


SCIENCE OLYMPIAD

Official Guide

GRADE 7
SET 1

 *International*
Olympiad
Foundation

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1. Nutrition in Plants and Animals

Direction : (Q 1-30) Select the Correct Answer:

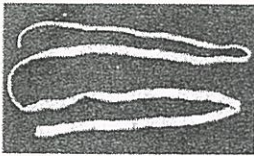
1. Organisms that live on dead and decaying animals are known as ____.

- a) Saprophytes b) Carnivores c) Omnivores d) Parasites

2. Lichen is a ____.

- a) Symbiont b) Parasite c) Omnivore d) Saprophyte

3. The organism in the picture is a ____.



- a) Symbiont b) Saprophyte
c) Parasite d) Omnivore

4. Do plants with variegated leaves conduct photosynthesis? Explain.

- a) No, they do not have chlorophyll.
b) Yes, they contain chlorophyll but the green of the chlorophyll is hidden
c) No, they take food from the soil.
d) Yes, chlorophyll is a different coloured pigment in these leaves.

5. What is the role of the tree in this picture?



- a) parasite
b) symbiont
c) host
d) saprophyte

6. Identify the plant and its type.



- a) Orchid, parasite
b) Pitcher plant, insectivorous
c) Cuscuta, saprophyte
d) Mushroom, parasite

7. Which of these is the end product of photosynthesis?
 A) Carbon dioxide B) Oxygen C) Glucose D) Fructose
 a) A & B b) B & C c) C & D d) A & C
8. Stomata are present on the _____.
 a) roots b) stem c) flowers d) leaves
9. Deficiency of Vitamin A can cause _____.
 a) Beriberi b) Pellagra c) Night blindness d) Riboflavinosis

10



Identify the disease the child is suffering from and state the deficiency of which vitamin causes it.

- a) Scurvy, Vitamin C b) Rickets, Vitamin D
 c) Pellagra, Vitamin B7 d) Beriberi, Vitamin B1
11. Who has homodont teeth?
 a) humans b) dogs c) frogs d) cows
12. Which of these is produced in the liver?
 a) Bile b) Saliva c) Trypsin d) Lipase
13. Which enzyme is produced in the large intestine?
 a) Bile b) Intestinal Juice. c) Pepsin d) None
14. The word for – “a wave of constrictions in the muscles of the wall of the gut to push food farther into the food canal” is _____.
 a) egestion b) assimilation c) peristalsis d) absorption
15. Arrange the organs of the digestive system in the correct sequence.
 i) stomach ii) small intestine iii) esophagus iv) large intestine v) mouth
 a) v – iii – i – ii – iv b) v – ii – iii – iv – i c) v – i – ii – iii – iv d) v – iv – ii – i – iii
16. Which of these is an essential mineral for plants?
 a) Calcium b) Phosphorus c) Copper d) All of these

17

The given part of a plant helps out in _____.



- a) Photosynthesis
 b) Respiration
 c) Transpiration
 d) All of the above
18. The five steps of nutrition are given. Put them in the correct order.
 i) Assimilation ii) Ingestion iii) Egestion iv) Digestion v) Absorption
 a) i – iv – iii – v – ii b) ii – v – iii – i – iv c) ii – iv – v – i – iii d) iv – i – v – ii – iii

27. What is sludge?

- a) By-products of wastewater treatment b) waste from homes and hospitals
c) Decomposed sewage d) None of these

28. Which one of the following is a non-renewable resource of energy?

- a) forests b) wind c) petrol d) water

29. Two chemicals used to disinfect water before releasing it to the distribution system are

- a) Chlorine b) ozone c) potassium d) Both a & b

30. Fossil fuels are energy sources. Which of the following about fossil fuels is true?

- a) They are always available and will not run out.
b) They are easily replaced once they are used up.
c) They are not easily replaced once they are used up.
d) They cannot be converted to other forms of energy.

Direction : (Q 31) Match the Columns:

- | | |
|------------------|----------------------------------------------------------------------------------------------|
| 31. A) Carnivore | i) a consumer that eats dead animals |
| B) Decomposer | ii) an organism that obtains nutrients from the blood or flesh of an animal |
| C) Scavenger | iii) an organism such as bacteria and fungi that breaks down dead organisms and their wastes |
| D) Detritivore | iv) a consumer that obtains its nutrients from organic matter |
-
- | | | | |
|------------|----------|---------|---------|
| a) A – i; | B – iii; | C – ii; | D – iv |
| b) A – ii; | B – iii; | C – i; | D – iv |
| c) A – iv; | B – i; | C – ii; | D – iii |
| d) A – ii; | B – iv; | C – i; | D – iii |

Direction : (Q 32-34) Pick the Odd One Out:

32. a) biomass b) hydroelectric c) geothermal d) nuclear

33. a) Paddy b) wheat c) grams d) cotton

Direction : (Q 34) Select the Correct Match:

- a) A-horizon - rich in humus and minerals
b) B-horizon - made up of small lumps of rocks with cracks
c) C-horizon - hard and difficult to dig with a spade and crevices.
d) Bedrock - lesser amount of humus but more of minerals, generally harder and more compact

32. The leaf is the food factory of the plant. Match the columns keeping this in mind:

- | | |
|-----------------------------------|-----------------------------------|
| A) Sunlight | i) End product |
| B) Glucose | ii) Raw Materials |
| C) Carbon dioxide & water | iii) Byproduct |
| D) Oxygen | iv) Power |
| a) A – ii, B – i, C – iv, D – iii | b) A – iv, B – i, C – ii, D – iii |
| c) A – iii, B – ii, C – iv, D – i | d) A – i, B – ii, C – iii, D – iv |

Direction : (Q 33-35) Pick the Odd One Out:

33. a) calcium b) iron c) protein d) potassium
34. a) duodenum b) ileum c) rectum d) jejunum
35. a) molars b) incisors c) canines d) tongue

Direction : (Q 36-37) Select the Correct Match:

36. a) Plants photosynthesize all the time, even in the absence of light.
b) Autotrophs are the only organisms that can make their own food.
c) Parasites though independent depend on other organisms for food.
d) Heterotrophs feed on dead bodies of organisms.
37. a) The transport of food from one part of a plant to another is called translocation.
b) Plants respire only during the night.
c) Insectivorous plants grow in regions deficient in oxygen.
d) Chloroplasts trap light energy to convert oxygen and water into food.

Direction : (Q 38-40) Select the incorrect Match:

38. a) Foods high in salt, fat, sugar are junk food.
b) The daily requirement of calories for people depends on their sex.
c) Food quality can be lowered by adding an adulterant.
d) If a person takes in the same number of calories as are used up, his weight will remain the same.
39. a) A chewed, spherical mass of food is called bolus.
b) Saliva contains an enzyme to digest starch.
c) Plaque has sugar and bacteria.
d) No digestion occurs in the oesophagus.
40. a) Villi are finger like projections in the small intestine.
b) The colon is in the small intestine.
c) Bile juice is produced in the liver.
d) Chyme is food reduced to a pulp-like thick paste in the stomach.

2.


Fiber to Fabric

Direction: (Q.1 – 30) Select the correct answer:

1. Pashmina shawls are woven from the hair of the ____.
- a) Angora goat b) Kashmiri goat c) Sheep d) Llama

2. Arrange the steps of processing fibre into wool in the correct order.

- i) dyeing ii) sorting iii) shearing
 iv) scouring v) straightening/ rolling vi) removing burrs
- a) ii → i → iii → iv → vi → v b) iii → ii → iv → i → v → vi
 c) iii → iv → ii → vi → i → v d) iv → i → iii → vi → ii → v

3.  Identify the animal. Where is it found?

- a) Llama, Tibet
 b) Alpaca, South America
 c) Angora goat, Kashmir
 d) Yak, Lower Himalayas

4. Silk fibres are made of ____.

- a) protein b) fat c) minerals d) cloth

5. Tassar, Mooga, Kosa are types of ____.

- a) sheep b) goats c) silkworms d) silk

6. Silk is got from the ____ of the silkworm.

- a) pupa b) caterpillar c) cocoon d) body

7. The silkworm is a a) pupa b) caterpillar?

- a) b b) a c) both a & b d) neither a nor b

8. The term for 'rearing of silkworms for obtaining silk' is called ____.

- a) apiculture b) sericulture c) vermiculture d) oriculture

9. Which country leads the world in silk production?

- a) India b) Thailand c) China d) Malaysia

10. Which is the most common silk moth?

- a) mulberry b) shrewsberry c) blueberry d) strawberry

- 11. Name a deadly disease which sorters are infected by. What causes it?**
a) Sorter's disease, E-coli b) Sorterella, Salmonella
c) Sorter's disease, Anthrax bacteria d) None of these
- 12. Which part of the sheep's fleece is used for making wool?**
a) Coarse beard hair b) Soft under hair close to skin
c) Both of these d) None of these
- 13. The properties below describe which of the following fabrics?**
i) Machine made ii) Soft to touch
iii) Does not get creased iv) Can be washed
v) Is creaseless
a) Cotton b) Silk c) Nylon d) Wool
- 14. The removal of sheep hair is called ____.**
a) shearing b) scouring c) seering d) sorting
- 15. Bakharwal, Marwari, Nali are types of ____.**
a) Silk b) Goats c) Cotton d) Sheep
- 16. The children employed in the silk industry suffer from respiratory disorders, hearing, problems, blisters and open wounds. What is the main cause of their respiratory problems?**
a) Cramped, damp, dark and poorly ventilated workspace.
b) Inhalation of vapours from the boiling cocoons and the diesel of machines.
c) Not enough oxygen and too many other gases in the workspace.
d) Smell of the boiling cocoons.
- 17. The longest silk thread from a single cocoon is ____.**
a) 12 feet long b) 12 m long
c) 12 km long d) the size of 12 football fields
- 18. What is fibroin?**
a) a semi-liquid protein which forms the silk thread. b) a fibre-like liquid
c) a fibre made from camel's wool. d) a fibre made from yak's wool.
- 19. Which is not related to the silk industry?**
a) sericulture b) moriculture c) apiculture d) reeling
- 20. Which is an animal fibre?**
a) jute b) wool c) cotton d) polyester
- 21. Which is the main component of wool?**
a) keratin b) sericin c) trypsin d) peptin

22. Give a term for “the process of selecting parents for obtaining special characters in their offspring.”

- a) Selective parenting
 b) Selective breeding
 c) Special characterization
 d) Selective rearing

23. Why does shearing not hurt the sheep?

- a) Because it is done very carefully.
 b) As the sheep is dead when shearing is done
 c) As the uppermost layer of the sheep’s skin is dead
 d) None of these.

24. Caterpillars should not be collected with bare hands as ____.

- a) they die
 b) they are dirty
 c) they are sticky and dirty
 d) they may cause an allergy.

25. Arrange the steps for obtaining silk from silkworms.

- i) Cocoons boiled
 ii) Rearing of silkworms
 iii) Obtaining threads from cocoon
 iv) Reeling of silk
 a) i – iii – iv – ii
 b) ii – i – iii – iv
 c) ii – i – iv – iii
 d) i – ii – iii – iv

26. Reshma went to buy a woolen shawl. She wanted one with natural wool. She decided on 2 shawls. She took strands of wool from each and burnt them. The pink strand had the smell of burning hair while the blue one smelt like burning paper. Which one was made of natural wool?

- a) Pink
 b) Blue
 c) None of these
 d) Any of these- smell does not matter

27. Eri Silk is obtained from north- eastern parts of India. What is made from this silk? Why?

- a) Shawls and quilts as it is a poor conductor of heat.
 b) Saris as it is soft and light.
 c) Not used to make anything as it is too coarse.
 d) Dress material as it feels cool.

28. Name the king of wools. From which animal is it obtained?

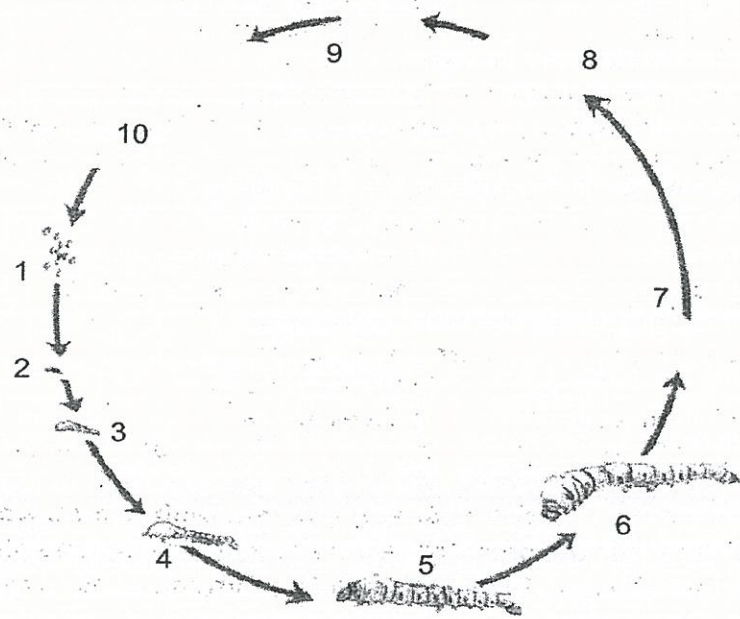
- a) Mohair – Angora
 b) Cashmere – Kashmiri goat
 c) Shahtoosh – Chirn
 d) Grease wool - Chinkara

29. What does this picture indicate?



- a) reeling of silk
 b) removal of burrs from wool
 c) scouring of wool
 d) sorting of wool

30 Given below is the life cycle of a silkworm but stages 7, 8, 9, 10 are missing. Arrange the pictures given below to complete this cycle.



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

Direction : (Q 31) Match the Columns

- | | |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <p>31 A) Reeling
B) Llama
C) Mulberry
D) Scouring</p> | <p>i) wool
ii) cleaning sheared skin
iii) cocoon
iv) Morus Alba</p> |
| <p>a) A - iii, B - i, C - iv, D - ii
c) A - i, B - iii, C - iv, D - ii</p> | <p>b) A - iv, B - i, C - iii, D - ii
d) A - ii, B - i, C - iii, D - iv</p> |

Direction : (Q32-33) Select the Correct Match

32. a) Shearing → Cleaning
 b) Marwari → Coarse wool
 c) Burrs → Insects on sheep's fleece
 d) Silk → Plant fibre
33. a) Lohi → Carpet wool
 b) Bakharwal → Good quality wool
 c) Patanwadi → Hosiery
 d) Nali → Woolen shawls

Direction : (Q 34, 36) Pick the Odd One Out:

34. a) pupa b) moriculture c) mulberry d) burrs
35. a) Lohi b) Mooga c) Nali d) Rampur bushair
36. a) Shearing b) Reeling c) Scouring d) Sorting

Direction : (Q 37-38) Select the Correct Statement

37. a) Sorter's disease is caused by a virus called anthrax.
 b) Silk production first began in India.
 c) China is the leading producer of silk.
 d) Wool is a good conductor of heat.
38. a) Silk comes from the silkworm in beautiful colours.
 b) There are different types of silk because silkworms eat different types of leaves.
 c) Silk is made from a kind of mineral salt.
 d) The cocoon develops into a caterpillar.

Direction : (Q 39-40) Select the incorrect Statement

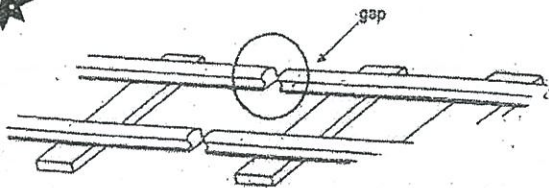
39. a) Sheep are sheared in summer.
 b) Sheep hair is known as fleece.
 c) Cocoons are chilled to separate the silk.
 d) Larvae of silkworms come from their eggs.
40. a) While sorting, different textures of sheep's wool are separated.
 b) Rampur Bushair has brown fleece.
 c) Selective breeding ensures good quality of wool.
 d) Sheep do not get hurt while shearing as they are killed before shearing is done.

3.

Direction (Q1-30) Select the correct Answer:

- 1** Anita put ice in her cup of coffee. The ice melted. Anita wants to know why the ice melted. She also wants to know why the coffee became cold.
- The temperature of coffee lowered, it became cold. The ice melted as the heat of the coffee trapped it.
 - Heat flows from a body at a higher temperature to that of a lower temperature. Thus, hot coffee passed its heat to the cold ice which melted.
 - Ice melts when taken out of the freezer and the coffee became cold by itself.
 - None of these.
- 2. The first thermometer was built by ____.**
- Benjamin Thompson
 - Benjamin Franklin
 - Anders Celcius
 - Galileo Galilei
- 3. Which of these are temperature scales?**
- Fahrenheit
 - Celcius
 - Kelvin
 - All of these
- 4. Which of these are inflammable substances?**
- cloth
 - iron
 - aluminium
 - glass
- 5. Until the process of melting is complete, there is ____ in temperature.**
- increase
 - decrease
 - no change
 - absolute change
- 6. Mercury is used in a thermometer because ____.**
- it is very cheap.
 - it expands less than glass.
 - it does not wet the wall of the glass tube.
 - it takes a lot of time to evaporate.

7



- Railway tracks are laid with some space between the successive lines to allow ____.**
- trains to go smoothly
 - expansion in summer and contraction in winter.
 - the flow of electricity.
 - contraction in summer and expansion in winter.

8. Akshay finds he cannot fit the rubber ring on an instrument. However much he tries to stretch it he cannot do so. What do you suggest he should do?

- a) Freeze it so it contracts. b) Freeze it so it expands
c) Heat it so it expands d) Keep it stretched for a long time.

9. Kareena wants to eat jam and bread. The lid of the jam bottle would not come off, though she tried very hard. Which of these will work best for her?

- a) Pour hot water over it, it will expand and be easy to open.
b) Put it in a bucket of ice, it will expand and be easy to open.
c) Make a hole in the lid so the trapped air comes out.
d) Hammer it lightly from all sides, it will open.

10. What happens when camphor is heated?

- a) It expands b) It sublimates c) It evaporates d) It condenses

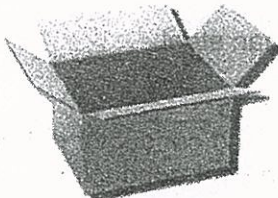
11. The fixed temperature at which liquid changes to gas is called ____.

- a) liquefaction point b) melting point c) boiling point d) gaseous point

12. Rakesh has to carry cold coffee to his friend's home. Which of these will keep the coffee cold the longest?



X



Y



Z

- a) X b) Y c) Z d) None of these

13. Which of these will not keep my tea warm?

- a) Pouring it in a narrower cup. b) Adding warm water to it.
c) Stirring it continuously d) Keeping it in a kettle.

14. When hot water is poured into a thick glass tumbler, it cracks. This is because ____.

- a) a hot liquid is poured in a cold glass, there is sudden change in temperature.
b) the inner surface of the glass expands more than the outer surface.
c) the outside surface of the glass contracts more than inner surface.
d) None of these.

15. The temperature of New York City in April is 10°C . Which is the same as ____.

- a) 52°F b) -5°F c) 5°F d) 50°F

16. Various gases expand at ____ rates for same rise in temperature.

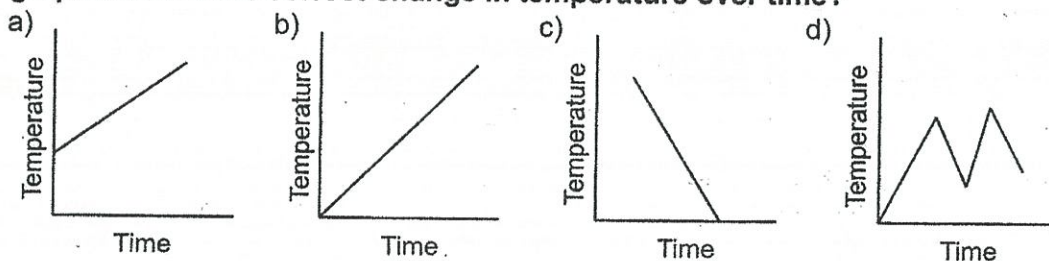
- a) same b) different c) almost the same d) any of these

17. Evaporation takes place at a temperature _____ the boiling point.
 a) below b) above c) equal to d) 5 degrees below

18. Telephone lines _____ during winter.
 a) break b) become brittle c) sag d) contract

19. The SI unit of heat is _____.
 a) calorie b) joule c) celcius d) kelvin

20. Water in the geyser is made to boil by putting on an electrical switch. Which one of the graphs shows the correct change in temperature over time?



21. Why does the stainless steel pan have a copper bottom?

- a) It makes it look attractive. b) It doesn't spoil easily.
 c) Copper is a better conductor of heat than steel. d) Copper is easier to maintain.

22. The spoon has a wooden handle because _____.



- a) Wood is good conductor of heat.
 b) Wood is a poor conductor of heat.
 c) The wooden handle makes it look attractive.
 d) The spoon is then unbreakable.

23. Four boys went for a picnic on a hot day. Arun wore a white shirt, Juned wore red, Bhavik wore black while Aakash wore a lemon yellow. Who felt the heat most? Why?

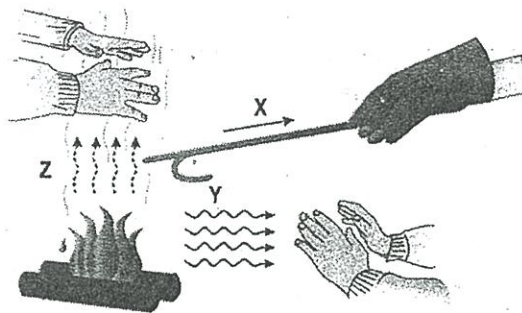
- a) Arun as white colour absorbs heat.
 b) Bhavik, because black colour absorbs most heat.
 c) Juned as dark colours absorbs heat.
 d) All of them felt the same.

