

SCIENCE OLYMPIAD

PRACTICE BOOK



GRADE
5

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Preface



Our education system effectively provides an introduction to the concepts of Math and Science and helps us understand the underlying concepts. But in its overly generalized approach, which aims to enlighten and test all students of varying caliber and interests, it leaves the exploration of application of all these concepts completely on the students.

This workbook is designed to enable students to explore Science effectively. Designed in accordance with the requirements of the Science Olympiads, the workbook is an efficient tool to achieve comprehensive success at the **ISFO – Science Olympiad**.

The main aim of this workbook is to assist students in developing and improving their ability to solve problems.

Each chapter of the book consists of 3 sets of questions.

- **Section A** (Scientific Reasoning) : This section is created to test the knowledge of scientific concepts and topics pertaining to the respective grades.
- **Section B** (Everyday Science) : This section deals with the application of the concept learnt.
- **Section C** (BrainBox) : Questions to prepare students with HOTS (Higher Order Thinking Skills), based on the syllabus provided.

Logical Reasoning section is provided to equip students with verbal and non-verbal analysis and reasoning skills.

Sample Test Papers and Answer keys have been provided to accelerate the learning process.



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Human Body and Nutrition

→ Human Body

Human body is an amazing machine having various systems that perform different functions.

- **Digestive system:** It breaks the food that we eat into smaller substances. We get energy from the digested food. We need energy to do our work.
- **Respiratory system:** It helps us to breathe in air. It is responsible for carrying oxygen from air to our bloodstream. It also removes carbon dioxide from our body.
- **Circulatory system:** Heart, blood and blood vessels together form circulatory system. It transports blood from heart to different parts of the body. Blood carries food to the different organs of our body, this provides energy to our body to perform different functions.
- **Nervous system:** Brain, nerves and spinal cord together form nervous system. The brain controls all parts of the body through nerves.
- **Excretory system:** It is formed by kidneys, large intestine, liver, lungs and skin. It cleans our body by throwing out wastes in the form of urine, stool etc.
- **Reproductive system:** It helps in producing young ones. Men and women have different reproductive organs and different reproductive system.
- **Skeletal system:** It gives shape to the body. It also helps in the movement of the body. It protects the internal organs and parts of the body.

Skeleton is the framework of bones joined together. An adult human body contains 206 bones.

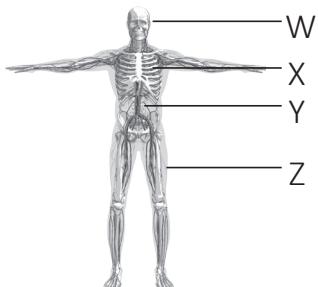
- **Muscular system:** It covers the skeleton. Muscles help the different body parts to move. All muscles together form muscular system.
- **Nutrition:** Food contains chemical substances called nutrients that are essential for all living organisms. Nutrition is the process of taking in food and using it for growth, metabolism and repair.

SECTION - A : SCIENTIFIC REASONING

1. Riya is solving a puzzle. Which system of her body does she use for solving the puzzle?

- a. respiratory system
- b. digestive system
- c. nervous system
- d. circulatory system

2. Which of the following statements is incorrect about the parts of the human body as labelled in the picture?



- a. W – encloses the brain
- b. X – protects the heart
- c. Y – does not help in movement
- d. Z – longest bone

3. Identify the food item that contains starch.

- a. potato b. rice
- c. wheat d. all of these

4. X is the largest part of the human brain and is responsible for memory, intelligence and learning. What is X?

- a. medulla b. cerebrum
- c. cerebellum d. spinal cord

5. Choose the correct statement.

- a. Roughage is avoided for the smooth functioning of digestive system.
- b. Iron is essential for the formation of blood.
- c. Fats give us less energy than carbohydrates.
- d. Vitamins help the body to get rid of undigested food.

6. Which of the following is incorrectly matched?

- a. hinge joint – bones in elbow
- b. pivot joint – up and down movement of head
- c. gliding joint – bones in knee
- d. ankle joint – gliding joint

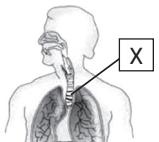
7. Roughage rich foods are:

- I. whole grain flour
- II. whole pulse
- III. leafy vegetables IV. fruits

- a. I, II and III b. I and III
- c. only III d. I, II, III and IV

8. Identify the part labelled as X in the picture.

Which of the following is not its function?



- a. Air enters our body through X.
- b. Air travels down through X and enters the lungs.

- c. Oxygen moves from the air sacs into the blood through X
- d. none of these
9. Why is drinking adequate amount of water important for us?
- I. Water carries the digested food around the body.
 - II. It swells up in the intestine and helps in smooth movement of digested food.
 - III. Water also regulates body temperature.

Choose the correct option.

- a. I and II b. Only I
 - c. I and III d. Only III
10. Octopus is an animal that can squeeze through holes smaller than itself. This is because the octopus has _____.
- a. moist skin
 - b. no skeletal system
 - c. no organs in its body
 - d. no respiratory system
11. Which of the following vitamins are fat soluble?
- a. A, C, D, E b. A, D, E, K
 - c. B, C, D, E d. B, D, E, K
12. Which cells in the blood are able to ingest bacteria?
- a. erythrocyte b. lymphocyte
 - c. phagocyte d. thrombocyte

13. Choose the incorrect statement.
- a. Heartbeat is one cycle of contraction and relaxation of the heart.
 - b. An adult human heart beats about 70 to 90 times per minute.
 - c. With every heartbeat we can feel the expansions and contractions in many places where an artery passes close to the skin.
 - d. Our heartbeat decreases when we exercise.
14. We should have different nutrients in sufficient amount in our meals. Which of the following options is in the correct order of amount of different nutrients required by our body?
- a. fats < proteins < minerals < carbohydrates
 - b. fats > proteins > minerals > carbohydrates
 - c. proteins > fats > minerals > carbohydrates
 - d. carbohydrates > fats > proteins > minerals
15. Choose the voluntary action among the following list of actions.
- (I) writing (II) dancing (III) clapping
 - (IV) breathing (V) raising hand
 - (VI) passing of food into stomach
- a. I, II, III, and V b. III, IV and VI
 - c. only VI d. II, III and VI

SECTION - B : EVERYDAY SCIENCE

16. Jyotika is suffering from anaemia. Which of the following items should she eat?

- I. green leafy vegetables
 - II. almonds
 - III. pulses
 - IV. iron pills
 - V. white rice
 - VI. beetroot
- a. I, II, IV and VI
b. III and V
c. I, IV and VI
d. I, III and IV

17. Read the following statements about carbohydrates. Choose the correct option below them.

- I - Glucose is present in jams and jellies.
- II - Fructose is present in banana and apple.

- a. I is correct.
b. II is correct.
c. Both a. and b. are correct.
d. II is the correct explanation of I.

18. Which essential nutrient is significantly absent in the meal given in the picture?



- a. carbohydrate
- b. protein
- c. vitamins
- d. fats

19. Which of the following should be done in case of an insect bite?

- I. Wash the wound with soap and water.
- II. Consult a doctor.
- III. Eat fatty foods.

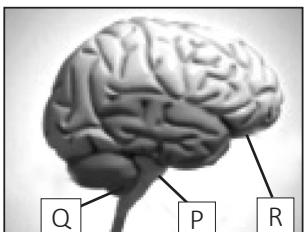
- a. only I
- b. only II
- c. I and II
- d. only III

20. An infant is suffering from a disease whose symptoms are diarrhoea, dizziness and rapid weight loss. Identify the disease and the nutrient whose deficiency has caused this disease in the infant.

- a. Marasmus, due to the deficiency of proteins.
- b. Beriberi, due to the deficiency of vitamin C.
- c. Anaemia, due to the deficiency of carbohydrates.
- d. Rickets, due to the deficiency of fats.

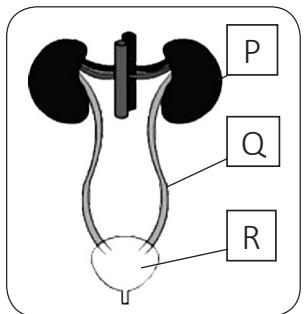
SECTION - C : BRAINBOX

21. Which of the following is incorrect about the parts labelled as P, Q and R?



- a. Q – controls involuntary muscles
- b. Q – maintains balance of our body
- c. P – controls heartbeats
- d. R – is responsible for memory

22. Identify the parts labelled as P, Q, and R in the given picture and choose the correct option.

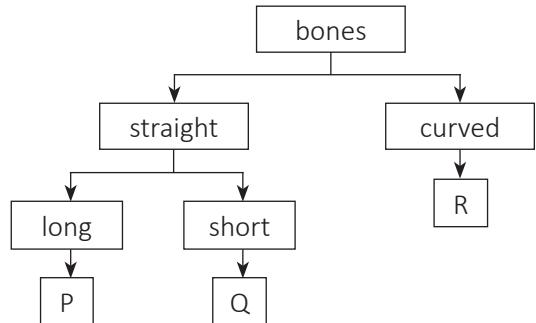


- | | P | Q | R |
|----|--------|---------|-----------------|
| a. | ureter | kidney | urinary bladder |
| b. | kidney | ureter | urinary bladder |
| c. | ureter | kidney | urethra |
| d. | kidney | nephron | urethra |

23. Riya cannot distinguish between red and green colour in dim light. Riya's sister, Jhanvi has bleeding gums. She has wobbly teeth. Select the diseases that both the sisters are suffering from and its cause.

- a. Riya has rickets. It is caused by the deficiency of Vitamin D.
Jhanvi has marasmus. It is caused by the deficiency of protein.
- b. Riya has colour blindness.
It is caused by the deficiency of vitamin A.
Jhanvi has scurvy. It is caused by the deficiency of vitamin C.
- c. Riya has colour blindness.
It is caused by the deficiency of vitamin A.
Jhanvi has beriberi. It is caused by the deficiency of vitamin D.
- d. Riya has anaemia. It is caused by the deficiency of vitamin A.
Jhanvi has scurvy. It is caused by the deficiency of vitamin C.

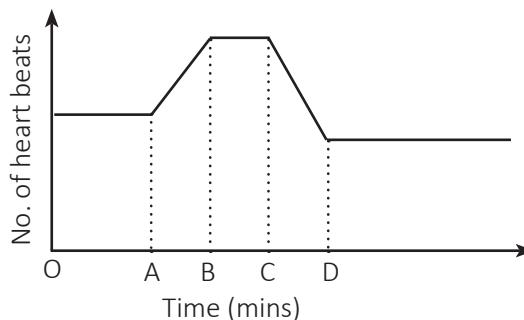
24. Study the given flow chart.



Identify P, Q, & R.

- a. P – rib bones, Q – thigh bone, R – hip bone
 - b. P – femur, Q – thigh bone, R – rib bone
 - c. P – femur, Q – hip bone, R – radius and ulna
 - d. P – rib bones, Q – hip bone, R – radius and ulna
25. A graph is drawn to show the number of heartbeats per minute before, during and after a vigorous workout.

Which part of the graph shows the time during warm up?



- a. OA
- b. AB
- c. BC
- d. CD

Darken your choice with HB pencil

- | | | | | | | | | | | | | | | | |
|----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|
| 1. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 8. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 15. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 22. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 2. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 9. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 16. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 23. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 3. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 10. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 17. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 24. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
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| 5. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 12. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 19. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |
| 6. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 13. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 20. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |
| 7. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 14. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 21. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |

Plants, Bacteria and Fungi

► Plants can be classified as flowering and non-flowering plants.

- **Flowering plants:** Orchid, bamboo, mimosa etc. are flowering plants. Most flowering plants produce flowers throughout the year while others produce flowers during certain period of the year.

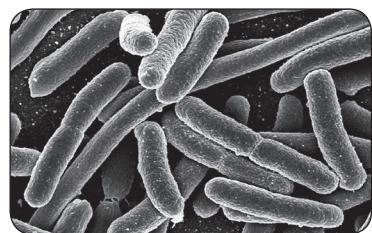


- **Non-flowering plants:** Mosses and ferns are non-flowering plants.



- Mosses reproduce by spores, they are small and green. They grow in damp and shady areas. Ferns are the plant with large leaves. They reproduce by spores.

- **Bacteria:** Bacteria are living organisms that can be seen only under a microscope. They occur in three basic shapes. They are found in water bodies and air.



- Bacteria reproduce by binary fission. Most of the bacteria prepare their own food by the process of photosynthesis.

- **Fungi:** Fungi are a group of living organisms that reproduce by tiny spores. They feed on dead plants and animals around them. They also get their food by feeding on their hosts as parasites.



