

SOF NATIONAL SCIENCE OLYMPIAD

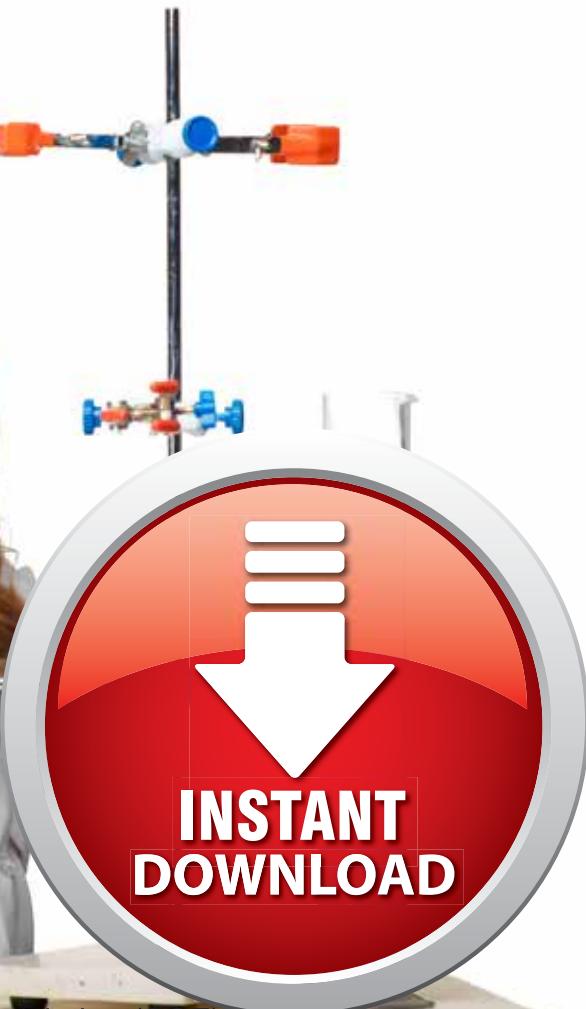
Level 2

SOLVED PAPERS

5 Years (2016-2020)

CLASS

5



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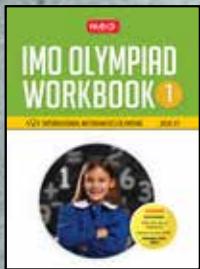
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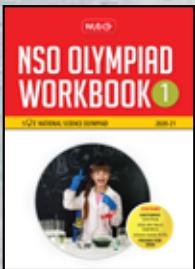
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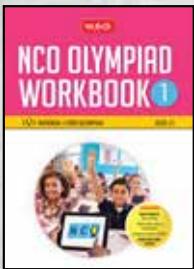
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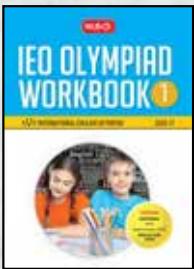
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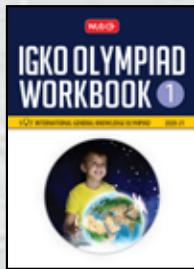
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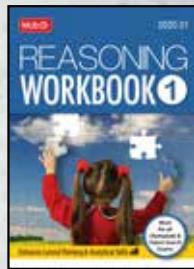
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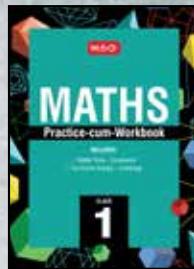
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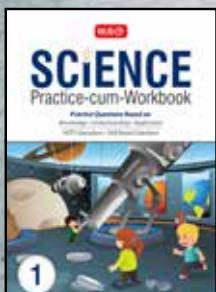
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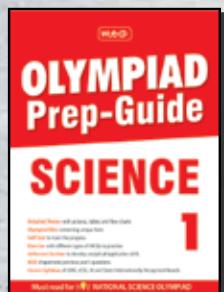
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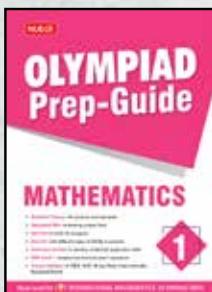
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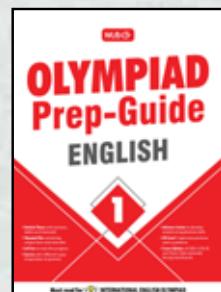
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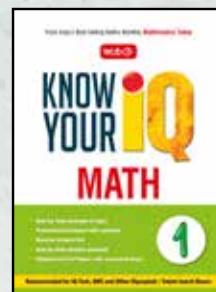
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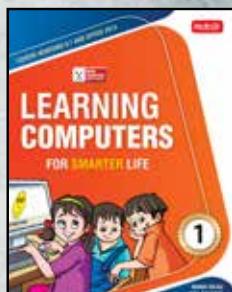
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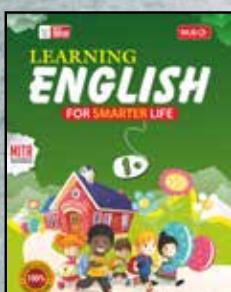
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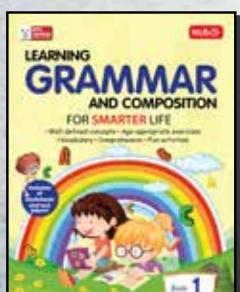
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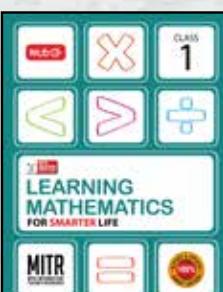
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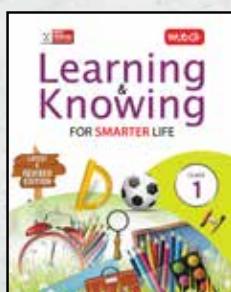
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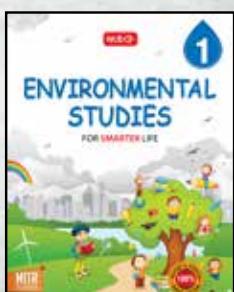
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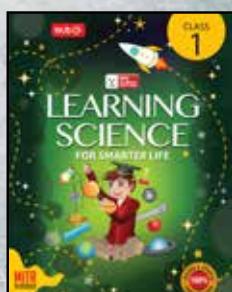
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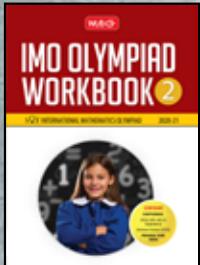
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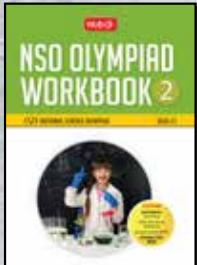
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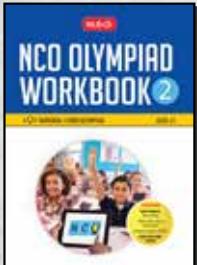
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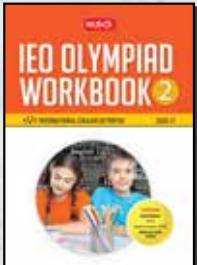
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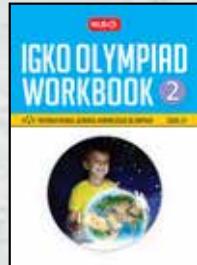
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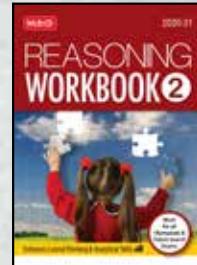
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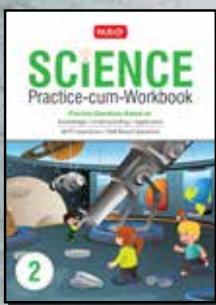
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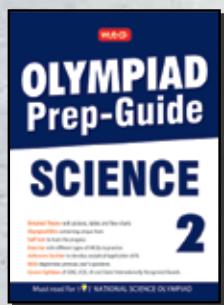
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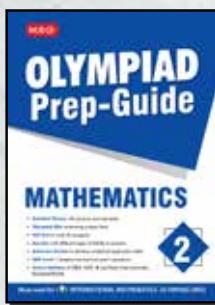
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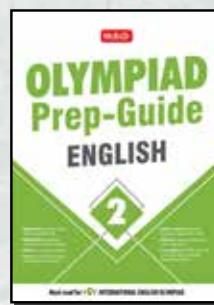
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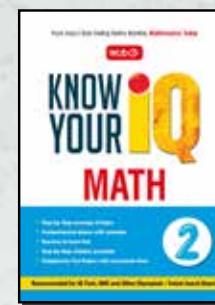
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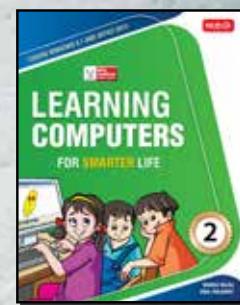
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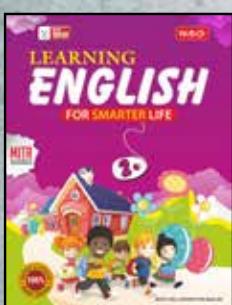
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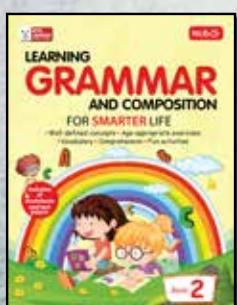
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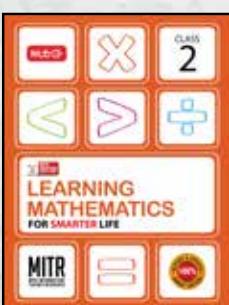
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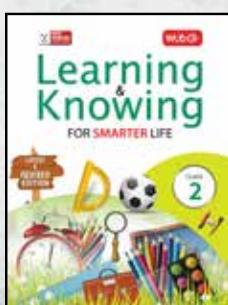
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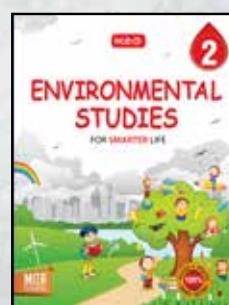
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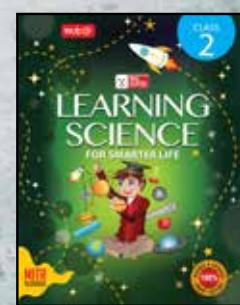
