

Chapter-1

Cell and its basic structure

1. Name the material used by Robert Hooke to coin the term cell.
2. _____ is a cell having fibre like structure.
3. What is the reason for difference in the shapes of cells?
4. 'Some cell can be seen with naked eyes.' Justify with help of example.
5. The basic living substance of a cell is _____
6. Name the part of cell which acts as gate of cell.
7. a) As brain is to body; _____ is to a cell.
b) As organ is to body; _____ is to a cell.
8. The organelle whose presence in the plant cell makes a plant an auto troph is _____.
9. How does presence of tissue help a multi cellular organism to survive?
10. Name the part of cell responsible for inheritance of characters.
11. The organelle responsible for processing and packaging of material produced by the cell is _____.
12. 'Even though both plant and animal cell are structural and functional unit of life, yet they are different 'discuss.
13. How is SER different from RER?
14. Some cells have extensions on their cell membrane which help in locomotion and collection of food. These extensions are known as _____.
15. Why is chloroplast present only in plant cells?
16. Draw a diagram of plant cell and label-
 - a) the powerhouse of the cell
 - b) the pigment imparting organelle
 - c) store house of the cell
 - d) brain of the cell.
 - e) regulates the entry and exit of materials from the cell .
17. Read the following statement and write the appropriate term against each statement.
 - a) I control functions of cell. Who am I? _____ .
 - b) I am like a policeman. I do not allow anything and everything to go in and out of cell. Who am I? _____ .
 - c) I transfer characters from parent to off springs. Who am I? _____

18. Is the following statement correct? If it is wrong, correct the statement.

Statement 'Unicellular organism do not respire, only multi cellular respire.'

19. Give an example of prokaryotic cell.

20. Under a microscope Ravi observes a cell that has no cell wall and no fixed distinct shape. The cell he observes is _____.

- a) Plant cell b) Ostrich egg c) an animal cell d) a bacterial cell (c)

21. Cheek cells do not have _____.

- a) cell membrane b) golgi apparatus c) nucleus d) plastid (d)

22. We do not sense any pain when we clip our nails or cut our hair. Why?

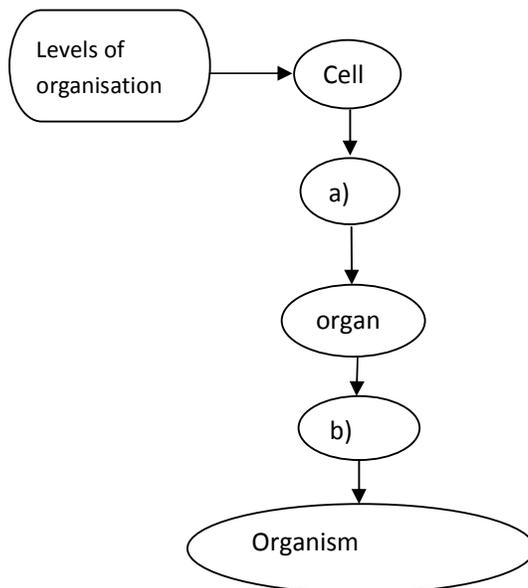
23. The size of the cell of an organism has no relation with the size of its body. Do you agree? Give reason for the answer.

24. Cell consists of many organelles, yet we do not call any organelles as structural and functional unit of living organism. Explain.

25. Which of the following is not a cell?

- a) red blood cell b) bacterium c) spermatozoa d) virus (d)

26. Fill up

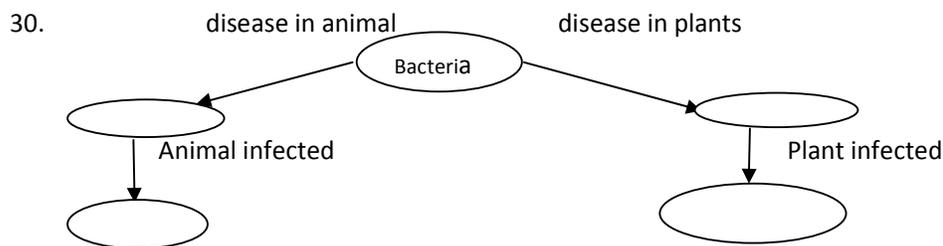


Chapter-2

Micro organism – Friends and Foes

1. "Virus is an enigma of biology " justify
2. The harmful substance released by microorganisms in our body which causes disease in us is _____.
3. Diseases which can spread from one person to another through contact, insect, air, water or food is a _____ disease.
4. During the Irish famine the complete destruction of potato crop was caused due to _____.
5. In a village situated next to a very large water body, the villagers were using net and insect repellent. Why?
6. A farmer goes to his field he sees that there are lesions on leaves , stem and fruit with brown water soaked margins on lemon plant
 - a) Name the disease by which lemon plant is infected.
 - b) What has caused the disease in the plant?
7. After a child is born he is given vaccine at specific time by his doctor. Why?
8. My mother was cooking vegetable for that she needed oil. When she opened the can of oil she was getting disagreeable odour from it.
 - a) Why was disagreeable odour coming from the can?
 - b) Should she use that oil for cooking?
9. Why do we dry food stuffs for preservation?
10. What is the basic principle behind all food preservation methods?
11. "Even though microbes cause lot of problems for us we cannot live without them " justify
12. Name the person responsible for establishing the existence of bacteria.
13. What is immunity?
14. How can microorganism be used in Agriculture?
15. How does micro organism help in process of cleaning of environment?
16. Give an example of insect which acts as carrier of a disease.
17. Give reasons for the following
 - a) Fresh milk is boiled before consumption while processed milk in packet can be consumed without boiling.
 - b) Raw vegetables and fruits are kept in the refrigerators whereas jams and pickles can be kept outside .
 - c) Farmers prefer to grow beans and peas in nitrogen deficient soils.

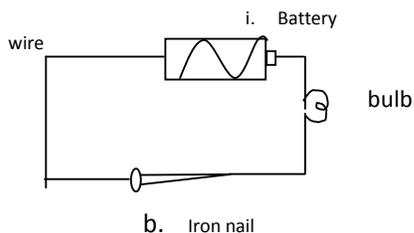
- d) Mosquitoes can be controlled by preventing stagnation of water though they do not live in water. Why?
18. What will happen to pooris and unused kneaded flour if they are left in the open for day or two?
19. a) Name the gas released during the preparation of bread .
 b) The stem of an infected plant ,has dull red and white patches across the stalk and elongated red lesions on the mid rib of leaves.
 i) Identify the disease with which plant is infested .
 ii) Name the pathogen responsible for this disease.
20. Geeta dug 2 pits A and B in the garden. In pit A she had put a polythene bag with some agricultural waste. In pit B she dumped the same kind of waste without packing in the polythene bag. She, then covered both the pits with soil. What did she observe after 1 month?
 a) Waste in pit A degraded faster than that in pit B.
 b) Waste in pit B degraded faster than that in pit A.
 c) Waste in both the pits degraded equally.
 d) Waste in both did not degrade (b)
21. Name the process by which yeast converts sugars to alcohol.
22. Polio drops are not given to children suffering from diarrhoea. Why?
23. Why should we avoid standing close to a tuberculosis patient while he /she is coughing?
24. What do you understand by biological nitrogen fixing?
25. The causative organism of smut of rice is _____.
 a) bacteria b)virus c)fungus d)protozoa (c)
26. Classify the following into friendly and harmful microorganism :--
 Tobacco mosaic virus, Lactobacillus, Rhizobium, Staphylococcus.
27. How do bacteria cause tooth decay?
28. Name any one antibiotic obtained from a) fungus b) bacteria.
29. Micro organisms are harmful to organisms living in water bodies. Explain.