SECTION - A : SCIENTIFIC REASONING

1. Which form of microorganism is used in vaccine preparation?
 - a. live
 - b. weak
 - c. at growing stage
 - d. modified
2. Name the drug meant to destroy the bacteria in our body by destroying their cell wall.
 - a. penicillin
 - b. disprin
 - c. herbal medicines
 - d. cough syrup
3. Which of the following is the correct classification of staghorn fern and hydrilla?
 - a. staghorn ferns: green plants, hydrilla: non-green plants
 - b. staghorn ferns: non-green plants, hydrilla: green plants
 - c. Staghorn ferns: bear fruit, hydrilla: does not bear fruit
 - d. staghorn ferns: non-flowering, hydrilla: flowering
4. X and Y are the diseases in plants caused by bacteria and fungi respectively. Choose suitable option for X and Y.
 - a. X- smut of rice, Y- rust of wheat
 - b. X- citrus canker, Y- rust of wheat
5. Which of the following is common to both mosses and mushrooms?
 - I. Both of them reproduce by spores.
 - II. Both of them feed on dead plants and animals.
6. Microorganisms responsible for the condition of fruits as shown in the picture are:
7. Which of the following are preservatives?
 - I. bacteria
 - II. mould
 - III. virus
 - IV. influenza
 - a. I and II
 - b. II and III
 - c. III and IV
 - d. I, II and III

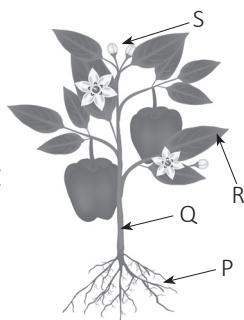
8. Which of the following bacteria are present in our intestine?

- a. cyanobacteria
- b. lactobacillus
- c. streptococcus
- d. all of these

9. Choose the odd one out.



10. Observe the given picture of a plant and its parts. Choose the correct statement about the labelled parts P, Q, R and S.



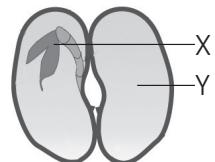
- a. P- can be edible,
Q- helps in reproduction
in some plants,
R- non-functional part,
S- reproductive part
- b. P- can be edible,
Q- helps in reproduction
in some plants,
R- helps in exchange of gases,
S- reproductive part
- c. P- can never be edible,
Q- provides support to plants,
R- non-functional part,
S- reproductive part

- d. P- can never be edible,
Q- inedible,
R- provides support to plants,
S- enhances beauty of plant

11. Select the group that shows similar mode of asexual reproduction.

- a. radish & potato
- b. rose & dahlia
- c. carrot & turnip
- d. coconut & mango

12. Identify the parts X and Y and their respective function.



- a. X – micropyle, stores food,
Y – testa, covers seed.
- b. X – seed coat, protects seed,
Y – hypocotyl, helps in germination
- c. X – plumule, develops into shoot,
Y – cotyledon, stores food
- d. X – radicle, develops into root,
Y – plumule, develops into shoot

13. Four children grouped some organisms as given below:

Jiya: rain tree, angasa tree, bacteria

Tiya: mushroom, ixora, pine tree

Tina: bird's nest fern, bread mould,
bacteria

Peter: bread mould, yeast, toadstool

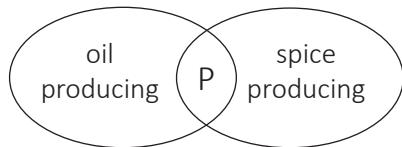
Who has grouped the organisms correctly?

- a. Jiya
- b. Peter
- c. Tina
- d. Tiya

14. Nidhi conducted an experiment to observe the growth of mould on a piece of bread. She left a slice of bread in the kitchen for a week. After one week she observed some black and white spots on the bread slice. Which of the following statements is/are correct about these spots grown on the bread slice?
- They reproduce by spores.
 - They breathe through their skin.
 - They are neither plants nor animals.
- IV. They get food from the bread they grow on.
- only I
 - I, II and III
 - I, III and IV
 - II and IV
15. A bacteria cell reproduces by splitting itself into two in every 15 seconds. If it starts with a single bacterium, how many bacteria would be there after a minute?
- 4
 - 5
 - 8
 - 16

SECTION - B : EVERYDAY SCIENCE

16. Study the Venn diagram about plants. What could be 'P' from the given options?



- I. flax II. cloves III. cotton seeds
IV. sesame V. mustard

- I & II
- I, II & III
- I, III, V
- II, IV & V

17. X is a bacterium that is used as a clot buster for removing clots from the blood vessels. X could be _____.

- streptococcus
- lactobacillus
- clostridium
- zymomonas

18. On an educational tour to a milk plant, Shreya saw workers adding Lactobacillus culture to milk. The teacher explained that it:
- increases the flavor.
 - acts as an antibiotic.
 - multiplies and promotes the formation of curd.
 - prevents the milk turning sour.

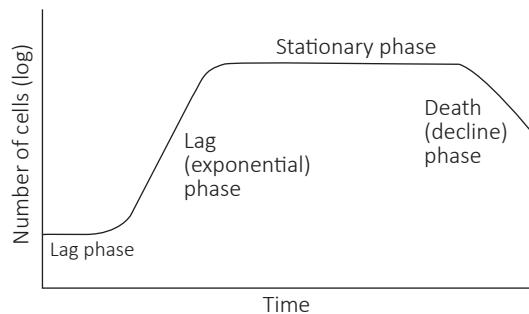
19. Preeti reads an article about factors causing decrease in growth of bacteria. On the basis of her reading she concluded that decrease in temperature decreases the growth of bacteria. What should be the appropriate temperature of a cold storage for meat?

- 1.5 °C
- 1.5 °C
- 20 °C
- 20 °C

20. Why is it important to keep milk in a refrigerator?
- I. It promotes the growth of microorganisms in milk.
 - II. It prevents milk from getting spoiled.
 - III. It turns milk sour.
 - IV. It inhibits the growth of microorganisms in milk.
- a. I and II
 - b. II and IV
 - c. III and IV
 - d. I, II and III

SECTION - C : BRAINBOX

21. The following graph was plotted to show different growth phase in the life cycle of bacteria.



What is correct about the bacterial growth?

- I. Bacteria show maximum growth in the lag phase.
 - II. Bacteria do not grow in the stationary phase.
 - III. Bacteria prepare itself for growth in the lag phase.
- a. I and II
 - b. I, II and III
 - c. I and III
 - d. II and III

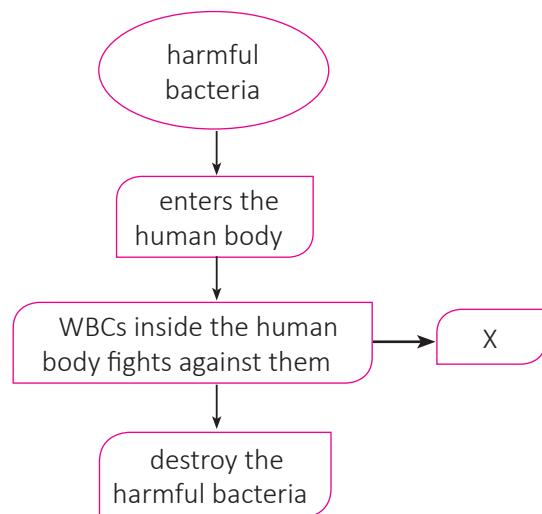
22. Sam saw some living organisms growing on a rotting wooden log as shown in the picture. He observed that they do not have any green

leaves with which they can make their own food. However they are still alive. What are those organisms and also give the reason for their survival and growth?



- a. The organisms are mushrooms, they do not need food for their survival.
- b. The organisms are ferns, they get food from the air.
- c. The organisms are mushrooms, they have chlorophylls in their cap with which they can prepare their own food.
- d. The organisms are mushrooms, they get food from the rotting wooden log.

23. Read the flowchart given below and answer the following question.



What is X in the above flowchart?

- I. vaccines II. antibiotics III. fungi
- a. I and II b. only I
 - c. only II d. I, II and III

24. What is the importance of microorganisms in the life of the animal given in the picture?



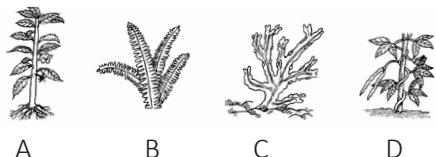
- I. The stomach of this animal is a home to many microorganisms.

II. Bacteria present in its stomach helps in breakdown of cellulose of plants.

III. The animal is able to digest its food because of virus present in its stomach.

- a. I and II b. II and III
- c. I, II and III d. I and III

25.



The above plants are placed in two groups, X and Y.

X = A and D, Y = B and C

Which of the following sets of headings can be given to X and Y?

	X	Y
a.	Grow on Land	Grow in Water
b.	Reproduce by Seeds	Do not Reproduce by Seeds
c.	Contain Chlorophyll	Do not contain Chlorophyll
d.	Cannot Photosynthesize	Can Photosynthesize

Darken your choice with HB pencil —

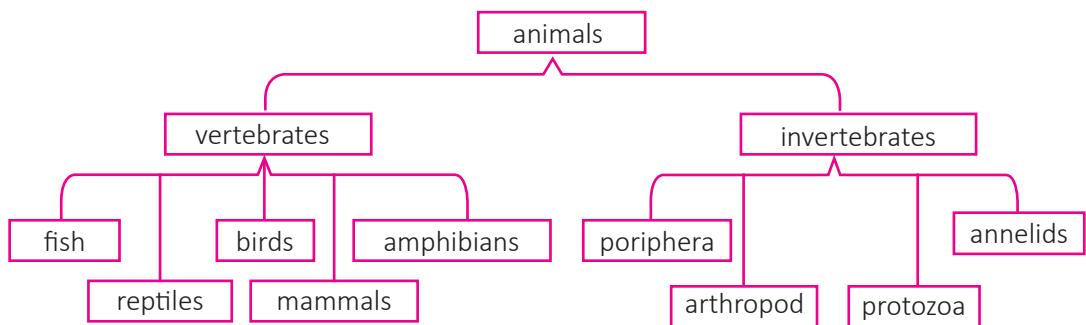
1. a b c d
 2. a b c d
 3. a b c d
 4. a b c d
 5. a b c d
 6. a b c d
 7. a b c d

8. a b c d
 9. a b c d
 10. a b c d
 11. a b c d
 12. a b c d
 13. a b c d
 14. a b c d

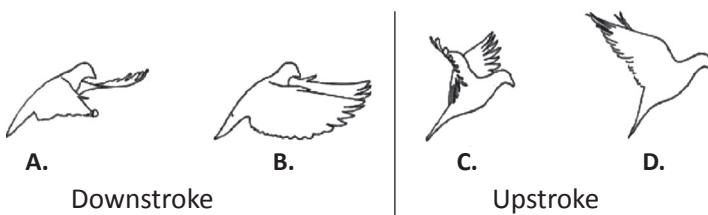
15. a b c d
 16. a b c d
 17. a b c d
 18. a b c d
 19. a b c d
 20. a b c d
 21. a b c d

22. a b c d
 23. a b c d
 24. a b c d
 25. a b c d

- On the basis of presence or absence of backbone animals are classified as follow:



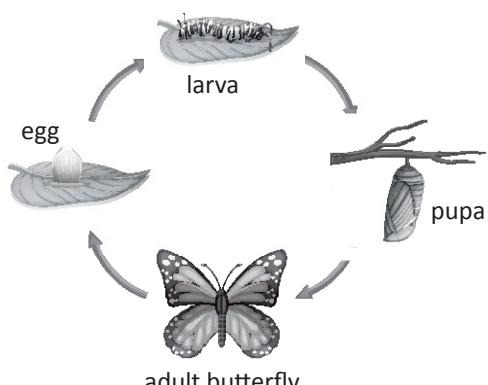
- Birds:** Animals which live mostly in air, and have feathers and wings are called birds. They make downstroke and upstroke movements while flying.



- Animal adaptation:** Reptiles like snake show molting. Snakes and lizards undergo hibernation. Lizard shows regeneration. Chameleon shows camouflage.
- Different mammals show different adaptations. Squirrels, mice, polar bear etc. show hibernation.
- Tiger, zebra, and cheetah have stripes on their body that help them to hide in grasses and leaves. It helps tiger and cheetah to hunt their prey easily. Strips of Zebra help it to protect from predators.
- Animals like porcupine have sharp spines all over its body to protect itself from its enemies.
- Monkeys and chimpanzee live on trees. They have prehensile tail and opposable thumb that help them to hold branches of the tree.

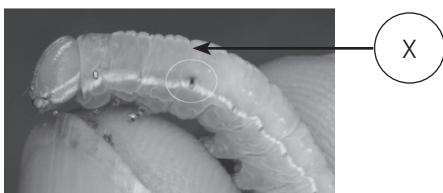
SECTION - A : SCIENTIFIC REASONING

1. The life cycle of a butterfly is given below. Identify the stage in which it sheds its skin for four or more times.



- a. egg
- b. larva
- c. pupa
- d. adult butterfly

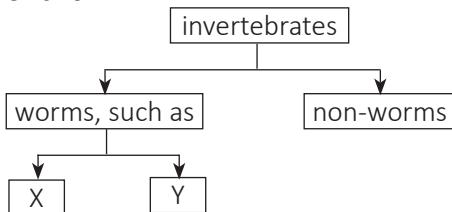
2. Identify the part X in the given picture and answer the following question.