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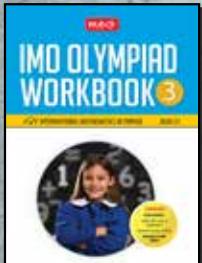
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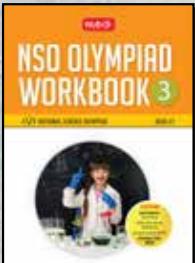
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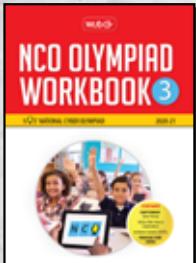
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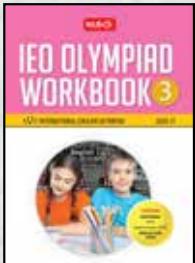
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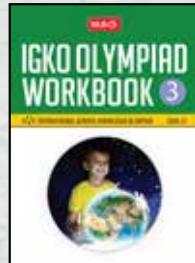
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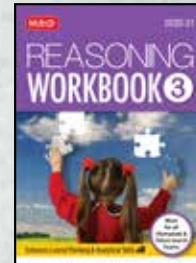
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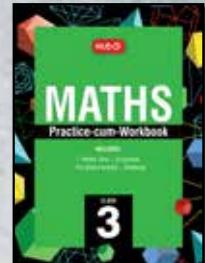
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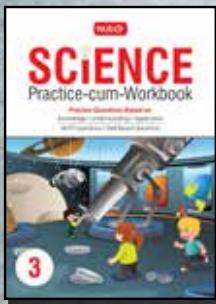
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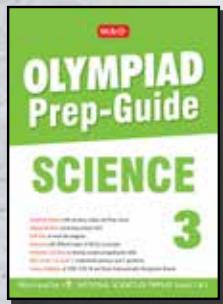
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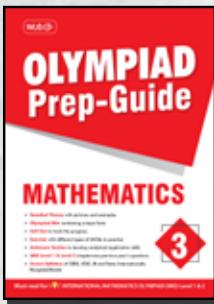
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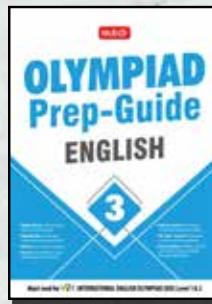
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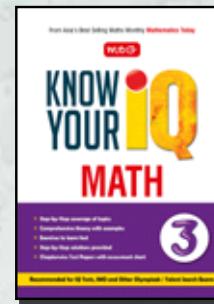
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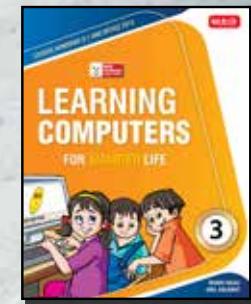
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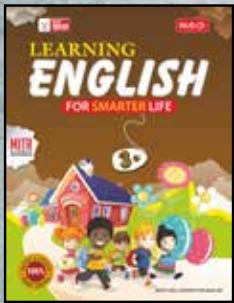
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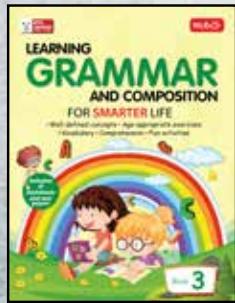
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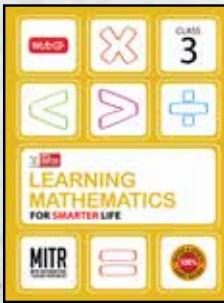
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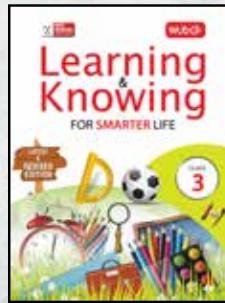
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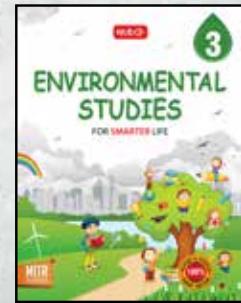
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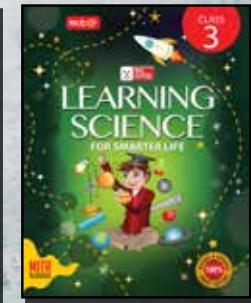
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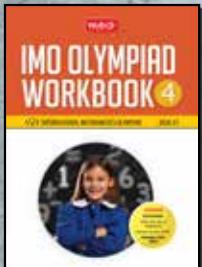
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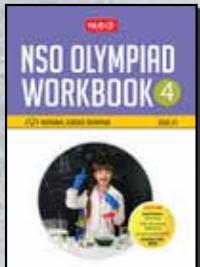
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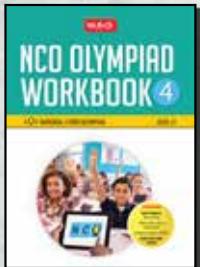
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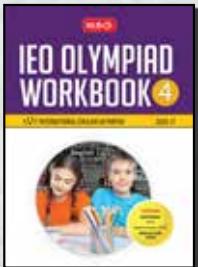
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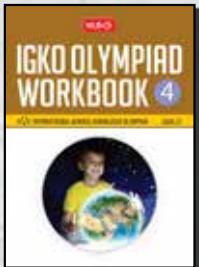
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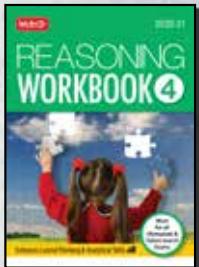
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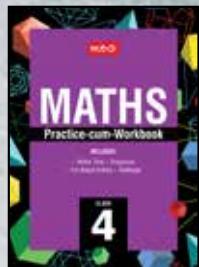
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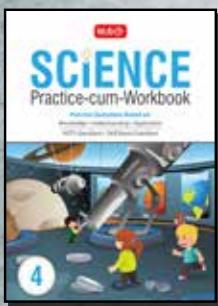
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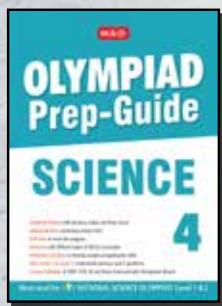
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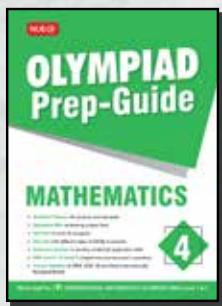
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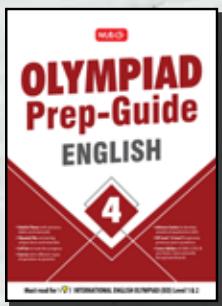
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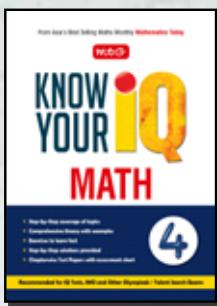
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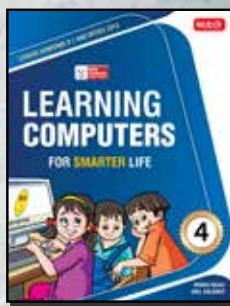
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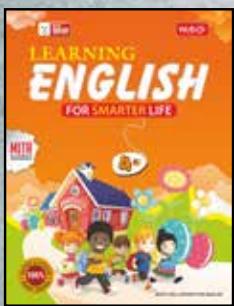
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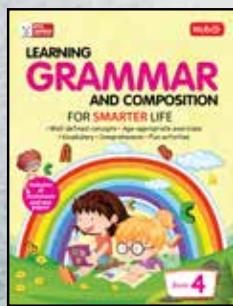
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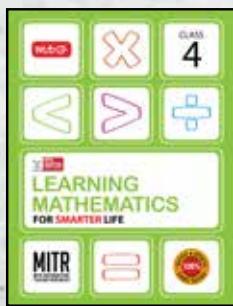
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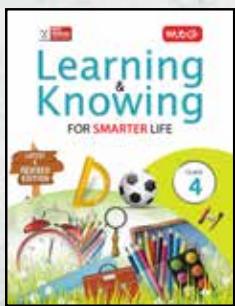
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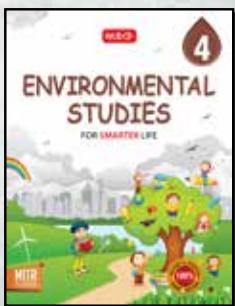
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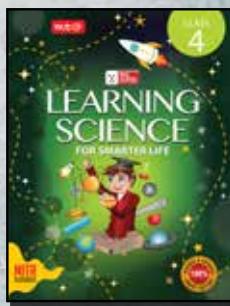
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Learning & Knowing