24. Which of these does not require a medium for transfer of heat?

- a) Convection b) Conduction c) Radiation d) All of these

25. Which of these cannot be measured by a laboratory thermometer?

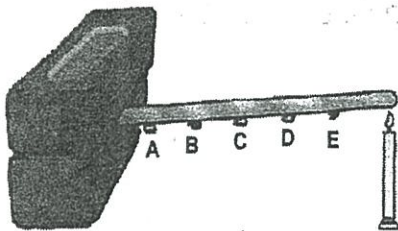
- a) a child's temperature
 b) boiling water
 c) temperature of cold water
 d) temperature of heated wax



26. Label the above diagram.

- | | |
|------------------------------------|----------------|
| a) X – Convection, Y – Conduction, | Z – Radiation |
| b) X – Conduction, Y – Convection, | Z – Radiation |
| c) X – Conduction, Y – Radiation, | Z – Convection |
| d) X – Radiation, Y – Conduction, | Z – Convection |

27.



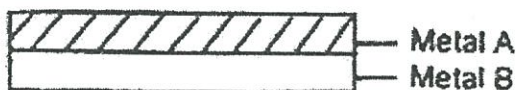
Blobs of wax are stuck to the wooden rod. Which of these will melt first?

- a) B b) C c) A d) E

28. What does the above experiment show you?

- | | |
|---------------------------------------------------|------------------------------------|
| a) Wax melts easily | b) The candle flame conducts heat. |
| c) Heat travels from a hot place to a cold place. | d) None of these |

29. The diagrams below show a metal strip made of 2 different metals, A and B, before and after it had been heated.



Before heating

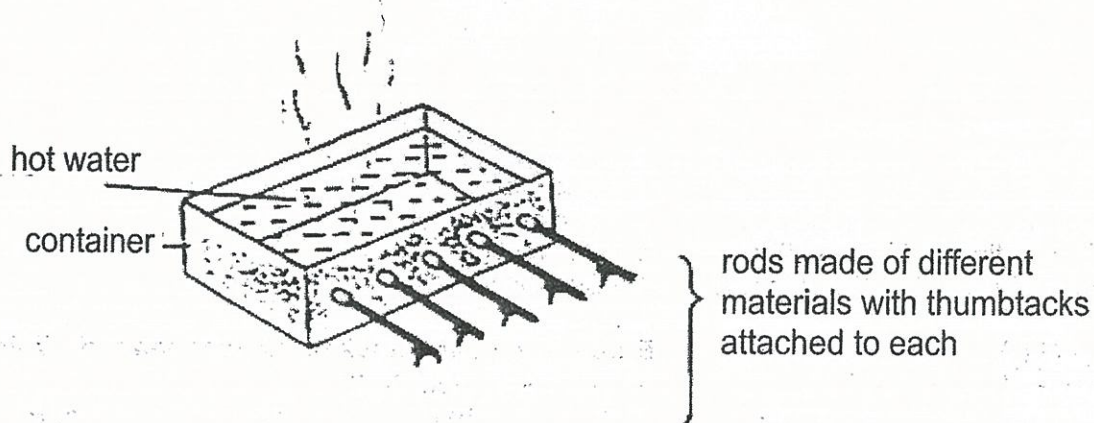


After heating

What can we conclude from this experiment?

- | | |
|--------------------------------------|------------------------------------------|
| a) Both metals do not expand | b) Metal A expands more than metal B |
| c) Metal B expands more than metal A | d) Both metals expand by the same amount |

30. Asha conducted an experiment using the set-up shown below. Thumbtacks were attached to the rods with equal amounts of the same wax. All thumbtacks were the same distance from the side of the container.



The time taken for the wax to melt at each end of the rod was taken. What was Asha trying to find out from this experiment?

She wanted to know _____.

- the direction of heat flow
- if water could conduct heat
- which rod was the best conductor of heat
- the temperature at which the wax would melt

Direction : (Q 31) Match the Columns:

- | | |
|-----------------------------------|-----------------------------------|
| 31. A) Cork | i) Conductor |
| B) Iron | ii) Actual movement of particles |
| C) Convection | iii) Insulator |
| D) Conduction | iv) Direct contact |
| a) A – iii, B – i, C – ii, D – iv | b) A – ii, B – i, C – iii, D – iv |
| c) A – iv, B – i, C – iii, D – ii | d) A – iii, B – i, C – iv, D – ii |

Direction : (Q 32-33) Pick the Odd One Out:

32. a) Radiation b) Convection c) Evaporation d) Conduction
33. a) Copper b) Glass c) Brass d) Aluminium

Direction : (Q 34-36) Select the Correct Statement:

34. a) Mud is a good conductor of heat.
b) Materials that trap air inside them are good conductors of heat.
c) Conduction occurs mainly in solids.
d) Conductivity in metals is low.
35. a) Wool is a poor conductor of heat.
b) During the night, breeze blows from sea to land.
c) Mercury is safe to use in a clinical thermometer.
d) All hot bodies radiate heat.
36. a) Water and air are poor conductors of heat.
b) A laboratory thermometer must be kept tilted.
c) The normal human body temperature is 37°F.
d) Hot air is denser than cool air.

Direction : (Q 37-40) Select the Incorrect Statement:

37. a) Evaporation takes place at all temperatures.
b) Boiling is a fast process.
c) Boiling takes place at the surface of the liquid.
d) Evaporation is a slow process.
38. a) The freezing point of molten wax is 54°C.
b) Fusion is melting.
c) Temperature obtained at Celcius scale can be changed to Fahrenheit or Kelvin.
d) When motion of molecules and atoms decreases, there is a rise in temperature.
39. a) The measure of hotness or coldness of a body is temperature.
b) Heat causes things to expand.
c) Expansion in solids is greater than expansion in liquids.
d) Different gases expand at the same rate for the same rise in temperature.
40. a) Cotton is a good conductor of heat.
b) The maximum and minimum thermometer is used to measure weather changes.
c) The clinical thermometer has the range 35°C to 42°C.
d) $^{\circ}\text{F} = (9/5) \times ^{\circ}\text{C} + 32$.

4. Acids, Bases & Salts

Direction : (Q 1-30) Select the Correct Answer:

1. Which is true for both acids and bases?

- A) They have a sour taste. b) They contain hydrogen ions in solution.
C) They are corrosive. D) They turn blue litmus red.
a) A & B b) B & C c) C & D d) A & D

2. Apples contain _____ acid.

- a) citric b) ascorbic c) malic d) oxalic

3. Ramesh is suffering from acidity and indigestion. What do you suggest he should have to relieve his suffering?

- a) Acid, HCl b) Base, MgO c) Base, Ca(OH)₂ d) Acid, H₂SO₄

4. Meha's teacher told her that acids are always stored in glass containers and not in metallic ones. Can you tell her why?

- a) Metals react with the acids stored in them.
b) We can see which acid it is through a glass bottle.
c) Metal containers are expensive.
d) Glass containers are easily available.

5. Read the statement and select the correct option.

Statement 1: A concentrated acid is that in which the amount of acid is more and the amount of water is less.

Statement 2: A diluted acid has an equal amount of acid and water.

- a) Statement 1 is true while statement 2 is false.
b) Both statements are true.
c) Statement 1 is false, statement 2 is true.
d) Both statements are false.

6. The pH of acids is _____.

- a) >7 b) =7 c) <7 d) <5

7. Which is the "King of Chemicals"?

- a) Hydrochloric acid b) Nitric acid c) Sulphuric acid d) Acetic acid

8. This acid is used to dissolve gold and platinum. Which is it?

- a) Phosphoric acid b) Citric acid c) Acetic Acid d) Aquaregia

9. From which plant is 'litmus' extracted?

- a) litchi b) lichen c) lime d) none of these

10. Mrs. Sharma could not understand why the turmeric stains on her top turned red when she washed them with soap. What do you think is the reason for this?

- A) Turmeric is acidic in nature. B) The soap solution is acidic.
 C) Turmeric is a natural indicator. D) The soap solution is basic.
 a) A & B b) A & C c) B & C d) C & D

11. Acid + _____ (i) → _____ (ii) + water

- a) i) Salt, ii) Base b) i) Base, ii) Salt
 c) i) Base, ii) Oxygen d) i) Salt, ii) Acid.

12. Kajal took a paper blotted with solution X. She dipped the paper in sodium hydroxide. It turned yellow. What do you think the paper was blotted with?

- a) Red litmus b) Methyl orange c) Phenolphthalein d) Turmeric

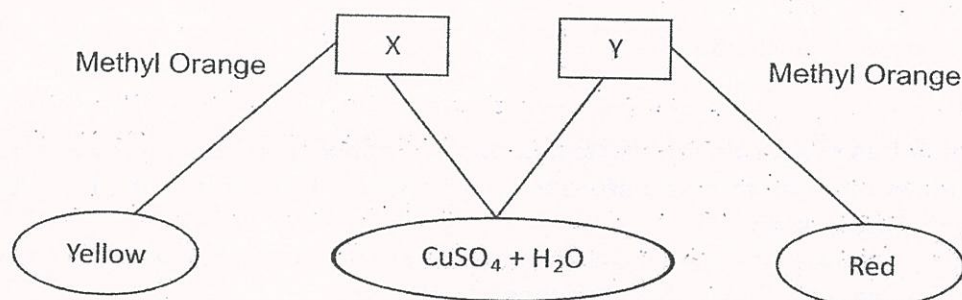
13. Which of these is a salt?

- a) Na_2CO_3 b) H_2SO_4 c) NaOH d) HNO_3

14. Which of these is not a property of bases?

- a) They are bitter to taste. b) They are soapy to touch.
 c) Turns moist blue litmus red. d) Have pH value > 7

15.



- a) X = CuO, Y = H_2SO_4 b) X = H_2SO_4 , Y = CuO
 c) X = CuOH, Y = HCl d) X = HCl, Y = CuOH

16. Which of these are acids?

- a) Vinegar, lime water, milk of magnesia b) Sour milk, vinegar, tamarind
 c) Soap solution, turmeric, tamarind d) Slaked lime, soap solution, ammonia solution

17. Our stomach contains this acid. However, excess of it leads to a problem commonly referred as indigestion. Which is this acid?

- a) H_2SO_4 b) HNO_3 c) HCl d) H_2CO_3

18. Which of these are indicators?

- a) red cabbage, turmeric b) litmus paper, aspirin
c) phenolphthalein, vinegar d) milk of magnesia, aerated drinks

19. Which of these is a base?

- a) H_2SO_4 b) MgCO_3 c) NaCl d) CuSO_4

20. The Taj Mahal and many other such monuments are being destroyed due to acid rain. What acid/s is/are contained in acid rain?

- A) Carbonic acid B) Acetic acid C) Sulphuric acid D) Nitric acid
a) A, B & C b) A only c) A, C & D d) B, C & D

21. The soil in Patel Farm has become acidic. No plants grow in it. What should be added to the soil to neutralize this effect?

- a) CaO b) $\text{Ca}(\text{OH})_2$ c) any base d) Any of these

22. Sample Blue litmus red Red litmus blue

- | | | | |
|-------------------|--|---|---|
| A) Tea | | ✓ | x |
| B) Tomato juice | | x | ✓ |
| C) Quick lime | | ✓ | x |
| D) Window cleaner | | x | ✓ |

Which of these are correctly matched?

- a) A & B b) B & C c) A & D d) All of these

23. The government has strict rules for factories that are allowed to flow their wastes into water. The wastes must be treated before they are allowed to flow into the river. What is this treatment? Why is it done?

- a) Neutralization, because the waste is acidic and will kill fish and organisms in the water.
b) Decomposition, because they contain too many chemicals.
c) Detoxification, because they are poisonous.
d) Sorting, the bigger wastes are not allowed to go in the river.

24. Each cell of our body contains this acid which controls our looks, height and so on. Which acid is it?

- a) LNA b) DNA c) NDA d) RNA

25. Amino acids are contained in _____.

- a) Fats b) Carbohydrates c) Proteins d) Vitamins & Minerals

26. A compound in which the hydrogen of an acid has been partially or wholly removed is a

- a) acid b) salt c) base d) none of these

27. Identify the acid used in making explosives like TNT.

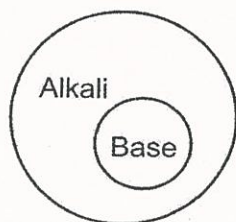
- a) HCl b) H_2SO_4 c) Nitric acid d) Carbonic acid

28. Which of these is a neutralization equation?

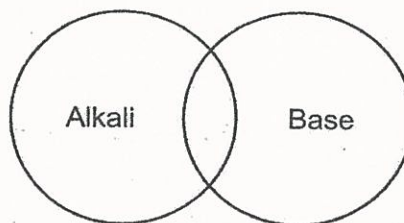
- a) $CuO + 2HNO_3 \rightarrow Cu(NO_3)_2 + H_2O$
 b) $PbCO_3 + 2HNO_3 \rightarrow Pb(NO_3)_2 + H_2O + CO_2$
 c) $Mg + H_2SO_4 \rightarrow MgSO_4 + H_2$
 d) $2K + 2HCl \rightarrow 2KCl + H_2$

29. Which of these is correct?

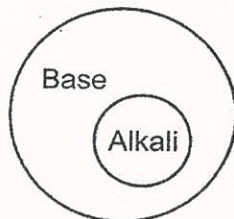
a)



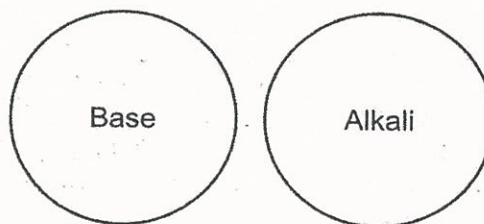
b)



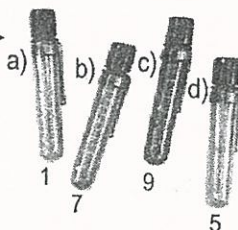
c)



d)



30.



The test tubes in the picture contain various solutions. Their pH values are also given. Which is least acidic solution?

- a) pH 1 b) pH 7 c) pH 9 d) pH 5

Direction : (Q 31,32) Match the Columns:

31. A) Common Salt

B) Milk of Magnesia

C) Vinegar

D) Yogurt

a) A – i; B – ii; C – iii; D – iv

c) A – iv; B – i; C – ii; D – iii

i) $Mg(OH)_2$

ii) Acetic Acid

iii) Lactic Acid

iv) NaCl

b) A – iv; B – ii; C – i; D – iii

d) A – iii; B – iv; C – i; D – ii

32 Indicator

- A) Litmus
- B) Phenolphthalein
- C) Methyl Orange
- D) Red Cabbage

Colour in Acid

- i) Colourless
- ii) Deep red
- iii) Red
- iv) Pink

Colour in Alkali

- Pink
- Green/Yellow
- Blue
- Yellow

a) A – ii; B – iii; C – i; D – iv

c) A – iii; B – ii; C – i; D – iv

b) A – iv; B – iii; C – ii; D – i

d) A – iii; B – i; C – iv; D – ii

Direction : (Q 33-35) Pick the Odd One Out

33. a) Green vitriol b) Gypsum c) Quick Lime d) Saltpetre
34. a) Goose berries b) Milk c) Tomatoes d) Grapes
35. a) Magnesium chloride b) Sodium nitrate
c) Calcium carbonate d) Ammonium hydroxide

Direction : (Q 36-37) Select the Correct Statement:

36. a) Alkalis taste bitter. b) Alkalis turn blue litmus red.
c) A water soluble alkali is a base. d) An alkali reacts with an acid to form salt and release hydrogen gas.
37. a) Wasp stings can be neutralized by an acid.
b) Indicators become green in neutral solution.
c) The strength of an acid or alkali can be measured by the pH value of the solution.
d) Salts made from nitric acid are called nitrates.

Direction : (Q 38-40) Select the Incorrect Statement:

38. a) Salts are solids with high melting point.
b) Alkaline solutions are given to patients who have dehydration.
c) Nitre is an important fertilizer.
d) Gypsum is used in plaster of Paris.
39. a) The common name for hydrochloric acid is aqua fortis.
b) Acids have a sour taste.
c) Soluble bases are called alkali.
d) The chemical name for baking soda is sodium bicarbonate.
40. a) A bee sting can be neutralized by applying a calamine lotion.
b) Caustic soda is used for petroleum refining.
c) Some bases are corrosive.
d) Boric acid is used to prepare eye drops.

5. Physical and Chemical Changes

Direction : (Q 1-30) Select the Correct Answer:

- A chemical change is so called because _____.
 - there is a permanent change.
 - one or more new substances are formed.
 - the composition & properties of the new substances formed are different.
 - all of these.
- Which of these is correctly matched?

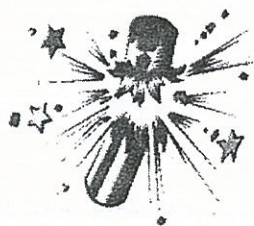
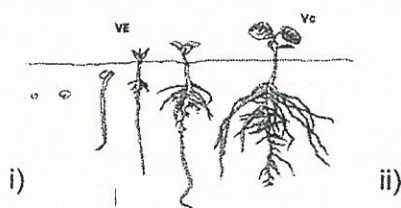
A	B
a) Rusting of iron	Physical change
b) Ripening of fruit	Chemical change
c) Formation of clouds	Chemical change
d) Digestion of food	Physical change
- What happens when water freezes?
 - A new substance is formed.
 - No new substance is formed.
 - Water gets converted to its solid form
 - both a & c
- Dissolution of common salt in water is a physical change as _____.

A) New chemical substance is formed	B) The change is temporary.
C) The salt does not lose its chemical properties.	D) It is an irreversible change.
a) A & B	b) A & D
	c) B & C
	d) B & D.
- Which of these is an exothermic change?
 - evaporation of sweat
 - burning of wood
 - dissolution of salt in water
 - melting of ice
- $$\text{CO}_2 + \text{---(i)---} \rightarrow \text{CaCO}_3 + \text{---(ii)---}$$

a) i) CaCO ₃ , ii) H ₂ O	b) i) Ca(OH) ₂ , ii) H ₂ O
c) i) H ₂ O, ii) CaOH	d) i) CO ₃ , ii) CaHO ₃
- Rusting can be prevented by depositing a layer of zinc on iron. This process is called _____.
 - galvanization
 - crystallization
 - ozonization
 - oxidation

8. Mani Katiyar cut a piece of log and used it for making a fire. Are these two different changes? Why?
- Yes, cutting of wood is a chemical change while burning is a physical change.
 - No, both are chemical changes.
 - Yes, cutting of wood is a physical change while burning it is a chemical change.
 - No, both are physical changes.

9. Which of these is a chemical change?



- a) i & ii b) ii only c) i & iii d) ii & iii

10. Respiration is a _____ change.

- physical & exothermic
- chemical & endothermic
- chemical & exothermic
- physical & endothermic

11. A chemical change _____ reversed.

- cannot be
- may be
- can be
- can sometimes be

12. Mr. K. Lalji a shipping magnate, is facing huge losses due to rusting of his ships. What is the reason for this? What permanent solution can you suggest to him?

- The bodies of the iron ships are in contact with the salty water; he can paint the ships.
- The bodies of the iron ships are in contact with the salty sea water, he can use galvanized iron.
- The bodies of the ships are not made of good quality metal, he must use better quality of iron.
- The bodies of the ships are in contact with water vapour, therefore, use another metal.

13. Which type of change occurs when the size, shape, appearance, or volume of a substance is changed without changing its composition?

- Physical
- Chemical
- Exothermic
- Endothermic

14. A chemical used to determine whether a substance is an acid or a base is called _____.

- a salt
- water
- an indicator
- an alkali

15. The formation of water from oxygen and hydrogen is an example of a _____ change.

- Physical
- Chemical
- Exothermic
- Endothermic

16. Combustion is an example of _____ change.

- Physical
- Chemical
- Exothermic
- Endothermic

17. Which substance cannot be further decomposed by a normal chemical reaction?

- a) air b) water c) copper d) sugar

18. $\text{HCl} + \text{___i___} \rightarrow \text{NaCl} + \text{___ii___}$

- a) i) NaOH, ii) H_2O b) i) H_2O , ii) NaOH c) i) NaOH, ii) ClO_2 d) i) HCl_2 , ii) HNaO_2

19. _____ are the chemicals that begin the reaction and are _____ on the hand side of the arrow.

- a) Products, left b) Reactants, left c) Products, right d) Reactants, right

20. Calcium carbonate can be decomposed. Thus, $\text{CaCO}_3 \rightarrow \text{_____}$

- a) $\text{CaO} + \text{CO}_2$ b) $\text{CaCO} + \text{O}_2$ c) $\text{Ca}_2\text{O} + \text{CO}$ d) $\text{CaO} + \text{C} + \text{O}_2$

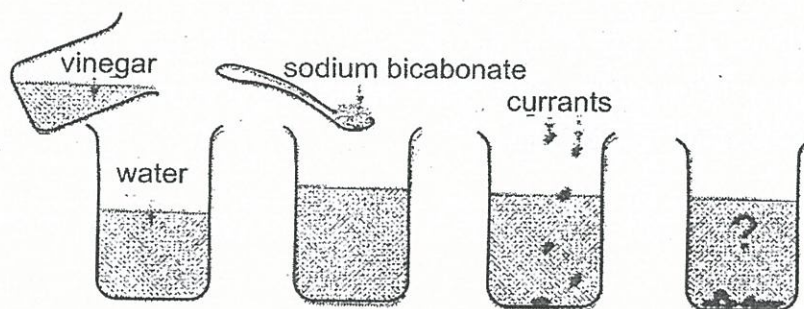
21. Which of these is an example of a physical property?

- A) corrosiveness and strength B) flammability and ability to conduct electricity
 C) melting point and solubility
 a) A, B b) A, B & C c) A only d) All of these

22. Magnesium and oxygen are heated and combine to make _____

- a) magnesium oxide b) manganese dioxide
 c) magnesium sulphate d) none of these

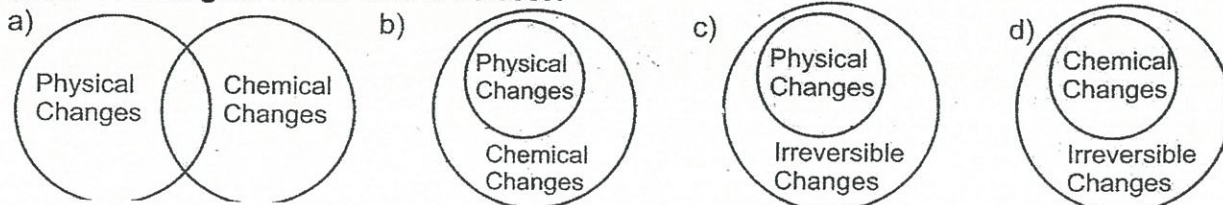
23



What happens to the currants? Why?