Which of the following statements is incorrect about X?

- a. The part X lies in the exoskeleton.
- b. In most of the insects, X is located along the thorax and abdomen.
- c. Fluid enters the body of an insect through X.
- d. Air enters the body of an insect through X.

3. Complete the given classification chart.



- a. X – annelids, Y – nematods
- b. X – earthworm, Y – roundworm
- c. both a. and b.
- d. X – mollusc, Y – amphibians

4. What is correct about animals given in the box?

sponges, corals, jellyfish, anemones and starfish

- a. All of them are invertebrates.
- b. All of them live in soil.
- c. All of them are marine invertebrates.
- d. All of them have soft body covered by outer layer called mantle.

5. Four children grouped some organisms as given below:

- I. Amog: bat, whale, koala, seal
- II. Vaibhav: snake, lizard, chameleon, crab
- III. Riya: sponges, corals, starfish, whale
- IV. Jerry: cow, sheep, camel, parrot

Who has grouped the organisms correctly?

- a. Amog
- b. Vaibhav
- c. Riya
- d. Jerry

6. Read the features of the two animals given below.



salamander



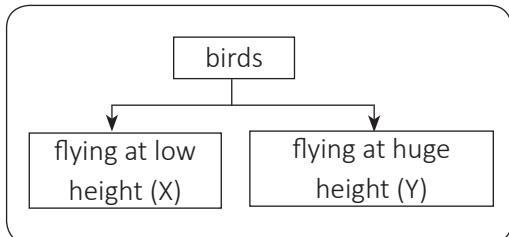
frog

- I. Both of them are amphibian.
- II. Both of them have permeable skin.
- III. Both of them use gills, lungs and skin as respiratory organs.

Choose the correct option.

- a. only I
- b. only II
- c. only III
- d. I, II and III

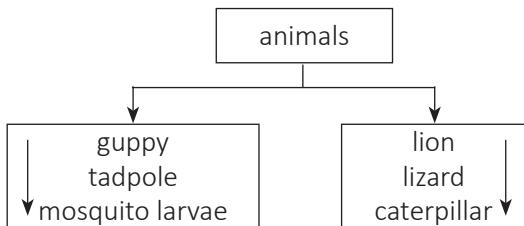
7. Study the classification table shown below and answer the following question.



Choose correct option for X and Y.

- a. X – ducks Y – eagles
- b. X – gulls Y – pelicans
- c. X – sparrow Y – vultures
- d. X – swan Y – sparrow

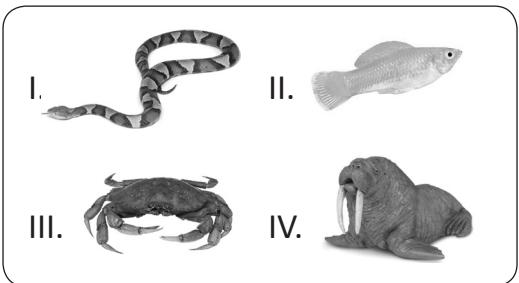
8. Study the classification diagram shown below.



In the chart the animals are classified according to:

- a. where they live.
- b. what they eat.
- c. how they move.
- d. how they respond to changes.

9. Which of the following animals is/are different from a butterfly in its/their method of reproduction?



- a. IV
- b. I and III
- c. II and IV
- d. I, II, III and IV

10. Which of the following are the animals that have outer skeleton?

- a. crickets and grasshopper
- b. fish and turtles
- c. frog and grasshopper
- d. none of these

11. What makes a flying frog glide on trees?

- a. square sticky pad on its toes
- b. webbed toes
- c. round sticky pad on its toes
- d. flaps of skin

12. Why is penguin classified as a bird?

- a. It lays eggs.
- b. It has two legs.
- c. It has a pair of wings and its body is covered with feathers.
- d. all of these

13. The animals that lay eggs are called _____.

- a. placental animals
- b. marsupials
- c. oviparous animals
- d. amphibians

14. Study the two animals given in the picture and answer the question that follows:



Animal A

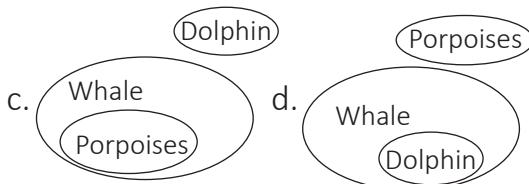
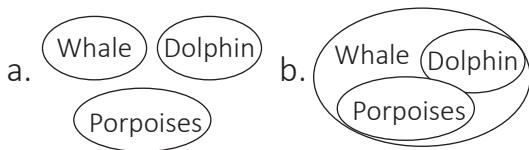


Animal B

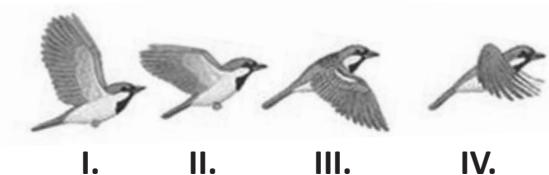
Which of the following options is incorrect about the animals A and B?

	Animal A	Animal B
a.	invertebrate without joint leg	invertebrate with joint leg
b.	lives in water	lives on land
c.	cnidarians	arthropods
d.	shows camouflage	does not show camouflage

15. Which of the following best represents the relation between dolphins, porpoises and whales?



16. Which of the following pictures show/shows the backstroke movement of a flying bird?

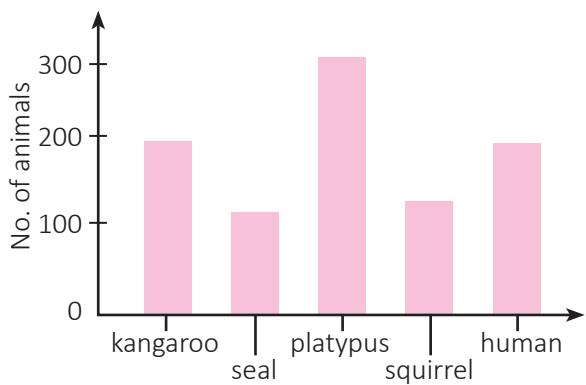


- a. I and II
- b. II and III
- c. III and IV
- d. only IV

17. Riddhi created a kitchen compost in which she throws the kitchen waste. Which of the following organisms cannot decompose the kitchen waste?
- moulds and bacteria
 - termites and millipedes
 - woodlice and earthworms
 - caterpillar and algae
18. X is an organism that causes malaria disease in human beings. Here, X is a _____.
- Unicellular plants
 - Multicellular plants
 - Multicellular animals
 - Unicellular animals
19. Why do polar bears have oily fur?
- It keeps the skin waterproof.
 - It keeps the polar bear warm.
 - It prevents the polar bear from getting slip on ice.
 - It helps the polar bear to run on ice.
20. "I am the national symbol of New Zealand. I have a long beak and plumb body. But now-a-days my species is vulnerable to extinction." Guess what am I?
- kiwi
 - ostrich
 - kingfisher
 - flamingo

SECTION - C : BRAINBOX

21. The graph below shows the number of animals residing in a particular area.



Which of the following statements is incorrect based on the above graph?

- All of the animals are not mammals.
 - The number of kangaroo is more than the number of seal but less than the number of platypus.
 - The number of human beings are more than the number of squirrel and equal to the number of kangaroo.
 - The number of platypus is lowest among all other animals.
- I and II
 - I and IV
 - I, II and III
 - none of these

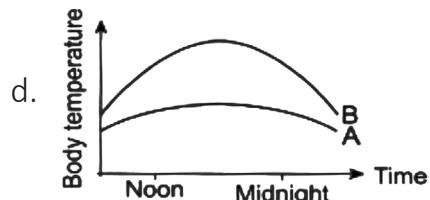
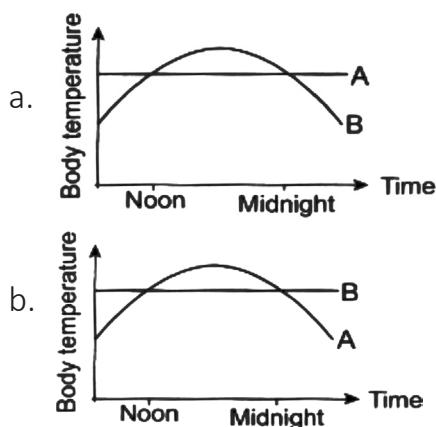
22. Which of the following classification is incorrect?

	Animals	Vertebrates	Warm-blooded	Lay Eggs
I.	Birds	Yes	Yes	Yes
II.	Mammals	Yes	Yes	No
III.	Frogs	Yes	No	No
IV.	Worms	No	No	Yes

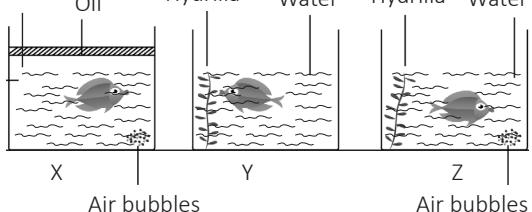
- a. only I
- b. only II
- c. only III
- d. only IV

23. “Animals have different body coverings. Those with feathers and furs have a constant body temperature despite change in the temperature of their surroundings.” A group of students set out on a research on the above fact. They measured the body temperature of two animals over a 12-hour period. The two animals were toad (A) and rabbit (B).

Which of the following graph represents the temperature of the two animals correctly?



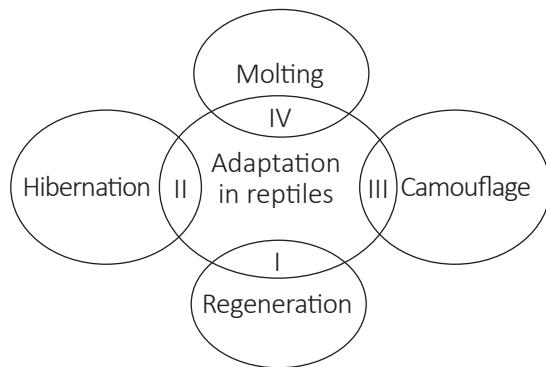
24. Water Oil Hydrilla Water Hydrilla Water



Arrange the fish shown in the above aquariums (X, Y and Z) in the increasing order of their life span.

- a. X, Z, Y
- b. X, Y, Z
- c. Z, Y, X
- d. Y, X, Z

25 Four students have made some statements on the basis of Venn diagram shown below.



Identify the incorrect statement.

- a. Jiya – “Lizard shows regeneration.”
- b. Tina – “Snake and lizard undergo hibernation.”
- c. Zoei – “Chameleon changes its colour.”
- d. Joseph – “Turtles shed their skin if damaged and worn out.”

Darken your choice with HB pencil –

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

Force, Work, Energy and Simple Machines

→ Work

- Work refers to the movement of an object when a force is applied on it.
- $\text{Work} = \text{Force} \times \text{Distance}$
- The unit of work is Joule (J)

→ Force

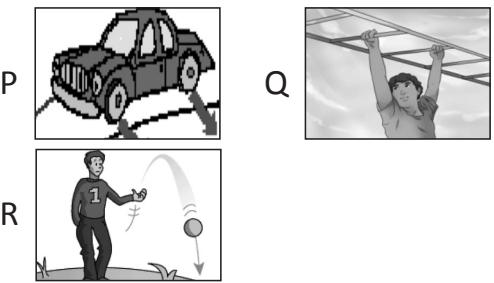
- Whenever we push or pull an object we apply force.
- A force has an ability to do following things:
 - ◊ make an object move
 - ◊ can stop a moving object
 - ◊ make a moving object move faster
 - ◊ slow down a moving object
 - ◊ can change direction of a moving object
 - ◊ change the shape and size of an object

→ Energy

- Energy is an ability to apply force and to do a work.
- **Forms of energy**
 - ◊ **Mechanical energy:** The energy of an object due to its position or motion.
 - ◊ **Potential energy:** The energy of an object due to its position is called potential energy.
 - ◊ **Kinetic energy:** The energy of an object due to its motion.
 - ◊ **Simple machines:** A simple machine is a mechanical device that changes the direction or magnitude of a force. Simple machine makes work easier.

There are 6 types of simple machines – Lever, Pulley, Wedge, Inclined plane, Screw and Wheel and axle.