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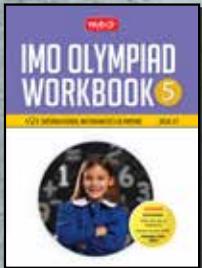
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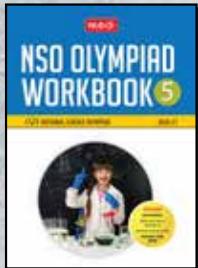
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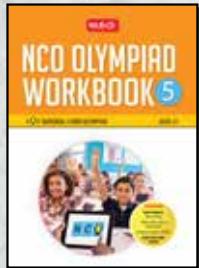
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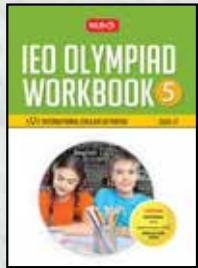
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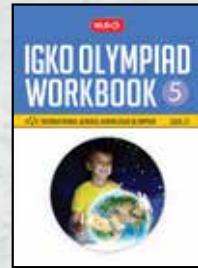
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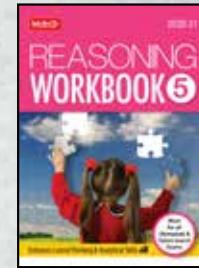
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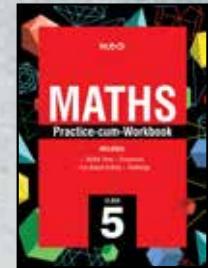
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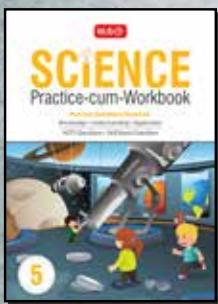
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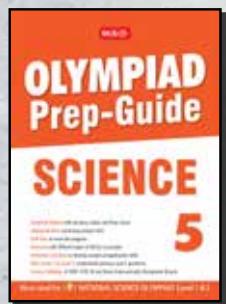
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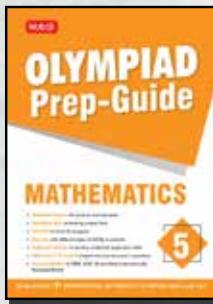
Maths Practice-cum-Workbook



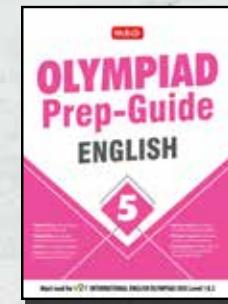
Science Practice-cum-Workbook



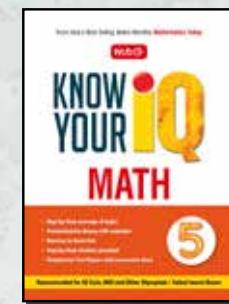
Olympiad Prep-Guide Science



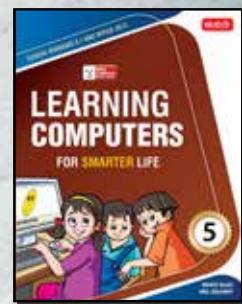
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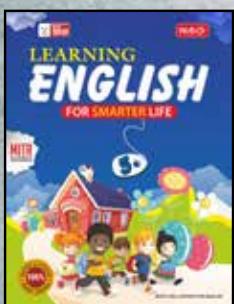
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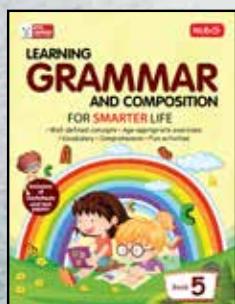
Know Your IQ Math



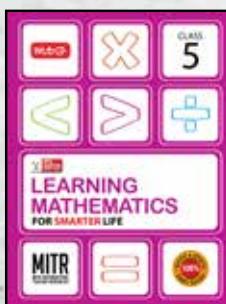
Learning Computers



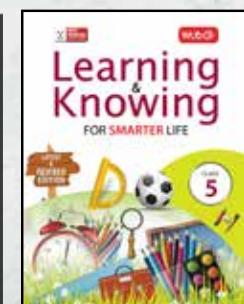
Learning English



Learning Grammar



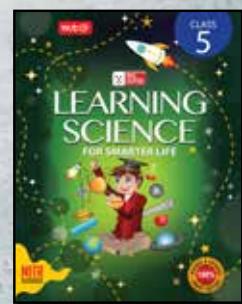
Learning Mathematics



Learning & Knowing



EVS



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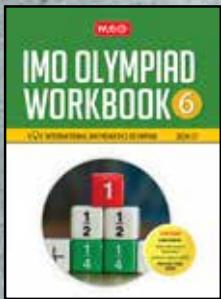
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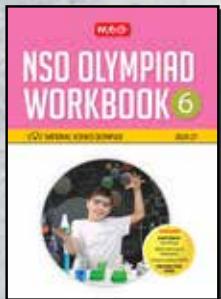
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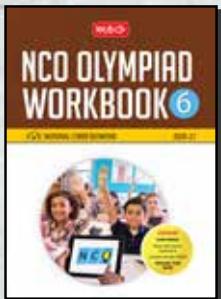
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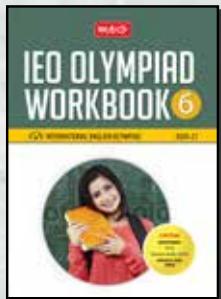
International Mathematics Olympiad