Chapter-3

Metals and Non Metals

1. How is a pure substance different from compound?
2. What is classification of elements?
3. How is mineral different from ore?
4. If I want to extract aluminium from bauxite. What are the different steps I need to follow?
5. Compare the physical properties of metal with non-metal.
6. When a metal is struck with something hard a ringing is produced.
 - a) Which property is metal exhibiting?
 - b) Specify a use metal can be put to due to this property.
7. All metals are generally solid at room temperature except _____.
8. Silicon and Germanium are different from Iron, how?
9. When Ram had placed an iron bar in open he noticed that a reddish brown layer appears on the iron bar.
 - a) What is the layer known as?
 - b) Write down the chemical equation responsible for it.
10. Why cannot we store curd and pickles in copper utensils?
11. $\text{Mg (s)} + \text{CuSO}_4 \text{ (aq)} \rightarrow \text{MgSO}_4 \text{ (aq)} + \text{Cu (s)}$
 - a) What type of reaction does the equation represent?
 - b) Why is magnesium able to replace copper from copper sulphate?
12. Even though silver is very good conductor of electricity it is not used commonly for electrical fittings, why?
13. What is an alloy? Give an example of an alloy used for making
 - (a) aircraft bodies
 - (b) magnets.
14. If you study reactivity series of metal i.e. K, Na, Ca, Mg, Al, Zn, Fe, Sn, Pb, Cu, Hg, Ag, Au, Pt.
 - (a) Which metal is most reactive?
 - (b) Which metal is least reactive?
15. Name the metals used for making German silver and brass.
16. Zinc sulphate forms a colourless solution in water. Will you observe any colour on adding copper turnings in it?
17. Consider the following reactions :---
 - a) $\text{A} + \text{BX} \rightarrow \text{AX} + \text{B}$
 - b) $\text{A} + \text{CY} \rightarrow \text{AY} + \text{C}$Arrange A, B, C in increasing order of their reactivity.
18. In figure given below you find that the bulb glows when an iron nail is placed between two ends of wire. Complete the following sentences on that basis.



- (a) _____ is a metal
- (b) Metals are good _____ of electricity.
- (c) If iron nail is replaced by a wooden stick will the bulb glow or not? Justify your answer.
19. A purple –coloured non-metal forms a brown solution in alcohol which is applied on wounds as an antiseptic. Name the non- metal.
20. State whether given statement is true / false :
- The process of obtaining metal in its free state from its ore is called 'Refining of ore "
 - Aluminium is the most abundant metal in the earth's crust.
 - Iodine is the only metal which has lustre.
 - Gold is the only metal that occurs in native state.
 - Silicon is the element that has properties of metals as well as non- metal.
21. Fill in the blanks :
- Aluminium is extracted from _____ ore.
 - The process of removal of impurities from the ore is called _____ .
 - _____ is a metal that exists in liquid state.
 - A mineral is a naturally occurring _____ substance found deep under the surface of earth.
 - _____ a form of carbon is the hardest substance.
22. One word answer :
- Name the metal which exists in liquid state at room temperature.
 - Which metal is extracted from haematite ore?
 - Find the odd one out: Sulphur, nitrogen, oxygen, chlorine.
 - List any two physical properties of metal due to which it is used for making cooking utensils.
 - What do you understand by the term 'Malleability'?
 - Write the composition of an alloy being used for making table ware .
23. Match the following
- | | |
|------------------------|-----------------------------------|
| A. a)bauxite | i)combined state of carbon |
| b)concentration of ore | ii) free state of carbon |
| c) fullerenes | iii) aluminium |
| d) bicarbonates | iv)removal of impurities from ore |
| B. a)mercury | i)good conductor of electricity |
| b) iodine | ii)metal in liquid state |
| c) bromine | iii) lustrous non-metal |
| d) graphite | iv) non-metal in liquid state |
| C. a) gold | i)electrical cables |
| b) copper | ii)noble metals |
| c) aluminium | iii)decorating food stuffs |
| d) silver | iv)aircrafts body |
| D. a)stainless steel | i)magnets |
| b) brass | ii)automobile parts |
| c) duralumin | iii) surgical implements |
| d)alnico | iv) decorative statues. |
| E. a)gun powder | i) diamond |
| b)antiseptic | ii)sulphur |

- c) match box
- d) cutting tools

- iii) iodine
- iv) phosphorus

24. Sneha was eating chocolate and while throwing the wrapper she thought out of curiosity that will the wrapper act as a conductor of electricity or not . For this she made an electric circuit and to her surprise the bulb started glowing when she placed the chocolate wrapper in the circuit.
- i) Name the metal used in making the wrapper of chocolate.
 - ii) Which property of this metal is responsible for converting it into wrapper?
 - iii) Mention any other application of this metal.
25. Riya went with her mother to a jewellery shop to purchase jewellery. Her mother asked the jeweller to show them jewellery in pure gold and it should not be mixed with any other thing.
- i) Was Riya's mother right for asking jewellery in pure gold? If no , give reason
 - ii) Which two metals are mixed with gold for making jewellery.

Chapter-4

Force and Pressure

1. What brings about change in direction and speed of motion?
2. When a very small body hits a large body, the forces acting on them is equal in magnitude and opposite in direction, than what is the effect of this on both the bodies?
3. What are the various changes force can bring about in an object?
4. Suppose we have a loaded truck and a car, and we exert equal force for the same time on both of them. Which of them will pick more speed and why?
5. The two factors on which applied force depends upon are _____ and _____.
6. The net force when 2 unbalanced force F_1 & F_2 are acting in the same direction is _____.
7. A block of wood remains stationary even though force is being exerted on it from both sides, why?
8. 'A small boy throws a ball upward, after little while the ball falls down on ground itself' why?
9. If we suspend a ebonite rod (charged) and now we bring a charged glass rod near it. What will happen and why?
10. Pressure is inversely proportional to _____ or pressure =-----/area.
11. Why do buses and truck have double wheel on the rear side ?
12. When we have water in a container with holes we find the water coming out of lowest hole goes farthest why?
13. Why are we able to drink cold drink with straw from a bottle?
14. What holds the rubber sucker used for installing hooks on a wall tightly?
15. During dry weather, clothes made of synthetic fibre often stick to the skin which type of force is responsible for the phenomenon.
16. While sieving grains, small pieces fall down. Which force pulls them down?
17. Ram while drinking cold drink with a straw started playing with it and kept his thumb on the top of the straw with cold drink in it. He was surprised to see that cold drink was not flowing out of it .What is the reason behind the observation. Also give one application of the scientific principle involved in the above situation.
18. A chapatti maker is a machine which converts ball of dough into chapatti. What effects of force comes into play in the process?
19. Two persons are applying force on 2 opposite sides of moving cart. The cart still moves with same speed in the same direction. What do you infer about magnitude and direction of the forces applied?
20. Two rods of the same weight and equal length have different thickness. They are held vertically on the surface of sand. Which one of them will sink more? why?
21. Two thermocol balls held close to each other move away from each other when they are released. Name the force which might be responsible for this phenomenon. Explain.
22. Find the magnitude of the resultant force