SECTION - A : SCIENTIFIC REASONING

1. In which of the following conditions work is not said to be done?
 - a. A boy kicks the ball and the ball changes its direction.
 - b. A boy kicks the ball and the ball moves with faster speed.
 - c. A boy kicks the ball and the ball does not move from its position.
 - d. A boy presses the ball and the ball changes its shape.
2. Three balls roll down on various inclined planes: A, B and C. All the inclined planes are smooth and have different heights. On reaching the bottom of the inclined plane, ball A moves the fastest, and ball C moves the slowest. What are the possible reasons?
 - a. More potential energy is changed into kinetic energy.
 - b. Ball C is the heaviest, whereas ball A is the lightest.
 - c. Both a. and b.
 - d. None of the above
3. What is the similarity between energy possessed by a running boy and a running car?
 - a. Both possess kinetic energy.
 - b. Both possess gravitational energy.
 - c. Both possess buoyant force.
 - d. None of these
4. Which of the following statements is correct?
 - a. The energy possessed by a body always remains constant.
 - b. The energy can be taken away from a body.
 - c. The energy is required by plants to move and run.
 - d. The energy cannot be transferred from one form to another form.
5. The given picture shows a girl pushing a cart. What does the arrow Y represents?
 - a. energy
 - b. motion
 - c. friction
 - d. simple machine
6. Robert (P), Albert (Q) and Joy (R) have drawn three different pictures to describe frictional force. Whose picture describes the frictional force correctly?
 - P
 - Q
 - R
 - a. Robert
 - b. Albert
 - c. Joy
 - d. None of these

7. Which of the following statements is incorrect about force?

- I. Elastic force arises when a body deforms.
 - II. The downward push of water on a floating object is called buoyant force.
 - III. Muscular force is applied to push something.
- a. only I b. only II
c. I and III d. II and III

8. Which of the following has/have kinetic energy?

- I. A falling sky diver.
 - II. A parked bus.
 - III. A whale chasing a small fish.
 - IV. A baby sitting on the table.
- a. I and II b. I and III
c. II and IV d. only IV

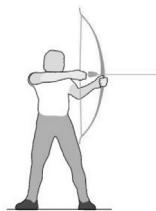
9. Which of the following is an example of an ineffective energy conversion?

- a. Heat energy is generated from the electricity that powers a fan.
- b. Sound energy produced from the electricity when you turn on a television.
- c. Electrical energy produced from the chemical energy of a battery.
- d. Potential energy is converted into kinetic energy when water falls in a waterfall.

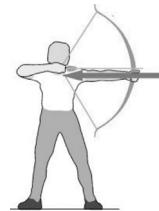
10. If a stone is pushed with the force of 4N to a distance of 2 metre then the work done is _____.

- a. 6 J b. 8 J
c. 17 J d. 16 J

11. Look at the positions of the archers A and B. Which of the following statements is correct about A and B?



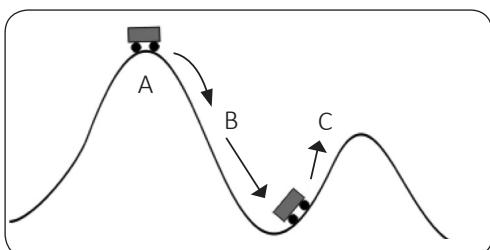
A. at rest



B. stretched

- a. A has no energy.
B has potential energy.
- b. A has kinetic energy.
B has potential energy.
- c. A has potential energy.
B has kinetic energy.
- d. A has no energy.
B has mechanical energy.

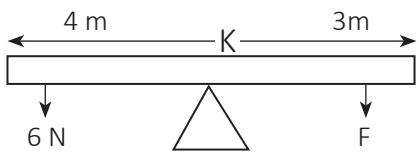
12. At what point in the given figure, the potential energy will be the highest and the kinetic energy will be lowest?



- a. A b. B
c. C d. none of these

13. Study the given figure.

A uniform bar is pivoted at its centre.



Find the value of 'F' required to balance the bar.

- a. 3N
- b. 4N
- c. 6N
- d. 8N

14. Which of the following represents some of the main energy changes which take place in a coal-fired power station?

- a. Heat Energy → Chemical Energy
→ Electrical Energy

- b. Heat Energy → Kinetic Energy
→ Electrical Energy
- c. Heat Energy → Light Energy
→ Electrical Energy
- d. Kinetic Energy → Electrical
Energy → Potential Energy

15. Which of the following simple machines in the table is incorrectly matched?

Objects	Type of simple machine
a. Tester- Totter	Class 1 lever
b. Crow bar	Class 2 lever
c. Tweezers	Class 1 lever
d. Shovel	Wedge

SECTION - B : EVERYDAY SCIENCE

16. Two men carry the same amount of sand in their respective wheelbarrows. The one whose wheelbarrow has longer handles feels less tired than the one whose wheelbarrow has shorter handles.

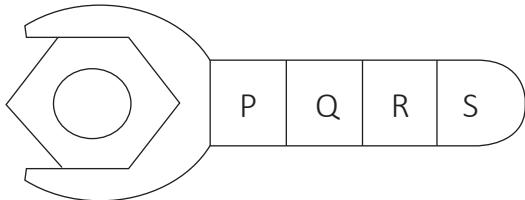
It is because:

- a. the mass of the sand is the same, but its weight is different.
- b. different amount of energy has been lost as heat energy.
- c. different force is needed to lift and push the wheelbarrow.
- d. the amount of friction is different between the wheels and the ground.

17. Identify the energy transformations in the torch shown below.



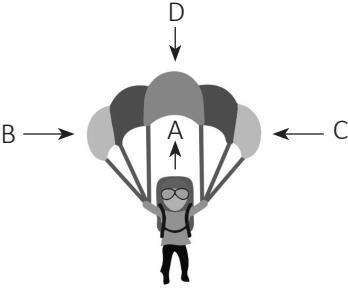
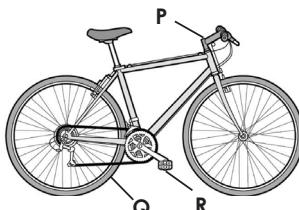
- a. chemical energy → electrical energy → light energy
- b. electrical energy → chemical energy → light energy
- c. chemical energy → kinetic energy → light energy
- d. potential energy → electrical energy → light energy

18. After combing your hair if you bring the comb closer to small piece of paper. You will observe that:
- the paper pieces will get repelled due to frictional force.
 - the paper pieces will get attracted due to electrostatic force.
 - the paper pieces will stick to the comb.
 - both b. and c.
19. Match the following.
- | Column I | Column II |
|----------------------------|---------------------|
| P. knife | I. lever |
| Q. lid of a jar | II. pulley |
| R. flat surface of a slide | III. inclined plane |
| S. plank of a seesaw | IV. screw |
| T. well wheel | V. wedge |
- a. P – IV, Q – V, R – III, S – I, T – II
b. P – V, Q – IV, R – III, S – I, T – II
c. P – V, Q – IV, R – II, S – III, T – I
d. P – V, Q – IV, R – III, S – II, T – I
20. A plumber uses a spanner to turn a nut in a clockwise direction. Study the given figure.
- 

Which section of the spanner, P, Q, R or S, requires the smallest force to turn the nut?

- P
- Q
- R
- R and S

SECTION - C : BRAINBOX

21. A parachute makes use of the upthrust of air to slow down its descend. In which direction does the upthrust act?
- 
- A
 - B
 - C
 - D
22. In the given figure, which of the following is correct for the parts P, Q and R?
- 
- | P | Q | R |
|--------|----------------|--------|
| lever | wheel and axle | lever |
| pulley | wheel and axle | lever |
| lever | pulley | lever |
| lever | wheel and axle | pulley |

P	Q	R
lever	wheel and axle	lever
pulley	wheel and axle	lever
lever	pulley	lever
lever	wheel and axle	pulley

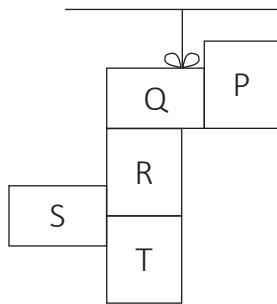
23. When the lid of a jam jar is screwed tightly, a grooved sheet of rubber can be used to unscrew the lid.

Why?



- The rubber sheet lubricates the surface.
- The friction between the rubber sheet and jar cover helps to provide a better grip.
- The rubber sheet magnifies the force needed.
- The rubber sheet gives air cushion support.

24. Aditya used a string and five metal bars P, Q, R, S & T, to form the given arrangement.



Find the minimum number of metal bars which are definitely magnetic.

- one
- two
- three
- four

25. A glass jug is designed so that it does not break when boiling water is poured into it. What sort of glass should be used?

	Thickness	Expansion
a.	thick	expands greatly when heated
b.	thick	expands little when heated
c.	thin	expands greatly when heated
d.	thin	expands little when heated

Darken your choice with HB pencil

- a b c d
- a b c d
- a b c d
- a b c d
- a b c d
- a b c d
- a b c d

- a b c d
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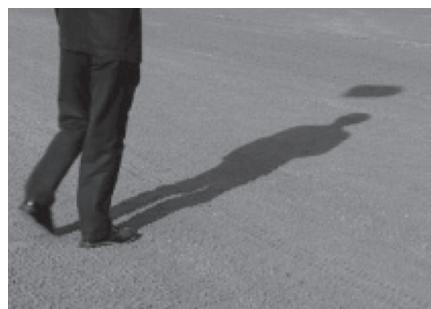
Light and Sound

► Light

- Light is a form of energy. It helps us to see things around us. Light energy is used by plants to make their food. The Sun is the main source of light on our earth. Sources of light give their own light.
- **Luminous object:** The objects that emit their own light are called luminous objects, such as Sun, candle, lamp and fire.
- **Non-Luminous object:** Kite, book, cupboard etc. are non-luminous objects because these objects do not have light of their own.

► Shadow

- When the path of light is obstructed by an object, a shadow is formed. Light is always needed for a shadow to form. A shadow always forms on the opposite side of the source of light.



a man and his shadow

► Sound

- Sound can travel through solid, liquid and gas. It cannot travel through vacuum.
- Sound can be heard all around us. When matter vibrate or move back and forth very quickly, sound is produced.
- Sound can be soft, loud, pleasant and unpleasant.

SECTION - A : SCIENTIFIC REASONING

1. Which of the following is not the property of light?
 - a. reflection
 - b. refraction
 - c. dispersion
 - d. recombination
2. Identify the non-luminous object among the following.
 - a. candle
 - b. stars
 - c. kite
 - d. torch
3. At what time of the day short shadows are formed?
 - a. afternoon
 - b. evening
 - c. morning
 - d. night
4. The shadow formed by an object is in the _____ direction of the object.
 - a. north
 - b. east
 - c. same
 - d. opposite
5. How do we see objects around us?
 - a. They reflect light that falls on them.
 - b. The things give off light to the air.
 - c. The objects send light away from our eyes.
 - d. None of these.
6. Identify the things through which sound can travel.
 - a. solid and liquid
 - b. gas
 - c. both a. and b.
 - d. vacuum
7. In which of the following conditions, you will not hear any sound?
 - a. A phone ringing in a box with no air in it.
 - b. A dog barking in a park.
 - c. A striking bell in an open area.
 - d. All of these
8. In visible light, the colours that we can see are:
 - a. red, orange, yellow, green, blue, indigo, and violet
 - b. purple, orange, yellow, green, blue, pink, and violet
 - c. purple, orange, yellow, pink, golden, indigo, and violet
 - d. red, orange, golden, green, blue, indigo, and violet
9. Which of the following facts are true about sound energy?
 - I. Sound energy travels faster in solids and liquids than in air.
 - II. Sound energy is caused by vibrations.
 - III. Sound energy cannot travel in a vacuum.
 - a. I and II
 - b. II and III
 - c. I, II and III
 - d. none of these

10. How is sound produced in the musical instrument shown in the picture?



- a. by the vibrating air
- b. by the vibrating water
- c. by the high note vibration
- d. all of these

11. "I have lenses that use refraction to help you see the things that are far away." Guess what am I?

- a. telescope
- b. microscope
- c. prism
- d. none of these

12. When a ray of light falls on an object X and it doesn't absorb most of the light. Which one of the following could object X be?

- a. a road surface
- b. a dark blue sweater
- c. a piece of dark chocolate
- d. a smooth and polished metal sheet

13. Read the given statements and choose the correct option.

- I. Moon reflects the sun light hence it is a non-luminous object.
- II. Candle burns and emit light of its own; hence candle is a luminous object.

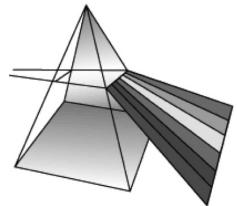
- a. I is wrong
- b. II is right
- c. I and II both are wrong.
- d. I and II both are right.

14. _____ of a guitar produce different sound depending on their thickness.

- a. wire
- b. strings
- c. wooden board
- d. all of these

15. The given figure shows:

- a. reflection of light
- b. dispersion of light
- c. both a. and b.
- d. none of these



SECTION - B : EVERYDAY SCIENCE

16. We cannot hear any sound on the moon because –

- I. There is no air on the moon.
- II. There is no water on the moon.
- III. Sound needs mediums like air or water to travel.

Which of the above statement(s) is/are correct?

- a. only I
- b. only II
- c. I, II and III
- d. only III

17. Categorise the objects mentioned in P, Q and R.

P: Objects through which we can see easily and clearly.

For example, clean water.

Q: Objects through which we can see partially.

For example, butter paper.

R: Objects through we can't see at all.
For example, wood.