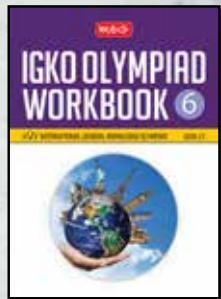
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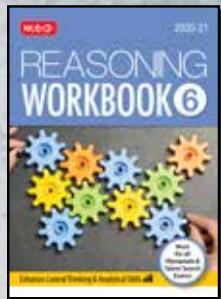
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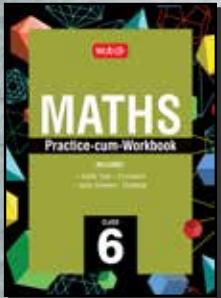
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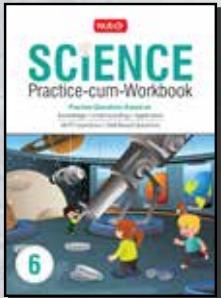
International General Knowledge Olympiad



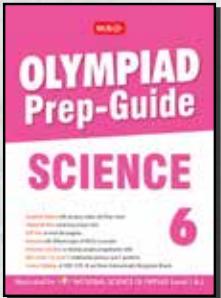
Reasoning



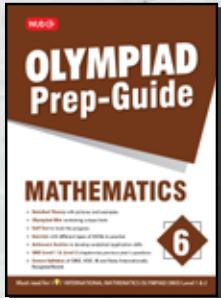
Maths Practice-cum-Workbook



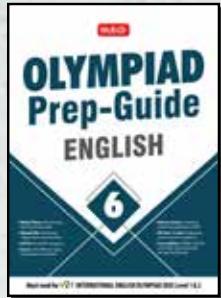
Science Practice-cum-Workbook



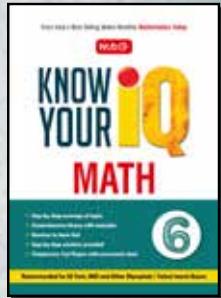
Olympiad Prep-Guide Science



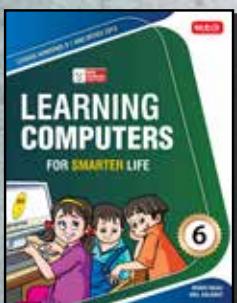
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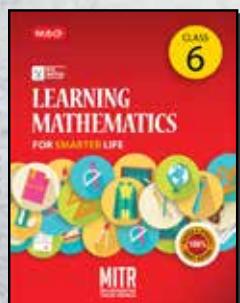
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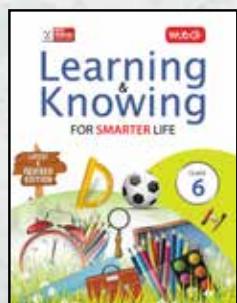
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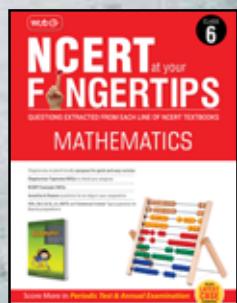
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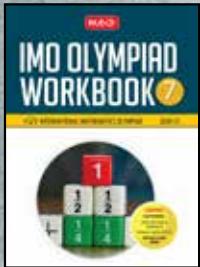
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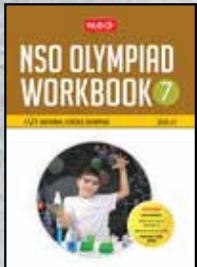
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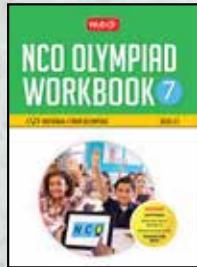
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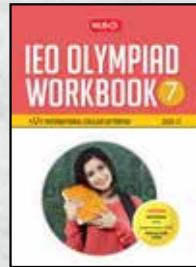
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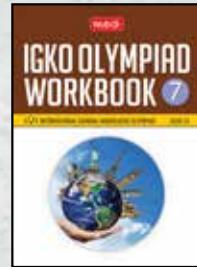
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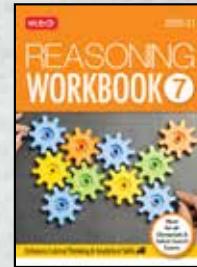
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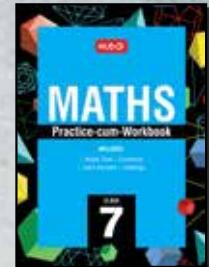
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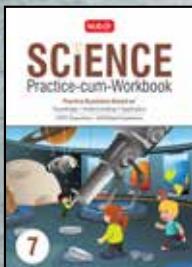
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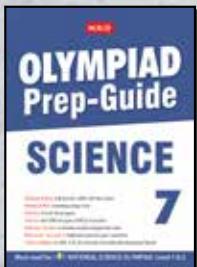
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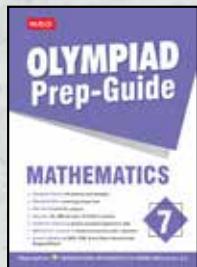
Maths Practice-cum-Workbook



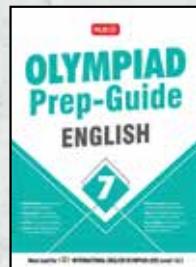
Science Practice-cum-Workbook



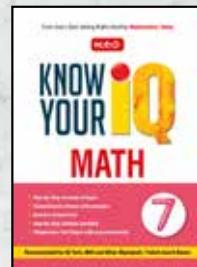
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Olympiad Prep-Guide Mathematics



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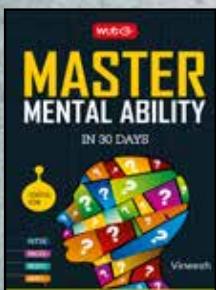
Know Your IQ Math



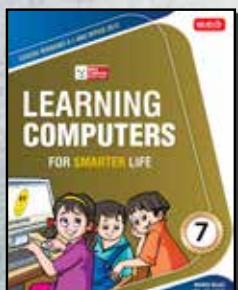
Math IQ Challenge



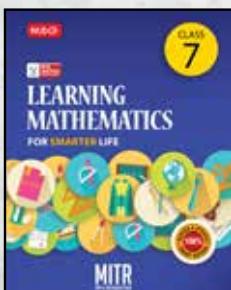
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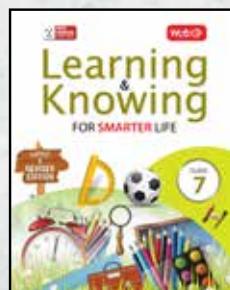
Master Mental Ability in 30 Days



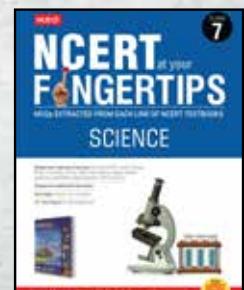
Learning Computers



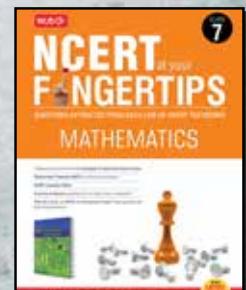
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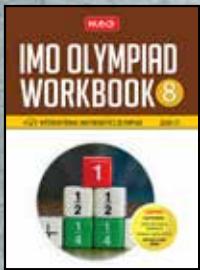
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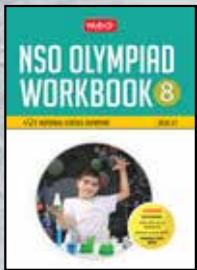
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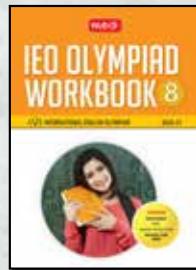
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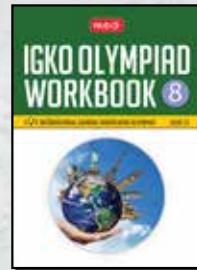
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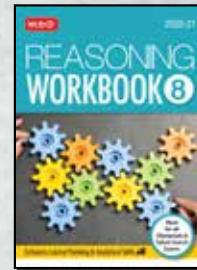
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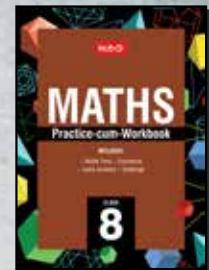
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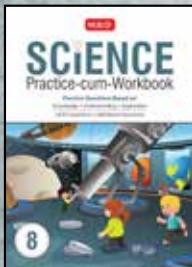
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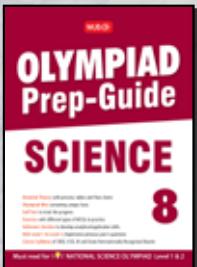
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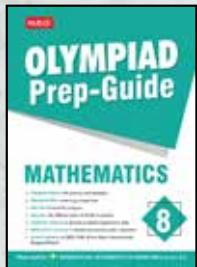
Maths Practice-cum-Workbook