- a) They will grow bigger, as they absorb water
 b) They will float as sodium bicarbonate produces bubbles when it releases CO_2
 c) They will disintegrate as the vinegar and sodium bicarbonate break it down.
 d) There is no change in the currants.

24. Kavish has drawn some Venn diagrams regarding the relationship between different kinds of changes. Which one is correct?



25. Kalpesh performed two sets of experiments.

(i) He put iron bits in copper sulphate. It turned from blue to green.

(ii) He heated one end of a thin iron rod. It glowed red.

Which of these conclusions made by Kalpesh about his experiments is true?

- a) (i) is a physical and reversible change. b) (ii) is a chemical change.
c) (i) is a chemical and irreversible change. d) (ii) is an irreversible change.

26. Sometimes a chemical substance is used as to speed up or slow down a reaction. Such a substance is called a _____.

- a) catalyst b) acid c) base. d) indicator

27. Which of these may accompany a chemical change?

A) heat, light or any other such radiation B) change in smell C) change in colour

- a) A only b) B & C c) A, B & C d) B only

28. $\text{Fe} + \text{_____} + \text{_____} \rightarrow \text{Rust}$.

- a) $\text{CO}_2, \text{H}_2\text{O}$ b) $\text{O}_2, \text{H}_2\text{O}$ c) O_2, CO_2 d) $\text{H}_2\text{O}, \text{CO}$

29. Harish obtained crystals of copper sulphate by adding copper sulphate powder to a mixture of water and dilute sulphuric acid. What kind of change is this?

- a) Physical b) Chemical c) Partly chemical, partly physical d) None of these

30. A chemical reaction takes place when the chemicals are _____ each other.

- a) far away from b) in close contact with c) at equal distance from d) none of these

Direction : (Q 31-32) Match the Following:

31. A) Lime water i) NaHCO_3
B) Rust ii) Ca(OH)_2
C) Baking Soda iii) CH_3COOH
D) Vinegar iv) Fe_2O_3

a) A – i, B – iv, C – ii, D – iii

b) A – iii, B – ii, C – iv, D – i

c) A – ii, B – iv, C – i, D – iii

d) A – ii, B – iii, C – i, D – iv

32. A) Precipitation i) Chemical changes
B) Ash from burnt paper ii) Endothermic change
C) Firecracker explosion iii) Physical change
D) Evaporation of sweat iv) Exothermic change

a) A – i, B – iii, C – ii, D – iv

b) A – iii, B – i, C – iv, D – ii

c) A – iv, B – ii, C – i, D – iii

d) A – ii, B – i, C – iv, D – iii

Direction : (Q 33, 34) Select the Correct Match:

33. a) Respiration → temporary
b) Heat and light given out → chemical change
c) Vinegar → CaCO_3
d) $\text{Mg} + \text{O}_2$ → MgO
34. a) $\text{CO}_2 + \text{H}_2\text{O}$ → H_2CO_3
b) $\text{H} + \text{Cl}_2$ → HCl
c) Copper Sulphate → CuSO_2
d) Calcium Carbonate → CuCO_3

Direction : (Q 35, 37) Select the incorrect Match:

35. a) A change in which one or more new substances are formed is a chemical change or chemical reaction.
b) A base is neutralized by an acid.
c) Only the presence of water vapour is required for rusting.
d) New substances are sometimes formed in physical changes.
36. a) The process of depositing a layer of iron on zinc is called galvanization.
b) Blue vitriol is copper sulphate.
c) When ozone absorbs ultraviolet radiation, carbon dioxide is released.
d) Digestion is a physical process.
37. a) Burning of a candle is a physical change.
b) Melting of the candle is a physical change.
c) Both a & b are chemical changes.
d) Melting of the candle is a chemical change.

Direction : (Q 38-40) Select the Incorrect Statement:

38. a) Colour and size may change in a chemical change.
b) The chemical composition of a substance does not change in a physical change.
c) There is an exchange of energy during a chemical change.
d) Beating of metals into sheets is a chemical change.
39. a) Vinegar and baking soda produce carbon dioxide.
b) Carbon dioxide turns lime water milky.
c) New substances which are formed are called reactants.
d) Some substances form new substances only in their liquid form.
40. a) Galvanization is a chemical change.
b) Crystallization is a physical change.
c) Burning of paper is a non-reversible change.
d) A non-reversible change is usually a chemical change.

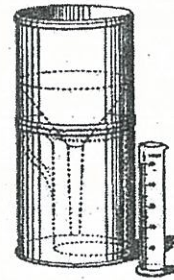
6. Weather, Climate and Adaptation

of Animal to Climate

Direction (Q1-30) Select the Correct Answer:

1. What does the instrument in the picture measure?

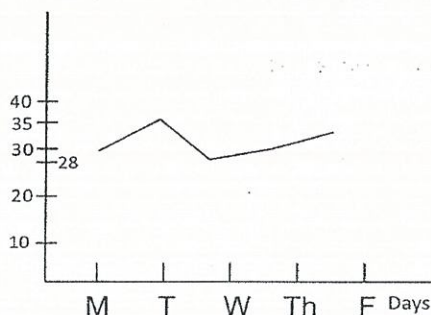
- a) Humidity b) Rainfall
 c) Snowfall d) Weather



2. "Today's weather is too humid." This means it is ____.

- a) rainy b) foggy c) moist d) dry

3.



Study the graph and answer.

Calculate the average temperature in ____ during the week.

- a) 30°C b) 31°C c) 32° d) 29°

4. Which is the longest day in the northern hemisphere?

- a) 21st June b) 22nd December c) 22nd June d) 21st December


5. The polar bears white fur helps them to ____.

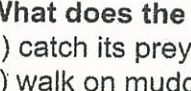
- A) Protect themselves from predators. B) Makes them invisible from their prey.
 C) Stay warm. D) All of these.
 a) A & C b) A & B c) D d) B & C

6. How do penguins stay warm?

- a) by flapping their wings b) by moving around constantly
 c) by hibernating in winters. d) by huddling together

7. **What kind of climate does North-east India have?**
 a) extremely cold b) hot and dry c) hot and moist d) wet


8.  **What is the function of the part labeled as 'X'?**
 a) to protect the camel from heat.
 b) to provide a place for the saddle.
 c) to store fat to be used when food becomes scarce in the desert.
 d) to control evaporation on hot days.

9.  **What does the feet of this creature help it to do?**
 a) catch its prey b) swim well
 c) walk on muddy ground d) scratch for worms



10. **Where, in India, can you spot the Siberian crane?**
 a) Bharatpur in Rajasthan b) Gir in Gujarat
 c) Solapur in Maharashtra d) Kaziranga in Assam


11. **The red-eyed frogs have sticky pads to ____.**
 a) walk on land b) catch its prey c) climb trees d) swim fast

12.  **This creature rarely comes down on the ground. Why?**
 a) It cannot walk.
 b) It is easily attacked by predators.
 c) It is a good climber.
 d) It is able to get sufficient food on the trees.

13. **"The average weather pattern of a place taken over a long period". This definition tells us of the ____.**
 a) weather b) climate c) atmosphere d) environment

14. **Name the instrument which measures humidity.**
 a) Thermometer b) Hygrometer c) Hydrometer d) Rain gauge

15. **Why do animals migrate?**
 a) To avoid the stormy conditions. b) To escape from their predators.
 c) To escape from harsh, cold weather condition. d) Both b & c.

16.  **The organism in the picture has a flattened body shape. This characteristic helps the organism to ____.**
 a) camouflage itself b) survive for a long period without food.
 c) hide in crevices and spaces easily. d) crawl quickly.

17. **Organisms in a particular environment have special teeth structure, feet, body shape and body coverings. These adaptations are ____.**
 a) Behavioral b) ornamental c) temporary d) structural

18 Which of these adaptations are true to this plant?

- i) Its roots contain air spaces to keep it afloat.
 - ii) It has leaves at the surface of the water to enable them to obtain sunlight.
 - iii) It has waxy leaves to prevent water from collecting on them.
- a) i & iii b) i, ii & iii c) ii & iii d) i & ii



19



The plant in the picture goes towards sunlight using 'X'. What is 'X'?

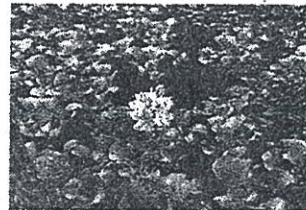
- a) branches
- b) leaves
- c) tendrils
- d) flowers

20. The plants in the desert have leaves modified into spines. This is _____.

- a) to reduce loss of moisture.
- b) to make them feel cool.
- c) so that animals will not eat them.
- d) to store food.



Water lettuce



Water hyacinth

21 Which of the following statements about them is true?

- a) There are air spaces in their stems, leaves and roots.
- b) Only the leaf stalks in water hyacinth has air spaces.
- c) Both plants have hairy upper leaf surface.
- d) Their roots do not help them to float.

22. Which statements are true about adaptations of a fish and a dolphin for movement in water?



- A: Each has a streamlined body shape.
 - B: Each has a tail to propel itself forward in the water.
 - C: Each has a swim bladder to keep it afloat in water.
 - D: Each has a pair of flippers to help it keep balance in water.
- a) A and D only b) A and B only
c) B and C only d) C and D only

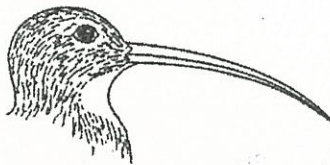
23 Birds have different types of beaks to help them survive in the environment. Study the pictures carefully.



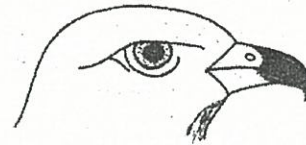
A) To scoop fish out of water



B) To peck the ground for insects



C) To draw nectar from flowers



D) To crush hard seeds and nuts

Which beaks have been correctly matched to their functions?

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

24



The picture below shows a plant in the swamp community. What is the plant part labelled X adapted for?

- a) for reproduction
b) for support
c) for respiration
d) none of these

25. Which of the following statements describe behavioral adaptation?

A: Eats a lot to generate body heat.

B: Bones of some organisms are hollow to reduce body weight.

C: Streamlined body of some organisms to reduce air or water resistance.

- a) A only b) A and B c) B and C d) All of these

26. Animals and plants adapt to their surroundings in various ways. Which one of the following correctly states the structural and behavioral adaptations of the organism mentioned?

	Organism	Structural	Behavioural
a)	Polar bear	Has white thick fur to blend into the surroundings	Cover his black nose with his paws when resting
b)	Lizard	Drops its tail when attacked	Has a flat body to allow it to move through small openings
c)	Bird	Has hollow bones to make its body lighter for flight	Has long wingspan for flight
d)	Plants	Fruits dispersed by water has husk	Fruits dispersed by wind has wing-like structure

27. Why do a large number of animals live in a tropical forest?

- a) There is plenty of water available. b) It has thick leafy foliage.
c) There are fewer predators in the forests. d) It has hospitable climatic conditions.

28. All changes in weather are caused by the _____.

- a) Sun b) Rain c) Earth d) Moon

29. Which of these countries lie in the polar region?

- a) Kenya b) England c) Finland d) Australia

30. The data mentioned below characterizes which state?

- i) It has extremes of temperature during day & night.
ii) It has little rainfall.
iii) It is extremely hot and dry.
a) Kerala b) Jammu & Kashmir c) Uttar Pradesh d) Rajasthan

Direction : (Q 31) Match the Following:

- | | |
|-----------------------------------|-----------------------------------|
| 31. A) Polar bear | i) Long, large beak |
| B) Red eyed frog | ii) Camouflage |
| C) Toucan | iii) Sticky pads |
| D) Humming bird | iv) Long, thin beak |
| a) A – iii, B – ii, C – iv, D – i | b) A – ii, B – iii, C – i, D – iv |
| c) A – ii, B – iv, C – i, D – iii | d) A – iii, B – ii, C – iv, D – i |

Direction : (Q 32- 34) Select the Correct Match:

32. a) Penguin → Stream lined body
b) Lion → Padded feet
c) Elephant → Long tail
d) Bearded ape → Carnivore
33. a) Climate → everyday changes
b) Weather → changes over long period
c) Temperature → changes daily
d) Humidity → heat
34. a) Adaption → animals of tropical forests
b) Hibernation → extreme climates
c) Camouflage → hunt for food
d) Migration → escape from harsh, climatic condition

Direction : (Q 35-36) Pick the Odd One Out:

35. a) temperature b) wind speed c) climate d) rainfall
36. a) polar bears b) seals c) dolphins d) penguins

Direction : (Q 37- 38) Select the Correct Statement:

37. a) All adaptations are structural.
b) A cactus stores water in its leaves.
c) Trees in dense forests grow taller to receive the first rainfall.
d) The elephant's ears keep it cool in summer.
38. a) The lion has sensitive hearing.
b) Siberian cranes migrate to cooler places.
c) The polar bear has one thick layer of fur.
d) The camel's humps store water.

Direction : (Q 39-40) Select the Incorrect Statement:

39. a) The weather remains same throughout the year.
b) The times of sunset and sunrise also change during the year.
c) Tropical regions have moderate temperature and heavy rainfall.
d) Climate has a great effect on all living things.
40. a) Animals adapt to survive in the conditions they live.
b) Hibernation is a way of surviving food scarcity and cold weather.
c) Flamingoes are migratory birds.
d) The salmon migrates from fresh water streams to the Atlantic ocean to lay eggs.

7. Winds, Storms and Cyclones

Direction : (Q 1-30) Select the Correct Answer:

1. **Why is it very difficult for meteorologists to forecast what will happen during a cyclone?**
 a) As cyclones are very violent b) As cyclones can change direction suddenly
 c) Because they do not have instruments to judge cyclones d) None of the above



2. **Identify this storm.**
 a) cyclone b) typhoon c) tornado d) hurricane
3. **What is used to measure the speed of the wind?**
 a) anemometer b) agrometer c) speedometer d) barometer
4. **Why do cyclones spin?**
 a) Because the wind pushes here and there b) Because of the spinning of the Earth
 c) As winds move from low pressure to high pressure d) As winds move from high pressure to low pressure


5. **The phenomenon of wind occurs because _____**
 a) of the uneven heating of the earth's surface by the sun. b) of the spinning of the Earth
 c) of moving air d) air exerts pressure

6. **Which of these are characteristics of thunderstorms?**
 a) gusty winds b) lightning c) heavy rain d) All of these

- 7** **Cyclones rotate in a ___i___ direction around an "eye." The ___ii___ is the calmest part of a hurricane.**
 a) anti-clockwise, border b) linear, centre c) counter-clockwise, eye d) easterly, edge

8. **Air moves from a region of _____**
 a) heat to cold b) high pressure to low pressure
 c) low pressure to high pressure d) storms to calmness

- 9** **Do cyclones form near equators? Why?**
 a) Yes, it is very hot there b) No, the Earth's spinning is the least there
 c) No, the winds there are very calm d) Yes, it is a region of high pressure

10. Air pressure is exerted _____.
 a) downwards b) upwards c) sideways d) any direction
11. Wind direction can be found out by using a _____.
 A) wind vane B) wind sock
 C) anemometer D) lighting an agarbatti and seeing which way the smoke blows
 a) A, B & C b) B & C c) A, B & D d) A & C
12. Which one of the following place is unlikely to be affected by a cyclone?
 a) Chennai b) Mangaluru (Mangalore) (iii) New Delhi (iv) Pune
13. Cyclone watch is issued _____ in advance of any expected storm.
 a) 24 hours b) 12 hours c) 16 hours d) 48 hours
14. A football takes the shape of a sphere which is very difficult to press. This is because _____.
 a) Air exerts pressure. b) The leather of the football is strong.
 c) Air is stronger than a football. d) None of these.
15. The formation of a cyclone depends on _____.
 A) the speed and direction of the wind B) temperature
 C) humidity D) air pressure
 a) A, C & D b) A, B & C c) B, C & D d) All of these
16. What are the things which we should not do during a thunderstorm?
 A) Rest under a tree B) Take shelter under an umbrella with a metallic end
 C) Lie down flat, if in an open place D) Sit near a window
 a) A, C & D b) A, B & C c) B, C & D d) All of these
-  Water was put to boil on four different burners at different times. Each of them thus had a different temperature. Air from which of these will rise the highest?
 a) Burner 1 – 10°C b) Burner 2 – 40°C c) Burner 3 – 0°C d) Burner 1 – (-10°C)
18. Which of these are other names for cyclones?
 a) hurricane b) typhoon c) tsunami d) both a) and b)
19. Cyclones affect the fertility of the soil by _____.
 a) flooding the land with fresh water b) flooding the land with saline water
 c) increasing the water table d) carrying away essential nutrients
20. Which of these technologies help in cyclone forecasts?
 a) radar b) computers c) satellites d) Both a & c
21. Which Indian coastline is more vulnerable to cyclones?
 a) western b) eastern c) both of these d) none of these

- 22. Statement 1 : Tornadoes may form within cyclones.
Statement 2 : High speed winds develop in the cloud region outside the eye of the cyclones.**
a) Statement 1 is true, Statement 2 is false. b) Statement 1 is false, Statement 2 is true.
c) Both statements are true. d) Both statements are false.
- 23. The greater the difference in pressure, the _____ the air moves.**
a) slower b) faster c) higher d) lower
- 24. _____ currents are formed when _____ air rises and _____ air rushes to take its place.**
a) conduction, cold, warm b) convection, cold, warm
c) convection, warm, cold d) concurrent, warm, cold
- 25. Which latitudes have low atmospheric pressure?**
a) 0° to 30° North and South b) 0° to 60° North and South
c) 30° to 60° North and South d) The poles.
- 26. In winter, _____ winds blow from the ocean to the land.**
a) autumnal b) winter c) monsoon d) summer
- 27. The formation of a very low pressure system with very high speed winds revolving around it, is called a _____.**
a) thunderstorm b) monsoon c) tornado d) cyclone
- 28. What lifts the water surface in the centre of the cyclone?**
a) high pressure in the eye of the cyclone b) low pressure in the eye of the cyclone
c) high pressure of arising winds d) low pressure of arising winds
- 29. Where is a tornado shelter located?**
a) in the attic of a house b) in the centre of a house
c) under the ground d) on the ground floor of a house
- 30. Which of these are effective safety measures with regard to a cyclone?**
A) A cyclone forecast and warning service B) Rapid communication to all people
C) Arrangement to move people quickly to safer areas
a) only A b) A & B c) A, B & C d) only B.

Direction : (Q 31,32) Match the Columns:

- 31** A. Moving air i) Funnel shaped cloud
B. Air ii) Wind
C. Tornado iii) Northwest
D. Monsoon iv) Pressure
a) A – iii; B – ii; C – i; D – iv
c) A – ii; B – i; C – iii; D – iv
b) A – ii; B – iv; C – i; D – iii
d) A – iv; B – i; C – iii; D – ii

32. A. Satellites
B. Lightning
C. Eye
D. Water wall
a) A – i; B – ii; C – iii; D – iv
c) A – ii; B – iii; C – i; D – iv
- i) Cyclone
ii) Track cyclones
iii) Thunderstorms
iv) Indication of approaching cyclone.
b) A – ii; B – iv; C – i; D – iii
d) A – iii; B – i; C – ii; D – iv

Direction : (Q 33-34) Pick the Odd One Out:

33. a) Wind vane b) Anemometer c) Tornado d) Moving air
34. a) monsoon b) cyclone c) eye d) hurricane

Direction : (Q 35 - 37) Select the Correct Statement:

35. a) The west coast of India is particularly vulnerable to cyclones.
b) Cyclones mainly form near the Poles.
c) Tornadoes are not frequent in our country.
d) A tornado shelter has ventilators and windows.
36. a) Uneven heating of land over the Rajasthan desert generates monsoon winds from the southwest.
b) In winter, the uneven heating generates winds from the northeast.
c) We can take shelter under an isolated tree during a thunderstorm.
d) A car is not a safe place to take shelter during a thunderstorm.
37. a) Warm air is lighter than cold air.
b) When wind speed increases, air pressure also increases.
c) Air moves from low to high pressure.
d) The greater the difference in pressure, the slower air moves.

Direction : (Q 38-40) Select the Incorrect Statement:

38. a) Cyclones are a type of severe spinning storm that occurs over the ocean near the tropics.
b) They must have a wind speed less than 119km/h
c) Cyclones are called typhoons near the South China Sea.
d) They start in the tropics.
39. a) We should not ignore the warnings issued by the meteorological department through TV, radio, or newspapers about a cyclone.
b) During a cyclone, do not go out just for the sake of fun.
c) Do not touch wet switches and fallen power lines after or during a cyclone.
d) Insist that the rescue force help you first during a calamity.
40. a) Cyclones can be very destructive.
b) High speed winds accompanying cyclones can cause damage to houses, communication systems, etc.
c) Winds play an important role in the formation of storms.
d) Cyclone warning is issued 6 hours in advance.

8. Natural Resources and their Conservation

Direction : (Q 1-30) Select the Correct Answer:

1. **Where would you find an aquifer?**

- a) above layers of hard rocks, above the water table.
- b) between layers of hard rocks, below the water table.
- c) between layers of hard rocks, above the water table.
- d) above layers of hard rocks, below the water table.

