemical change	Reversible change
(b)	Physical change	Chemical change
(c)	Chemical change	Physical change
(d)	Reversible change	Physical change

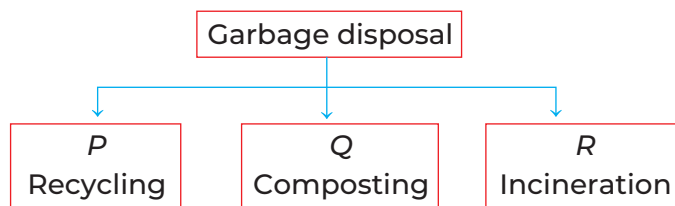
**44.** Match the following columns.

	Column I (Material)		Column II (Property)
A.	Oxygen	1.	Soluble in water
B.	Talcum powder	2.	Opaque
C.	Aluminium	3.	Transparent
D.	Glass	4.	Conductor
		5.	Malleable

**Codes**

	A	B	C	D
(a)	1,3	2,4	2,4	1,3
(b)	1,3	2	2,4,5	3
(c)	3	1,2	3,4	3
(d)	4,5	1,3	2	4

**45.** Study the given flow chart and identify the best way to dispose the types of garbage listed below.



A. Fallen leaves

B. Metal pans and pots

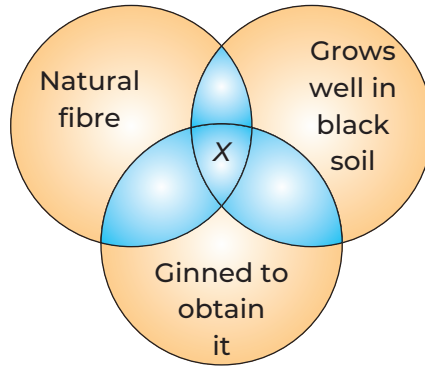
C. Hospital wastes

D. Animal excreta

	A	B	C	D
(a)	Q	R	P	Q
(c)	Q	P	R	Q

	A	B	C	D
(b)	P	P	R	R
(d)	R	R	R	Q

46. Refer to the Venn diagram and identify X.



- (a) Acrylic                      (b) Silk cotton                      (c) Jute                      (d) Cotton

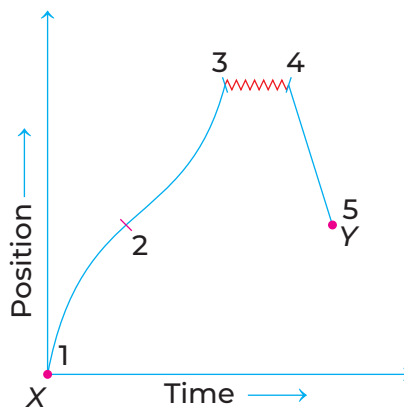
47. Refer to the given table that shows observation of food test experiments.

Food Sample	X	Y	Z
Iodine test	Brown	Bluish black	Brown
Copper sulphate + Caustic soda test	Blue	Blue	Purple
Benedict's test	Orange	Blue	Blue

Select the correct option which define X, Y and Z.

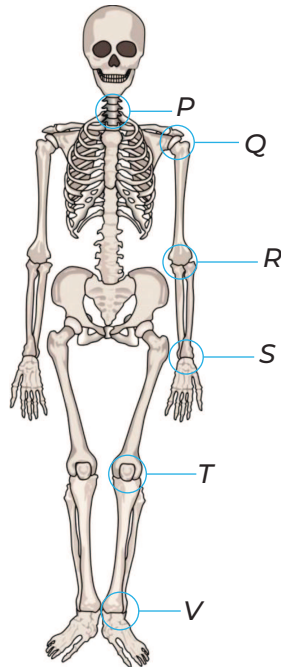
X	Y	Z
(a) Sugar	Rice powder	Fish
(b) Groundnut	Almond	Cheese
(c) Potato	Corn	Butter
(d) Wheat	Banana	Honey

48. The given graph shows the motion of an object over a period of time between two position X and Y. Identify correctly and listed the type of motion between various position as listed below.