- a) 10 N b) 0 N c) 30N d) 15 N

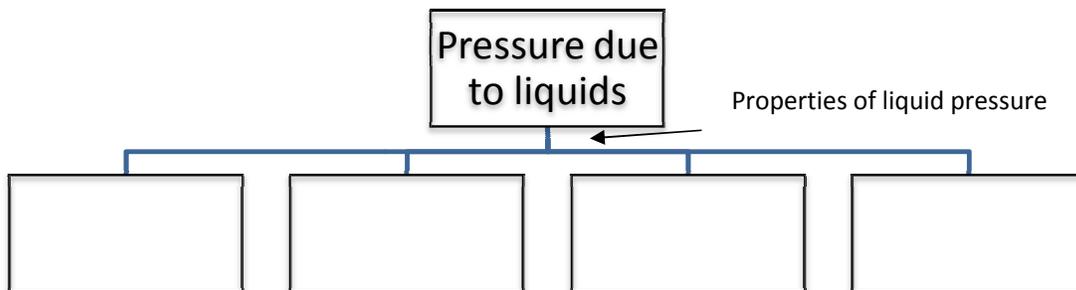
29. Match the following

Column I	Column II
a. The force that acts on all bodies by other body	i) Balanced Force
b. The force that acts on object without contact	ii) Electrostatic Force
c. Resultant zero	iii) Gravitational Force
d. The force that acts on a charged particle by other charged particle	iv) non contact

30. Fill in the blanks

- Force has both _____ and _____.
- We can reduce the pressure of a given force by _____ the area over which the force acts.
- Unit of Pressure _____.
- The atmospheric pressure _____ as we move towards higher altitude.
- When thrust is doubled, pressure is _____.

31. Fill the blank



32 Give one word

- Pressure exerted by a stationary liquid _____.
- Force in a direction perpendicular to a given surface area _____.
- A pair of forces whose resultant is zero _____.

33 Complete the following table:---

S.No.	Description of Situation	Nature of forces	Kinds of force
1.	Falling of fruits on ground	a)	d)
2.	Expansion of lungs when we inhale and exhale during breathing	b)	e)
3.	A rocket fired upwards to launch a satellite in its orbit.	c)	f)

34. Give an example that illustrates that change in temperature may cause change in atmospheric pressure.

Chapter-5

FRICTION

1. Will force of friction come into play when rain drops rolls down a glass window pane?
2. The handle of cricket bat or badminton racquet is usually rough, why?
3. What is limiting friction?
4. What is easier rolling or sliding?
5. How does the friction get affected by the nature of surface?
6. It is easier to hold a earthen pot than to hold a smooth glass tumbler. Why?
7. Why do kabaddi players rub their hands with soil?
8. What is lubricant? Why do we use it?
9. How proper inflated tyre save fuel?
10. A marble is allowed to roll down an inclined plane from a fixed height. At the foot of inclined plane, it moves on horizontal surface.
 - a) Covered with silk
 - b) Covered with a layer of sand and
 - c) Covered with glass sheet .On which surface marbles move the shortest distance. Give reason for your answer.
11. When cutting edge of knife is put against fast rotating stone to sharpen it, sparks are seen to fly. Explain the reason.
12. We have two identical metal sheets. One of them is rubbed with sand paper and other with ordinary paper. The one rubbed with sand paper shines more than other. Give reason
13. Friction – ‘An Evil or Nuisance ‘justify.
14. How can we increase friction?
15. What helps to fix nail / screw on the wall?
16. What leads to skidding of vehicle on snow covered roads?
17. Another name for sliding friction is _____.
18. The force of friction depends on _____, _____ and _____.

Chapter-6

Sources of Energy

1. What is water gas?
2. What does CNG stand for and why is it considered to be a better fuel than petrol?
3. We read in the newspaper that burning of fuels is major cause of global warming. Explain why
4. Imagine that all the exhaustible natural resources are exhausted by human activities. Do you think survival of living being would be impossible? If yes, why? If not why not?
5. _____ is hard coal and contains over 90% carbon.
6. _____ is a soft brown substance which is made of 30% carbon and the earliest stage during coal formation.
7. Where do you find the natural gas in the earth?
8. Name the product of destructive distillation of coal which is used to manufacture synthetic dyes, drugs, explosive, roofing material.
9. _____ is inflammable gas used as both domestic and industrial fuel.
10. Petroleum, because of its great commercial importance is known as _____.
11. Sunlight and air are inexhaustible natural resource. Comment.
12. Choose the correct statement from the following :
 - a) It is difficult to transport natural gas through pipes
 - b) The disadvantage of natural gas is that it cannot be used directly for burning in homes.
 - c) Natural gas is stored under high pressure as compressed natural gas.
 - d) Natural gas cannot be used for power generation.
13. Fill in the blanks
 - i) Coal is one of the _____ used to cook food.
 - ii) When heated in air, coal burns and produces mainly _____ gas.
 - iii) Coal tar is black thick _____ with an _____ smell.
 - iv) Petroleum, _____ and _____ are fossil fuel.
 - v) Sun and wind are _____ sources of energy.
 - vi) The slow process of conversion of dead vegetation into coal is called _____.
 - vii) Coal and Petroleum are formed from dead remains of organism and are known as _____.
 - viii) During the processing of coal to get coke, coal tar and _____ are also obtained.
 - ix) The process of separating various constituent of petroleum is known as _____.

x) Excessive burning of fossil fuel is a major cause of _____.

14. Match the following

i. Column I

Column II

a) used for road surfacing

i) Black gold

b) Natural gas

ii) Vaseline and candles

c) Petroleum

iii) Bituman

d) Paraffin wax

iv) CNG

15. Name the fraction of petroleum used for making ointments and candle.

16. Write the name of four different varieties of coal.

17. Which product of coal is used in extraction of metals ?

18. Which fossil fuel is used as base ingredient in the manufacture of fertilisers and chemicals?

Chapter- 7

COMBUSTION

- Anu wants to boil water quickly in a test –tube. On observing the different zones of flame, she is not able to decide which zone of flame will be best for boiling water. Help her in the activity.
- If you hold a piece of iron with pair of tongs inside a candle flame or Bunsen burner flame . What will you observe? Will it produce a flame?
- Cracker on ignition produces sound. Why?
- What do you understand by fuel efficiency?
- Fill in the blanks
 - A _____ process in which substance reacts with _____ to give off heat is called combustion.
 - When the clothes of a person catch _____, the person is covered with a _____ to extinguish fire.
 - The _____ temperature at which a substance catches fire is called its _____ temperature.
 - The substance which have very _____ ignition temperature can easily catch fire with flame are called _____ substances.
 - The substance which vaporize during _____, give flame.
 - The amount of heat energy produced on complete combustion of 1 kg of fuel is called its _____.
- Indicate whether given statement are True or False
 - Air is necessary for combustion.
 - Magnesium is non –combustible metal.
 - Carbon dioxide is an excellent fire extinguisher.
 - Calorific value of wood is higher than that of coal.
- Match the following

Column I	Column II
a) oxides of Sulphur and Nitrogen	i) fire extinguisher
b) CNG	ii) incomplete combustion of coal
c) Oxygen	iii) very low ignition temperature
d) Inflammable substance	iv) acid rain
e) Carbon dioxide	v) necessary of combustion
f) Carbon monoxide	vi) fuel of automobiles
- Why does white phosphorus catch fire spontaneously?
- Why a match stick can be lighted by striking its tip with any rough surface?
- The flame of a burning candle goes off when we blow air over it strongly, why?
- Why should not we use water to extinguish the fire caused by electric short circuit?
- Name the gas released in the environment due to combustion of fuel leading to global warming.
- How does the burning of coal and diesel lead to acid rain?
- In which part of the candle flame do you find the un-burnt wax vapour?