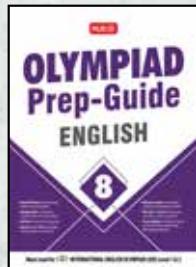
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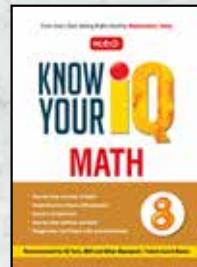
Olympiad Prep-Guide Science



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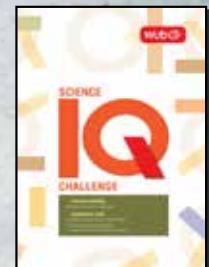
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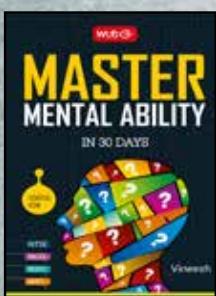
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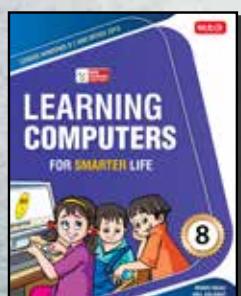
Math IQ Challenge



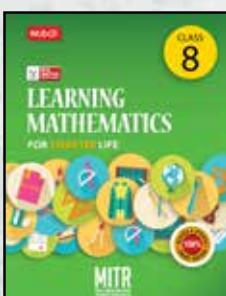
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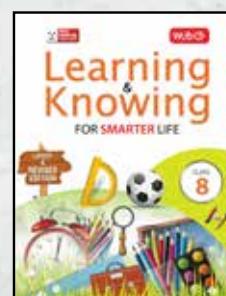
Master Mental Ability in 30 Days



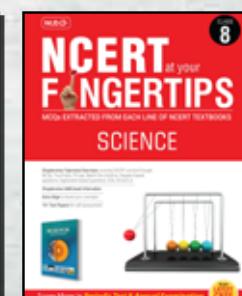
Learning Computers



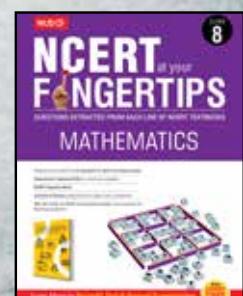
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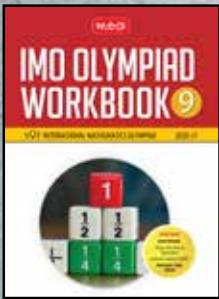
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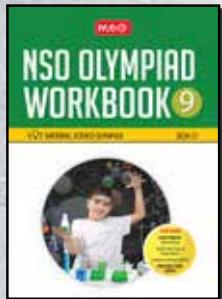
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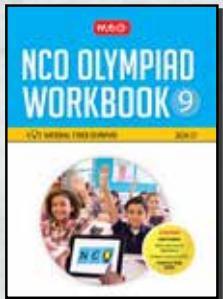
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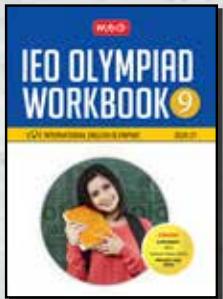
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Mathematics
Olympiad



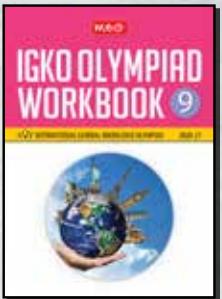
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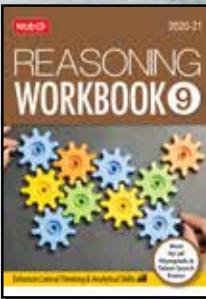
National Cyber
Olympiad



International
English
Olympiad



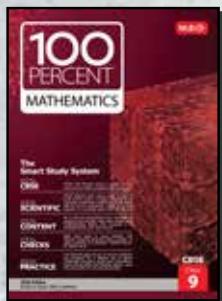
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General Knowledge
Olympiad



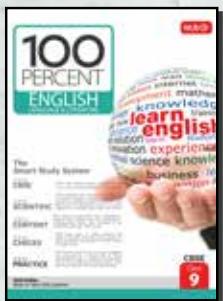
Reasoning



100 PERCENT
Science



100 PERCENT
Mathematics



100 PERCENT
English



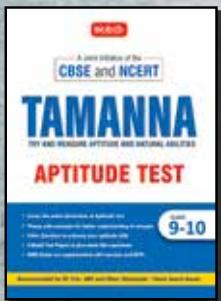
100 PERCENT
Social Science



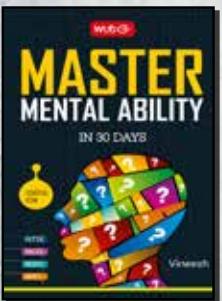
Math IQ
Challenge



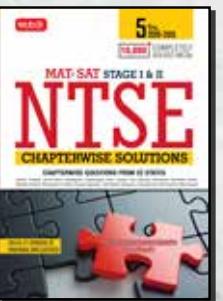
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Challenge



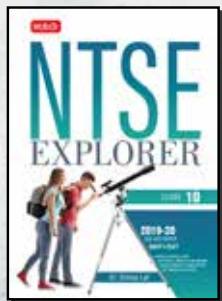
TAMANNA
Aptitude Test



Master Mental
Ability in 30 Days



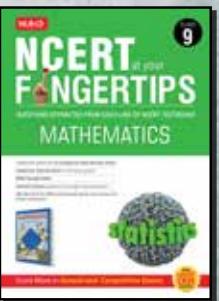
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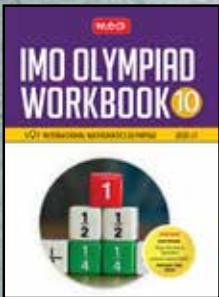
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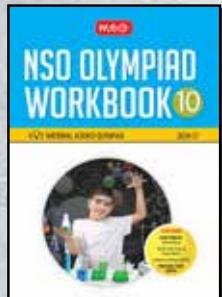
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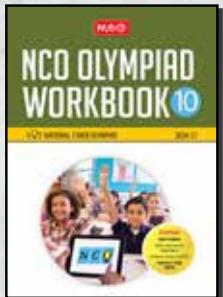
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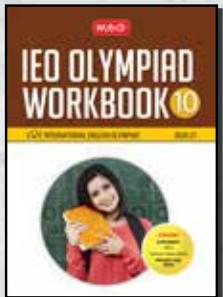
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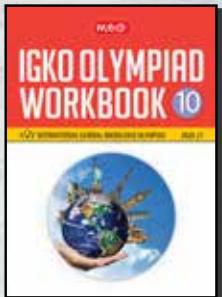
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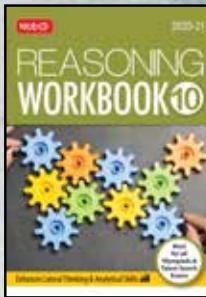
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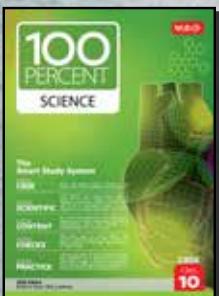
International
English
Olympiad