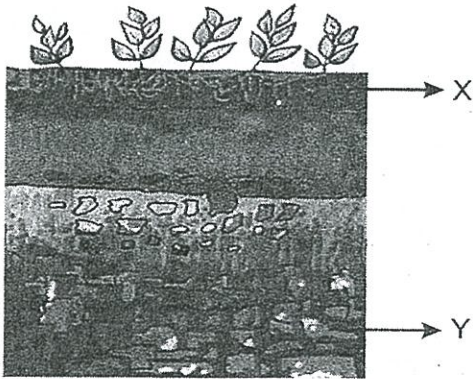
2. **Statement 1 – Water collected under the ground is known as the water table.**
Statement 2 – The water table does not get affected as long as we draw as much water as is replenished by natural processes.

- a) Statement 1 is true and Statement 2 is the correct explanation for Statement 1.
- b) Statement 1 and 2 are both false.
- c) Both Statement 1 and 2 are true but Statement 2 is not the correct explanation for Statement 1.
- d) Statement 1 is false but Statement 2 is true.

3. **Some social workers have transformed a dry area into a green land. They revived five dried up rivers. Where, in India, did they achieve this?**

- a) Gujarat b) Bihar c) Rajasthan d) Madhya Pradesh

4. **What are 'X' and 'Y' in this soil profile?**



- a) X – clay; Y – rocks
- b) X – humus, Y – rocks
- c) X – sand, Y – clay
- d) X – humus, Y – sand

5. **Which layer of soil is difficult to dig?**

- a) topsoil b) third layer c) bedrock d) second layer

6. **What kind of soil does the potter use to make 'matkas'?**

- a) sandy b) loamy c) clayey d) a mixture of all three

7. Which property of soil helps rice to grow?
 a) water retention b) porosity c) percolation d) none of these

8. Cotton grows in _____ soil.
 a) clayey b) loamy c) sandy d) sandy-loam

9. a)  b)  c)  d) 

The bucket represents _____.

- a) all usable ground water
- b) fresh water present in all the lakes and rivers of the world
- c) total fresh water on the Earth
- d) all water present on the Earth

10. Give one word for – “the technique of watering plants by making use of narrow tubings which deliver water directly at the base of the plant.”
 a) canal irrigation b) drip irrigation c) well irrigation d) spray irrigation

11. Water in one of these never varies. Which?
 a) lakes and rivers b) under the ground
 c) rivers and oceans d) seas and oceans

12. What are Khair and Sema?
 a) types of reptiles b) types of mammals
 c) types of trees d) types of birds

13. Which is the correct order of the food chain?

- a) grass → sun → deer → tiger
- b) sun → grass → deer → tiger
- c) sun → deer → grass → tiger
- d) tiger → deer → sun → grass

14. Dead plants and animals are converted to humus by _____.
 a) scavengers b) carnivores c) decomposers d) omnivores

15. Which of these will happen if forests disappear?
 A) Animals will lose their habitat.
 B) CO₂ in the atmosphere will increase.
 C) Floods.
 D) Soil erosion.
 a) A, B & C b) A, B & D c) A, C & D d) All of these

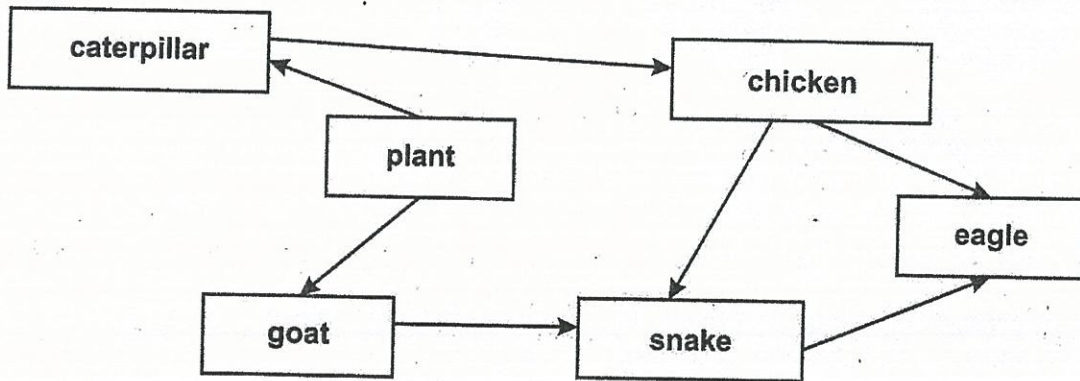
16. When is World Water Day celebrated?

- a) 22 March b) 21 June c) 22 December d) Never!

17. Which of these will happen if there is a decrease in plant population?

- A) increase in temperature.
 B) plant eaters will compete fiercely for food.
 C) animals will get less water.
 D) decrease in rainfall.
 a) A & B b) A, B & C c) A, B & D d) All of these

18. Study the food web below.



Which of the following events is/are likely to happen?

- A: When the population of snakes decreases, the population of eagles increases.
 B: When the population of snakes decreases, the population of goats increases.
 C: When the population of chickens die of bird flu, the population of plants decreases.
 D: When the population of goats decreases, the population of caterpillars decreases.
 a) A only b) B and C only c) C and D only d) A, B and D only

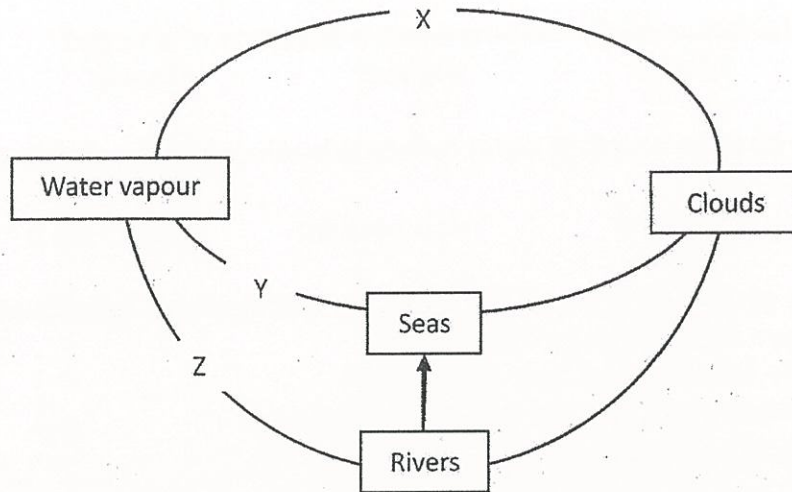
19. Which of these are wrongly classified?

	Renewable	Non – renewable
a)	Rivers	Solar energy
b)	Wind	Coal
c)	Tides	Diesel
d)	Waves	Nuclear energy

20. Which of these are long term effects of global warming?

- A) melting of glaciers and a rise in sea level
 B) global change in climate
 C) change in type of vegetation
 D) floods and droughts
 a) A & B b) B & C c) A, B & C d) All of these

21 Study the figure below and answer the questions.



	Evaporation occurs at	Condensation occurs at
a)	X	Y
b)	Y	Z
c)	Y and Z	X
d)	X and Y	Z

22. Which of these is not an advantage of non-renewable sources of energy?

- a) Cheap b) Environmentally friendly c) Readily available d) Efficient

23. Which of the following are possible ways to reduce pollution?

- A: Buy biodegradable soap and detergent.
 B: Buy items that are sold in reuseable containers.
 C: Bring your own bag when you go shopping for groceries.
 D: Turn off main switches of electrical appliances only at the end of each day.

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

24. What per cent of the Earth's water is available for our use?

- a) 0.006% b) 3.03% c) 2.01% d) 4%

25. Deforestation can lead to _____

- A : Destruction of the ozone layer B : Erosion of the top layer of soil
 C : Increase in carbon dioxide level D: Increase in levels of oxygen
 a) B & C b) A & C c) A, B & C d) B, C & D

26. Which of the following is a cause for increase in air pollution?

- a) Installation of more street lights.
 b) Burning down trees that are in the city area.
 c) Limiting the number of cars travelling on the road.
 d) Closing down of factories in the central area of the country.

27. What is sludge?

- a) By-products of wastewater treatment b) waste from homes and hospitals
c) Decomposed sewage d) None of these

28. Which one of the following is a non-renewable resource of energy?

- a) forests b) wind c) petrol d) water

29. Two chemicals used to disinfect water before releasing it to the distribution system are

- a) Chlorine b) ozone c) potassium d) Both a & b

30. Fossil fuels are energy sources. Which of the following about fossil fuels is true?

- a) They are always available and will not run out.
b) They are easily replaced once they are used up.
c) They are not easily replaced once they are used up.
d) They cannot be converted to other forms of energy.

Direction : (Q 31) Match the Columns:

- | | |
|----------------|----------------------------------------------------------------------------------------------|
| ★ A) Carnivore | i) a consumer that eats dead animals |
| B) Decomposer | ii) an organism that obtains nutrients from the blood or flesh of an animal |
| C) Scavenger | iii) an organism such as bacteria and fungi that breaks down dead organisms and their wastes |
| D) Detritivore | iv) a consumer that obtains its nutrients from organic matter |

- | | | | |
|------------|----------|---------|---------|
| a) A – i; | B – iii; | C – ii; | D – iv |
| b) A – ii; | B – iii; | C – i; | D – iv |
| c) A – iv; | B – i; | C – ii; | D – iii |
| d) A – ii; | B – iv; | C – i; | D – iii |

Direction : (Q 32-34) Pick the Odd One Out:

32. a) biomass b) hydroelectric c) geothermal d) nuclear
33. a) Paddy b) wheat c) grams d) cotton

Direction : (Q 34) Select the Correct Match:

- a) A-horizon - rich in humus and minerals
b) B-horizon - made up of small lumps of rocks with cracks
c) C-horizon - hard and difficult to dig with a spade and crevices.
d) Bedrock - lesser amount of humus but more of minerals, generally harder and more compact

Direction : (Q 35-37) Select the Correct Match:

35. a) The clayey soil is more aerated than sandy soil.
b) Sandy soil is suitable for peanuts and sandy-loam is for cotton crops.
c) The clayey soil is light and has more water content.
d) In sand, the proportion of small particles is relatively higher.
36. a) Wastewater is never passed through bar screens.
b) There is an indirect relationship between sanitation and disease.
c) Solids like faeces settle at the bottom are called sludge.
d) During the "Sewage Treatment", the speed of wastewater is increased to allow sand, grit and pebbles to settle down.
37. a) If there is no dustbin in sight, we should throw litter on the sides of the road.
b) We should adopt good sanitation practices sometimes.
c) We must be responsible and maintain our water sources in a healthy state.
d) Poor sanitation leads to decrease in diseases.

Direction : (Q 38-40) Select the Incorrect Statement:

38. a) Biomass is plant matter that is used as an energy source.
b) Alcohol made from sugar cane can be used as an environmentally-friendly alternative to petrol.
c) Hydroelectric power stations are expensive to build and expensive to run.
d) The advantages of using renewable energy sources are that they won't run out and they are relatively friendly to the environment.
39. a) The percolation rate of water is same in different types of soil.
b) Erosion of soil is more severe in areas of little or no surface vegetation, such as desert or bare lands
c) The use of pesticides and fertilizers should be minimised.
d) Substances which pollute the soil are waste products, chemicals and pesticides.
40. a) Sludge is one of the by-products of wastewater treatment along with biogas.
b) The sludge is transferred to a separate tank where it is decomposed by the aerobic bacteria.
c) Air is pumped into the clarified water to help aerobic bacteria to grow.
d) Dried sludge is used as manure, returning organic matter and nutrients to the soil.

9. Respiration in Organisms

Direction : (Q 1-30) Select the Correct Answer:

1. Which of these is an anaerobe?

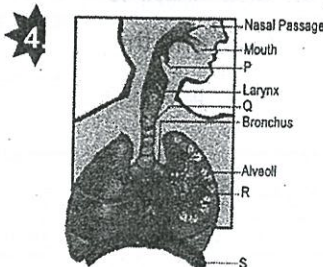
- a) fern b) yeast c) seaweed d) dolphin

2. The trachea emerges from the _____ up to a short distance between the two lungs where it divides into two branches called _____. The wall of the trachea is kept distended by e-shaped _____.

- a) epiglottis, lungs, bones b) vocal cords, bronchi, arteries
c) larynx, bronchi, cartilage d) nose, vocal cords, nodules

3. When we inhale, the diaphragm _____ while the ribs move _____.

- a) moves upwards, inwards and down b) expands, sideways
c) relaxes, outwards and down d) flattens, up and outwards



Label the diagram:

- a) P – epiglottis, Q – bronchiole, R – diaphragm, S - trachea
b) P – epiglottis, Q – trachea, R – bronchiole, S - diaphragm
c) P – bronchiole, Q – trachea, R – diaphragm, S - epiglottis
d) P – diaphragm, Q – trachea, R – epiglottis, S - bronchiole

5. Rakesh went mountain climbing. As he climbed higher, he began to feel the following – dizziness and lack of muscular co-ordination. Later, he had to be carried down. What caused this?

- a) Lack of oxygen b) Decrease in oxygen content
c) Too much carbon dioxide in the air d) Decrease in nitrogen content.

6. What is the normal breathing rate in a human adult?

- a) 60 breaths per minute b) 40 breaths per minute
c) 12 – 18 breaths per minute d) 24 – 30 breaths per minute

7. When does a frog breathe through the lungs?

- a) When it is hibernating b) When it is jumping on land
c) When it is floating d) When it is swimming

8. Arrange the following steps involved in respiration of plants in the correct order.

- | | |
|-------------------------|--------------------------------------------|
| P) Release of energy | Q) Oxidation of stored food |
| R) Absorption of oxygen | S) Formation of CO ₂ and water. |
| a) R – Q – P – S | b) P – Q – R – S |
| c) P – R – Q – S | d) Q – S – R – P |

9. Spiracles help the _____ to breathe.

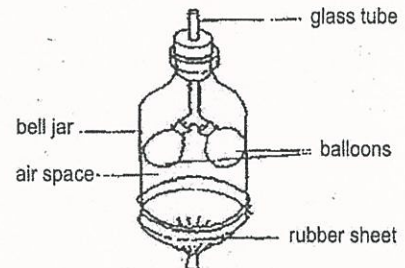
- a) fish b) earthworm c) cockroach d) frog

10. The percentage of oxygen to carbon dioxide in inhaled air is _____.

- a) 21% : 0.04% b) 15% : 12.5% c) 16.4% : 4.4% d) 15.8% : 6.9%

11. Which of the following statements about the function of the lungs is true?

- a) The lungs remove oxygen from the body.
 b) The lungs remove carbon dioxide from the body.
 c) The lungs transport oxygen produced by the heart.
 d) The lungs transport carbon dioxide produced by the heart.



12. The diagram below shows a model of the human respiratory system.

What do the glass tube, bell jar, balloons and rubber sheet represent?

	glass tube	bell jar	balloons	rubber sheet
a)	rib cage	lungs	windpipe	diaphragm
b)	windpipe	rib cage	lungs	diaphragm
c)	rib cage	windpipe	diaphragm	lungs
d)	diaphragm	lungs	rib cage	windpipe

13. The picture below shows Mike blowing a trumpet.

Which of the following correctly describes what happens to his ribs, diaphragm and chest when he blows into the trumpet?

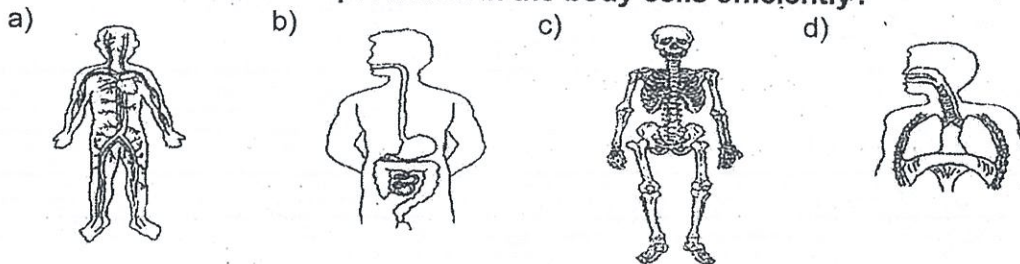
	Ribs	Diaphragm	Chest
a)	Move in and downwards	Move downwards	Bigger
b)	Move in and downwards	Move upwards	Smaller
c)	Move out and upwards	Move downwards	Bigger
d)	Move out and upwards	Move upwards	Smaller



14. Which of the following differences is incorrect about the air that is inhaled and air that is exhaled?

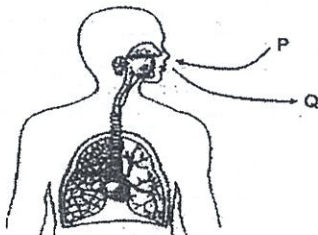
	Inhaled air	Exhaled air
a)	more oxygen	less oxygen
b)	less carbon dioxide	more carbon dioxide
c)	higher temperature	lower temperature
d)	less water vapour	more water vapour

15. Some organ systems in our body are given below. Which two systems work together to remove carbon dioxide produced in the body cells efficiently?



- a) A and B b) A and D c) B and C d) B and D

16. The diagram below shows the human respiratory system. P represents the air from the surroundings that enters the system while Q represents the air that leaves the respiratory system.



Which of the following statements about P and Q are correct?
 A: Q can make limewater turn milky.
 B: P contains not only oxygen but nitrogen also.
 C: Q contains carbon dioxide that the body is trying to get rid of.
 D: P enters the nose and travels down the windpipe but only oxygen in P enters the lungs.

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

17. The gills of a fish are located under its _____.

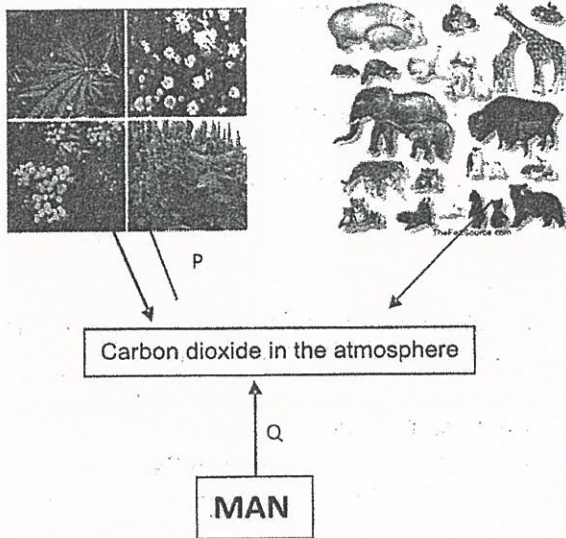
- a) frontal fins b) gill-slits c) throat d) operculum

18. The equation below shows the process of respiration.

Oxygen + _____ = _____ + _____ + water vapour

- a) energy, sugar, carbon dioxide b) starch, carbon dioxide, energy
 c) glucose, energy, carbon dioxide d) water, carbon dioxide, starch

19. This diagram shows how carbon dioxide is added to and removed from the air during the processes such as P and Q. What are processes P and Q?



	P	Q
a)	Reproduction	Photosynthesis
b)	Decomposition	Breathing
c)	Respiration	Decomposition
d)	Photosynthesis	Respiration

20. The air that we breathe out has a _____ than the air that we breathe in.

- a) lower temperature b) greater amount of oxygen
c) greater amount of carbon dioxide d) smaller amount of water vapour

21. What causes fermentation?

- a) Aerobic respiration b) Breathing
c) Anaerobic respiration d) Photosynthesis

22. Where is the diaphragm situated?

- a) between the lungs and abdomen b) between the lungs and ribs
c) between the thorax and lungs d) between the thorax and abdomen

23. How does the amoeba breathe?

- a) through its mouth b) with its tentacles
c) through its body surface d) it does not need to breathe

24. Where does diffusion of gases take place?

- a) diaphragm b) alveoli c) bronchioles d) trachea

25. Which are the byproducts of respiration?

- a) Oxygen, carbon dioxide b) Carbon dioxide, water vapour
c) Oxygen, water vapour d) only water vapour

26. _____ is produced in plants during anaerobic respiration.

- a) ethanol b) lactic acid c) carbon dioxide d) glucose

27. These are present in both plant and animal cells.

- a) mitochondria b) stomata c) bronchioles d) alveoli

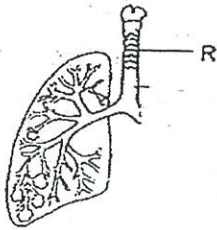
28. The condition when air tubes in the lungs get inflamed is called _____.

- a) Wheezing b) Lung cancer c) Bronchitis d) Asthma

29. When Ravi went to the gym and ran on the treadmill, he got cramps. Why did this happen?

- a) Because of lack of oxygen b) Too much exhalation caused more CO_2 to be exhaled.
c) There was accumulation of lactic acid. d) Too less glucose was produced.

30. The diagram below shows part of the human lungs.



The inner part of tube R is lined with tiny hairs called the cilia. These are important as if the air that you breathed in is polluted as they _____.

- a) widen the size of the tube
b) moisten the air leaving and entering the lungs
c) assist in gaseous exchange that will take place in the lungs
d) trap dust and other particles that entered the nose with the air taken in

Direction : (Q 31-32) Match the Columns:

31

- A) Yeast
B) Leaves
C) Earthworm
D) Millipede

- a) A – ii, B – i, C – iv, D – iii
c) A – ii, B – iii, C – i, D – iv

- i) stomata
ii) Trachea
iii) Alcohol
iv) Skin

- b) A – iii, B – i, C – iv, D – ii
d) A – iii, B – ii, C – iv, D – i

32. A) Stomata

- B) Bronchiole
C) Trachea
D) Dome-shaped partition

- a) A – i, B – iii, C – iv, D – ii
c) A – iii, B – ii, C – iv, D – i

- i) Alveoli
ii) Windpipe
iii) Diaphragm
iv) Lenticels

- b) A – ii, B – iv, C – iii, D – i
d) A – iv, B – i, C – ii, D – iii

Direction : (Q 33-34) Pick the Odd One Out:

33. a) Lungs b) Diaphragm c) Trachea d) Abdomen

34. a) Larynx b) Pharynx c) Voice box d) Adam's apple

Direction : (Q 35 - 37) Select the Correct Statement:

35. a) Respiration is a chemical process. b) It occurs outside the cells.
c) No energy is released during this process. d) Breathing is also a chemical process.