15. If we hold a glass slide in the luminous part of the flame, we see a circular greyish black ring on the slide with no deposition in the centre of the ring . Explain what causes such a formation?
16. What is an explosive combustion?
17. What do you understand by kindling temperature?
18. How is smog produced?
19. Why is use of fuel like petrol, diesel in automobiles being replaced by CNG?
20. If we bring a burning matchstick near a paper and a piece of wood .Which of them will burn and why?
21. Give one word for following :
 - a) Amount of heat energy produced on completely burning one kilogram of a fuel in pure oxygen.
 - b) The minimum temperature at which a given substance begins to burn.
 - c) A region of burning gases.
22. What happens when there is incomplete combustion of fuel?

Chapter-8

Conservation of Plants and Animal

1. How does deforestation lead to extinction of plants and animal?
2. If deer in a given forest are killed, will this effect the ecosystem of forest?
3. Name the national park which houses two – third of world's one- horned rhinoceros population.
4. What is wildlife refuge?
5. IUCN stands for_____.
6. Name a species endemic to the western ghats of south west India.
7. What do you understand by paper recycling?
8. What is a vulnerable species?
9. What are the major reasons of deforestation?
10. Why is it important to conserve forests?
11. Mention any one step that you have undertaken to conserve trees.
12. Can a forest regenerate naturally in short period of time?
13. Name the first National park of India.
14. Why are wildlife sanctuaries important for conservation of plants and animals?
15. How does forest play a significant role in determining the climate of a place?
16. 'Tiger is considered an endangered species.' Give reason.
17. How does deforestation lead to frequent floods and drought?
18. Why should we save paper?
19. Who publishes the red data book? What does it contain?
20. Give example of 2 migratory birds which are found in Jayakwadi Bird Sanctuary in Aurangabad.
21. A group of cats are found in a forest that interbreed freely. What is the term used for them.
22. Name some projects and programmes started by Indian government to promote wild life awareness.
23. What important points we should keep in mind for reforestation?

Chapter 9

Crop Production and its Management

1. How are autotrophs different from heterotrophs?
2. What is crop production?
3. What are the two broad cropping patterns on the basis of particular season of growing?
4. What are the benefits of ploughing and tilling?
5. Why does the farmer use leveller in the field after ploughing / tilling?
6. What do you understand by broadcasting?
7. Name 2 plants which are sown by method of transplantation.
8. How does field fallow help in replenishing the soil?
9. What is green manure? Give its example also.
10. How does green manure help in maintaining fertility?
11. What is water logging? How does it affect the growth of plant?
12. Name the method of irrigation which should be used in the area of acute water shortage and why?
13. Why should we judiciously use weedicides and pesticide in the field?
14. What is green revolution?
15. What do you understand by hybridisation?
16. Fill in the blanks
 - i) A tall tower like structure used for storing grains is known as _____.
 - ii) Separation of grains from the chaff is known as _____.
 - iii) _____ is the process of cross breeding two different varieties of plant.
 - iv) _____ of irrigation is generally used in area with uneven land and having soil with poor water holding capacity.
 - v) Organisms like rats, locusts and weevils etc which specifically attack and destroy crop are known as _____.
 - vi) Harvesting of crops like wheat and rice is done with the help of _____.
17. What are the different ways by which threshing of grains is done?
18. Where are the fruits and vegetables stored on large scale and why?
19. What are organic foods?
20. Despite favourable conditions, a farmer's crop failed to give good yield .Give the possible reasons for this.
21. Paddy is major cereal crop in our country.
 - a) In which season is paddy cultivated?

- b) Explain the method of its sowing.
- c) What measures must be taken to prevent spoilage and insect attack of harvested grains.
22. Which activity of the farmer can promote growth of earthworm and microbes in the field?
23. If you have dry piece of land for cultivation, what will you do before sowing of seeds
24. Given below is a conversation between 2 farmers. Carefully read it and answer the questions based on it.
- Heera : Brother Beera, your maize crop looks beautiful . They have grown pretty fast.
- Beera : Yes, I have sprayed urea this time . What about you?
- Heera : well, I am still relying on good old cow dung . I am saving money for buying a tractor.
- Beera : That's good tractor saves a lot of time and labour.
- Heera : Yes, it's been very labour intensive for me and now these weeds have come up.
- Beera : Try weedicide they are effective
- i) List the practices which are not environment friendly and why?
- ii) What is the advantage of modern agriculture implements over traditional ones?
- iii) Name one weedicide and the precaution, farmers must take during its application.
25. Give an appropriate term for each of the following:--
- a) Chemical substance rich in particular nutrient.
- b) Plants of same kind grown in a field on large.
- c) Process of loosening and turning of soil.
26. What is vermi composting?
27. What does FCI stand for?
28. Why the soil is loosened before seeds are sown?
29. What is the time and stage of irrigation for wheat?

Chapter-10

Refraction and Dispersion of light

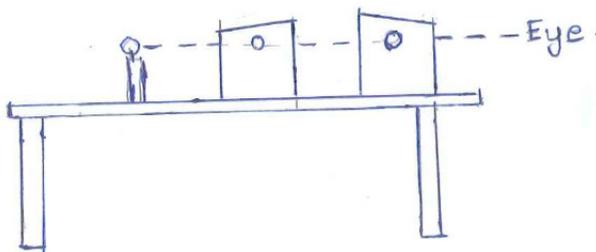
1. Give one word answers
 - a) The image formed through an apparent intersection of the reflected rays.
 - b) The central point of the spherical mirror.
 - c) A spherical mirror whose reflecting surface is curved inward.

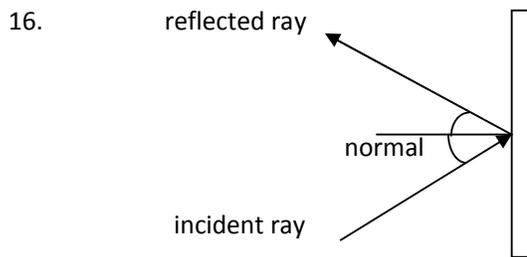
2. Match the column

a) bouncing back of light	Concave mirror
b) reflection through well shiny surface	Virtual image
c) image formed by a plane mirror	Convex mirror
d) Mirror used in ophthalmoscope	Reflection
e) Security mirror	Regular reflection

3. Fill in the blanks:

- a) Radius of curvature is _____ of the focal length of lens.
 - b) A ray directed towards the centre of curvature _____ its path.
 - c) The normal is always _____ to the surface of mirror.
 - d) _____ image can't obtained on the screen.
 - e) Dentists use _____ mirror to get magnified image of the teeth.
4. What type of lens do we use for reading?
 5. What happens to light when it falls on shiny or polished surface?
 6. Why does ray of light bend when it goes from one medium to another?
 7. What is the relation between refractive index and optical density?
 8. Why does a pond appear shallower than it is?
 9. In which condition does the ray of light bends towards the normal?
 10. Why are astronomers going well above the earth's atmosphere not able to see twinkling of stars?
 11. What happens when sunlight falls on drops of water suspended in the air?
 12. Name the lens which converges the light rays.
 13. What is nature and position of image when you focus an object at infinity using-
 - a) convex lens
 - b) concave lens
 14. Define the principal axis of a lens.
 15. Rahul takes two cardboard and make hole on equidistance from the base. He observes a lighted candle through it. What will you interpret from the activity?