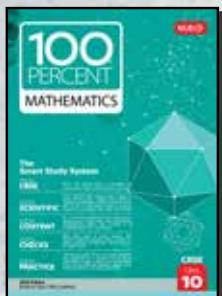
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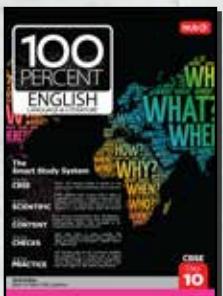
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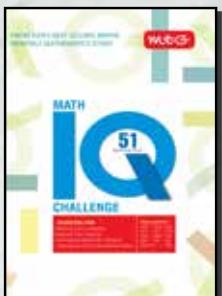
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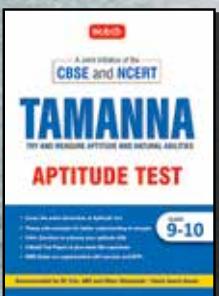
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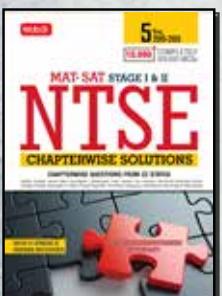
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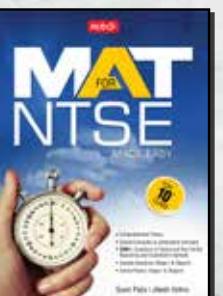
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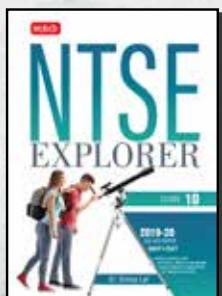
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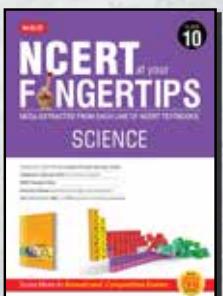
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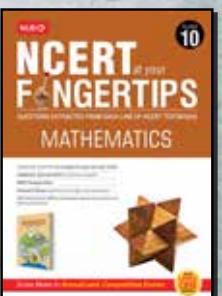
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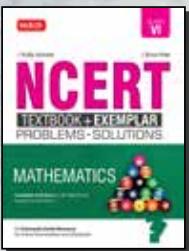
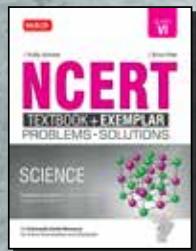
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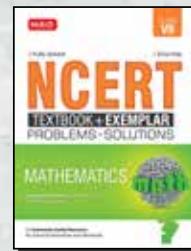
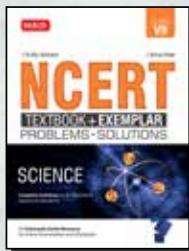
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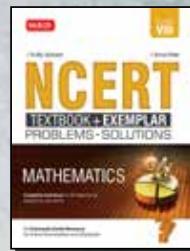
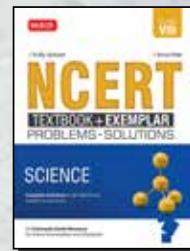
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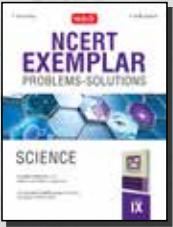
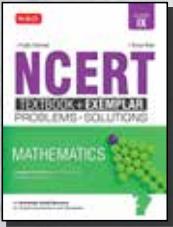
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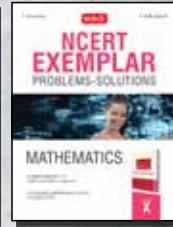
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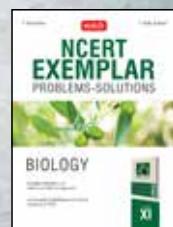
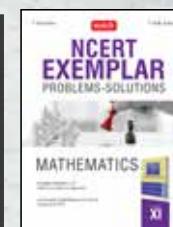
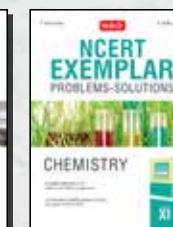
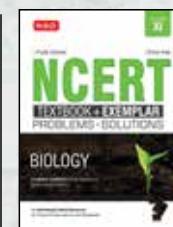
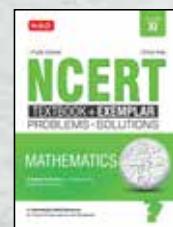
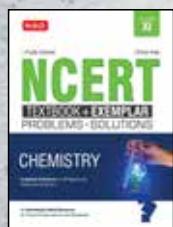
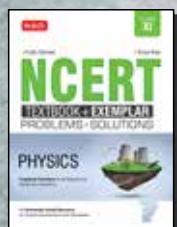
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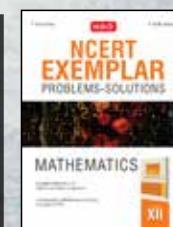
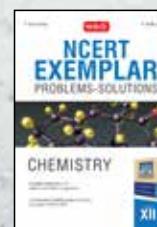
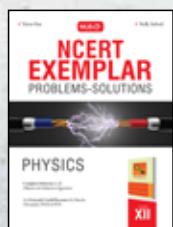
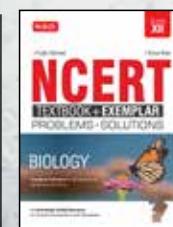
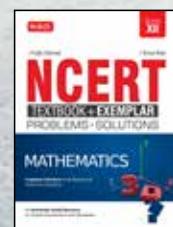
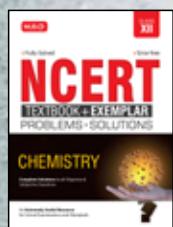
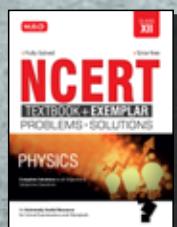
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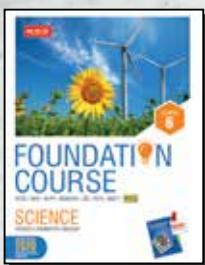
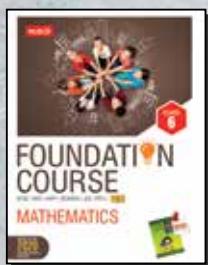
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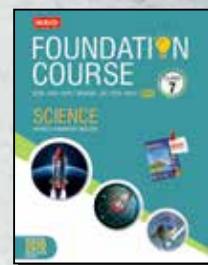
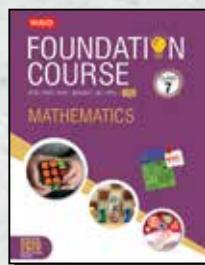
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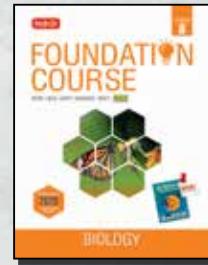
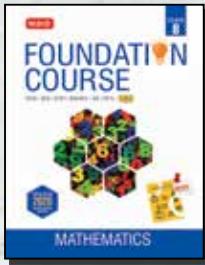
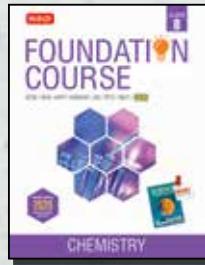
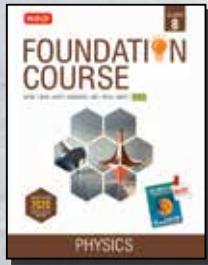
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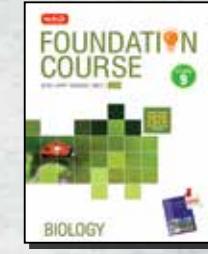
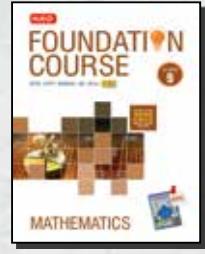
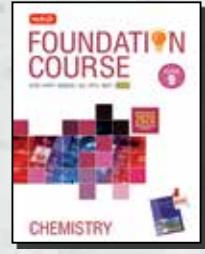
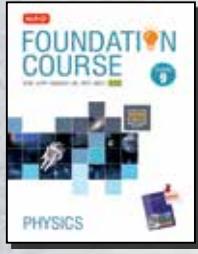
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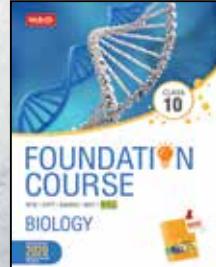
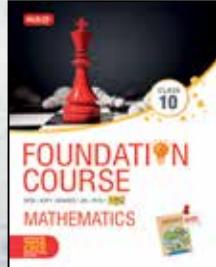
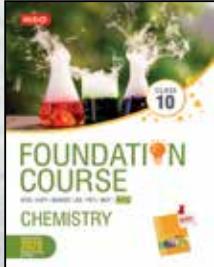
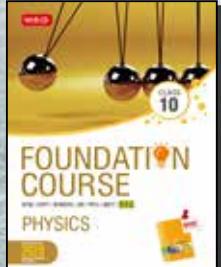
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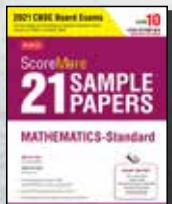
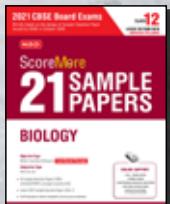
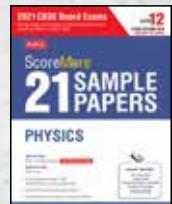
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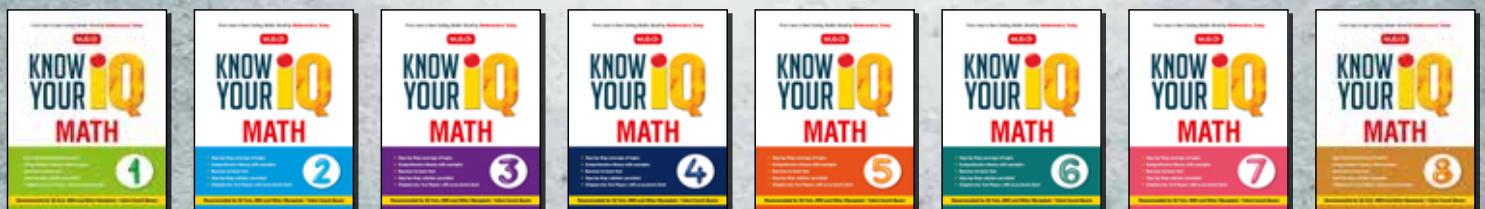
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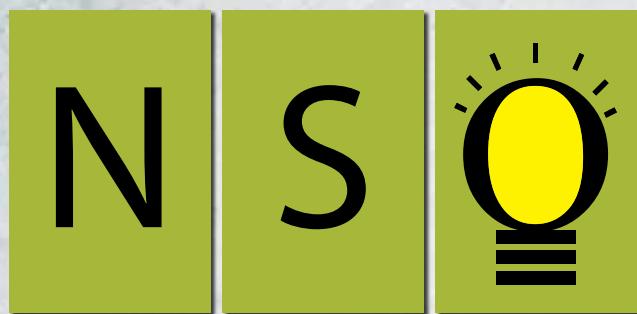
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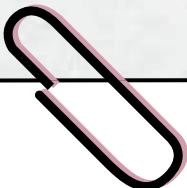
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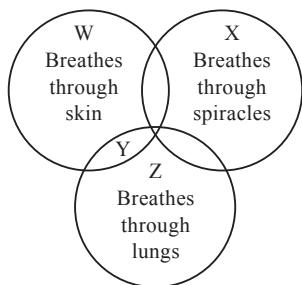
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Year 2015-16