- a. P – transparent, Q – translucent, R – opaque
- b. P – translucent, Q – transparent, R – opaque
- c. P – opaque, Q – translucent, R – transparent
- d. none of these

18. Shadows are formed because light:

- a. travels in a straight line
- b. cannot pass through opaque objects
- c. both a. and b.
- d. can be absorbed by objects

19. Jaya used a bent straw to look at the candle flame. Which of the

observations and conclusions is correct?

	Observations	Conclusions
a.	The candle flame could be seen.	Light travels in all directions.
b.	The candle flame could be seen.	Light can travel round corners.
c.	The candle flame could not be seen.	Light cannot pass through the straw.
d.	The candle flame could not be seen.	Light travels in straight lines.

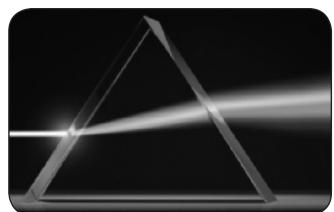
20. Riya's grandmother is 70 years old. She is diabetic. She is not able to count Riya's fingers at the distance of 6 meter or more. Identify the correct cause for this.

- a. Because of diabetes her retina has been damaged.
- b. Natural ageing leads to weak eye sight.
- c. She might be suffering from vitamin deficiency.
- d. All of these

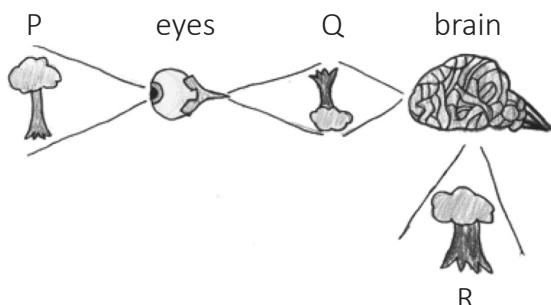
SECTION - C : BRAINBOX

21. Which of the following statements is correct about the object shown in the picture?

- a. It is a prism.
- b. It is a type of lens.
- c. It breaks the beam of visible light into seven colours.
- d. All of these



22. The given figure shows how image is formed in human eyes.



At which point (P, Q and R) the actual image and final image is formed?

- actual image – P, final image – R
 - actual image – Q, final image – R
 - actual image – P, final image – Q
 - actual image – Q, final image – P
23. The given steps show how does sound produced by a drum reach our ear. But these steps are not in correct sequence. Choose the option representing the correct sequence.

Step – I. The vibrating air spreads away from the source, this is a sound wave.

Step – II. The drum's body vibrates and causes vibration in air around the drum.

Step – III. The ear picks up the sound waves.

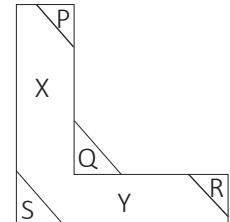
Step – IV. The brain translates the sound.

- I, II, III and IV
- II, I, III and IV
- I, III, II and IV
- IV, II, III and I

24. Identify the causes of loss of hearing.

- exposure to large noise
 - heredity
 - illness
 - natural ageing
- only I
 - I and II
 - only III
 - I, II, III and IV

25. Study the given figure. Which mirror would enable a person standing at X and a person standing at Y to see each other?



Darken your choice with HB pencil –

- | | | | | | | | | | | | | | | | |
|----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|
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| 2. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 9. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 16. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 23. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 3. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 10. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 17. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 24. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 4. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 11. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 18. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 25. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 5. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 12. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 19. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |
| 6. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 13. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 20. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |
| 7. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 14. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 21. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |

→ Anything that has weight and occupies space is called matter. The mass of an object is the amount of matter in the object. It is measured in gram (g) or kilogram (kg). Matter exists in three different forms namely solid, liquid and gas.

- Matters can be split into smaller units that are not visible to the naked eye. These small units are called molecules.

→ **Atom**

- A molecule has smaller units called atoms. An element is formed by the same kind of atoms. Two or more elements are chemically joined to form a compound.

→ **Combination of States of Matter**

- **Solid in water:** Sugar and salt molecules occupy the space between the molecules of water.
- **Liquids in water:** When two liquids mix in each other, liquids are called miscible.
- **Gases in water:** Gases like carbon dioxide, oxygen and nitrogen dissolve in water. Water contains dissolved oxygen. When water is boiled bubbles are formed from the dissolved gases in water.

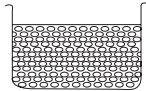
There are two types of change in the state of matter- physical change and chemical change.

SECTION - A : SCIENTIFIC REASONING

1. Generally, a solid first changes into a liquid and then into a gas on heating but some solids directly changes into gas. What is this process called?
 - a. evaporation
 - b. condensation
 - c. sublimation
 - d. precipitation
 2. Read the given statements and choose the correct one.
 - a. Cotton is obtained from plants and absorbs water.
 - b. Evaporation is faster when the surface area is larger.
 - c. Silver jewellery lose their shine over time due to action of polluted air.
 - d. All of these
 3. Identify the miscible liquids.
 - a. alcohol and water
 - b. petrol and water
 - c. cooking oil and water
 - d. hair oil and juice
 4. Name the gas which is present in a carbonated drink.
 - a. carbon dioxide
 - b. oxygen
 - c. nitrogen
 - d. helium
- 
5. Rahul is reading following points –

These changes involve change in the state of matter only.
 - Which of the following topics is Rahul reading?
 - a. matter
 - b. physical change
 - c. chemical change
 - d. none of these
 6. Which of the following cannot form a solution?
 - a. mixture of salt and water.
 - b. mixture of sand and water.
 - c. mixture of sugar and orange juice.
 - d. mixture of baking soda and water.
 7. Why plastic is a good insulating material for ice-cubes?
 - a. It is cheap.
 - b. It decreases friction with the water.
 - c. It is not a good conductor of electricity.
 - d. It is a good conductor of electricity.
 8. Which of the following figure correctly represents the saturated solution?

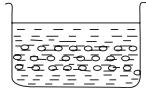
a.



b.



 - c.



c.

d. none of these

9. If Δ represents the element H and \star represents oxygen. Water will be represented as

- a. $\Delta_2 \star$
- b. $\Delta \star$
- c. $\Delta \star \Delta$
- d. $2\Delta \star$

10. Which of the following would be the best material to use, while making the handle of a cooking pan and why?

- a. Wood as it is a thermal insulator.
- b. Silver as it is the best electrical conductor.
- c. Iron as it is a thermal insulator.
- d. Copper as it is the best electrical conductor.

11. Which of the following is the characteristic of a physical change?

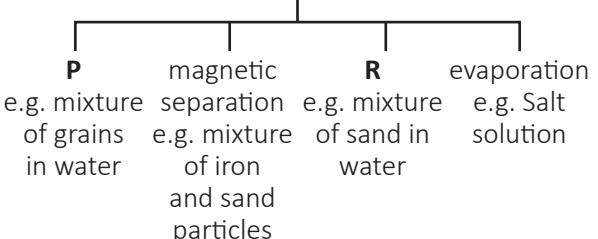
- I. Size, shape and colour of matter may change.
- II. It is an irreversible change.
- III. It is a temporary change.

- a. only I
- b. I and II
- c. I and III
- d. I, II and III

12. Which of the following statements is incorrect?

- a. Rusting of iron is a chemical change.
- b. Growth from an infant to an adult is an irreversible change.
- c. Melting of wax is a chemical change.
- d. Digestion in human body is a chemical change.

13. Study the given flowchart and answer the question that follows.



Choose suitable headings for P and R.

P	R
condensation	filtration
decantation	sedimentation
decantation	filtration
filtration	sedimentation/decantation

14. Albert conducted an experiment in the laboratory. He added X gas in water and it got dissolved in water completely, under pressure.

X could be _____.

- a. oxygen
- b. nitrogen
- c. ammonia
- d. all of these

15. Which of the following statements is correct.

- I. Solid has more force of attraction and least intermolecular distance.
 - II. Liquid has least force of attraction and intermolecular distance is maximum.
 - III. Gas has least force of attraction and intermolecular distance is maximum.
- a. only I
 - b. I and III
 - c. only III
 - d. I and II

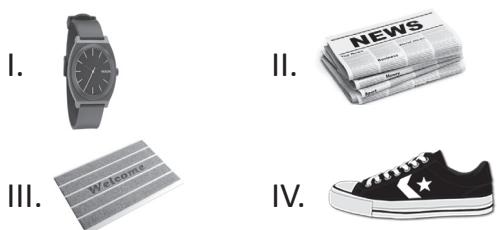
SECTION - B : EVERYDAY SCIENCE

16. 'X' is hard, waterproof as well as flexible. It can be used as _____.

- I. carry bags
- II. window pane
- III. raincoat
- IV. electrical wire

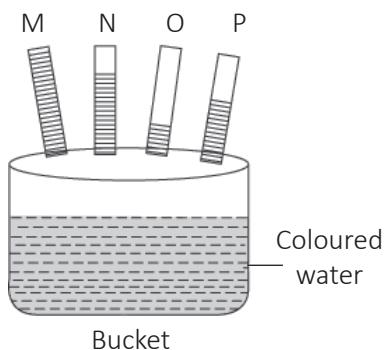
- a. I and IV b. II and III
- c. I, II and III d. I and III

17. Which of the following is made of more than one material?



- a. only I b. I and IV
- c. III and IV d. I and III

18. Tina carried out an experiment to classify the most absorbent and least absorbent material, as shown in figure.



She placed four different material M, N, O and P of equal length into a small bucket containing coloured water. The shaded portion in figure shows the amount of water absorbed by the material. Starting from the most absorbent material, choose the correct sequence of the absorbent material.

- a. M, N, O, P b. M, N, P, O
- c. N, P, M, O d. P, N, M, O

19. Tarun heated a piece of metal. After a few minutes, he observed that it expanded. This shows that:

- a. metals are malleable and ductile.
- b. metals are poor conductor of heat.
- c. metals increase friction with the water.
- d. metals are expensive.

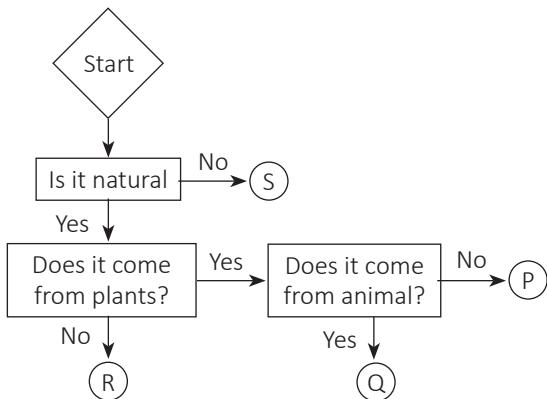
20. Shalu found that her silver ring have lost its shine and has become dull. The reason for this is:

- I. Some metals lose their shine because of the action of moisture.
- II. Some metals lose their shine because of the action of air.

- a. only I b. I and II
- c. only II d. none of these

SECTION - C : BRAINBOX

21. Study the given flowchart carefully.
Jute and metal are represented by the letters _____ and _____ respectively.

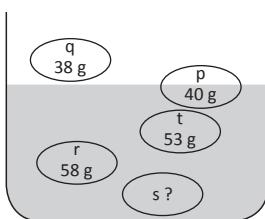


- a. P and Q b. P and R
c. R and S d. P and S

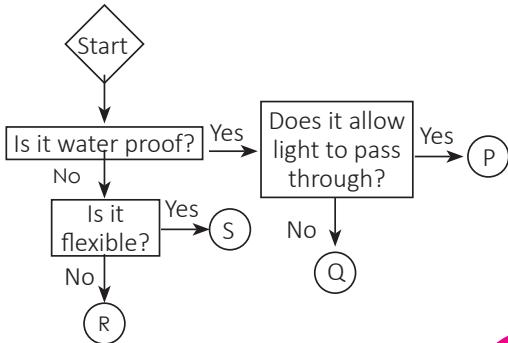
22. Observe the picture given below showing five different objects (p, q, r, s, t) of same volume but different mass, kept in a water tank.

What can be the mass of object 's'?