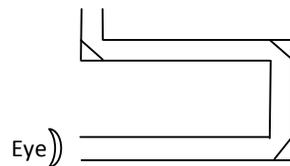




Observe the diagram and answer the following questions

- a) If angle of incidence is 35° . Find the angle of reflection.
 - b) If angle between the surface of mirror and reflected ray is 45° . Find the angle of incidence.
17. Which types of lens are thin in the middle and thick at the edges?
 18. What causes the formation of Mirage in desert?
 19. Define relative refractive index.
 20. How is reflection different from refraction?
 21. How many times a ray of light gets reflected by 2 plane mirrors placed parallel and facing each other?
 22. The angle between incident and reflected ray is 60° . What is value of angle of incidence?
 23. Geeta planned an activity to observe an object A through pipes as shown in the figure given below, so that she could see objects which she could not see directly.

A (object)



- a) How many mirrors should she use to see the objects?
 - b) Indicate the positions of the mirrors in the figure.
 - c) What must be angle with respect to the incident light at which he should place the mirrors?
 - d) Indicate the direction of rays in the figure.
 - e) If any of the mirrors is removed, will she be able to see the object?
24. Name one natural phenomenon associated with dispersion of sunlight.
 25. Give reason :-
 - a) Convex lens is called converging lens.
 - b) Concave lens is called diverging lens.
 26. What should be the position of object in case of convex lens to get virtual, erect and magnified image?
 27. How is the rain bow formed?

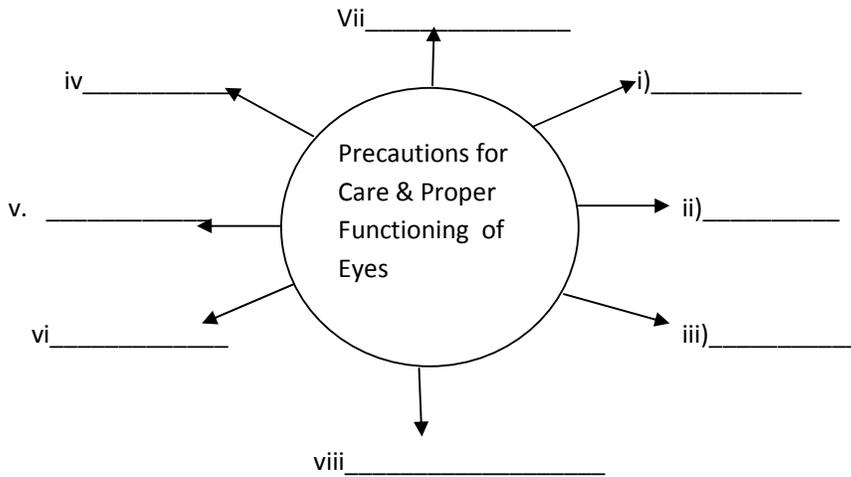
Chapter-11

The Human Eye

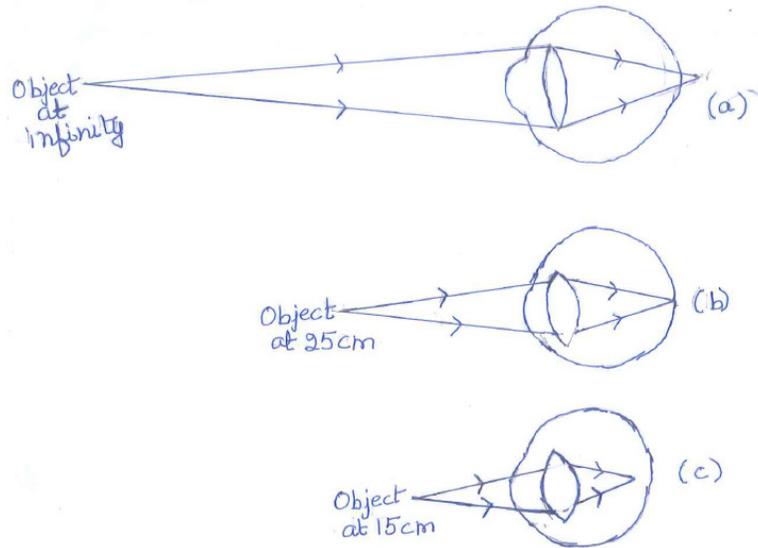
1. A) As shutter is to camera; _____ is to eyes.
B) As film is to camera; _____ is to eyes.
2. Give one word answer for the following :
 - i) A transparent curved protective layer of eye: _____.
 - ii) Liquid that fills space behind cornea: _____.
 - iii) A pigmented coloured muscular diaphragm responsible for characteristic colour of eye of a person: _____.
 - iv) A self adjusting aperture present in the centre of iris: _____.
 - v) Muscles that help in changing the curvature and focal length of eye lens: _____.
 - vi) Light sensitive cells: _____.
 - vii) Cells responsible for the vision in dim light: _____.
 - viii) Cells responsible for colour vision: _____.
 - ix) Tissue in human eye that does not contain blood vessels: _____.
 - x) Screen of the eye: _____.
3. Why no image is formed at the blind spot?
4. Name the feature of eye that helps to perceive the object as moving.
5. What is the far point of a normal human eye?
6. Why in old age, the eye lens of some people becomes hazy or opaque?
7. Rahul while waving his hand in front of his eyes , observes that his finger appear blurred if he brings his hands very close to his eyes .Why do the fingers appear blurred ? Is he having a normal eyesight
8. Eyes of nocturnal bird have large cornea and large pupil. State one advantage and disadvantage of this feature.
9. In case of some people the light coming from distant object gets converged in front of the retina of the eye, while light coming from a nearby object converges at retina of eye.
 - a) Name the defect in the eye.
 - b) What could be the reason for this defect?
 - c) How could this defect be rectified?
10. List the causes of visual problems in some people.
11. Name some diseases that can lead to partial or complete vision loss. Suggest some ways to minimise vision loss due to these diseases.
12. State three important characteristics of the tactual aid used by visually impaired in order to read and write.
13. Complete the following attribute matrix based on difference between Myopia and hypermetropia

Defects--- Features	Myopia	Hypermetropia
Curvature of Cornea		
Size of eyeball		
Focal length of lens		
Corrective lens used		

14. Complete the web – chart



15. Observe the following diagrams carefully and answer the question.



i.

- i) The special characteristic of human eye that is represented in this diagram is _____.
- ii) Why the shape of eye lens changes?
- iii) In case "c" is the image formed clear. Why?
- iv) Depict the range of vision of a normal eye from these diagrams.

Chapter-12

Sound

1. Fill in the blanks

- i) The formula that gives relationship between time period and frequency is _____.
- ii) The two types of mechanical waves are _____ and _____.
- iii) The basic cause of sound is _____ which can be defined as _____.
- iv) The maximum displacement of a body from its mean position is called _____.
- v) Sound travels fastest in _____ medium.
- vi) Sound cannot propagate through _____.
- vii) In flute and Harmonium, _____ is the vibrating part that produces sound.
- viii) The organs or mechanisms responsible for producing characteristic sound in human being is _____, birds is _____, insect is _____ and frogs is _____.
- ix) Unpleasant sounds/noise are produced by _____ vibrations.
- x) People with hearing impairment can communicate effectively by _____.