36. a) Insects breathe through their skin.
b) Fishes breathe through a blowhole in their fins.
c) The hydra has special organ for breathing.
d) Frogs can breathe with their lungs, skin or mouth.
37. a) The diaphragm is concave in shape.
b) A new born baby breathes 60 breaths per minute.
c) The right lung is smaller than the left lung.
d) The chest cavity is behind the abdominal cavity.

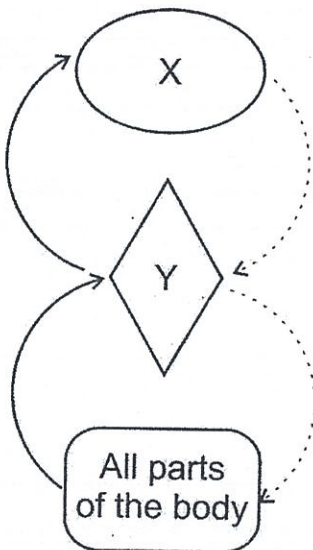
Direction : (Q 38-40) Select the Incorrect Statement:

38. a) The lungs contain millions of alveoli.
b) The epiglottis is a muscular flap covering the food pipe.
c) One complete breath includes both inspiration and expiration.
d) Sneezing occurs when an irritant enters the nasal cavity.
39. a) Food is broken down in photosynthesis.
b) Respiration is a continuous product.
c) Respiration occurs in cells containing oxyhemoglobin.
d) Oxygen is a byproduct of photosynthesis.
40. a) The frog breathes through its mouth cavity when it needs more oxygen.
b) Hiccups occur due to a blockage in the respiratory tract.
c) The condition where there is more CO_2 and less O_2 in the blood is called asphyxiation.
d) During hibernation, the frog breathes through its skin.

10. Transportation in Organisms

Direction : (Q 1-30) Select the Correct Answer:

1. Veins carry ____ blood.
 a) oxygenated b) deoxygenated c) both of these d) any one of these
2. Diffusion occurs in ____.
 a) insects b) birds c) unicellular organisms d) all multicellular organisms
3. Where can you feel your pulse?
 a) temple b) wrist c) neck d) all of these
4. Why is blood red?
 a) Because of the presence of hemoglobin.
 b) Because of iron in the plasma.
 c) Because the heart is red.
 d) Because it shows good health.
5. The diagram below shows the pathways of blood, carrying either oxygen or carbon dioxide. Letters X and Y represent 2 organs of the body. The arrows represent the movement of blood in the body. What is X? Complete the key by writing the names of the gases carried by the blood.



Key	Movement of blood carrying gases
→	Blood rich in _____
→	Blood rich in _____

- a) heart, oxygen, carbon dioxide
- b) lungs; carbon dioxide, oxygen
- c) heart, carbon dioxide, oxygen
- d) lungs, oxygen, carbon dioxide

6. The functions of blood in our body are

- A) Carry nutrients and oxygen to all parts of our body.
 B) Maintain body temperature.
 C) Remove waste from various parts of our body.
 D) Collect oxygenated blood from the various parts our body.
- a) A and B b) A, B and C c) B, C and D d) A, C and D

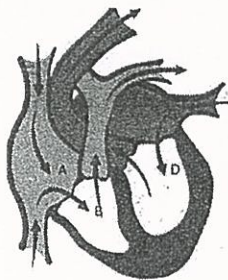
7. Arrange the parts of the circulatory system in the order of how blood is transported in our circulatory system.

- A) Lungs B) Heart C) Rest of the body D) Veins E) Arteries
- a) A → B → D → C → E → A b) A → B → E → D → C → A
- c) A → B → E → C → D → B d) A → C → E → D → B

8. Your blood needs to travel from your toe to your finger. Which is the shortest path taken by the blood travelling from a toe to a finger in a human body?

- a) toe --> heart --> lungs --> heart --> finger
 b) toe --> heart --> lungs --> finger --> heart
 c) toe --> lungs --> heart --> finger--> heart
 d) toe --> lungs --> heart --> lungs --> finger

9.



The diagram shows the movement of blood within the heart. The arrows show the direction of blood flow. Blood from the lungs flows to part C and then to part D. Blood that flows towards the lungs flows to part A and then to part B. Which of these is correct regarding this?

	A	B	C	D
a)	deoxygenated	deoxygenated	oxygenated	oxygenated
b)	oxygenated	oxygenated	deoxygenated	deoxygenated
c)	deoxygenated	oxygenated	oxygenated	deoxygenated
d)	oxygenated	deoxygenated	deoxygenated	oxygenated

10. Who needs dialysis?

- a) a person who has problems with his heart. b) a person whose kidneys do not function.
 c) a person whose lungs are punctured. d) a person who has meningitis.

11. Pulmonary vein → _____ blood to _____
 Pulmonary artery → _____ blood to _____

- a) oxygenated, lungs, deoxygenated, heart b) deoxygenated, heart, oxygenated, lungs
 c) deoxygenated, lungs, oxygenated, heart d) oxygenated, heart, deoxygenated, lungs

12. What is the function of the WBCs?

- a) To clot blood b) To fight against germs which enter the body
 c) To thin the blood when required d) To carry hemoglobin

13. Refer to the figure and say which polythene bag contains water droplets and why?



- Polythene X because transpiration takes place through leaves.
- Polythene Y because transpiration takes place through stems.
- Polythene X because photosynthesis takes place through leaves.
- Polythene Y because respiration takes place through stems.

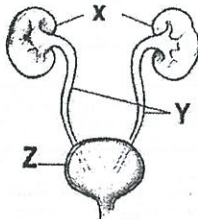
14. Kaajal fell down and hurt her knee. After a while, her bleeding stopped as blood congealed over the wound to form a clot. Which of these does the job of clotting?

- WBCs
- RBCs
- Platelets
- Plasma

15. The _____ transports food to all parts of the plant.

- Xylem
- Phloem
- Root hair
- Tissue

16. Label the diagram.



- X – Bladder, Y – Ureters, Z – Kidneys
- X – Kidneys, Y – Ureters, Z – Urinary bladder
- X – Kidneys, Y – Urethra, Z – Ureters
- X – Bladder, Y – Urethra, Z – Kidneys

17. Rajen is not feeling well. The doctor advised him to do a urine test. He said – (i) The urine test will help us diagnose your problem. (ii) We come to know the health of the body organs by a urine examination.

- Statement (i) is false, statement (ii) is true.
- Both statements are false.
- Statement (i) is true; statement (ii) is not the correct explanation for statement (i).
- Both statements are true and statement (ii) is the correct explanation for statement (i).

18. The urine we excrete is stored in the _____.

- kidney
- bladder
- ureter
- urethra

19. Who discovered the circulation of blood?

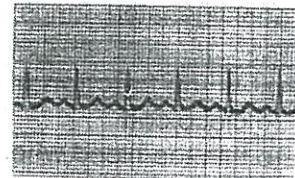
- Isaac Newton
- Thomas Alva Edison
- William Harvey
- Albert Einstein

20. Which of these is not a process of removal of waste products?

- transpiration
- perspiration
- defecation
- transfusion

21. The picture shows a reading of a test taken by a doctor. What is this test? Why is it taken?

- Electrocardiogram, it is taken to check the working of the heart.
- Bone density test, it is taken to check the health of bones.
- Urine test, to check whether the kidneys are functioning well
- Stress test, to check the health of lungs



22 Complete the statement:

In plants, water is absorbed from soil by _____ and reach leaves and other parts through _____ xylem vessels while food is transported through the _____ phloem.

- a) root, phloem, xylem b) root hair, xylem, phloem
c) xylem, phloem, roots d) phloem, xylem, root hair

23. What can a person suffer from if the number of WBCs in blood increases beyond the normal number?

- a) Heart attack b) Hypertension c) Blood cancer d) Paralysis

24. The urethra is the tube that carries urine from the urinary bladder to the _____

- a) outside of the body b) kidneys c) ureter d) urinary bladder

25. Sweat contains _____

- a) water, excess salt and ammonia b) excess water, excess salt, urea and uric acid
c) excess water and salt only d) only ammonia

26. The tubes which connect the kidneys to the urinary bladder are _____.

- a) ureters b) urethra c) arteries d) veins

27. Animals like sponges and hydra do not have a circulatory system.

- a) True b) False c) Partly true d) Any of these

28. The lower chambers of the heart are called _____.

- a) auricles b) ventricles c) cavities d) chamberlets

29. Capillaries are _____.

- a) tiny veins b) thin platelets c) miniscule tissue d) extremely thin arteries

30. Which of these carries blood from the lungs to the heart?

- a) pulmonary artery b) vena cava c) pulmonary vein d) aorta

Direction : (Q 31) Match the Columns:

- 31** A) Liver i) filter the blood to form urine, which is excess water, salt, urea and uric acid
B) Skin ii) removal of excess carbon dioxide
C) Kidneys iii) removal of excess water, salt
D) Lungs iv) produces urea and uric acid as a by-product of the breakdown of proteins

- a) A – ii; B – iii ; C – i; D - iv
b) A – i; B – iii ; C – ii; D - iv
c) A – iv; B – iii ; C – i; D - ii
d) A – iii; B – ii ; C – iv; D - i

Direction : (Q 32-36) Pick the Odd One Out

32. a) arteries b) veins c) capillaries d) air sacs
33. a) ureter b) urine c) urethra d) urinary bladder
34. a) stomata b) xylem c) phloem d) stem
35. a) salt b) urea c) blood d) water
36. a) hydra b) fly c) paramecium d) amoeba

Direction : (Q 37 - 38) Select the Correct Statement:

37. a) Veins carry oxygenated blood. b) Arteries are located below our skin.
c) Capillaries connect the veins and arteries. d) The heart is a special kind of tissue.
38. a) When blood reaches the kidneys, they contain both useful and harmful substances.
b) The unused substances are removed as urine.
c) We feel hot when we sweat.
d) Fishes excrete cell waste as uric acid.

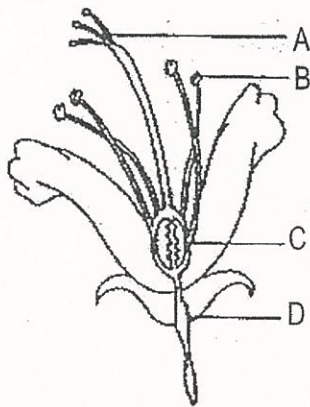
Direction : (Q 39-40) Select the Incorrect Statement:

39. a) There are 3 types of blood vessels in our body.
b) Arteries have very strong walls because they carry blood under high pressure.
c) Veins do not have very strong walls.
d) Veins divide into narrow vessels called capillaries.
40. a) The walls of the heart are made up of muscles.
b) These muscles contract and relax rhythmically.
c) Our heart beats during the day.
d) Doctors use a stethoscope which tells of the condition of the heart.

11. Reproduction in Plants

Direction : (Q 1-30) Select the Correct Answer:

1. Which one of the following parts is wrongly matched to its function?



	Part	Function
a)	A	Attracts insects
b)	B	Produces pollen grains
c)	C	Develops into a fruit
d)	D	Holds and supports the flower

2. Which of the following are characteristics of insect-pollinated flowers?

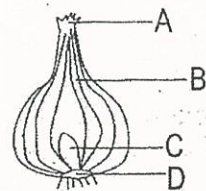
- a) Nectar is usually present. b) Petals are big in size.
 c) The flowers grow in a bunch. d) The anthers are sticky.

3. Vegetative reproduction is so called because _____.

- a) it is reproduction through seeds.
 b) new plants are produced from roots, stems, leaves and buds.
 c) new plants are produced without seeds or spores.
 d) it is a combination of all of the above.

4. Which part of the onion will grow into a new plant?

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



5. A rose plant grows with _____.

- a) seeds b) flowers c) cuttings d) spores

6. The eye of the potato is important as _____.

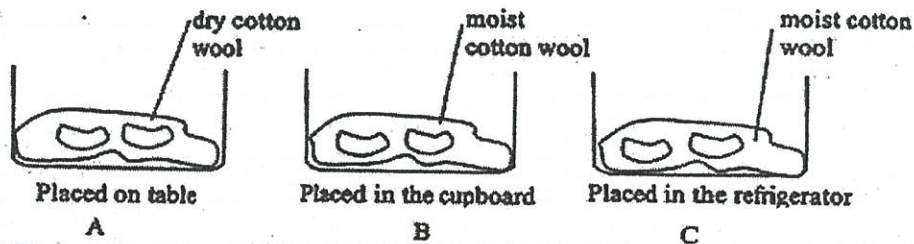
- a) it can see with its help. b) seeds grow on it.
 c) flowers grow on it. d) new plants can grow out of its.

7 The given table compares the various ways in which plants reproduce. What would you place in X and Y?

<u>Plants</u>	<u>Reproduce from</u>
Ferns	Spores
Rose	Cutting
X	Leaves
Ginger	Y

- a) X – Cactii; Y – Stem
 b) X – Bryophyllum; Y – Buds (on stem)
 c) X – Sweet Potato; Y – Leaves
 d) X – Banana; Y – Seeds.

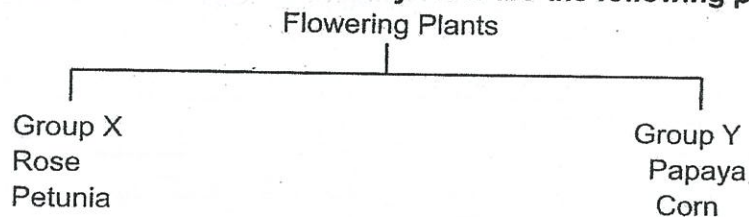
8. Dhruv placed two seeds in each cup as shown in the diagram below.



In which cup will the seeds not germinate?

- a) A only b) C only c) A and B only d) A and C only

9 Look at the classification table carefully. How are the following plants grouped?



Group X

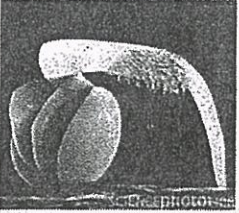
- a) Plants with seeds
 b) Flowers with male parts
 c) Bisexual flowers
 d) Plants which reproduce through stem cuttings

Group Y

- Plants without seeds
 Flowers with female parts
 Unisexual flowers
 Plants which reproduce through buds

10 **Statement 1: Stamens are the male reproductive part of the flower.**
Statement 2: The flowers which contain only the stamen are unisexual flowers.

- a) Statement 1 is true, statement 2 is false.
 b) Both statements are true.
 c) Statement 1 is false, statement 2 is true.
 d) Statement 1 is true, statement 2 is partly true.

11.  Jai planted 3 beans and noticed that the roots which appeared always grew downwards. This is because _____.

- a) The seeds are very heavy
- b) The seeds grow towards darkness
- c) The seeds do not like the air above the ground
- d) The seeds grow towards water

12. One word for – process of fusion of male and female gametes is _____.

- a) pollination b) fertilization c) propagation d) reproduction

13. How is self-pollination different from cross-pollination?

Cross-pollination

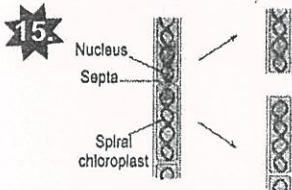
- a) When insects carry the pollen
- b) When pollen carries from one flower to any other
- c) When pollen lands on another flower of the same plant
- d) When pollen lands on the petals of the flower

Self-pollination

- a) When wind carries the pollen
- b) When pollen stays on the same flower
- c) When pollen lands on the stigma of the same flower
- d) W hen pollen lands on the leaves of the flower

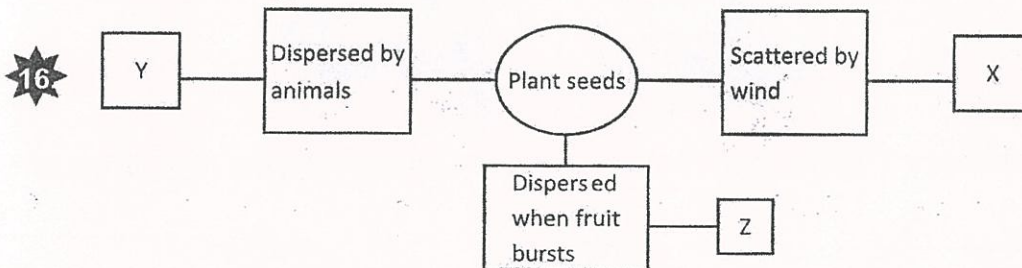
14. When the gametes fuse, a _____ is formed.

- a) zygote b) ovum c) ovule d) ovary



The given figure shows a type of asexual reproduction. Identify it.

- a) Budding b) Regeneration
- c) Fragmentation d) Fission



- | | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <p>X</p> <ul style="list-style-type: none"> a) Castor b) Coconut c) Urena d) Drumstick | <p>Y</p> <ul style="list-style-type: none"> Maple Drumstick Papaya Xanthium | <p>Z</p> <ul style="list-style-type: none"> Madar Sunflower Peas Balsam |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|

17. Arrange the process of fertilization in the correct order.

- a) Fusion → Gametes → Zygote → Embryo
- b) Gametes → Fusion → Zygote → Embryo
- c) Embryo → Gametes → Fusion → Zygote
- d) Gametes → Fusion → Embryo → Zygote

18. Which of these develops from spores?

- | | | | |
|----------|----------|----------|----------|
| A) Ferns | B) Yeast | C) Moss | D) Algae |
| a) A & B | b) B & C | c) A & C | d) A & D |

19. The androecium contains an _____ (i) and _____ (ii). Each _____ (i) contains _____ (iii).

- | | | |
|-------------------|--------------|------------------|
| a) i) anther | ii) filament | iii) pollen sacs |
| b) i) pollen sacs | ii) anther | iii) filament |
| c) i) stigma | ii) pistil | iii) ovary |
| d) i) pistil | ii) stigma | iii) ovary |

20. The agents of cross-pollination are _____.

- a) wind
- b) water
- c) insects, birds and animals
- d) all of these

21. Vegetative reproduction is a kind of _____ reproduction.

- a) sexual
- b) asexual
- c) bisexual
- d) none of these

22. _____ marks the beginning of the process of reproduction.

- a) fertilization
- b) fusion
- c) germination
- d) pollination

23. The fruit develops from the _____.

- a) ovum
- b) ovule
- c) zygote
- d) ovary

24. In which way are these similar?

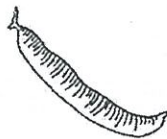
- a) They store food.
- b) They develop from leaves.
- c) They develop from buds.
- d) They are all fruits.



25. The diagram below shows 4 different seeds. Which is correctly matched to its method of dispersal?



A



B



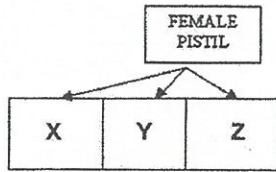
C



D

- a) A – animals; B- wind ; C- water; D – bursting of fruit
- b) A – wind; B- animals; C- water; D – bursting of fruit
- c) A – wind; B- bursting of fruit; C- water; D – animals
- d) A -bursting of fruit; B- wind ; C- water; D – animals

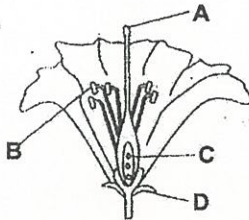
26.



What are X, Y and Z?

- a) Ovary, style, anther
- b) Style, anther, stamen
- c) Ovary, style, stigma
- d) Anther, stamen, ovary

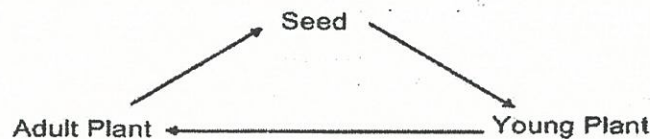
27.



Which parts of the flower are required in the reproduction of a new plant?

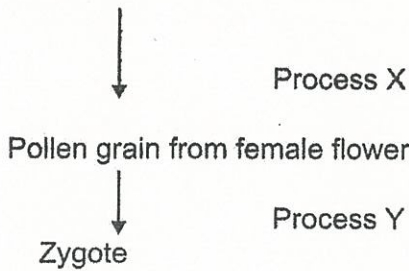
- a) A and B only
- b) A and C only
- c) A, B and C only
- d) A, B, C and D

28. The life cycle of plants is shown below. Which of alternatives given do not undergo this cycle?



- a) Mango
- b) Peas
- c) Rose
- d) Fern

29. Pollen grains from male flower



What are Processes X and Y?

- a) X - pollination, Y- fertilization
- b) X - pollination, Y- fusion
- c) X - germination, Y- fertilization
- d) X - pollination, Y- propagation

30. Which part of the flower makes pollen?

- a) anther
- b) stamen
- c) style
- d) stigma

Direction : (Q 31,32) Match the Columns:

- | | |
|---------------|----------------|
| 31. A) Stamen | i) Gynocium |
| B) Pistil | ii) Cucumber |
| C) Unisexual | iii) Androcium |
| D) Bisexual | iv) Mustard |
- a) A – i; b – iii; C – iv; D – ii
 - b) A – ii; B – iii; C – iv; D – i
 - c) A – iii; B – i; C – ii; D – iv
 - d) A – ii; B – iv; C – i; D – iii

32. A) Sexual reproduction
B) Female gametes
C) Male gametes
D) Yeast
- i) ovule
ii) bud
iii) fusion
iv) pollen grains
- a) A – iii; B – i; C – iv; D – ii
b) A – ii; B – iii; C – i; D – iv
c) A – i; B – ii; C – iv; D – iii
d) A – iv; B – ii; C – i; D – iii

Direction : (Q 33,34) Pick the Odd One Out:

33. a) gametes b) zygote c) fusion d) pollination
34. a) sunflower b) urena c) maple d) madar

Direction : (Q 35- 37) Select the Correct Statement:

35. a) Pollination is the first step to germination.
b) Green sepals manufacture food.
c) The stigma produces pollen grains.
d) The ovary becomes a flower.
36. a) Fertilization takes place in asexual reproduction.
b) A flower has six whorls.
c) The style is the tube through which pollen grains travel down the ovary.
d) Spores are seen on the top of leaves.
37. a) The agents of seed dispersal are stamens and pistils.
b) Seed dispersal helps the plant to prevent overcrowding.
c) Spiny seeds with hooks are eaten by animals.
d) Hairy seeds stick to coats of animals.