SCIENCE

1. Select the pair in which the given animals do not have the same type of respiratory organs.
- A. Butterfly, Mosquito B. Cockroach, Housefly
 C. Grasshopper, Frog D. Frog, Snake

2. Refer to the given Venn diagram.



Which of the following is true for W, X, Y and Z?

- A. Organism W can be an earthworm or a snake.
 B. Organism X has a network of tubules called tracheae.
 C. Organism Y could be a frog or lungfish.
 D. Organism Z could be a dolphin or a scoliodon.

3. Refer to the given conversation among three friends.

Sujata Organism X completes its migration in several generations.

Ruchi Organism Y completes its migration in one generation but dies after reproducing.

Priyanka Organism Z migrates multiple times during its lifetime.

Now, select the option that correctly identifies any two of these organisms.

- A. X - Salmon, Y - Monarch Butterfly
 B. Y - Arctic tern, Z - Polar bear
 C. X - Polar bear, Z - Monarch butterfly
 D. Y - Salmon, Z - Arctic tern

4. Which of the following animals' breathing organ is not hidden in the given word grid?

- A. Dolphin
 B. Earthworm
 C. Tadpole
 D. Siberian crane

B	N	A	S	T
L	U	N	G	S
O	S	K	I	N
W	P	C	L	P
H	I	L	P	V
O	R	E	S	W

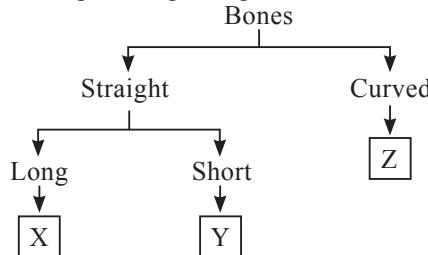
5. Study the given table and select the incorrect option regarding P, Q, R and S.

Animals	P	Fish	R	S
Body Coverings	shell	Q	fur	feathers

- A. Animal P is mostly found in moist or aquatic habitat.

- B. Body covering Q is also found in snake and crocodile.
 C. Animal R is generally found in polar regions.
 D. Animal S has heavy and solid bones and hindlimbs modified into wings.

6. Study the given classification chart and select the incorrect option regarding it.



- A. A type of Z bones protect the heart, lungs, stomach and intestine.
 B. Examples of Y bones are bones of our fingers and toes.
 C. X kind of bones include the thigh bone.
 D. Skull bones are Z kind of bones.

7. Communicable diseases pass from one person to another through different modes of transmission. Which disease cannot spread through the mode of transmission as shown in the given figure?

- A. Common cold
 B. Mumps
 C. Cholera
 D. Influenza



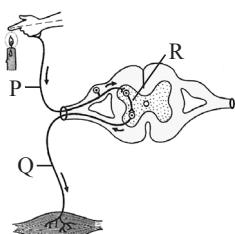
8. Study the given table and select the correct option regarding P, Q, R and S.

Joints	Characteristics	Example
Hinge joint	P	<ul style="list-style-type: none"> • Elbow joint • Knee joint
Q	Allows movements in all directions	<ul style="list-style-type: none"> • Hip joint • R
S	Allows rotation	<ul style="list-style-type: none"> • Joint between first two vertebrae

- A. P - Allows movement in one plane
 Q - Ball and socket joint
 R - Shoulder joint
 S - Pivot joint
 B. P - Allows backward and forward movement
 Q - Gliding joint
 R - Wrist joint
 S - Pivot joint
 C. P - Allows movement in all directions
 Q - Ball and socket joint
 R - Joints in toes
 S - Gliding joint

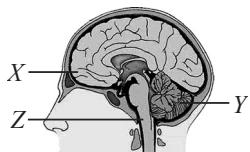
- D. P - Does not allow any movement
 Q - Pivot joint
 R - Shoulder joint
 S - Gliding joint

9. Observe the given diagram carefully which shows a reflex arc. What will happen if the orientation of neuron Q is made as of neuron P?



- A. All voluntary movements of body including reaction to heat will stop.
 B. The sensory receptor will not get stimulus from the candle.
 C. The motor organ will not be able to get instructions from the spinal cord.
 D. None of these

10. Refer to the given figure of brain with its parts labelled as X, Y and Z.



Which of the following holds true for X, Y and Z?

- A. Y helps us to balance our body and keep us in an upright posture.
 B. X helps us in learning our lessons and recalling the learnt concepts.
 C. Z controls the involuntary actions of our body.
 D. All of these

11. Four children made following statements :

- Siddhi : We have movable lower jaw that enables us to eat and talk.
 Manya : The long bones of our skeleton are filled with cerebrospinal fluid.
 Advika : Cardiac muscles are involuntary in function but resemble voluntary muscles in structure.
 Aradhika : A motor nerve called the optic nerve connects the eye to the brain.

Which children made correct statements?