2. Match the following

Column A	Column B
i) The reciprocal of frequency	a) wavelength
ii) The distance travelled by wave per sec	b) frequency
iii) The no. of complete vibrations/sec	c) velocity
iv) The distance between two consecutive crest	d) amplitude
v) When we change feeble sound to loud sound, we increase its	e) time period

3. Give one word answer for the following :

- i) Sound of frequency below 20Hz: _____
- ii) Device used by doctors based on multiple reflection of sound: _____
- iii) The unit of loudness of sound : _____
- iv) The faintest sound which a human ear can detect is known as : _____
- v) The voice at high pitch is _____.

4. Correct the sequence

- (i) Correct the given sequence in the increasing order of speed of sound.

Air > iron nail > water

- (ii) Particle of the medium vibrate, vibrating object, sound energy processed by brain, ear drum vibrates (journey of sound from sound producing object to hearing of sound)

5. Two astronauts are floating close to each other in space. Can they talk to each other in space. Can they talk to each other without using any special device? Give reasons.
6. Lightning can be seen the moment it occurs. Geeta observes lightning in her area. She hears the sound 5 sec after she observed the lightning. How far is she from place where lightning occurs? (speed -330m/sec)
7. Rahul saw a cracker burst at night at a distance from his house. He heard the sound of cracker a little later after seeing the cracker burst. Give the reason for delay in hearing of the sound.
8. A simple pendulum makes 10 oscillations in 20 seconds. What is the time period and frequency of oscillations?
9. Suppose a stick is struck against a frying pan in vacuum.
 - a) Will the fry pan vibrate?
 - b) Will we be able to hear the sound and give reason for the answer?
10. In a stringed musical instrument, the player plucked the string in the middle first with force of greater magnitude and then force of smaller magnitude. In which case would the instrument produce a louder sound?
11. An alarm bell is kept in a bottle. A person close to it can distinctly hear the sound of alarm. Now if the air is removed from the bottle completely. How will the loudness of alarm get affected for the same person?
12. The town hall building is situated close to Rohan's house. There is a clock on the top of town hall building which rings bell every hour. Rohan has noticed that the sound of clock appears to be much clearer at night. Explain.
13. Mention the technique used by frogs to make their croaking sound louder.
14. Bees on their way to collect honey have higher pitch as compared to the bees returning back to their hives why?
15. There are many explosions taking place in the outer space but we do not hear them. why?
16. Enlist the factors that effect speed of sound through a medium.
17. Some animals get disturbed before an earthquake. Support the statement with proper reasons.
18. What do you understand by the "timbre"?
19. Enlist the major drawbacks of on health of people living in villages/towns located along a national highway or close to railway tracks or industries.
20. How does a hearing aid help people with partial hearing loss?

Chapter-13

Synthetic Fibres and Plastic

1. Cotton is a natural polymer. What is its chemical name?
2. A synthetic fibre which looks like silk is obtained by chemical treatment of wood pulp. What is its common name? Which natural fibre does it imitate?
3. Give reasons:
 - a) Plastic articles are available in all possible shapes and sizes.
 - b) It is not advisable to burn synthetic fibres and plastics.
 - c) A plastic bucket does not get rusted like an iron bucket.
 - d) It is advised to avoid the use of plastic as far as possible.
 - e) Bakelite is used for making electrical fittings.
 - f) It is uncomfortable to wear synthetic fibres clothes in summer.
 - g) Rayon is suitable for wearing in summers while acrylon is not.
 - h) Terylene is used for making raincoats.
 - i) Melamine is coated in the uniform of firemen
 - j) Nylon is used for making parachutes.
4. Rohit took with him some nylon ropes, when he was going for rock climbing. Can you tell why he selected nylon rope instead of rope made of cotton or jute?
5. A lady went to the market to buy a blanket. The shop keeper showed her blankets made of acrylic fibres as well as made of wool. She preferred to buy an acrylic blanket. Can you guess why?
6. PVC (Polyvinyl chloride) is a thermoplastic and is used for making slipper and toys etc. Bakelite is a thermosetting plastic and is used for making electrical switches, handles of various utensils etc. Compare the characteristics of polyvinyl chloride and Bakelite.
7. State the importance of synthetic polymers in our life.
8. Even though plastic is very useful, it is advised to restrict its use. Why is it so? Can you suggest some methods to limit its consumption.
9. Fill in the blanks
 - a) A polymer is a chain of many small units joined together which are called _____.
 - b) The synthetic fibres are also known as _____ fibres
 - c) A synthetic fibre which appears to resemble wool is _____.
 - d) The first fully synthetic fibres was _____.
 - e) Plastics with linear arrangement of molecules are known as _____.
 - f) The process of formation of a polymer is called _____.

- g) Rayon: _____ : : _____ : wonder polymer.
- h) Full form of PET is _____.
- i) _____ is used for making kitchenware and fabrics which resist fire.

10. State whether the given statements are true or false

- a) The fabric tery wool is obtained by mixing terylene and wool.
- b) Synthetic fibres do not melt on heating.
- c) It is risky to wear synthetic clothes while working in the kitchen.
- d) Most of the plastics are biodegradable.
- e) Synthetic fibres have higher tensile strength than natural fibres.

11. Match the items in column A with Column B

Column A	Column B
a) Vulcanised rubber	i)artificial silk
b) nylon	ii)sails of boat
c) PET	iii)non-stick coating
d) Terylene	iv)semi synthetic polymer
e) Rayon	v)wonder polymer
f) Teflon	vi) packaging containers
g) Acrylon	vii)thermosetting plastic
h) PVC	viii) terylene and cotton
i) Bakelite	ix)thermoplastic
j) Terycot	x)resembles wool

Chapter-14

Reproduction in Animals

1. Why reproduction is considered the most important characteristic of life?
2. Why is that offspring produced as a result of asexual reproduction are genetically similar to the parent?
3. Stages of silkworm are given below. Write them in sequential order.
Pupa, Egg, Silk moth, Caterpillar
4. How is hen's egg able to survive in the harsh external environment?
5. The term metamorphosis is not used while describing human development .Why?
6. How is reproduction in Hydra different from that in Amoeba?
7. Why do male gametes have a tail?
8. Differentiate direct from indirect development in animals.
9. What is calcite? State its composition and function.
10. Why do we say that the earthworm is a hermaphrodite animal?
11. Even though fusion of gametes takes place during sexual reproduction in both frog and human beings they have different reproductive patterns, Explain.
12. Enlist the features that differentiate tadpole from adult frog.
13. Define parthenogenesis.
14. What do you understand by bi-parental reproduction?
15. Explain the two ways by which the embryo inside the eggs of oviparous can undergo complete development.
16. At a given time during reproduction how many sperm can fuse with one ova?
17. Why a child possess mixed characteristics of both the parents?
18. Differentiate between :
a) zygote and embryo b) foetus and infant
19. How is multiple fission different from binary fission?
20. If the oviduct of a female is cut or sutured, how will the sexual reproduction be effected in human beings?
21. Fill in the blanks:
 - i) In _____ mode of reproduction the off springs are genetically identical to parents.
 - ii) An individual producing both types of gametes are called _____ organism.
 - iii) _____ is the first cell of the new generation .
 - iv) The respiratory organs of tadpole is _____ and that of frog is _____.
22. Match the following

Column A	Column B
i. metamorphosis	a) Cattle
ii. Viviparous	b) Indirect development
iii. Hermaphrodite	c) Fish
iv. Oviparous	d) Snail

23. Give one word for the following

- i) The part of female reproductive system where zygote is implanted:_____.
- ii) Mode of reproduction which confers new character to off spring:_____.
- iii) The part where division of zygote begins in females:_____.
- iv) The period during which development takes place inside the egg:_____.