	1 → 2	2 → 3	3 → 4	4 → 5
(a)	Curvilinear motion	Circular motion	Periodic motion	Uniform motion
(b)	Curvilinear motion	Curvilinear motion	Periodic motion	Rectilinear motion
(c)	Circular motion	Curvilinear motion	Non-uniform motion	Uniform motion
(d)	Circular motion	Circular motion	Uniform motion	Rectilinear motion

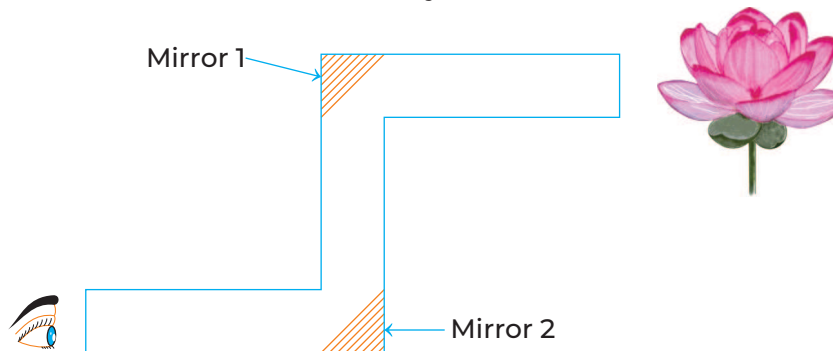
49. Refer to the given figure representing joints in the human body.



Identify *P* to *V* joints and select the correct option.

- (a) *P* is slightly movable joint and allows only limited movement whereas joint *Q* and *S* allow all round movement.
- (b) Joints *R* and *T* allow only back and forth or up and down movement.
- (c) Joints *V* and *U* allow movement only side to side and in backward and forward directions.
- (d) Joint *R* allows movement only in one direction whereas joint *V* allows all round movement.

50. In the given figure, we are able to see the object at the other side



- (a) because of rectilinear propagation of light
- (b) because of dispersion of light
- (c) because of reflection of light
- (d) Both (a) and (c)

# OMR SHEET

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

## Answers with Hints

1. (c) A compass has a small balanced pointer that always points towards magnetic North south direction. It is because the magnetised needle connected to pointer align in the direction of Earth's magnetic field.
2. (a) Water vapours changing into liquid is called condensation.
3. (c) Her bag was made up of fleece. When this come into contact with fire, it releases strong odour of burning hair. Wool is a protein fibre (keratin) obtained from animal's fleece. So on burning, fleece gives a smell like burnt hair.
4. (a) Left over food after decomposing or rot completely does not smell bad.
5. (b) Lamina of a leaf is broad expanded green part of the leaf.
6. (a) Ball and socket joints allows maximum variety of movements as compared to other type of joints.
7. (c) As electricity is the flow of negative charge and the path followed by it is called circuit without gaps. Hence, only statement in option (c) is correct.
8. (b) Water is formed by the chemical composition of hydrogen and oxygen. One molecule of water ( $H_2O$ ) has two atoms of hydrogen and one atom of oxygen.
9. (b) For the correct reading of the scale for measurement of some quantity, the eye should be kept exactly in front of the point of measurement. So, Surbhi is reading the scale correctly.
10. (d) Deficiency of vitamin-D causes rickets in children. Rickets is characterised by delayed growth, weakness and pain in the wrist, elbow and knee joint.
11. (d) When the garbage in dumped into the rivers, fishes and water plants die, water becomes unfit for drinking and the inlets and ground water sources are blocked.
12. (b) When a ray of light falls on a smooth polished surface, it bounces back in the same medium. This phenomenon is called the reflection of light.
13. (c) Odometer is a measuring device in vehicle, which shows the distance travelled by the vehicle. While speedometer measures speed, ohmmeter measures electrical resistance and amperemeter measures electric current.
14. (b) The microscopic plants which live in water are called phytoplanktons.
15. (a) This change is known as endothermic change as heat is absorbed. Endothermic reactions are chemical reactions in which the reactants absorb heat from the surroundings to form products. These reactions lower the temperature of their surrounding area.
16. (d) Fleshy stems that store water and are photosynthetic belong to xerophytic or desert plants.
17. (d) A transparent body does not produce a shadow as light passes through it completely. Shadows are formed by opaque bodies as they do not allow light to pass through them.
18. (d) Winnowing is a method used to separate a mixture of two heterogeneous solid mixture in which one solid is lighter than the other. The lighter solid is separated from the heavier one with the help of wind.
19. (b) Water is transparent and green tea is translucent in nature, so they allow to pass light through it.