Direction : (Q 38-40) Select the Incorrect Statement:

38. a) Balsam is dispersed when its fruit bursts.
b) Embryo develops into a zygote.
c) Fertilization happens after pollination.
d) Flower is the reproductive part of the plant.
39. a) Non-flowering plants may reproduce from spores.
b) Yeast reproduces by budding.
c) Spirogyra reproduces by budding.
d) Hydra reproduces by spores.
40. a) Flowering plants can reproduce from seeds only.
b) Non-flowering plants can reproduce from both seeds and spores.
c) Ferns reproduce from spores that are found on the upper surface of the leaves.
d) Some flowering plants can reproduce from plants parts


12.

Motion and Time

Direction : (Q 1-3) Select the Correct Answer:

1. Rest and motion are ____ terms.
 a) same b) relative c) unrelated d) inter-changeable


2. How can we decide whether an object is slower or faster than the other?
 a) By the time it takes. b) By the distance it takes.
 c) By the time it takes to go in a certain direction. d) By the time it takes to cover a given distance.


3.  A bus takes 5 hours to cover 80km. A car takes 3 hours to cover 48km. Which of them is faster?
 a) The bus b) The car c) Both are same.
 d) Sometimes the car is faster while at times the bus goes faster.

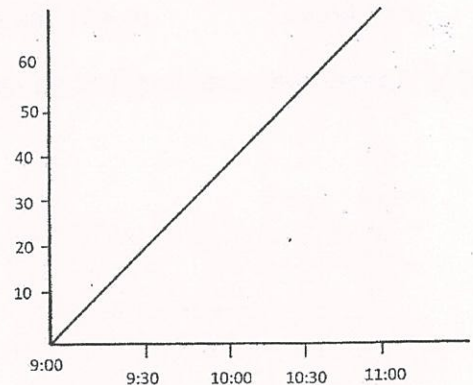
Direction (Q4-7) Study graph and Select the Correct answers for the given Questions :

4. How much distance had the bus covered at 10am?
 a) 20 km b) 40 km c) 50 km d) 45 km

5. What time was it when the bus had completed 50 km?
 a) 10 am b) 10:30 am c) 11 am d) 10:15 am

6.  What is the average speed of the bus?
 a) 45 km/hr b) 40 km/hr
 c) 50 km/hr d) 30 km/hr

7.  What distance will the bus have covered by 12 noon?
 a) 80 km b) 65 km
 c) 100 km d) 200 km



Direction : (8 -30) Select the Correct Answer:

8. Rakesh, Mohan, Anuj and Sanjay decided to go to Agra. Each person took his own car. Rakesh soon reached an empty highway while Mohan got stuck in traffic. Anuj took a

route which was a busy curved road while Sanjay took an empty curved road. Who had achieved uniform motion?

- a) Rakesh b) Sanjay c) Anuj d) Mohan

9. The motion of a swing is ____.

- a) translatory b) random c) vibratory d) oscillatory

10. Which of these is correct?

a) $\text{Speed} = \frac{\text{Time}}{\text{Distance}}$

b) $\text{Speed} = \text{Distance} \times \text{Time}$

c) $\text{Time} = \frac{\text{Distance}}{\text{Speed}}$

d) $\text{Distance} = \frac{\text{Time}}{\text{Speed}}$

11. A nanosecond is ____ of a second.

- a) one thousandth b) one millionth c) one billionth d) one ten-thousandth

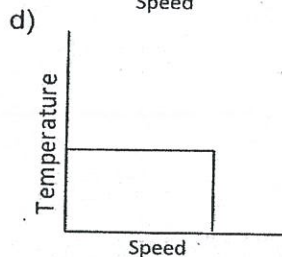
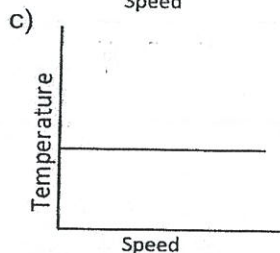
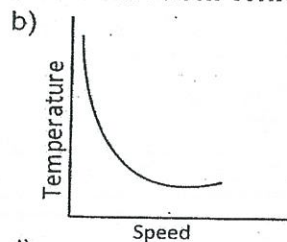
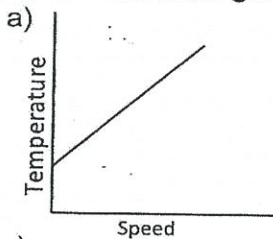
12.  The picture depicts a ____.

- a) sundial
b) water clock
c) sand clock
d) mud clock

13. Priya's school is 15 km from her house. If her bus travels at a speed of 12 km/hr, how much time does she take to reach the school?

- a) 1 hour b) 48 minutes c) 45 minutes d) 1 hour 15 minutes

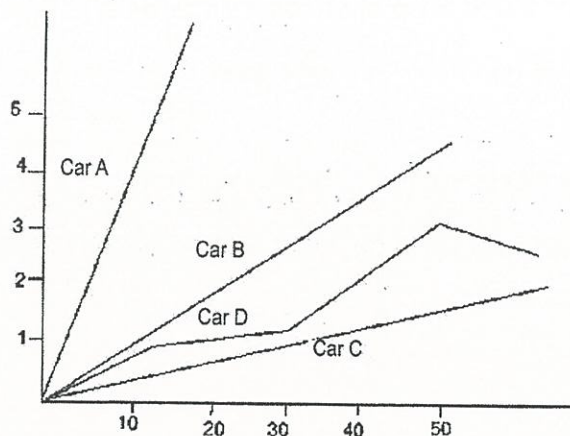
14. Speed-distance graph of an object in uniform motion. Which comes to a sudden half is -



15. If we increase the length of a pendulum, it's ____ also will increase.

- a) oscillations b) weight c) time period d) frequency

16. Which car is moving the fastest?



- a) Car A
- b) Car B
- c) Car C
- d) Car D

17. The amplitude of a pendulum is ____.

- a) time taken by one complete oscillation.
- b) maximum displacement of the bob from its mean position.
- c) number of oscillations made by the pendulum.
- d) None of these.

18. The pendulum completes one oscillation when it moves from ____.

- a) A → B
- b) A → O → B
- c) O → A → B
- d) B → O → A.

19. If a body moves with uniform speed, then

- a) its initial velocity is zero.
- b) its final velocity is greater than the initial velocity.
- c) its acceleration is zero.
- d) its change in velocity is zero.

20. A truck covers a distance of 30 km in 20 mins. That means it travels at a speed of ____.

- a) 25m min⁻¹
- b) 250m s⁻¹
- c) 25m s⁻¹
- d) 250cm s⁻¹

21. Which of the following is a device to measure speed of a vehicle?

- a) anemometer
- b) speedometer
- c) motometer
- d) barometer

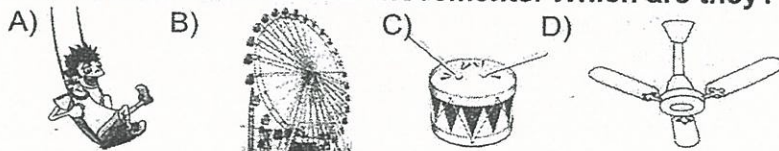
22. The basic unit of speed is ____.

- a) km/ min
- b) m/ min
- c) m/ s
- d) km/ hr

23. The movement of a pendulum is oscillatory or ____.

- a) periodic
- b) non – periodic
- c) random
- d) vibratory

24. Two of these have similar movements. Which are they?

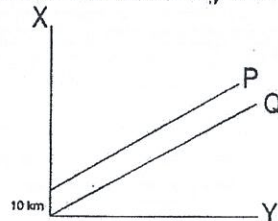


- a) A & C
- b) B & D
- c) B & C
- d) C & D

25. A track event at the School Sports Day is 1.5km long. Arun take 5min to cover it. This speed is ____.
- a) 30km/ min b) 50m/ min c) 3m/ s d) 5m/ s

26. Light travels at the speed of ____.
- a) 3×10^8 m/ s b) 30×8^{10} m/ s c) 10×3^8 m/ s d) 3×10^8 km/s

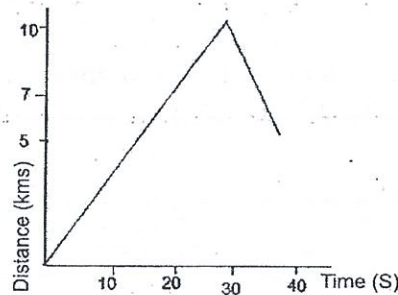
27. The graph shows the time and distance covered by two trucks P and Q. Which of the following statements is true?



- a) P is moving faster than Q.
 b) Q is moving faster than P.
 c) P is always 10m ahead of Q.
 d) Q is always 10m ahead of P.

28. Which of these are scalar qualities?
- a) velocity b) distance c) weight d) none of these
29. When a body starts from rest, it has ____ initial velocity.
- a) unit b) zero c) more d) less

30. Study the distance time graph of a toy car given here and choose the incorrect statement.



- a) The highest speed of the toy car is 0.5m/ s.
 b) The toy car is slowest between 10 and 20sec.
 c) At 10secs, the speed decreased drastically.
 d) None of these.

Direction : (Q31-32) Match the Columns:

31. Column 1

- i) Seconds Pendulum
 ii) Speed
 iii) Frequency (oscillation)
 iv) Distance
 a) i – A, ii – B, iii – D, iv – C
 c) i – B, ii – C, iii – A, iv – D

Column 2

- A) m/ s
 B) 5m
 C) 2s
 D) 1s
 b) i – C, ii – A, iii – D, iv – B
 d) i – D, ii – A, iii – B, iv – C

32. Column 1

- i) Mosquito
 ii) Resolution of the Earth
 iii) Swing
 iv) Guitar String

Column 2

- A) Oscillatory
 B) Random
 C) Periodic
 D) Vibratory

- a) i – A, ii – C, iii – B, iv – D b) i – C, ii – B, iii – A, iv – D
c) i – D, ii – A, iii – B, iv – A d) i – B, ii – C, iii – A, iv – D

Direction (Q33-34) Pick the Odd one Out:

33. a) distance b) mass c) velocity d) length
34. a) m/ s b) min/ m c) km/ min d) km/ hr

Direction : (Q 35- 37) Select the Correct Statement:

35. a) The basic unit of time is second.
b) A child on a Ferris wheel undergoes translatory motion.
c) Speed is the distance moved by an object.
d) Buses and trucks move at uniform speed.
36. a) A month was measured by number of sunrises and sunsets by our ancestors.
b) The bob is the metallic ball in a pendulum.
c) The time taken by the pendulum to complete one oscillation is called frequency.
d) There are 720000×365 seconds in a year.
37. a) Symbols of all units are written in singular.
b) The smallest time interval that can be measured is a minute.
c) One microsecond is one-billionth of a second.
d) The odometer measures time in nanoseconds.


Direction : (Q 38-40) Select the Incorrect Statement:

38. a) Periodic events are used for measuring time.
b) Speed of objects help us to know which is faster than the other.
c) Distance = $\frac{\text{Time}}{\text{Speed}}$ d) Time = $\frac{\text{Distance}}{\text{Speed}}$
39. a) An eagle travels at 720 km/hr. Its speed in m/s is 20 m/s.
b) Either an odometer or a speedometer measures the speed of a vehicle.
c) Clocks that measure small periods of time are used for scientific research.
d) A sundial measures time.
40. a) A quartz clock is most accurate.
b) The length of the pendulum affects the time period.
c) The mean position of a bob is its extreme position.
d) The number of oscillations made by the pendulum in one second is its frequency.

13. Electric Current & its Effect

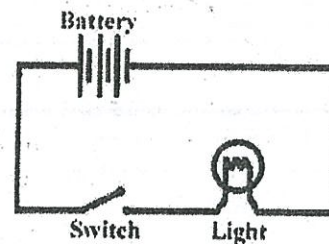
Direction : (Q 1-30) Select the Correct Answer:

1. The combination of two or more cells is called a ____.
- a) bulb b) battery c) circuit d) holder

2.  This is the symbol for ____.
- a) battery b) electric cell c) electric bulb d) wire

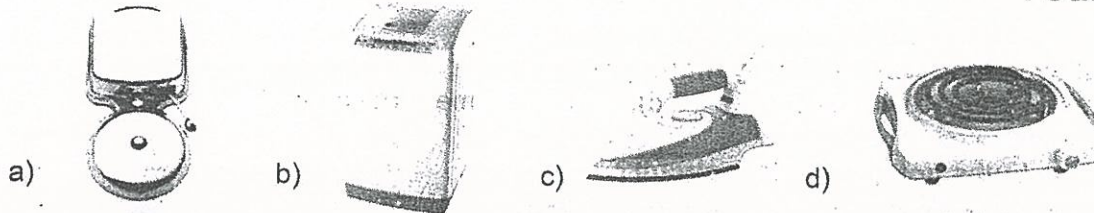
3. Why is a battery used in a car called so?
- a) Because it is made of many electric cells. b) Because it supplies electricity.
c) Because it is a source of electricity. d) Because it completes an electric circuit.

4. Which of these statements is true regarding this circuit?
- a) It is a complete circuit so the electricity.
b) The bulb cannot glow as the switch is open.
c) The wire is broken.
d) The electric current is following the wrong way.



5. Which of these is not a source of energy?
- a) Solar cell b) Electro magnet c) Car battery d) Generator
6. The presence and direction of flow of electricity is detected by a ____.
- a) ammeter b) galvanometer c) voltameter d) voltmeter
7. Which of these are electrically charged?
- a) proton b) neutron c) electron d) the nucleus itself
8. Conductors have ____ electrons.
- a) fixed b) many c) no d) free
9. Pencil cells ____.
- a) are primary cells b) cannot be recharged
c) some special cells can be recharged d) all of these
10. Electroplating is done using the ____ effect of electricity.
- a) heating b) magnetic c) chemical d) mechanical

11. Which of these uses the mechanical effect of electric current?



12. Which of these does not use the heating effect of electric current?

- a) mixer b) hair dryer c) oven d) toaster

13. There is loss of energy in ordinary bulbs as they give out _____.

- a) heat b) light c) heat & light d) electricity

14. Identify a method used to coat one metal with another using an electric current.

- a) electromagnetism b) electroplating
c) electrolytism d) electrolysis

15. Which of these does not use electromagnets?

- a) spin driers b) electric bells c) telephones d) computers

16. The electric board charges us(a family) according to the _____ of energy used.

- a) amperes b) joules c) kilowatt/hour d) volts/hr

17. 1kw/hr = _____ of power used in an hour.

- a) 100V b) 1000W c) 1000V d) 10000W

18. A circuit breaker is similar to a _____.

- a) switch b) generator c) fuse d) cell

19. A fuse is made of an alloy because _____.

- a) It melts and breaks a circuit when too much current flows through it.
b) It makes a crackling noise when too much current flows through it.
c) It trips and opens the circuit when too much current flows through it.
d) It closes the circuit.

20. It is necessary for electric appliances to have _____ mark.

- a) AGMARK b) KSK c) SI d) ISI

21. _____ measures potential difference.

- a) voltmeter b) ammeter c) galvanometer d) potential meter

22. Which of these is not required for the flow of electrons in a circuit?

- a) a cell b) a wire c) a fuse d) a bulb

23. The SI unit of potential difference is

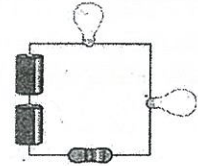
- a) joule b) ampere c) volt d) watt

24. Which alloy is fuse wire generally made from?

- a) nichrome b) tin-lead c) magno-chrome d) chromo-lead

25. Why do the bulbs not glow in this circuit?

- a) Because the switch is open. b) The batteries are not placed correctly.
c) The circuit is broken. d) None of these.



26. Ranganath tried to find glass pieces from a heap of garbage using an electromagnet. Did he find them? Why?

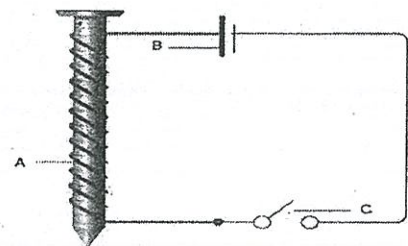
- a) Yes, because glass is attracted to the electromagnet.
b) No, because an electromagnet does not attract glass
c) Yes, due to the static electricity produced.
d) No, the electromagnet loses its properties as soon as it is near glass.

27. In an electromagnet formed by passing an electric current, the magnetic field lasts _____

- a) for 5 hours b) till its half life
c) as long as current passes through it d) forever

28. Label the following:

- | | | |
|---------------------|------------------|------------------|
| a) A) Electromagnet | B) Switch | C) Battery/ Cell |
| b) A) Switch | B) Battery/ Cell | C) Electromagnet |
| c) A) Switch | B) Electromagnet | C) Battery/ Cell |
| d) A) Electromagnet | B) Battery/ Cell | C) Switch |



29. When a magnetic compass is brought near a current carrying wire,

- a) It loses its magnetism b) The magnetic needle is deflected
c) There is no effect on the magnetic needle. d) None of these.

30. A bulb has the making 40W, 220V. What does it signify?

- a) 40 units of current will flow in the bulb.
b) 220 units of current will flow in the bulb.
c) The bulb is connected across 40 joules, 220 volts of energy is consumed.
d) The bulb is connected across 220 joules, 60 volts of energy is consumed for every second.

Direction : (Q 31,32) Match the Columns:

- | | |
|-----------------------------------|-----------------------------------|
| 31. A) Cell | i) Secondary source |
| B) Generator | ii) Insulator |
| C) Fuse | iii) Primary source |
| D) Rubber | iv) Safety device |
| a) A – i, B – iii, C – iv, D – ii | b) A – iii, B – iv, C – ii, D – i |
| c) A – iii, B – i, C – iv, D – ii | d) A – i, B – iii, C – ii, D – iv |

32. A) The flow of charge in a closed circuit
 B) A device that can open and close a circuit.
 C) A combination of one or more cells of the same kind.
 D) The path along which electrons can flow.
- i) Battery
 ii) Electric Circuit
 iii) Electric Current
 iv) Switch
- a) A – iii, B – iv, C – i, D – ii b) A – ii, B – i, C – iv, D – iii
 c) A – iii, B – ii, C – i, D – iv d) A – iv, B – iii, C – i, D – ii

Direction : (Q 33,34) Select the Correct Answer:

33. a) dry cell b) generator c) solar cell d) wet cell
34. a) electric motors b) electric bells c) electric toaster d) telephones

Direction : (Q 35- 37) Select the Correct Statement:

35. a) Electrolysis is the method of coating one metal with another using an electric current.
 b) Rechargeable batteries are composed of nickel and cadmium.
 c) A wet cell cannot be recharged.
 d) Electrolysis is used to protect metal from corrosion.
36. a) The SI mark ensures that an appliance is safe.
 b) An element in an electric iron makes it colder.
 c) CFLs reduce wastage.
 d) A 40-watt bulb is more powerful than a 60-watt bulb.
37. a) The fuse is based on the heating effect of electricity.
 b) An electromagnet does not attract safety pins.
 c) Steel wool is used in fuses.
 d) Fuses are used in modern buildings instead of MCBs.

Direction : (Q 38-40) Select the Incorrect Statement:

38. a) Modern houses have circuit breakers.
 b) It needs to be replaced every time a heavy electric current passes through it.
 c) It serves the same purpose as a fuse.
 d) A fuse is a safety device.
39. a) Joule = Watt x Second
 b) An electric meter measures energy used in house.
 c) All household appliances consume the same amount of energy.
 d) Watt is the unit for power.
40. a) Lights, fans, computers should be switched off when not needed.
 b) We should use low electricity consuming devices.
 c) We must install windmills and solar cells for energy.
 d) A solar cell converts sound energy to electrical energy.

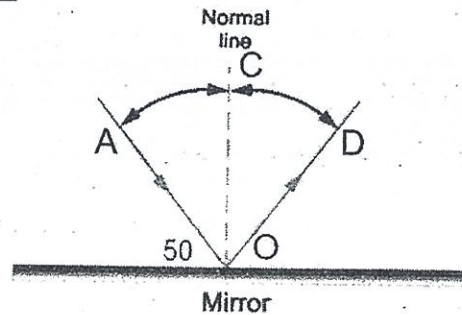
14.

Light

Direction : (Q 1-30) Select the Correct Answer:

1. What is the angle of incidence in the given diagram?

- a) 50° b) 90°
 c) 60° d) 40°



2. Which is the normal ray in the diagram?

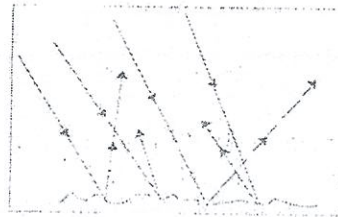
- a) BO b) CO
 c) DO d) AO

3. Which is the angle of reflection in the diagram?

- a) $\angle BOA$ b) $\angle BOC$ c) $\angle COD$ d) $\angle DOA'$

4. What does this figure depict?

- a) regular reflection
 b) diffused reflection
 c) refraction
 d) none of these

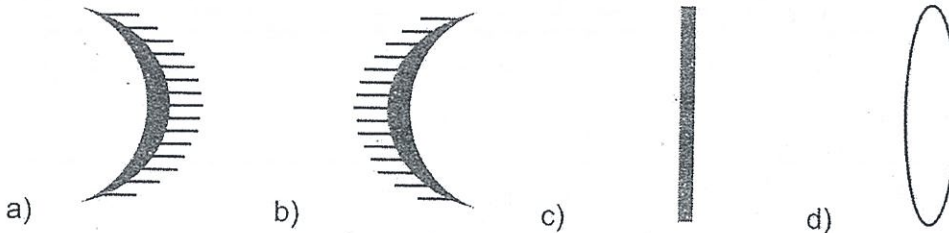


5. Which of these are characteristics of images formed by a plane mirror?

- i) The image is formed behind the mirror and is of the same size.
 ii) It is laterally inverted.
 iii) In the mirror, image is formed further away from the object.