24. In the male reproductive system :

- i) _____ are oval organs present in a sac called _____.
- ii) _____ develop in testis.
- iii) The fluid having sperms in it is _____.
- iv) Sperms pass from the testes through the _____ to the urthera which is surrounded by muscular structure called the _____.

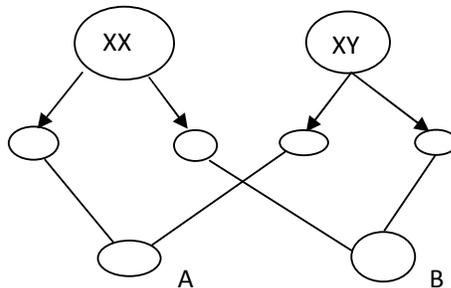
25. In the female reproductive system :

- i) _____ produce eggs.
- ii) An egg reaches the _____, where a sperm fuses with it to form _____.
- iii) The main functions of hormone produced by ovaries are a)_____ b)_____.

Chapter-15

Reaching the Age of Adolescence

1. Give reasons for the following
 - i) Change in the voice of boys at puberty.
 - ii) Acne or pimples common among the adolescents
 - iii) There is change in the size of heart and lungs at puberty.
 - iv) Gonads get matured and start producing gametes during puberty.
 - v) Father is responsible for determining the sex of the child.
2. Name the gland that triggers the shift of adolescence towards adulthood. State its influence on male and female gonads.
3. The following are some processes that take place in the body of female. Arrange them in correct sequence.
 - i) production of ova
 - ii) ovary enlarges
 - iii) onset of puberty
 - iv) Fertilised egg reaches uterus.
 - v) Uterus prepares itself by forming thick lining of blood.
 - vi) Mature ovum enters the oviduct.
 - vii) Zygote begins to divide and get embedded in the uterus for further development.
 - viii) Fertilisation of ovum with sperm takes place in oviduct.
4. Geeta always eats only rice and pulses in every meal. She often falls ill and has become prone to diseases. Can you suggest changes in her diet which can make her healthy and free of diseases?
5. Fill in the blank circles in the figure and identify the sex of child A and B is



6. Given below are certain food items required for proper nourishment of adolescents .Name the nutrients present in the food items and write their function

Food items	Major nutrients	Function
Pulses & Nuts		
Oranges& Amla		
Sugar & roti		
Oils		
Vegetables & fruits		

7. Name the hormone which will be released during the following situation.
- Frightened person _____.
 - Growth of child to adult _____.
 - Formation of moth from caterpillar _____.
 - Metamorphosis of tadpole to frog _____.
8. In human female, each time during maturation and release of eggs, the inner wall of uterus thickens. Is the thickening permanent? Give reason.
9. It is believed that height of a child depends upon the genes inherited from parents. However it is often seen that tall parents may have short children and vice-versa .Are there factors other than genes that could cause such variation.
10. Justify the following statements with adequate examples wherever necessary
- Poor nutrition in adolescence can have adverse health consequences in adulthood.
 - Both girls and boys need to be aware of importance of maintaining personal hygiene
 - Physical exercise is a daily requirement.
 - Some habits affect the health of adolescents and make them lose their self confidence and control over themselves.

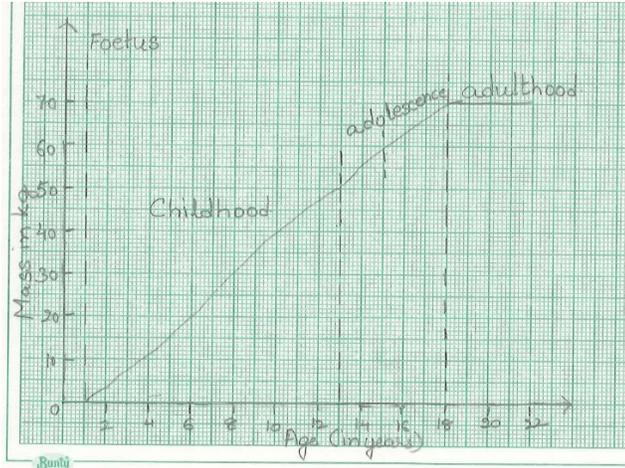
11. Complete the following table

Gland	Hormone	Function
1. Pituitary		
2. Thyroid		
3. Adrenal		
4. Pancreas		

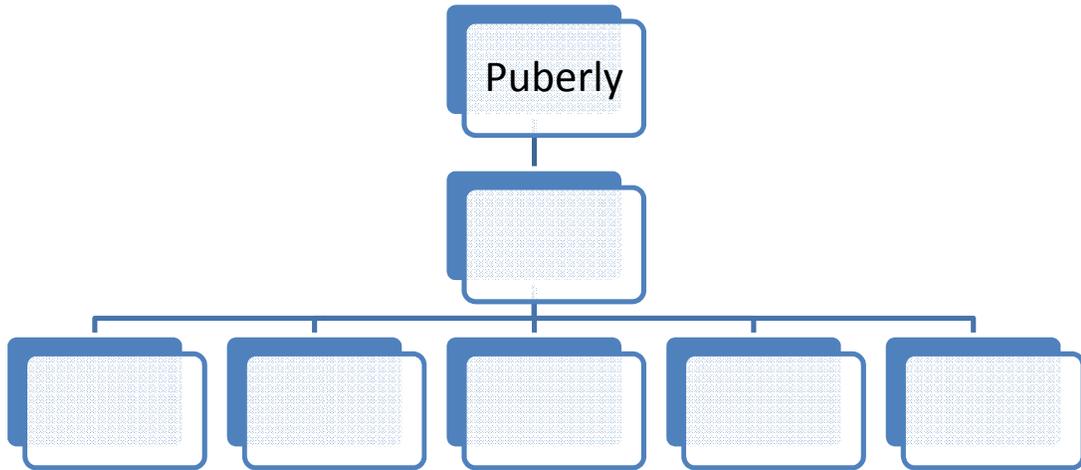
12. Do as directed

i) The life cycle of human beings consists of three stages _____, _____ and _____.

ii) Observe the following graph carefully and interpret the age span of adolescence.



iii) Complete the flow chart



Chapter-16

Chemical effect of Electric Current

1. Give 2 examples of insulator or poor conductor.
2. Why we should never handle electrical appliances with wet hands?
3. Why does salt when added to water makes water more conducive to electricity?
4. What does a voltaic cell do?
5. Name 2 metals which are extracted from their ores by electrolysis.
6. The phenomena which forms the underlying principle of modern day generators and transformers is _____.
7. What do you understand by electro- magnetic induction?
8. In case of electro- magnetic induction what causes the flow of current through the coil?
9. Why is layer of zinc coated over iron?
10. Will the solution of sugar in distilled water conduct electricity?
11. Name the effect of current responsible for glowing of bulb in an electric circuit with a battery.
12. Geeta wants to deposit silver on an iron spoon. She took silver nitrate solution in beaker and set up a simple circuit for electroplating. Which terminal of the battery should the spoon be connected to? What material should the other electrode be made of?
13. Why is tin electroplated on iron to make cans used for storing foods?
14. An electric current is passed through conducting solution. List any 3 observation.
15. You are provided with a magnetic compass, an empty match box, a battery of two cells and connecting wires. Using these how will you make a tester for testing an electric circuit.
16. Fill in the blanks
 - i) The object to be electroplated is taken as _____ electrode.
 - ii) One of the most common applications of chemical effect of electric current is _____.
 - iii) Small amount of a mineral salt present naturally in water makes it a _____ of electricity.
 - iv) Electroplating of _____ is done on objects like water taps and cycle bells to give them a shiny appearance.
17. Choose the odd one out and justify the correct choice
 - a)Metals, alloy, plastic, rainwater
 - b)Distilled water, metal, wood, rubber
18. The chemical reactions taking place in solution depend on two factors. Write them.