- 20.** (d) All food chain begins with producers. Here, grains are products of producers. Hen is a omnivore that feeds on grains and animal foods and jackel is a carnivore that feeds on hen.
- 21.** (a) The coloured plastic covering on an electrical wire makes the wire safe to touch because after this, person handling it does not come in direct contact with electric current.
- 22.** (b) During respiration huge amount of oxygen is used and carbon dioxide is released. In case of photosynthesis, huge amount of carbon dioxide is used and oxygen is released. Thus, the balance of carbon dioxide and oxygen is maintained.
- 23.** (b) Jute fibre is obtained from the stem of the jute plant and not from the leaves of jute plants. The stems rot and fibres are separated by hand.
- 24.** (d) Radish and turnip are biennial plants and complete their life cycle in two years.
- 25.** (b) When a ball rolls on the ground, it undergoes both translatory and rotatory motion. In translatory motion, it is changing its position in forward direction and in rotatory motion, it is rotating about its centre due to rolling.
- 26.** (b) Fuse is a safety device in the form of an electric wire or a strip that melts, when too much current flows through it.
- 27.** (a) Water acquires a characteristic smell of leaves because, smell of leaves diffuse in water.
- 28.** (b) A compass is a magnetometer used for navigation and orientation that shows direction relative to Earth's magnetic poles. Its pointer shows the North-South direction. So, he would use magnetic compass to find out the direction and then reach his destination.
- 29.** (c) The given X part is known as network of veins, Y part is known as vein and Z part is known as petiole.
- 30.** (c) During charging an external source is connected to the battery. This supplies the energy, due to which chemical reaction occurs inside the battery. So, electrical energy is converted into chemical energy in the battery as it is being charged.
- 31.** (a) Glass bottle is an example of never alive thing.
- 32.** (b) Only statement II is correct, because silk is obtained from silkworm. The female silk moth lays eggs, which hatch into larvae which are called silkworms.
- 33.** (a) When dough convert into a rolled out roti then it is a physical change and reversible change and when roti baked, it is a chemical and irreversible change.
- 34.** (d) Black bear classified as omnivore because black bear eat both berries (plant) and rabbit (animal).
- 35.** (a) Only a magnet can repel another magnet while attraction can be shown by a magnet and iron object. So, object B is definitely a magnet, because it is repelled.
- 36.** (a) Light is a form of energy that travels in a straight line. So, when an opaque object is placed in its path, shadow is formed due to the rectilinear propagation of light.
- 37.** (b) In the given figure, filtration takes place. Filtration is a process, which is used to separate solids from liquids using a filter medium, that allows the fluid to pass through but not the solid.
- 38.** (b) Cockroachs have an outer skeleton, which is very hard and is called as exoskeleton.
- 39.** (c) The atmosphere is the blanket of gases which surrounds Earth. It is held near the surface of the planet by Earth's gravitational attraction. Without the atmosphere there could be no life on Earth. The atmosphere keeps the climate on Earth moderate compared to that of other planets.

- 40.** (b) Winnowing is the method through which farmers separate husk from grains. This method is used to separate a mixture of two solids in which one solid is lighter than the other. The lighter solid is separated from the heavier one with the help of wind.
- 41.** (d) In the given flow chart *P*, *Q* and *R* could be oxygen, carbon dioxide and nitrogen respectively, nitrogen (*R*) is present in the atmosphere in highest percentage and carbon dioxide is present in lowest percentage.
- 42.** (a) In the given circuit, chemical energy of the cell converts into electrical energy. This electrical energy causes the filament of bulb to get heated up and this makes the bulb to glow (light energy).
- 43.** (b) Condensation is a physical change while burning is a chemical change. Condensation is a physical change because in condensation gaseous state of a substance changes to its liquid state, while burning is a chemical change because in burning reactant burns in the presence of oxygen and form new product.
- 44.** (b) *A* : Oxygen is soluble in water 1 and transparent 3.  
*B* : Talcum powder is opaque 2.  
*C* : Aluminium is opaque 2, good conductor 4 and malleable 5.  
*D* : Glass is transparent 3.
- 45.** (c) Fallen leaves and animal exerta can be converted into manure or compost by composting (*Q*).  
Metal pens and pots can be recycled (*P*). Hospital wastes are disposed off by incineration (*R*).
- 46.** (d) Cotton is natural fibre. It grows best in black soil and warm climate. The processing of separating the cotton fibres from seeds is called ginning.
- 47.** (a) *X*, *Y* and *Z* are sugar, rice powder (starch), and fish (protein), respectively. Presence of sugar can be tested by Benedict's test. Starch turns bluish black in the presence of iodine. Protein can be tested by copper sulphate and caustic soda test.
- 48.** (b) Curvilinear motion is a type of motion in which, object moves on a curved path. Periodic motion is that motion which repeats itself after regular interval of time. Rectilinear motion is the type of motion in which object moves in a straight line. Therefore, point 1 to 3 shows curvilinear motion and then from 3 to 4 shows periodic motion (since graph is *zig-zag*) and from 4 to 5 rectilinear motion (since, graph is a straight line).
- 49.** (b) Joints *R* and *T* allow only back and forth or up and down movement.
- 50.** (c) The given figure shows a periscope, that uses a system of mirrors to reflect image through a tube. Hence, the light from the object strikes the top mirror and then reflected at an angle of  $90^\circ$  down the tube. At the bottom, the light strikes another mirror and then reflected into the eye of viewers. So, image is formed due to the reflection of light from the object by two mirrors.