- a. 55 g b. 65 g
c. 50 g d. 45 g

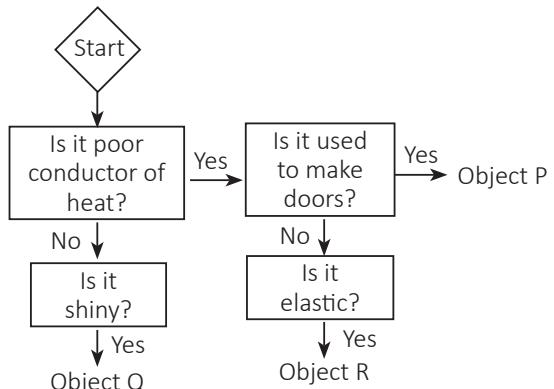


23. Study the flowchart given below. Identify the suitable option for the correct names of P, Q, R and S.



	P	Q	R	S
a.	fish aquarium	rubber band	iron nail	rain coat
b.	iron nail	rain coat	window pane	rubber band
c.	fish aquarium	rain coat	iron nail	rubber band
d.	window pane	iron rod	plastic bag	eraser

24. Study the given flowchart and match column I with column II.

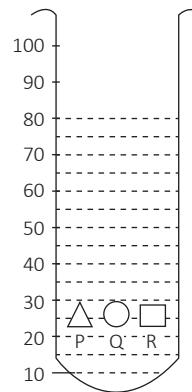
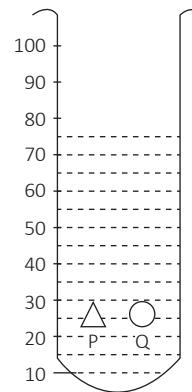
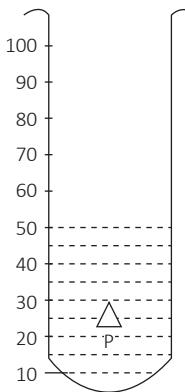


Column I (Objects)	Column II (Materials)
1. P	i. Metal
2. Q	ii. Rubber
3. R	iii. Wood

- a. 1 – iii, 2 – i, 3 – ii
b. 1 – ii, 2 – i, 3 – iii
c. 1 – i, 2 – ii, 3 – iii
d. 1 – ii, 2 – iii, 3 – i

25. The figures show three objects P, Q and R placed one by one into a measuring cylinder containing 40 ml of water, and the change in water level. Identify the objects having a volume of less than 40 ml.

- a. only P
- b. P, Q and R
- c. only R
- d. P and R



Darken your choice with HB pencil —————

1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d
6. a b c d
7. a b c d

8. a b c d
9. a b c d
10. a b c d
11. a b c d
12. a b c d
13. a b c d
14. a b c d

15. a b c d
16. a b c d
17. a b c d
18. a b c d
19. a b c d
20. a b c d
21. a b c d

22. a b c d
23. a b c d
24. a b c d
25. a b c d

Soil, Rocks and Minerals

► Our earth is made of rocks and soil. Rocks are made of a natural substance called minerals. Depending upon their formation rocks are of three types:

- **Sedimentary rocks:** Sedimentary rock is formed from sediments transported by liquid water, ice or wind that become compacted and cemented together.



Bitumenous Coal



Chalk Lumps



Chert



Conglomerate



Diatomite

- **Igneous rocks:** Magma is molten rock made by the partial melting of rocks in the interior of the earth under high temperature and pressure. This hot magma keeps flowing out of the top of a volcano in the form of liquid called lava. This lava solidifies to form igneous rock.



Granite



Pumice



Basalt



Obsidian

- **Metamorphic rock:** Sedimentary and igneous rocks change when they become very hot to form a new rock called metamorphic rocks.



Marble



Slate



Quartzite



Gneiss

- **Soil:** Soil is the uppermost layer of the earth's crust where plants grow. Rocks break down into very tiny pieces due to the action of heat, rain, wind and water. These tiny pieces form soil. It is also the home to small animals like ants, moles, earthworms and rabbits.

SECTION - A : SCIENTIFIC REASONING

1. Large rocks in the mountain are called _____.

- a. boulders
- b. pebbles
- c. basalt
- d. lava

2. What will happen when magma shown in the given picture comes closer to the earth's surface?



- a. More volcanoes will be formed.
- b. Boulders will form.
- c. Pebbles will form.
- d. Lava will cool and solidify to form sedimentary rock.

3. 'X' is a solid rock formed when lava gets cool and solidifies.

Here X can be _____.

- a. granite rock
- b. pumice rock
- c. basalt rock
- d. all of these

4. Name the rocks formed because of the water body shown in the picture.



- a. sandstone and basalt
- b. conglomerate and shale
- c. shale and granite
- d. none of these

5. Which of the following rocks can be used to make the floor of a building?

- a. metamorphic
- b. igneous
- c. sedimentary
- d. both a. and b.

6. Identify the rocks used in the given picture.



- a. marble and granite
- b. quartzite and limestone
- c. slate and limestone
- d. limestone and sandstone

7. The object in the given picture is made up of _____.

- a. basalt
- b. quartzite
- c. shale
- d. conglomerate

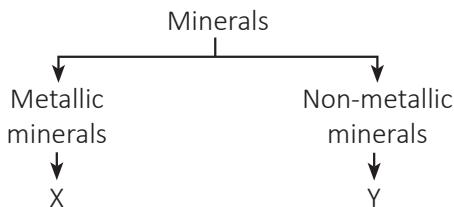


8. What is common about the animals mentioned in the box?

ants, moles, earthworms

- a. All of them live in soil.
- b. All of them are nocturnal animal.
- c. All of them are vertebrates.
- d. All of them help in soil formation.

9. Complete the classification chart.



- a. X – gold, Y – mica
 b. X – silver, Y – magnesium
 c. X – iron, Y – mica
 d. all of these
- 10. Name the rock used by dentists for polishing teeth.**
- a. granite b. basalt
 c. pumice d. obsidian

- 11. Four children grouped some rocks as given in the options. Which of them have made incorrect classification of rocks?**

- a. Aman : conglomerate, sandstone, shale, limestone
 b. Joseph : marble, slate, quartzite, gneiss
 c. Rose : granite, pumice, gneiss, basalt
 d. Pooja : granite, pumice, basalt, obsidian
- 12. Which of the following statements is incorrect about soil erosion?**

- a. A strong wind carries away a good part of the top soil.
 b. Heavy rain causes soil erosion.
 c. Ploughing of the hill slopes loosens the soil.

- d. Terrace farming enhances the chances of soil erosion.

- 13. Which of the following shows correct use of calcium chloride (salt)?**

- I. It is used to absorb moisture from the air.
 II. It is used in food processing.
 III. It is used in medicines.

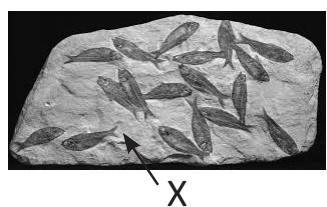
- a. only I b. only II
 c. only III d. all of these

- 14. 'X' soil is considered as fit for the growth of crop plants. 'Y' soil is considered as unfit for the growth of crop plants. Which point shows correct difference between X and Y?**

	X	Y
a.	rich in moisture	poor in moisture
b.	rich in nutrients	poor in nutrients
c.	rich in sand	rich in humus
d.	none of these	

- 15. The given picture shows a rock.**

Identify the rock and the labelled part, X.



- a. Rock – igneous , X – slate
 b. Rock – sedimentary, X – fossil
 c. Rock – marble, X – fossil
 d. Rock – conglomerate, X – shale

SECTION - B : EVERYDAY SCIENCE

16. Chambal valley in Madhya Pradesh (India) is unfit for farming because:

- a. running water makes the soil of the Chambal valley unfertile.
- b. heavy rain causes soil erosion in the Chambal valley.
- c. wind causes soil erosion in the Chambal valley.
- d. running water washes the top soil off the Chambal valley.

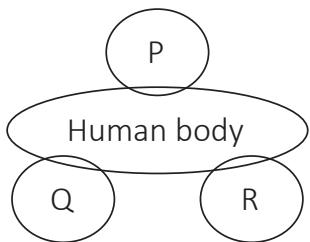
17. What is the purpose of cultivating a land in the pattern shown in the picture? Choose the correct option.



- I. It prevents soil erosion.
- II. It is used for water harvesting.

- a. I and II
- b. I only
- c. II only
- d. none of these

18. Study the Venn diagram. Identify the minerals P, Q and R.



- a. P – uranium, Q – sodium, R – calcium
- b. P – gold, Q – silver, R – iron
- c. P – mica, Q – magnesium, R – gold
- d. P – calcium, Q – sodium, R – iron

19. Limestone is used for making cement. What are its other uses? Choose the correct option.



- I. It is used for writing on the blackboard in the form of chalk.
- II. It is used for making glass.

- a. only I
- b. I and II
- c. only II
- d. none of these

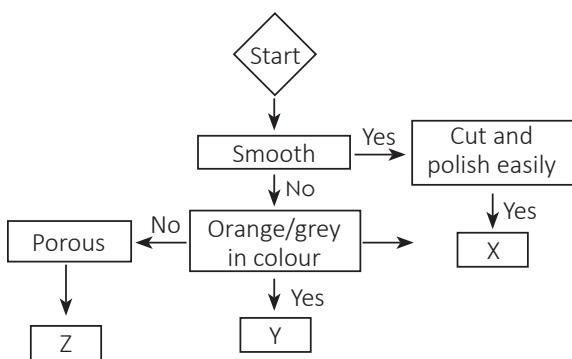
20. Students in a class are trying to find out the problems caused by soil erosion. Following are the results. Which of the result(s) is/are correct?

- I. Loss of valuable top soil.
- II. Burying valuable subsoil.
- III. Damage to fields.
- IV. Decline in plant productivity.

- a. only I
- b. only II
- c. I and III
- d. I, III and IV

SECTION - C : BRAINBOX

21. Study the given flowchart carefully and identify X, Y and Z.

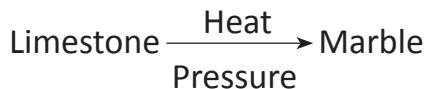


- a. X – basalt, Y – pumice,
Z – granite
- b. X – marble, Y – conglomerate,
Z – pumice
- c. X – basalt, Y – conglomerate,
Z – pumice
- d. X – marble, Y – sandstone,
Z – shale

22. If A is basalt, B is sandstone, C is pumica and D is granite, which of the following statements is correct?

- I. Rock A will sink in water.
 - II. Rock B will sink in water.
 - III. Rock C will float in the water.
 - IV. Rock D will float in the water.
- a. I, II and IV
 - b. I and II
 - c. I, II and III
 - d. I, III and IV

23. Study the table below and choose correct option for it.



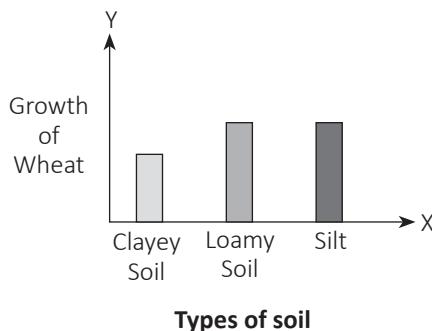
- I. Product formed has same chemical composition as limestone.
- II. Here, the reactant recrystallises into marble.
- III. Product formed is softer than the reactant.

- a. only I
- b. I and II
- c. only III
- d. I and III

24. Which of the following correctly shows the difference between shale and mudstone?

	Shale	Mudstone
a.	A very fined grained rock composed of clay sized particles.	It is composed of sand.
b.	It splits readily into thin, flat layers.	It may exhibit fissility.
c.	It breaks into thin chips with roughly parallel tops and bottoms.	It breaks into chunks or blocks.
d.	It is made of ancient mud.	It is made of fossil fuels.

25. The following graph shows the growth rate of wheat in three different soils.



Which of the following statements is incorrect on the basis of above graph study?

- a. Loamy soil is best suited for the growth of wheat.
- b. Clayey soil is best suited for the growth of wheat.
- c. Silt is not appropriate for the growth of wheat.
- d. Loamy soil is well aerated and has the right water holding capacity, thus it is suitable for the growth of wheat.

Darken your choice with HB pencil ——————

- | | | | | | | | | | | | | | | | |
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| 1. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 8. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 15. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 22. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 2. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 9. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 16. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 23. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
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| 6. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 13. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 20. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |
| 7. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 14. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 21. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |

Natural Calamities

- Natural calamities refer to some disasters caused by nature which might affect our life. It includes natural phenomenon such as drought, earthquakes, volcanic eruptions and tidal waves.

- **Drought:** It refers to the continuous period of dry weather when an area receives poor rainfall. Land and water bodies dry up because of harsh heat.



- **Earthquake:** It refers to the sudden shaking of the ground because of the movements or vibrations deep inside the earth's crust.

Earthquake is measured on Richter scale.



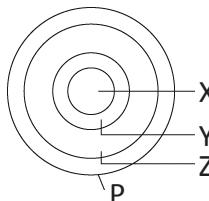
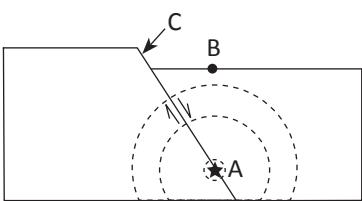
- **Volcanic eruptions:** It occurs when hot molten rock, ash and gases are released from a volcano.



- **Tidal waves:** These are caused by undersea earthquake or by a severe cyclone. These waves from the sea come rolling towards the shore and causes destruction on the seashore in seconds.