19. Choose an appropriate word from the box to fill in the blanks given below :

Electroplate, ions , cathode , anode , electrolyte , nickel , electrolytic

To _____ an article with nickel , requires an _____ which must be a solution containing _____. The article , to be plated , is taken as the _____ of the _____ in which plating is carried out . The _____ of the cell is made from pure _____.

20. In case of a fire , before the firemen use the water hose to throw water to douse fire , they shut off the electric supply of the area . Explain why this is done .

21. A student staying in coastal area tests the drinking water and also sea water with a circuit in which a part of the connecting wire is wound around a matchbox containing compass. He finds that compass needle deflects more in the case of sea water. Explain the reason for this observation.

Chapter-17

Stars and Solar System

1. Do stars emit light only during night?
2. Two people observed a bright object in the night which is not twinkling. One person says it is star and the other one says it is planet. Who is correct?
3. John saw full moon on a particular day. After how many days will he be able to see the full moon again?
4. India's maiden mission to a planet X launched on 5 November 2013 by ISRO, was a significant step in furthering the country's space ambition.
 - i) Name this planet
 - ii) Write two features of this planet.
 - iii) Which 2 conditions make it unlikely for water to exist in liquid state on this planet?
 - iv) Name its two natural satellite.
5. Meteors are not visible during day time. Explain the reasons.
6. For the people in ancient times, the pole star was a guide to directions . Why?
7. Radha saw the moon through the glass window at 8.00 p.m. She marked the position on the glass pane. She got up at 4 am in the morning. Will the moon be visible at same position?
8. Suppose the moon emits light of its own. Would it still have phases? Justify your answer.
9. Explain why we always see the same side of the moon.
10. Suppose the distance between earth and sun becomes half of its present distance. What is likely to happen to life?
11. Sun is a star. Why?
12. What is Periodic Comet? Give example.
13. What helps to keep the earth's temperature to remain suitable to support life?
14. What do you understand by the terms waxes and wanes?
15. Name the star after Sun which is nearest to earth.
16. The bright lines of light flashing across the sky for a very short duration are known as _____.
17. Planets do not collide while revolving around the sun. Why?
18. What determines the colour of a star?
19. Earlier it was the solar system has 9 planets but now it is said that solar system has got only 8 planets, Justify.
20. Even though Venus is relatively farther away from the sun, it is even hotter than mercury . Why?

Chapter-18

Earthquakes

1. Can tremors occur when volcano erupts?
2. What is a tsunami?
3. Why does the tectonic or lithospheric plate of earth move?
4. An earthquake of magnitude 5.1 struck India at depth of 16.1 km, near Rudraprayag district in the state of Uttarakand on February 6, 2017. State three consequences of an earthquake that are faced by people of the affected area.
5. How does the intensity of earthquake vary as we move away from the epicentre?
6. If a person is in a moving car at the time of an earthquake. What safety precaution should he take during the earthquake?
7. What kind of an earthquake occurs when magnitude of earthquake on Richter scale is 8 or above and how does it effect the place where it occurs?
8. Can man predict an earthquake before hand?
9. Ram was sitting on a table and chair suddenly he felt his chair was rocking and the pen lying in front was moving away from him. Can you say what natural phenomenon is occurring? What precautions must be taken by him?
10. What disaster management supplies should be readily available with people living in earthquake prone areas?
11. An increase of two on Richter scale means _____ times more destructive energy.
12. Why are high rise building in earthquake prone area, suppose to have their fire fighting system in order?

Chapter-19

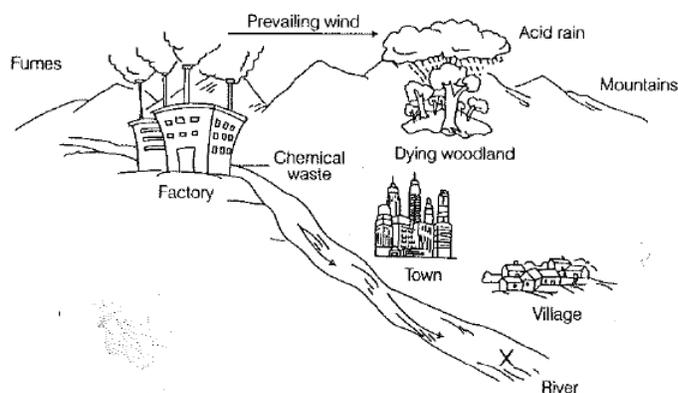
Pollution of Air

1. What is air pollution?
2. How the carbon monoxide formed during incomplete combustion of fuel affects man and plants?
3. What are ill effects of high concentration of nitrogen dioxide in air on living beings?
4. Why are people advised not to use the foaming agents containing CFC?
5. What is marble cancer? How is it caused?
6. The number of vehicles are increasing rapidly. How is it causing air pollution?
7. How does the global warming effect the environment of the world?
8. Gangotri glacier in the Himalayas started melting. Why?
9. Give reason for the following
 - a) we should avoid burning of crackers.
 - b) use alternative source of energy instead of conventional source of energy like coal and petrol
10. Why is lot of stress being given on planting trees?
11. "Say no to crackers" - campaign was organised by school children of DAV Public School. List two factors which can be checked by this
12. A lot of dry leaves are collected in the school garden and burnt everyday. Do you think it is right to do so? If not what should be done with dry leaves?
13. Combustion of fossil fuel generates lot of air pollution. Can you suggest any two alternative source of energy which do not cause any pollution.
14. How can regular monitoring of air quality at various locations by government and various agencies help us?

Chapter-20

Pollution of Water

1. State any 2 changes in the physical properties of water which help you identify that water is polluted.
2. How does the agricultural waste effects the quality of water?
3. An oil tanker transporting oil across an ocean meets with an accident in the middle of ocean. What will happen and how will it affect the environment?
4. If you are given a bottle of water which has odour and water is milky in its appearance. Should you consume that water or not, if not, Why?
5. Why do we boil water to purify?
6. Fertilisers are good for crop but cause pollution of water. How?
7. How does filtration help in purification of water?
8. How can sewage waste be treated and water can be made suitable for use?
9. Why are people advised not to use shower instead use bucket and mug while taking a bath?
10. During rainy season it was found that many of the patients in a hospital were suffering mainly from jaundice and diarrhoea. Why?
11. Why are industrialist advised not to dump the industrial waste into river or lakes?
12. Which property of water is the major cause of its pollution?
13. Why do we need to conserve water?
14. Why is that we often carry water bottles along with us when we go out?
15. Study the picture given below:



- i) A group of environmentalists found that much of the woodland area is drying .What could be the reason of this observation?
- ii) Some fisherman catching fish with their fishing nets at point X. Environmentalists advised them not to eat the fish .Give a reason for their advice to fisherman.