- a) i & iii b) i & ii c) i, ii & iii d) ii & iii

6. Which of these is a convex mirror?



7. Plane mirrors are used in making a

- a) telescope b) microscope c) kaleidoscope d) all of these

8. Why is word 'AMBULANCE' written right to left and inverted?



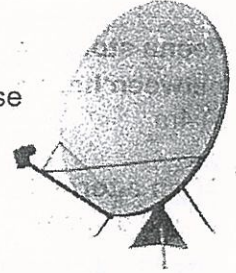
- a) To get everyone's attention.
- b) Because the ambulance driver can read it easily from his seat.
- c) Because the car driver sees a laterally inverted image of the word 'AMBULANCE' in his rear view mirror.
- d) None of these.

9. What kind of mirror is used in this?

- a) plane
- b) convex
- c) concave
- d) any of these

10. We are able to see an object as light gets ____ from it.

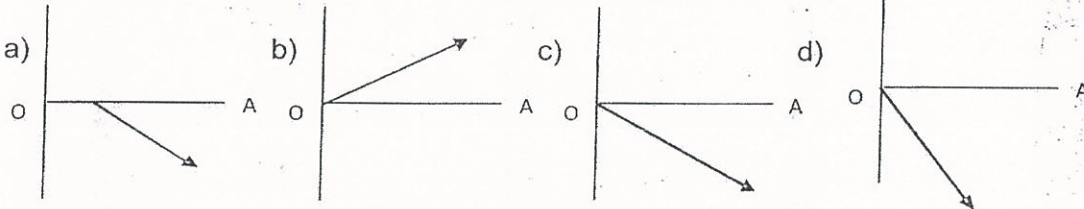
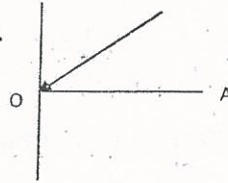
- a) reflected
- b) deflected
- c) emitted
- d) refracted



11. If the angle of incidence is 45° . What is the angle of reflection?

- a) 90°
- b) 45°
- c) 60°
- d) 15°

12. Match the incident ray with the reflected ray.



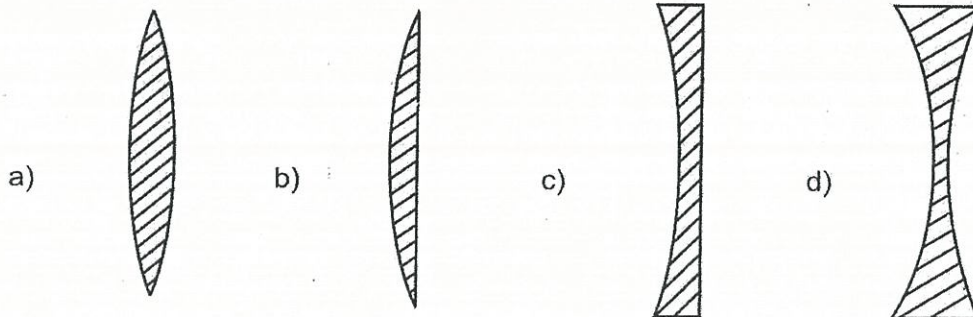
13. If we look at our image in a plane mirror, we see ____.

- a) Our right hand is on the right side of the mirror.
- b) Our image is upside down.
- c) Our left hand is on the left hand side.
- d) Our right hand is on the left side of the mirror.

14. When an object is at an infinite distance from a concave mirror, the image formed is

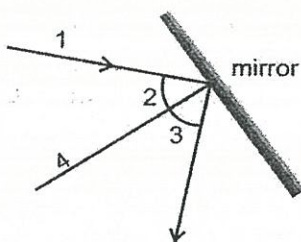
- a) real, inverted, same size.
- b) real, inverted and diminished.
- c) real, erect, magnified.
- d) virtual, erect, magnified.

15. An eye doctor uses a ____ mirror as the image is ____.
- a) Concave; virtual, erect, magnified. b) Concave; real, erect & diminished
c) Convex; virtual, erect & diminished d) Convex; real, inverted, magnified
16. The phenomenon of lateral inversion is seen in a ____.
- a) Convex mirror b) Plane mirror c) Concave mirror d) None of these
17. Reena stood 3m away from a plane mirror. She then moved 1m away. Now the distance between her and the image is ____.
- a) 4m b) 8m c) 6m d) 3m
18. When a torch is shone at a book, its shadow is formed behind it, because
- a) light diffuses b) light travels fast c) light is reflected d) light travels in a straight line
19. The image formed by a plane mirror cannot be
- a) virtual b) diminished c) erect d) same size
20. We see objects because of ____ of light.
- a) regular reflection b) diffusion c) diffused reflection d) refraction
21. Which of the following shows a converging lens?



22. A magnifying glass is a ____.
- a) concave mirror b) convex lens c) convex mirror d) concave lens

23

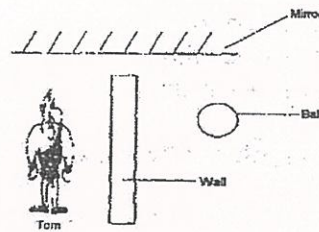


Label the diagram.

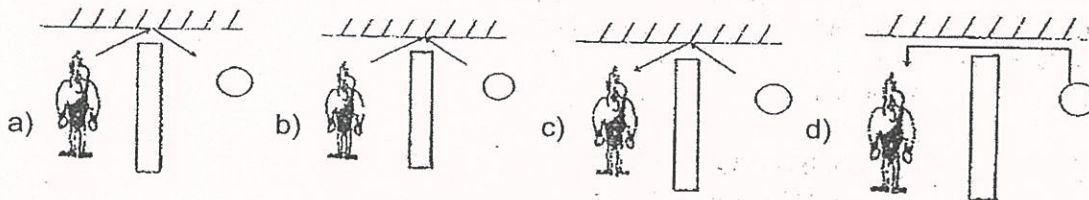
- a) angle of incidence, angle of reflection, incident ray, normal
b) angle of reflection, incident ray, angle of incidence, normal
c) normal, incident ray, angle of incidence, angle of reflection
d) incident ray, angle of incidence, angle of reflection, normal

24. Which letters of the alphabet do not change in a mirror?
- i) H ii) M iii) S iv) B
a) i & iii b) i & ii c) iii & iv d) All of these

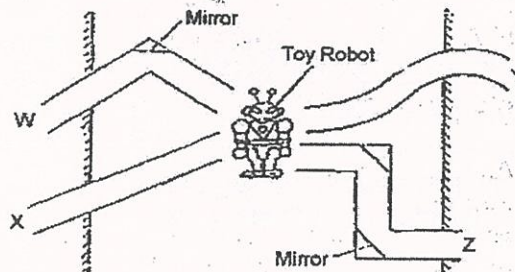
25. Refer to the diagram below. A wall separated Tom from a ball but he was still able to see it.



Which one of the following shows how this was possible?



26. Four cardboard tubes were used to see the toy robot as shown below. The robot could only be seen through tubes W, X and Z.



What property(ies) of light does the situation above show?

- A: Light can be reflected.
 B: Light travels in a straight line
 C: Light can pass through transparent objects.
- a) A only b) B only c) A and B only d) A, B and C only
27. In a game of basketball, the ball is bounced (with no spin) toward a player at an angle of 40 degrees to the normal. What will the angle of reflection be?
 a) 30 b) 45 c) 60 d) 40
28. Rajvi held a stainless steel spoon to see her reflection. She saw that her reflection was
 a) inverted on the other side of the spoon b) erect on the inner side of the spoon
 c) erect on the other side of the spoon d) inverted on the inner side of the spoon
29. The point on the principal axis through or towards which rays of light converge is called the
 a) pole b) radius c) centre d) focus

30. A mirage is observed when

- a) Density of air decreases with increase in height. b) There is too much heat and light.
c) There is too much evaporation. d) Earth acts like a mirror.

Direction : (Q 31,32) Match the Columns:

31

Column 1

- A) Virtual image
B) Real image
C) Convex mirror
D) Plane mirror.
a) A – i, B – iv, C – ii, D – iii
c) A – iii, B – iv, C – i, D – ii

Column 2

- i) Erect virtual diminished
ii) Lateral inversion
iii) Can be obtained on a screen
iv) Cannot be obtained
b) A – ii, B – iii, C – i, D – iv
d) A – iii, B – i, C – iv, D – ii

32

Column 1

- A) Pole
B) Convex mirror
C) Concave lens
D) Convex lens
a) A – ii, B – iv, C – iii, D – i
c) A – iv, B – iii, C – i, D – ii

Column 2

- i) Wing mirror of cars
ii) Real, inverted image
iii) Geometric centre of spherical mirror
iv) Erect, virtual, smaller image than object
b) A – iii, B – ii, C – iv, D – i
d) A – iii, B – i, C – iv, D – ii

Direction : (Q 33, 34) Select the Correct Match:

33. a) Real Image
b) Real Image
c) Virtual Image
d) Virtual Image

Always inverted
formed behind a mirror
can be obtained on screen
rays actually meet at a point

34. a) Pole
b) Focus
c) Focal length
d) Principal axis

Point in which rays converge
Geometric centre of spherical mirror
The distance from focus to pole of mirror.
Line passing through pole and radius of curvature.

Direction : (Q 35) Pick the Odd One Out:

35. a) Solar cooker b) Projector lamp c) Wing mirror of car d) Headlights of cars

Direction : (Q 36- 37) Select the Correct Statement:

36. a) Plane mirrors are used in microscopes.
b) The image is inverted in a plane mirror.
c) The distance of the object from the mirror is equal to the distance of the image from the mirror, in case of a plane mirror.
d) If the object is 5ft tall, the image in the plane mirror is 2½ft tall.

37. a) A reflected ray is the one which strikes the mirror.
b) The angle between the incident ray and reflected ray is the angle of reflection.
c) The incident, reflected and normal rays are each in their own plane.
d) The angle of incidence is equal to angle of reflection.

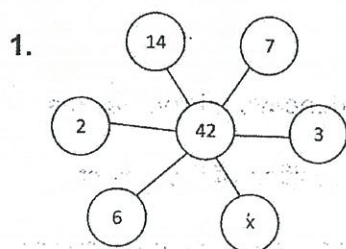
Direction : (Q 38-40) Select the Incorrect Statement:

38. a) Light rays are reversible.
b) The best reflectors of light are opaque objects.
c) Reflection is the bouncing of light from a surface.
d) All objects reflect light.
39. a) A ray travelling parallel to the principal axis after reflection from a concave mirror, passes through the focus.
b) The nature of images formed by a concave mirror varies with the position of the object.
c) The above statement holds true for a convex mirror also.
d) When the reflecting surface of a cave mirror is on the cave side, then it is a concave mirror.
40. a) White light is composed of seven colours.
b) A rainbow is formed due to reflection of light.
c) A prism shows us how the seven colours of a rainbow form Sun light.
d) A rainbow is a complete circle around the earth.

15.

Mental Ability

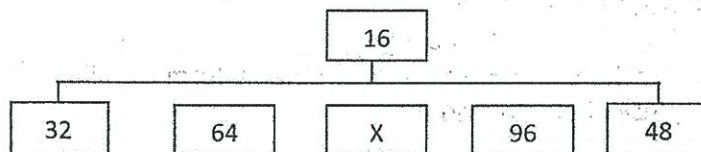
Direction : (Q 1-100) Select the Correct Answer:



The given diagram shows factors of 42. The value of 'x' is ____.

- a) 5 b) 8 c) 21 d) 9

2. The given diagram shows the multiples of 16. A possible value for 'x' is ____.



- a) 80 b) 24 c) 84 d) 68

3. Which of the following are in proportion?

- a) 2 : 3 :: 3 : 4 b) 2 : 3 :: 4 : 6 c) 2 : 3 :: 6 : 4 d) 2 : 3 :: 2 : 6

4. What is the fourth term which will make this a proportion? 4 : 7 :: 16 : ?

- a) 24 b) 32 c) 28 d) 14

5. Which of these is not true?

- a) 3 months is $\frac{1}{4}$ of a year b) $\frac{1}{2}$ hour $\frac{1}{24}$ is of a day
 c) 5 minutes is $\frac{1}{10}$ of an hour d) 6 days is $\frac{1}{5}$ of a month

6. Which of these is true?

- a) $\frac{2}{3}$ of 24 is 6 b) 14 is $\frac{1}{4}$ of 64 c) $\frac{1}{5}$ of 70 is 21 d) 23 is $\frac{1}{6}$ of 138

7. What is 10% of 20% of 525?

- a) 105 b) 51 c) 10.5 d) 52.5

8. Kareem scored 46 out of 50 in Hindi, 94 out of 100 in Maths and 42 out of 50 in English.

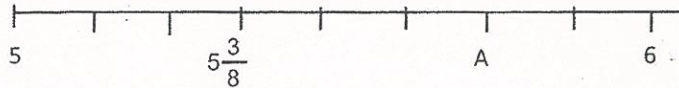
What is his overall % marks?

- a) 90% b) 95% c) 93% d) 94%

9. What % is 6.5 of 130?

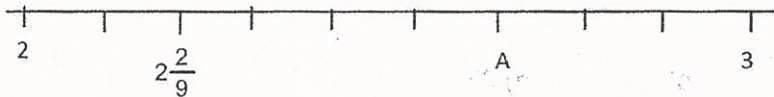
- a) 15% b) 10% c) 0.5% d) 5%

10. What is the mixed number represented by A on the given number line?



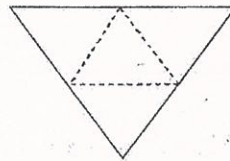
- a) $5\frac{5}{6}$ b) $5\frac{3}{4}$ c) $5\frac{5}{7}$ d) $5\frac{2}{3}$

11. What is the mixed number represented by A on the given number line?



- a) $2\frac{2}{3}$ b) $2\frac{5}{9}$ c) $2\frac{3}{4}$ d) $2\frac{7}{9}$

12. What three dimensional shape could be formed by folding this figure on the dashed line segments?



- a) rectangular prism b) square pyramid c) triangular pyramid d) triangular prism

13. Arjun owns a television repair shop. He repaired 3 TVs yesterday. He charged Rs.250 service fee for each TV. He worked 3.5 hours to repair both TVs. He charged Rs.200 per hour. Which of the following expressions can be used to find the total amount Arjun charged to repair the two TVs?


- a) $3(3.5) + 200 + 250$ b) $3(250) + 3.5(200)$
c) $3(200) + 3.5(250)$ d) $3(450)$

14. Kajal has x hairclips. Divya has 5 times the amount Kajal has while Sonu has 50 hairclips. Which expression represents the total amount of hairclips that 3 of them have all together?

- a) $x + 5 + 50$ b) $x + 5x + 50$ c) $50 + 5x - x$ d) $x + 55x$

15. A number is multiplied by 6 and then divided by the cube of a second number. The number derived is added to 16. Write the algebraic expression using 'a' as the first number and 'b' as the second.

- a) $\frac{6b}{a^3} + 16$ b) $16 + \frac{6b^3}{6a}$ c) $\frac{6a}{b^3} + 16$ d) $16\frac{6a}{b^3}$

16.  In the given figure, the angle formed by the hour and minute hand is ____.
- a) 60° b) 100°
c) 90° d) 120°

17. $0 - (3) + (2) - (2) = \underline{\hspace{2cm}}$

a) -1 b) 0 c) 1 d) -2

18. Given that $(b + 7)$ is the highest common factor of 65 and 78, the value of b is ____.
- a) 13 b) 12 c) 6 d) 26

19. The list of numbers below shows prime numbers arranged in an increasing order.
17, 19, x , 29, 31, y , 41

The value of $y - x = \underline{\hspace{2cm}}$.

- a) 23 b) 14 c) 24 d) 37

20. If $y=5$, then what is the value of $10 + y\sqrt{(y^3+y^2)}$.

- a) 60 b) 110 c) 150 d) 600

21. Find the missing number.

5, 3, 10, 6, 15, 9, 20, _____, 25.

- a) 21 b) 23 c) 12 d) 30

22. If the arithmetic mean of 5, 8, 3, 7, x is 6, then x is ____.

- a) 7 b) 4 c) 5 d) 6

23. The number of rectangular boxes, each 2.5 cm by 2 cm by 1.5 cm that can be packed in a box with internal measurements 9.0 cm by 7.8 cm by 25 cm is ____.

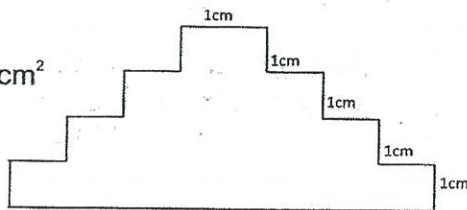
- a) 250 b) 234 c) 244 d) 294


24. The sum of length of all edges of a cube of dimension 13 cm is ____.

- a) 169 cm b) 144 cm c) 52 cm d) 156 cm

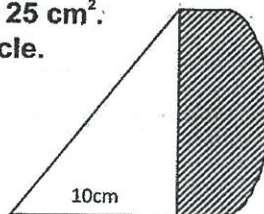
25. The area of the given figure is ____.

- a) 1 cm^2 b) 4 cm^2 c) 15 cm^2 d) 16 cm^2



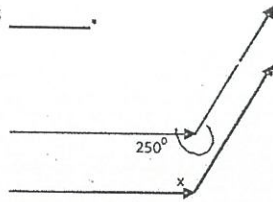
26.  Area of the given triangle is 25 cm^2 .
Find the area of the semicircle.

- a) 10
b) 9.81
c) 9.18
d) 9.5



27. The value of 'x' is _____.

- a) 250°
 b) 100°
 c) 200°
 d) 110°



28. Area of a triangle with sides 2 cm, 6 cm, 14 cm is _____.

- a) 121 cm^2 b) 1000 cm^2 c) a triangle with these measurements is not possible
 d) Area of this triangle cannot be calculated

29. $\frac{8}{p}$ part of $\left[p + \frac{8}{p} \right] \left[p - \frac{p}{3} \left[p + \frac{p}{4} \right] \right]$ is _____.

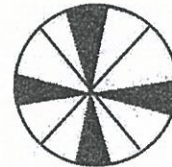
- a) $\frac{8}{25} p^3$ b) $\frac{5}{4} p^3$ c) $10 p^2$ d) none of these

30. $(36)^2 - (35)^2$ is _____.

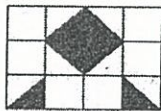
- a) 100 b) 788 c) 71 d) 4970

31. x part of the circle is shaded. Then, the value of x is _____.

- a) $\frac{1}{3}$ b) $\frac{1}{4}$ c) $\frac{1}{5}$ d) $\frac{2}{7}$



32.



Ratio of shaded to unshaded region is _____.

- a) $\frac{1}{4}$ b) $\frac{1}{3}$ c) $\frac{1}{6}$ d) none of these

33. Sandy has got 4 books A, B, C, D. In how many different orders can she read?

- a) 4 b) 16 c) 24 d) 32

34. Ben went 10 km north, then returns 5 km south. Then he goes 7 km east, then 4 km north. How far is he from his original place?

- a) 16 km b) -6 km c) 6 km d) 26 km

35. $1 : 12 :: x : 432$. Then, x is _____.

- a) 18 b) 24 c) 12 d) 36

36. Which of them is not equal to $\left(\frac{a}{b}\right)^m$?

- a) $\left(\frac{b}{a}\right)^{-m}$ b) $\frac{b^{-m}}{a^{-m}}$ c) $\frac{b^{-m/2}}{a^{-m/2}}$ d) $\left(\frac{2b}{2a}\right)^{-m}$

37. Which of these statements is true?

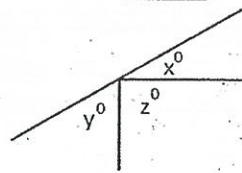
- a) $a^{-m} \times a^0 = a^0$ b) $a^m \times b^n = a^{bmn}$
 c) $a^{-m} \times a^n = a^{-(m+n)}$ d) $a^m \div a^n = a^{m-n}$

38. $a : b = 3 : 4$ and $b - a = 7$, then 'b' is _____.
a) 7 b) 28 c) 12 d) 16

39. $K + 30$ is the L.C.M. of 6, 8, 12, 15. Then the value of 'K' is _____.
a) 2 b) 60 c) 30 d) 10

40. In the figure, $z^\circ = x^\circ + y^\circ$. Find z.

a) 60 b) 90 c) 45 d) 100



41. For 2 disjoint sets A and B, $n(A) = 40$ and $n(B) = 30$, then $n(A \cup B)$ is _____.
a) 30 b) 10 c) 70 d) 40

42. $4^0 + 4^{-1} + 4^2 + 4^{-3}$ is _____.
a) $1 + 4^{-6}$ b) $4^{1/2}$ c) 4^{-6} d) $\frac{85}{64}$

43. From a square of side 14 cm, a circle of maximum diameter is cut. The area of this triangle is _____.
a) 216 b) 616 c) 196 d) 256

44. 2 cups and 3 plates cost Rs.340. One cup and 2 plates cost Rs.200. Then a cup and a plate will cost _____.
a) 150 b) 125 c) 140 d) 120

45. Factors of $x^2 + x - 6$ are _____.
a) $(x + 1)(x - 2)$ b) $(x + 5)(x - 1)$ c) $(x + 3)(x - 2)$ d) none of these

46. The least number, which when divided by 24, 36 and 56 leaves a remainder of 6 each time is _____.
a) 510 b) 112 c) 230 d) 294

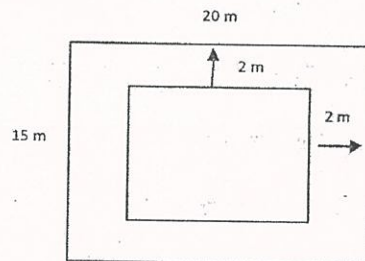
47. $68 \times \sqrt{\frac{0.169}{1.6} \times \frac{0.225}{28.9}} =$ _____.
a) 390 b) 195 c) 3.9 d) 1.95

48. The temperature of a body was 46°F It fell by 5°F . What is its temperature now?
a) 7°C b) 18°C c) 5°C d) 4°C

49. $\frac{1 + \frac{1}{2}}{2 + \frac{1}{2}} \div 3 + \frac{1}{2} = x$. Then, $x =$ _____

a) $\frac{8}{19}$ b) $\frac{4}{10}$ c) $\frac{3}{25}$ d) $\frac{9}{50}$

50. y is the HCF of 56, 70, 210. Then, $y =$ _____
 a) 3 b) 7 c) 14 d) 28
51. In a quadrilateral PQRS, lengths PQ, QR, RS and SP are in the ratio of 4: 3: 6 : 2. If the difference between QR and SP is 7cm, then, the measure of the longest side is _____.
 a) 36 cm b) 42 cm c) 24 cm d) 28 cm
52. Tina gets 96% marks in Maths, 86% in English and 94% in Hindi. What will be her overall %?
 a) 92% b) 93% c) 91% d) 91.33%
53. Sam sees 3 categories of food on his breakfast table.
 Fruits: Apples, bananas, papayas
 Drinks: milk, juice
 Carbs: Bread, jelly
 If Sam has to choose one food from each category, in how many ways can he do so?
 a) 7 b) 5040 c) 12 d) 1100
54. Sanju invests Rs. 350 and makes a profit of Rs. 42. What is his profit %?
 a) 7 b) 12 c) 6 d) 10
55. The mean proportion of 30 and 144 is _____
 a) 40 b) 82 c) 54 d) 87
56. ABCDEF is a regular hexagon, then what is the measure of angle EAB?
 a) 135 b) 120 c) 60 d) 72
57. The given rectangular park has a 2 m broad road all around it. Calculate the area of the road.
 a) 400 b) 124
 c) 300 d) 176



58. 3 is subtracted from a number "p". Then it is divided by 3. The number so formed is squared. What is the number so derived?

a) $\frac{p^2 + 9 - 6p}{9}$ b) $\frac{p^2 - 9 + 6p}{9}$ c) $\frac{p^2 + 12p - 9}{9}$ d) None of these

59.