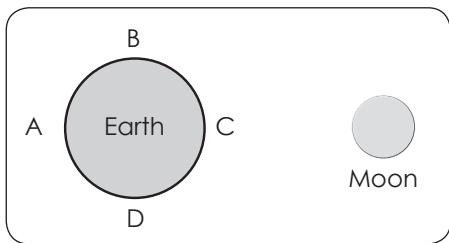
SECTION - A : SCIENTIFIC REASONING

1. Anant studies earthquakes. He is a/an I. _____. He uses II. _____ to detect earthquake.
- Choose the correct option for I and II.
- I – astronaut, II – barometer
 - I – seismologist, II – seismograph
 - I – seismologist, II – barometer
 - none of these
2. A volcano cannot erupt anymore when _____.
a. the volcanic gasses are not escaping
b. there hasn't been any volcanic activity since a long time
c. there is no unusual seismic activity
d. there are no signs of an active magma chamber beneath the volcano
3. Earthquakes are measured with the Richter magnitude scale. It is analysed that buildings and houses are least affected during the earthquakes with 'X' magnitude at Richter scale. They are mostly damaged when the magnitude of an earthquake is Y at Richter scale. What can be the magnitude of X and Y from the given options?
a. X = 2, Y = 4 b. X = 7, Y = 9
c. X = 4, Y = 8 d. X = 3, Y = 2
4. What are the after effects of an earthquake?
a. collapsed communication system
b. cracked roads
c. damaged buildings
d. all of these
5. 'X' comes out from a volcano during eruption. What do we call X?
a. magma b. diesel
c. lava d. distilled water
6. The given diagram shows the layers of the Earth.
Choose the correct statement.
- 
- P is the most external layer of the earth.
 - X is the layer that mainly consists of magmatic rocks.
 - Y is the layer that consists of melted rock.
 - X is the layer that lies after Y.
7. In the given figure, the point B is called the earthquake _____.

- dip
 - epicenter
 - focus
 - scarp

8. Typhoon is a kind of _____.

- a. cyclone
- b. anticyclone
- c. earthquake
- d. volcano

9. According to the given picture, which points on the earth would Earth have low tides?



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

10. Which cloud form is a sign of tornado formation?

- a. wall Cloud
- b. outflow Band
- c. cumulus
- d. stratus

11. A tsunami is a series of waves. How is it caused?

- I. due to an earthquake
- II. due to underwater volcanic eruption
- III. due to underwater landslide.

Choose the correct option.

- a. I & II
- b. I & III
- c. II & III
- d. I, II, III

12. What keeps a hurricane alive?

- a. wind
- b. land
- c. cold water
- d. warm water

13. Which of the following statements is incorrect?

- a. The crust of the Earth is made of large and small plates.
- b. A volcano releases hot molten rock from the earth's interior.
- c. Droughts are caused by heavy rainfall.
- d. Tidal waves caused by undersea earthquake are called tsunami.

14. In an open ocean, tsunami can trend X miles per hour with periods up to Y minutes.

Which of the following can be the magnitude of X and Y?

- a. X – 50, Y – 20
- b. X – 50, Y – 80
- c. X – 485, Y – 20
- d. X – 485, Y – 80

15. Why are tropical cyclones given names?



- a. It is required for research.
- b. Forecasters need it.
- c. For reporting on the news channels.
- d. It helps in precasting, tracking and reporting.

SECTION - B : EVERYDAY SCIENCE

16. By which of the following ways we can reuse water?

- I. Use water that is drained out from washing vegetables to water plants.
- II. Collect rainwater by installing a rain barrel and use it for other purposes.
- III. Install a graywater system.

- a. only I
- b. only II
- c. both I and II
- d. I, II and III

17. Following is a list of dos and don'ts during an earthquake.

Identify the incorrect statement in the given precautions.

DOs	DON'Ts
I. Rush towards an open area of land.	I. Stay next to an outside wall.
II. If inside a vehicle – stop and stay inside the vehicle.	II. Stay under a table or desk.

- a. Dos – I
- b. Don't – I
- c. Dos – II
- d. Don't – II

18. A lab teacher conducts an experiment. He puts a small piece of wax in a glass beaker. Then he pours some sand to completely cover the cube of wax. After that he slowly pours water into the beaker until it is nearly full. Then, places the beaker on a hotplate.

He observes as the wax heats beneath the sand, it melts and finds its way out of the sand.

This experiment resembles:

- a. the volcanic eruption.
- b. volcanic eruption occurring under water.
- c. both a. and b.
- d. rocks inside the earth crust.

19. In the event of a tornado, which of the following is the safest place to take shelter?

- I. second floor bathroom
- II. internal closet
- III. living room
- IV. basement

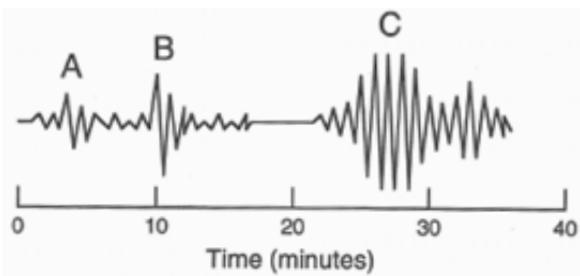
- a. I and II
- b. II and IV
- c. only III
- d. II and III

SECTION - C : BRAINBOX

20. Vasudha, noticed that a large number of dead fish were drifting towards the sea shore. Many dead birds with sticky and black coated feathers were also there. Which of the following disasters could be responsible for this?

- a. tsunami b. hurricane
- c. oil spill d. volcanic eruption

21. What causes the up-and-down wiggles on the given seismogram?

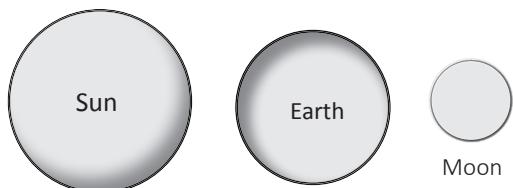


- a. variations in air pressure
- b. ground vibrations
- c. tsunami waves
- d. electromagnetic pulses

22. When an earthquake occurs, it releases energy in the form of waves that radiate from the earthquake source in all directions. Which is the fastest wave?

- a. primary wave
- b. seismic wave
- c. surface wave
- d. none of these

23. If the Sun, Earth, and Moon are lined up as shown here, the Earth would have:



- a. Spring Tides, when there are very high and very low tides.
- b. Spring Tides, when there are almost no tides.
- c. Neap Tides, when there are very high and very low tides.
- d. Neap Tides, when there are almost no tides.

24. The Richter scale measures energy emitted by an earthquake. Identify the incorrect match for energy wave on Richter scale and its affect.

- a. 0 – 1.9 → can be detected only by seismograph
- b. 2 – 2.9 → hanging objects may swing
- c. 4 – 4.9 → displacement of buildings
- d. 5 – 5.9 → furniture moves

25. Following table shows two columns A and B with their examples. Give suitable heading to the columns, A and B.

A	B
migration of living beings	vibrations deep inside the Earth
poor rainfall	seismologist
lowering of water table	loss of life and property
meteorological department	evacuation announcements

- a. A – drought B – tidal waves
b. A – drought B – earthquake
c. A – volcano B – drought
d. A – tidal waves B – earthquake

Darken your choice with HB pencil

1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d
6. a b c d
7. a b c d

8. a b c d
9. a b c d
10. a b c d
11. a b c d
12. a b c d
13. a b c d
14. a b c d

15. a b c d
16. a b c d
17. a b c d
18. a b c d
19. a b c d
20. a b c d
21. a b c d

22. a b c d
23. a b c d
24. a b c d
25. a b c d

Air, Water and Our Environment

→ Air

- Air is the mixture of gases. It is affected by heat and altitude.
- The higher you are, the lower the air pressure is.
- The air pressure in our lungs, ears and stomach is the same as the air pressure outside our bodies, which ensures that we don't get crushed.
- Release of unwanted particles (pollutants) in air makes it polluted.

→ Water

- It is called the 'universal solvent' because it is capable of dissolving a variety of substances in it.
- Water has a very high melting and boiling point compared to other similar molecules.
- Unwanted materials when mixed with water causes water pollution.
- **Biodegradable pollutants:** These pollutants can be broken down into simpler form by the action of certain micro-organisms.

Example - kitchen waste, agriculture waste etc.

- **Non-Biodegradable pollutants:** These pollutants cannot be broken down into simpler form by the action of micro-organisms.

Example - plastic, pesticides, metal etc.

→ Environment

Our environment includes living and non-living things around us. Living components of environment are plants, animals and micro-organisms. The non-living components of environment are soil, water, air, minerals, fossil fuels and other non-living things around us.

SECTION - A : SCIENTIFIC REASONING

1. When you dive in to a diving pool. The water does not enter our ears. This is because –
 - a. air is already present in the outer ear and blocks the entry of water.
 - b. water is denser.
 - c. water is lighter.
 - d. ear has wax.
2. Which of the following statements is correct?
 - a. It is difficult to breathe at high altitudes.
 - b. The air is thinner at higher reaches of the mountains.
 - c. As we move up the oxygen present in the air reduces.
 - d. all of these
3. Which of these conditions will lead to higher evaporation?
 - a. Drying of clothes under a tree.
 - b. Drying of clothes inside a closed room.
 - c. Drying of clothes in the sunlight.
 - d. Drying of clothes in the basement of the house.
4. The given picture shows an important process of water cycle. What are the other types of this process apart from rain?

I. Drizzle II. Hail III. Snow IV. Sleet



- a. I and II b. II and III
c. I, II, III and IV d. only III
5. When a glass of saturated salt water is heated, it can take in more salt. This is because –
 - a. the solubility of salt in water increases with temperature.
 - b. the salt already present in the water decomposes with heat therefore water can dissolve more salt.
 - c. the salt already present in the water reacts with the water and changes the property of the water which enables it to dissolve more salt.
 - d. none of these
6. Fill in the blanks with the appropriate option given below.
The air that we inhale _____ than the air that we exhale.
 - a. has a lower temperature
 - b. contains more oxygen
 - c. contains more water vapour
 - d. contains less carbon dioxide

7. Which of the following correctly represents the difference between boiling and evaporation of water?

Boiling	Evaporation
I. A liquid is changed to a gas.	A gas is changed to a liquid.
II. It cannot occur below 100 °C.	It can occur below 100 °C.
III. Heat is absorbed from the surroundings.	Heat is released from the surroundings.
IV. Steam is produced	No steam is produced.

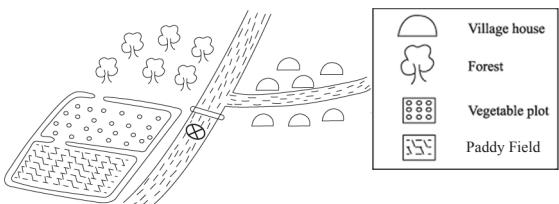
- a. only I
- b. II and IV
- c. III and IV
- d. I, II, III and IV

8. Which of the following statements is correct?

- a. A person yawns to slow down the heart rate.
- b. A person yawns to increase the amount of oxygen taken into the body.

- c. A person yawns to control increased heart rate.
- d. A person yawns to release large amount of carbon dioxide.

9. Observe the given map of a village.



Identify the pollutant that is likely to enter the river at point \bigcirc .

- I. animal faeces
- II. untreated sewage
- III. fertiliser
- IV. domestic waste

- a. I and II
- b. II and III
- c. I, III and IV
- d. only IV

10. The table shows the bacteria count, water temperature and the number of green plants and animals in the river near each town. Which town is most likely to be situated near an unpolluted river?

Town	Bacterial count	Water temperature	Number of green plants	Number of animals
I.	Low	30°C	Few	Few
II.	High	60°C	Few	Few
III.	High	30°C	Many	Few
IV.	Low	30°C	Many	Many

- a. I
- b. II
- c. III
- d. IV

11. Which one of the following is not the effect of genetic modification?

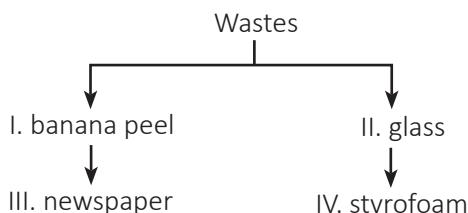
- a. A plant to have insect-repelling characteristics.
- b. A plant to accelerate its growth rate.
- c. A tree to produce smaller fruits.
- d. The food to be enriched with more vitamins.

12. What is the purpose of the rooster on a weather vane?



- a. It tells us about the daily weather.
- b. It tells us about the sunrise.
- c. It shows us the direction in which the wind moves.
- d. all of these

15. Look at the given flow chart and find the suitable categories for I, II, III and IV.



- a. recyclable
- b. bio degradable
- c. non-recyclable
- d. non-biodegradable

I	II	III	IV
recyclable	non-recyclable	waste food	leather
bio degradable	non-biodegradable	paper mask packing	plastic plate
non-recyclable	recyclable	plastic plate	tin
non-biodegradable	non-bio degradable	food tin	paper cup

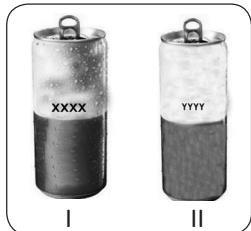
SECTION - B : EVERYDAY SCIENCE

16. The given picture shows thick fog that envelopes winter mornings. What is the reason behind this?



- a. condensation of water vapour near the ground
- b. evaporation of water
- c. transpiration of water
- d. water pollution

17. Ruhi takes out a juice can from the refrigerator. She observed the can at 10.30 a.m. (shown in fig I) and then at 11.30 a.m. (shown in figure II). Which of the following processes can explain her observations?



- a. Melting, followed by condensation.
- b. Freezing, followed by condensation.
- c. Evaporation, followed by condensation.
- d. Condensation, followed by evaporation.

18. Water pollution can be caused by:

- I. untreated sewage flowing into the waterways.
- II. excessive use of chemical fertilisers.
- III. oil spill from ships.

- a. I and III
- b. II and III
- c. only III
- d. I, II and III

19. Solar panels on a roof absorb solar energy changes it into electricity. If more houses have these panels, it will reduce pollution considerably. Give reason for the decrease in pollution.

- I. The power station burns fuel that produces a lot of fume.
- II. The power stations use coal that once mined, cannot be replaced easily.
- III. The power station use generators that creates noise.

- a. only I
- b. both I and III
- c. only III
- d. both I and II

20. Joseph breathed out through his mouth, onto his palm and felt warm. He breathed out on the mirror and he noticed mist on it. What can you say about Joseph's observations?
- The air he breathed out was warmer than the air he breathed in.
 - The air he breathed in contains moisture.
 - The mirror was colder than the surrounding air.
 - He regularly breathes through his mouth.

SECTION - C : BRAINBOX

21. Which of the following is correct about the image shown here?



- I. Earthworms eat their way through the soil and make it porous.
 - II. Earthworms help in increasing the fertility of soil.
 - III. When we make use of earthworms or redworms for making compost, the process is called vermicomposting .
-
- only I
 - only II
 - only III
 - all of these

22. Study the given pictures and answer the following question.



What is the similarity between two states of matter shown in the above pictures?

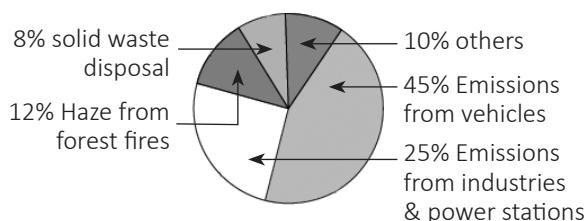
- I. Both are formed by evaporation of water.
 - II. Both are formed by condensation of water.
 - III. Both are made of water vapours.
 - IV. Both are made of tiny water droplets.
-
- II and IV
 - I, II and III
 - II and III
 - I, III and IV

23. X's freezer takes one hour for water to completely freeze into ice cubes. He filled an ice tray with water and left it in the freezer for 55 minute. After that, he took out an ice cube and observed that the outside of the cube had frozen solid, but there was still some liquid inside the cube.

What are the possible temperatures of the ice and the water inside the cube?

	Temperature of ice	Temperature of water
a.	0°C	0°C
b.	0°C	-1°C
c.	-1°C	-1°C
d.	-1°C	-1°C

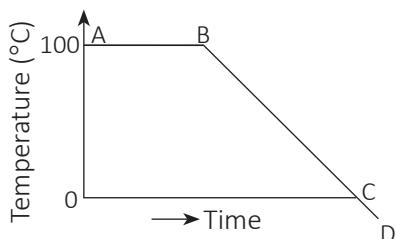
24. The pie chart given below shows the source of air pollution in a particular country.



Based on the pie chart, what action will reduce the most amount of air pollution in this country?

- I. Cutting down more trees.
 - II. Allocate more land for dumping rubbish.
 - III. Use energy saving appliances.
 - IV. Use public transport more often.
-
- a. I and II
 - b. II and III
 - c. III and IV
 - d. I, II, III and IV

25. Study the graph shown below and answer the following question.



What changes in the state of water could have taken place between points A and D as shown in the above graph?

- a. solid → gas → liquid
- b. liquid → gas → solid
- c. gas → liquid → solid
- d. solid → liquid → gas

Darken your choice with HB pencil

- | | | | | | | | | | | | | | | | |
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| 1. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 8. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 15. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 22. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
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| 3. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 10. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 17. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 24. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 4. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 11. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 18. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 25. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 5. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 12. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 19. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |
| 6. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 13. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 20. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |
| 7. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 14. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 21. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |

Direction (Q. No. 1 – 2) : Identify the pair of words that contain the hidden word.

1.

1	2	3	4	5	6
---	---	---	---	---	---

We must welcome the new boy
 a. 2, 3 b. 4, 5
 c. 5, 6 d. 1, 2

2.

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

The class of yoga included a free mat
 a. 1, 2 b. 3, 4
 c. 4, 5 d. 7, 8

3. Identify the one which does not belong to the group.
 a. 121 b. 169
 c. 225 d. 289

4. Choose the odd one out.
 a. YFDRIA b. MDONAY
 c. PRAIL d. URATSYAD

Direction (Q. No. 5 – 6) : Find the matching pair.

5. $M \times N$ is to 13×14 as $F \times R$ is to

 a. 14×15 b. 5×17
 c. 6×18 d. 7×19

6. 322120 is to 321920 as 324242 is to

 a. 324142 b. 324132
 c. 323920 d. 323319

Direction (Q. No. 7 – 8) : Find the missing number in the given series.

7.

1	8	27	64	?	216
---	---	----	----	---	-----

 a. 124 b. 125
 c. 127 d. 128

8.

729	243	81	27	9	?
-----	-----	----	----	---	---

 a. 1 b. 5
 c. 3 d. 7

9. If $A = 5$, $B = 4$, $C = 1$, $D = 2$ and $E = 0$, then $B + C - A = ?$
 a. B b. C
 c. D d. E

Direction of (Q. No. 10 – 11) : P and Q are the only two who like both apple and orange. Q and R are the only two who like both orange and banana. S and P are the only two who like both grapes and strawberry.

10. Who likes orange but not banana?
 a. P b. Q
 c. R d. S

11. Who likes orange, banana and apple?
 a. S b. R
 c. Q d. P

12. Which letter in English alphabet will be 9th to the left of the 7th letter from the right?

- a. L b. K
c. N d. I

13. If the first half of the English alphabet is written in reverse order, then which letter will be 9th to the left of the 10th letter from the left?
a. L b. H
c. G d. E

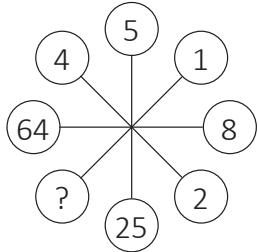
Direction for (Q. No. 14 – 15) : Replace the question mark with suitable number.

14. Which number replaces the question mark?



- a. 55 b. 44
c. 33 d. 22

15. a. 1
b. 2
c. 3
d. 4



16. If '+' means '×', '×' means '−', '−' means '÷' and '÷' means '+', then what will be the value of

$$175 - 25 \div 5 + 20 \times 3 + 10$$

- a. 57 b. 77
c. 177 d. 215

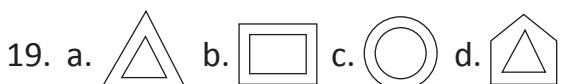
17. If 'L' stands for '+', M stands for '−', 'N' stands for '×' and 'P' stands for '÷' then find the value of

$$14N10L42P2M8$$

- a. 248 b. 216
c. 251 d. 153

18. If MARCH is coded as HCRAM, then how would BARKS be coded?
a. BRASK b. SKRAB
c. KRABS d. none of these

Direction for (Q. No. 19 – 20) : Find the figure which is different from others.



21. By looking in a mirror, it appears that it is 6:30 in a clock. What is the real time?

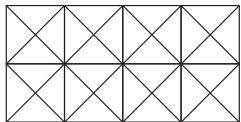
- a. 6:30 b. 5:30
c. 6:00 d. 4:30

22. Identify the mirror image of a. b. c. d.

23. Find the mirror image of 'NATION'.
a. NOTIAN b. NOTIAN
c. NIATON d. NATION

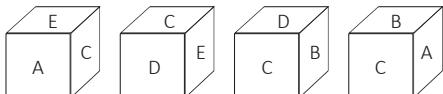
24. If Pranav is to the South of Karim and Rahul is to the East of Karim. In which direction is Pranav with respect to Rahul?
a. South b. North- west
c. North- east d. South- west

25. Find the number of squares in the given figure.



- a. 11 b. 21
c. 24 d. 26

26. Observe the figures of given cubes.



Which letter will be opposite to letter 'D'?

- a. A b. B
c. E d. F

27. Pointing to the photograph of a man, Dilip said, "His only brother is the father of my daughter's father." How is gentleman related to Dilip?

- a. father b. uncle
c. brother d. grand father

28. Read the given sentences and arrange them in the order of their occurrence.

I. He started searching for a match box.

II. It was dark every where.

III. The only lit candle died away.
Choose the correct option.

- a. I, II, III b. II, III, I
c. III, II, I d. I, III, II

29. Five friends are sitting around a round table in a restaurant. Priya is sitting next to Kareena. Riya is sitting between Kareena and Shalu. Teena is sitting to the left of Priya. Who is sitting to the right of Riya?

- a. Shalu b. Priya
c. Kareena d. Teena

30. Replace '?' with suitable number.

6	EJI	3
N		D
F		P
K		Q
9	MDH	?

- a. 15 b. 12
c. 9 d. 10

Darken your choice with HB pencil

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

28. a b c d

29. a b c d

30. a b c d

Answers

Chapter 1: Human Body and Nutrition

1.	c	2.	c	3.	d	4.	b	5.	b	6.	c	7.	d	8.	a	9.	d	10.	b
11.	b	12.	c	13.	d	14.	a	15.	a	16.	a	17.	c	18.	c	19.	c	20.	a
21.	a	22.	b	23.	b	24.	c	25.	b										

Chapter 2: Plants, Bacteria and Fungi

1.	b	2.	a	3.	d	4.	b	5.	c	6.	a	7.	d	8.	b	9.	c	10.	b
11.	b	12.	c	13.	b	14.	c	15.	d	16.	d	17.	a	18.	d	19.	b	20.	b
21.	b	22.	d	23.	a	24.	a	25.	b										

Chapter 3: Animals

1.	b	2.	c	3.	c	4.	c	5.	c	6.	d	7.	c	8.	b	9.	a	10.	a
11.	c	12.	d	13.	c	14.	a	15.	d	16.	c	17.	d	18.	c	19.	a	20.	a
21.	b	22.	c	23.	b	24.	b	25.	d										

Chapter 4: Force, Work, Energy and Simple Machines

1.	c	2.	c	3.	a	4.	a	5.	c	6.	a	7.	b	8.	b	9.	a	10.	b
11.	c	12.	a	13.	d	14.	b	15.	c	16.	c	17.	a	18.	d	19.	b	20.	d
21.	a	22.	d	23.	b	24.	b	25.	c										

Chapter 5: Light and Sound

1.	d	2.	c	3.	a	4.	d	5.	a	6.	c	7.	a	8.	a	9.	c	10.	a
11.	a	12.	d	13.	d	14.	b	15.	b	16.	c	17.	a	18.	c	19.	d	20.	d
21.	d	22.	b	23.	b	24.	d	25.	d										

Chapter 6: Matter

1.	c	2.	d	3.	a	4.	a	5.	b	6.	b	7.	c	8.	c	9.	a	10.	a
11.	c	12.	c	13.	d	14.	d	15.	b	16.	d	17.	b	18.	b	19.	a	20.	b
21.	b	22.	b	23.	c	24.	a	25.	b										

Chapter 7: Soil, Rocks and Minerals

1.	a	2.	a	3.	d	4.	b	5.	d	6.	c	7.	b	8.	a	9.	d	10.	c
11.	c	12.	d	13.	d	14.	c	15.	b	16.	d	17.	b	18.	d	19.	a	20.	d
21.	b	22.	c	23.	b	24.	c	25.	b										

Chapter 8: Natural Calamities

1.	b	2.	d	3.	a	4.	d	5.	c	6.	a	7.	b	8.	a	9.	d	10.	a
11.	d	12.	a	13.	c	14.	c	15.	d	16.	d	17.	d	18.	a	19.	b	20.	c
21.	b	22.	a	23.	a	24.	c	25.	b										

Chapter 9: Air, Water and Our Environment

1.	a	2.	d	3.	c	4.	c	5.	a	6.	b	7.	b	8.	b	9.	c	10.	d
11.	c	12.	c	13.	b	14.	b	15.	b	16.	a	17.	d	18.	d	19.	b	20.	a
21.	d	22.	a	23.	a	24.	c	25.	c										

Chapter 10: Logical Reasoning

1.	b	2.	c	3.	d	4.	c	5.	c	6.	a	7.	b	8.	c	9.	d	10.	a
11.	c	12.	b	13.	d	14.	d	15.	a	16.	b	17.	d	18.	b	19.	d	20.	c
21.	b	22.	a	23.	c	24.	d	25.	a	26.	a	27.	b	28.	c	29.	a	30.	c