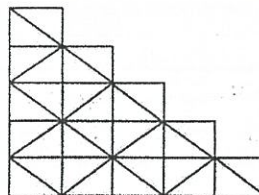


What is the angle included between the minute and the hour hand in this figure?

- a) 130 b) 140 c) 120 d) 100

60. How many triangles are there in the given figure?

- a) 30
b) 40
c) 50
d) 60



61. Ram and Shyam were tossing a coin to get heads. For every 5 tosses Ram made, Shyam tossed twice. Ram got 2 heads out of every 5 tosses and Shyam got equal number of heads and tails. If Shyam gets 30 heads, how many tosses did Ram make?

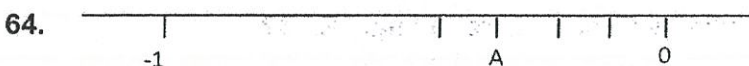
- a) 160 b) 100 c) 120 d) 150

62. $2\frac{1}{5} \div \{8\frac{1}{3} - (1+4-3)\} - 4\frac{1}{8}$ of $\frac{8}{11}$ is _____

- a) $\frac{55}{11}$ b) $\frac{3}{5}$ c) $\frac{50}{11}$ d) $\frac{33}{50}$

63. The square root of $\frac{0.16}{6.25} \times \frac{0.64}{1.44} \times \frac{2.5}{6.4}$ is _____

- a) 8 b) $\frac{1}{15}$ c) $\frac{1}{10}$ d) 10



The value of A in this number line is _____

- a) 3 b) 0.03 c) -0.3 d) -0.03

65. Which of these statements is not true?

- a) $1 \text{ cm} = \frac{1}{10} \text{ m}$ b) $1 \text{ sec} = \frac{1}{3600} \text{ hr}$ c) $1 \text{ litre} = \frac{1}{100} \text{ ml}$ d) $1 \text{ cm}^2 = \frac{1}{100} \text{ m}^2$



66. = 8. What is the value of p?

- a) 212 b) -147 c) 78 d) -91

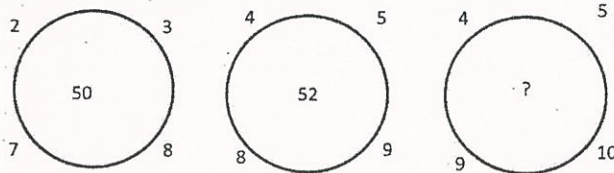


$$\frac{\left(2 + \frac{1}{8 + \frac{1}{8}}\right) \left(2 + \frac{1}{8 + \frac{1}{8}}\right) - \left(2 - \frac{1}{8 + \frac{1}{8}}\right) \left(2 - \frac{1}{8 + \frac{1}{8}}\right)}{\left(2 + \frac{1}{8 + \frac{1}{8}}\right) - \left(2 - \frac{1}{8 + \frac{1}{8}}\right)} = ?$$

- a) $\frac{64}{65}$ b) $\frac{83}{65}$ c) $\frac{266}{65}$ d) 4

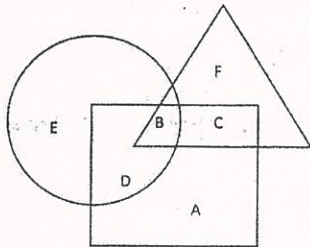
68. The least multiple of 11 which when divided by 8, 12, 20 and 24 leaves a remainder of 1 always is _____
 a) 111 b) 72 c) 121 d) 242
69. 3 boxes of chocolates weigh in the ratio of 4:5:6. If the heaviest one weighs 120 grams, what is the weight of the lightest one?
 a) 50 b) 60 c) 100 d) 80

70. Find the missing number.



- a) 60 b) 58 c) 70 d) 65

In the following diagram, the square, rectangle and circle represent the set of students studying Science, Maths and History respectively. Study the diagram and answer the (Q.71-74)



71. Students who study Maths and Science but not History are represented by _____
 a) C b) D c) A d) E

72. Students who study all three subjects are represented by _____
 a) B b) C c) D d) A

73. Students who study only History are represented by _____
 a) D b) A c) E d) F

74. In the word 'Student' –

S = 40 t1 = x u = 60 d = ÷
 e = 20 n = - t2 = 10

Then what is the value of student?

- a) 60 b) 90 c) 70 d) 110

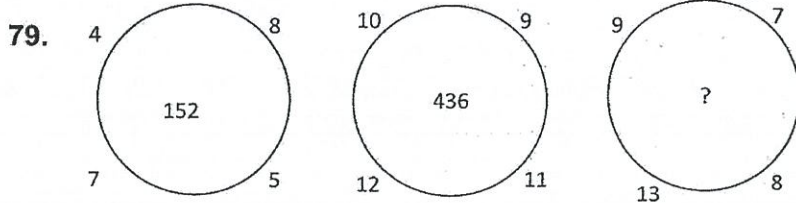
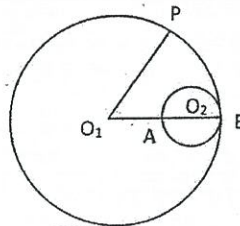
75. If '?' is division, '#' is addition, '*' is subtraction and '+' is multiplication, then the value of "50 # 75 ? 5 * 10" is _____
 a) 55 b) 225 c) 70 d) 65

76. A shopkeeper sells chocolates at Re.1 each. We can exchange 3 wrappers for one chocolate. If Pooja has Rs.15, what is the maximum number of chocolates that she can get?
 a) 15 b) 22 c) 20 d) 21

77. If a set B is the super set of another set A. The cardinal number of B is 52, then cardinal number of A is _____.
- a) >52 b) <52 c) $= 52$ d) none of these

78. $AB = 8$ cm, also $O_1P = 10$ cm. Distance between O_1 and O_2 is _____.

- a) 4 b) 8
c) 6 d) 10

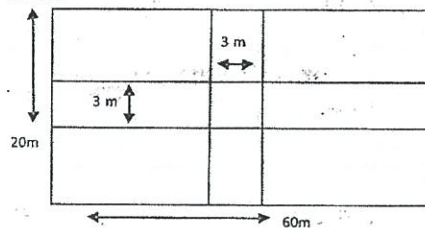


- a) 163 b) 286 c) 268 d) 148

80. Rupa has 384 dolls, out of which $\frac{5}{16}$ are Barbie dolls. $\frac{2}{3}$ of the Barbie dolls are beach dolls. How many beach dolls does she have?
- a) 120 b) 60 c) 80 d) 160

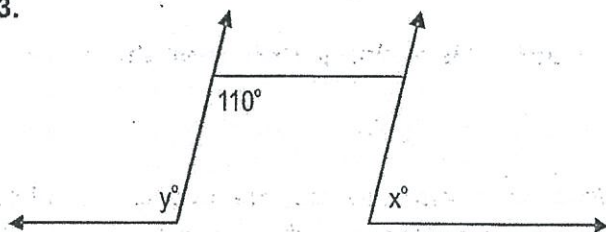
81. If the area of a triangle with base 'p' is equal to twice the area of a square with side 'p', then the height of the triangle is _____.
- a) $4x^2$ b) $2x^2$ c) $2x$ d) $4x$

82. A rectangular lawn is 60 m by 20 m. It has 2 roads each 3 m wide running in the middle of it. Find the area of the roads.



- a) 231 m^2 b) 240 m^2 c) 234 m^2 d) 237 m^2

83.



- a) $x = 110^\circ$; $y = 70^\circ$
 b) $x = 120^\circ$; $y = 60^\circ$
 c) $x = 70^\circ$; $y = 60^\circ$
 d) $x = 60^\circ$; $y = 120^\circ$

84. Which of these is a factor of $2x^2 + 5x + 3y^2$?

- a) $2x + y$ b) $x + 3y$ c) $2x + 3y$ d) $3x + 2y$

85. Rakesh sold 10 pencil boxes for Rs.500 and gained 20%. How many pencil boxes did he buy for Rs.250?

- a) 20 b) 15 c) 24 d) 12

86. Which of the following numbers is prime?

- a) 153 b) 179 c) 159 d) 171

87. If two supplementary angles differ by 22° , then one of the angles is _____.

- a) 78 b) 101 c) 158 d) 97

88. A rectangle has a perimeter of 30 cms and its length is 9 cm. What is the width of the rectangle?

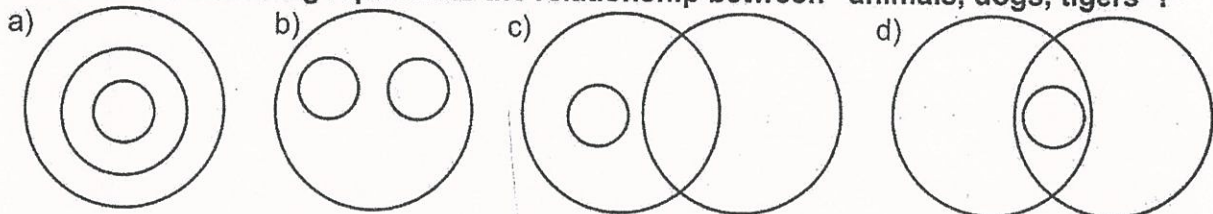
- a) 21 cm b) 18 cm c) 9 cm d) 11 cm

89. Complete the pattern:

12, 15, 24, 19, 36, _____, 48

- a) 25 b) 21 c) 23 d) 37

90. Which of the following represents the relationship between "animals, dogs, tigers"?



91. In a school, there are 250 pupils. 'x' of them are boys. What fraction of the pupils are girls?

- a) $\frac{x}{250}$ b) $\frac{250}{250-x}$ c) $\frac{250}{x}$ d) $\frac{250-x}{250}$

92. The difference between two numbers is 6 and their sum is 28. What will be the product?

- a) 168 b) 186 c) 81 d) 68

93. A bowler took 21 wickets for 672 runs, then his average score per wicket is _____.

- a) 34 b) 32 c) 28 d) 49

94. '0.101' expressed as a vulgar fraction is _____.

- a) $\frac{101}{100}$ b) $\frac{100}{999}$ c) $\frac{101}{1000}$ d) $\frac{101}{10,000}$

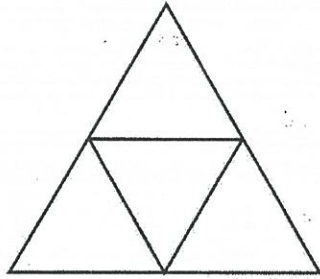
95. The sum of 4 consecutive numbers is 62, then the least of them is _____.

- a) 12 b) 14 c) 17 d) 15

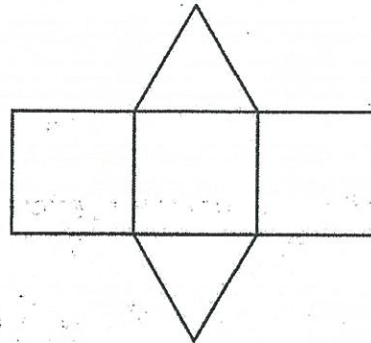
96. When a number is reduced by 5, it becomes 90% of itself. Find the number.

- a) 40 b) 80 c) 90 d) 50

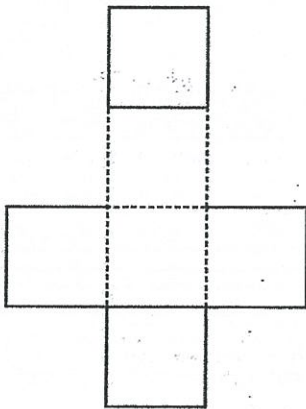
97 Match the nets with the figures they form:



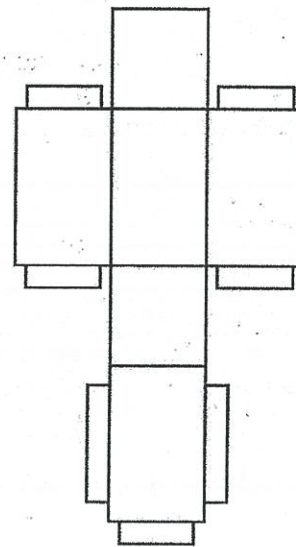
A) i) tetrahedron



B) ii) cube



C) iii) cuboid



D) iv) triangular prism

- a) A - i ; B - ii ; C - iv ; D - iii
 b) A - ii ; B - iii ; C - iv ; D - i
 c) A - iv ; B - ii ; C - i ; D - iii
 d) A - iv ; B - i ; C - ii ; D - iii

98. Which of the following are in proportion?

- a) 48 : 96 :: 12 : 36 b) 5 : 15 :: 10 : 40
 c) 7 : 14 :: 36 : 72 d) 11 : 132 :: 12 : 84

99. What is 5% of 15% of 900?

- a) 9.75 b) 6.75 c) 13.5 d) 9.5

100) If '?' is division, '#' is addition, '-' is subtraction and '*' is multiplication, then the value of "25 # 75 ? 15 * 12" is _____.

- a) 55 b) 97 c) 18 d) 25

Answers

Chapter-1. (Nutrition in Plants and Animals)

1-a	2-a	3-c	4-b	5-c	6-b	7-b	8-d	9-c	10-b	11-c	12-a
13-d	14-c	15-a	16-b	17-d	18-c	19-a	20-b	21-d	22-d	23-c	24-c
25-b	26-d	27-b	28-b	29-c	30-b	31-c	32-b	33-c	34-c	35-d	36-b
37-a	38-b	39-c	40-b								

Chapter-2 (Fibre to Fabric)

1-b	2-c	3-c	4-a	5-d	6-c	7-c	8-b	9-c	10-a	11-c	12-b
13-c	14-a	15-d	16-b	17-d	18-a	19-c	20-b	21-a	22-b	23-c	24-d
25-b	26-a	27-a	28-c	29-c	30-d	31-a	32-b	33-c	34-d	35-b	36-b
37-c	38-b	39-c	40-d								

Chapter-3 (Heat)

1-b	2-d	3-d	4-a	5-c	6-c	7-b	8-c	9-a	10-b	11-c	12-a
13-c	14-b	15-d	16-b	17-b	18-d	19-b	20-b	21-c	22-a	23-b	24-c
25-c	26-c	27-d	28-c	29-b	30-d	31-a	32-c	33-b	34-c	35-d	36-a
37-c	38-d	39-c	40-a								

Chapter-4. (Acids, bases & salts)

1-b	2-c	3-b	4-a	5-a	6-c	7-c	8-d	9-b	10-d	11-b	12-b
13-a	14-c	15-a	16-b	17-c	18-a	19-b	20-c	21-d	22-c	23-a	24-b
25-c	26-b	27-c	28-a	29-c	30-c	31-c	32-d	33-c	34-b	35-d	36-a
37-c	38-b	39-a	40-c								

Chapter-5 (Physical and Chemical changes)

1-d	2-b	3-d	4-c	5-b	6-b	7-a	8-c	9-c	10-c	11-a	12-b
13-a	14-c	15-b	16-c	17-c	18-a	19-b	20-a	21-c	22-a	23-b	24-d
25-c	26-a	27-c	28-b	29-a	30-b	31-c	32-b	33-b	34-a	35-a	36-b
37-b	38-d	39-c	40-a								

Chapter-6 (Weather, Climate and Adaptation of animals to Climate)

1-b	2-c	3-b	4-a	5-b	6-d	7-d	8-c	9-b	10-a	11-c	12-d
13-b	14-b	15-c	16-c	17-d	18-b	19-c	20-a	21-a	22-b	23-c	24-c
25-a	26-a	27-d	28-a	29-c	30-d	31-b	32-a	33-c	34-d	35-c	36-c
37-d	38-a	39-a	40-d								

Chapter-7 (Winds, Storms and Cyclones)

1-b	2-c	3-a	4-b	5-a	6-d	7-c	8-b	9-b	10-a	11-c	12-a
13-d	14-a	15-b	16-d	17-b	18-d	19-b	20-d	21-b	22-d	23-b	24-c
25-a	26-c	27-d	28-b	29-c	30-c	31-b	32-c	33-c	34-a	35-c	36-a
37-a	38-b	39-d	40-d								

Chapter-8 (Natural resources and their conservation)

1-b	2-a	3-c	4-b	5-c	6-c	7-a	8-d	9-d	10-b	11-d	12-c
13-b	14-c	15-b	16-a	17-c	18-b	19-a	20-c	21-c	22-b	23-c	24-a
25-a	26-b	27-a	28-d	29-d	30-c	31-b	32-d	33-d	34-a	35-b	36-c
37-c	38-b	39-a	40-b								

Chapter- 9 (Respiration in Organisms)

1-b	2-c	3-d	4-b	5-b	6-c	7-b	8-a	9-c	10-b	11-d	12-b
13-c	14-d	15-b	16-d	17-a	18-a	19-d	20-c	21-c	22-d	23-c	24-a
25-b	26-a	27-a	28-c	29-c	30-d	31-b	32-d	33-d	34-b	35-a	36-d
37-b	38-b	39-c	40-a								

Chapter- 10 (Transportation in Plants and Animals)

1-b	2-c	3-d	4-a	5-b	6-b	7-c	8-a	9-b	10-b	11-d	12-b
13-a	14-c	15-b	16-c	17-d	18-b	19-c	20-d	21-a	22-b	23-c	24-a
25-c	26-c	27-a	28-b	29-d	30-c	31-c	32-d	33-b	34-a	35-c	36-b
37-c	38-a	39-d	40-c								

Chapter- 11 (Reproduction in plants)

1-a	2-a	3-b	4-c	5-c	6-d	7-b	8-d	9-c	10-d	11-d	12-b
13-c	14-a	15-c	16-d	17-b	18-c	19-a	20-d	21-b	22-d	23-b	24-c
25-c	26-c	27-b	28-d	29-a	30-b	31-c	32-a	33-d	34-b	35-b	36-c
37-b	38-b	39-c	40-c								

Chapter- 12 (Motion and Time)

1-b	2-d	3-c	4-b	5-d	6-b	7-c	8-a	9-d	10-c	11-c	12-a
13-b	14-d	15-c	16-a	17-b	18-c	19-d	20-c	21-b	22-c	23-a	24-b
25-d	26-a	27-c	28-b	29-b	30-b	31-b	32-d	33-c	34-b	35-a	36-b
37-a	38-c	39-b	40-c								

Chapter- 13 (Electric Current & its Effect)

1-b	2-c	3-a	4-b	5-c	6-b	7-c	8-d	9-d	10-c	11-b	12-a
13-c	14-b	15-a	16-c	17-b	18-c	19-a	20-d	21-a	22-c	23-c	24-a
25-b	26-b	27-c	28-a	29-b	30-d	31-c	32-a	33-a	34-c	35-b	36-c
37-a	38-b	39-c	40-d								

Chapter- 14 (Light)

1-d	2-b	3-c	4-b	5-b	6-b	7-c	8-b	9-c	10-a	11-b	12-c
13-d	14-b	15-a	16-b	17-b	18-d	19-b	20-c	21-a	22-b	23-d	24-b
25-c	26-b	27-d	28-d	29-d	30-a	31-c	32-d	33-a	34-c	35-c	36-c
37-d	38-b	39-c	40-b								

Chapter-15 (Mental Ability)

1-c	2-a	3-b	4-c	5-c	6-d	7-c	8-a	9-d	10-b	11-a	12-c
13-b	14-b	15-c	16-d	17-a	18-c	19-b	20-a	21-c	22-a	23-b	24-d
25-d	26-b	27-d	28-c	29-c	30-c	31-a	32-a	33-c	34-a	35-d	36-c
37-d	38-b	39-c	40-b	41-c	42-d	43-b	44-c	45-c	46-a	47-d	48-c
49-d	50-c	51-b	52-a	53-c	54-b	55-d	56-b	57-b	58-a	59-c	60-c
61-d	62-d	63-b	64-c	65-c	66-b	67-b	68-c	69-d	70-c	71-a	72-a
73-c	74-d	75-a	76-b	77-b	78-c	79-b	80-c	81-a	82-a	83-c	84-c
85-d	86-b	87-b	88-c	89-c	90-b	91-d	92-a	93-b	94-c	95-b	96-d
97-d	98-c	99-b	100-c								



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