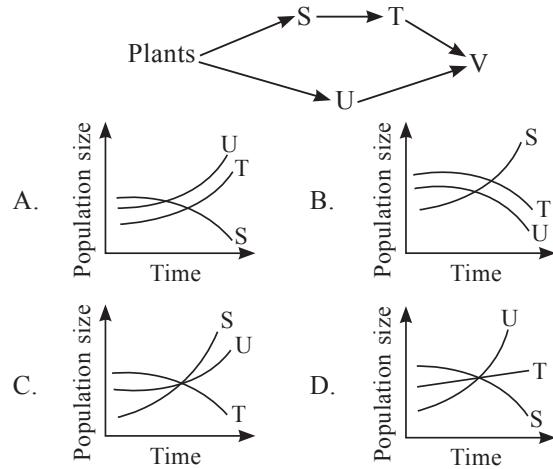
- A. Siddhi and Advika only
 B. Siddhi and Manya only
 C. Manya and Aradhika only
 D. Advika and Aradhika only

12. Study the given table carefully and identify the plants U, V, W and X.

Plant	Mode of seed dispersal
U	Dispersal by water
V	Dispersal by animals
W	Dispersal by splitting of fruit
X	Dispersal by wind

- A. U - Madar, V - Coconut
 B. W - Dandelion, X - Cotton
 C. U - Lotus, V - Xanthium
 D. W - Pea, X - Coconut

13. Study the given food web. Which of the following graphs shows how populations of S, T and U are likely to be affected if the population of V is increased?



14. Which of these differences between insect-pollinated flowers and wind-pollinated flowers is incorrect?

Insect-pollinated flowers

- A. Pollen grains are heavier and sticky.
 B. Petals are dull-coloured.
 C. Stigmas are small, enclosed between petals.
 D. Flowers have a peculiar odour and generally produce nectar.

Wind-pollinated flowers

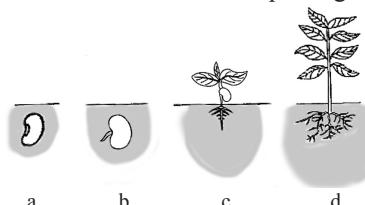
- Pollen grains are light, small and dry.
 Petals are usually bright and colourful.
 Stigmas are usually large, hairy or feathery.
 Flowers are generally odourless and nectarless.

15. Advika found three fruits X, Y and Z. Fruit X was very light and had wings. Fruit Y was spiny and fruit Z had a thick fibrous coat.

Which of the following holds true for X, Y and Z?

- A. Mode of seed dispersal of fruit X is similar to that of lotus.
 B. Both fruits, Y and Z can be dispersed by the same agency.
 C. Seeds of guava and seeds of fruit Y both are dispersed by animals.
 D. Mode of seed dispersal of fruit Z is similar to that of balsam.

16. The picture below shows how a plant grows.



Which of the following can be inferred from the given picture?

- A. A seed has life.
- B. A seed needs air, water and food to grow.
- C. A seed cannot grow on its own.
- D. A seed does not need air and water to grow.

17. Study the description given below.

Plants X and Y have waterproof leaves and float on water; plant X has swollen leaf stalks but plant Y does not.

Which of the following pairs of plants can 'X' and 'Y' be?

X	Y
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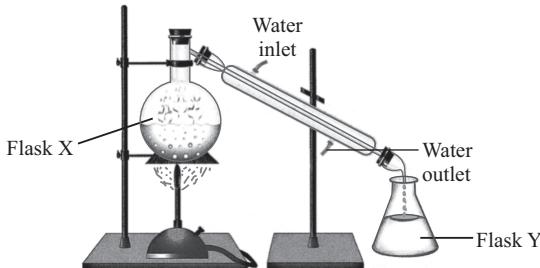
- | | |
|--------------------|----------------|
| A. Water lily | Water lettuce |
| B. Water lily | Water hyacinth |
| C. Water hyacinth | Water lettuce |
| D. Water moss fern | Water lily |

18. Four burning sticks are placed into different containers P, Q, R and S containing oxygen, carbon dioxide, nitrogen and air respectively. The observations are then noted down. Which of these observations is correct?

Container	Observation
-----------	-------------

- | | |
|------|--|
| A. P | The glowing stick is extinguished immediately. |
| B. Q | The glowing stick bursts into flame. |
| C. R | The glowing stick bursts into flame. |
| D. S | The glowing stick continues to glow for a while. |

19. Select the incorrect option regarding the process shown in the given figure.



- A. The amount of water will gradually decrease in flask X.
- B. The amount of water will gradually increase in flask Y.
- C. There will be no decrease in the quantity of water in the whole process.
- D. None of these

20. Raman took four similar pots (with a hole at the base) each with equal amount of different type of soil. He then placed these four pots on four similar dishes and poured water slowly on each soil sample. He used a stopwatch to measure the time taken by water to reach the level, he had marked at the same height in each dish.

The results obtained by him were tabulated in the table shown here.

Type of soil	W	X	Y	Z
Time (in seconds) taken by water	48	65	35	110

Which soil is the most suitable for a plant that thrives in sandy soil?

- A. W
- B. X
- C. Y
- D. Z

21. The rate of evaporation from the pond is dependent on _____.

1. Size of the pond
 2. Humidity in the air
 3. Strength of the wind
 4. Temperature of the surrounding air
- A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1, 2 and 3 only
 - D. 1, 2, 3 and 4

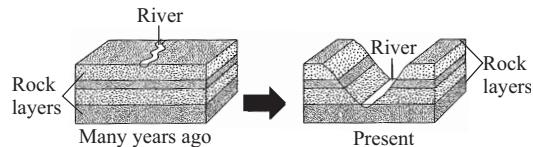
22. A fixed volume of water will dissolve a certain amount of salt. If the same volume of water is then heated, more salt can be made to dissolve in it. The best explanation to this is _____.

- A. Heating increases the spaces between the water molecules
- B. Heating reduces the size of the salt particles
- C. Salt melts in hot water
- D. Both water and salt particles become smaller when heated

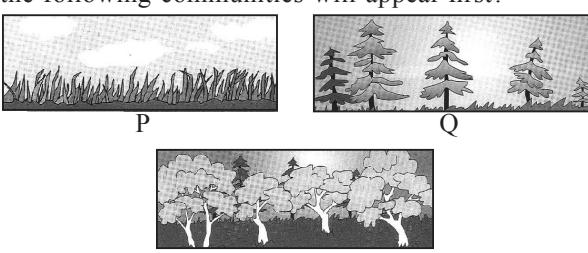
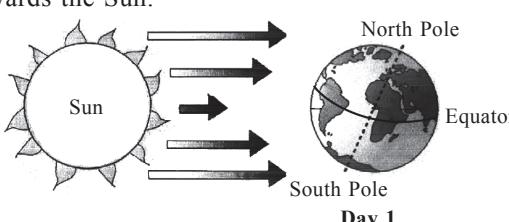
23. Which of the following statements is correct about rocks and minerals?

- A. Chalk is a form of limestone.
- B. Most sedimentary rocks were once either metamorphic or igneous.
- C. Gneiss is formed from pumice and has light and dark bands.
- D. Coal and petroleum are precious metallic minerals.

24. The given figure shows an area of land that has changed over a period of time. Which process changed the shape of the rock layers over time?

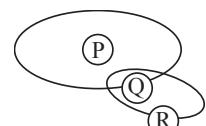


- A. The process involved in the formation of dew drops.
- B. The process involved in the loss of top soil layer.
- C. The process involved in the drying of wet clothes.
- D. The process involved in the conversion of light energy into chemical energy.

25. Which of the following damages are associated with acid rain?
- Erosion of stone statues and buildings
 - Melting of ice caps
 - Increase in the number of mosquitoes
 - Threat to the life of aquatic beings
 - Loss of soil fertility.
- (i), (ii) and (iii) only
 - (i), (iv) and (v) only
 - (i) and (iii) only
 - (ii), (iii) and (v) only
-
26. Which of the following would possibly result due to increasing rate of deforestation?
- Process of top soil erosion may speed up.
 - Some animals may become extinct.
 - The problem of global warming may intensify.
 - A possible source of natural drugs to cure diseases may be lost.
- (i) and (ii) only
 - (iii) and (iv) only
 - (i), (ii) and (iii) only
 - (i), (ii), (iii) and (iv)
-
27. If young crescent Moon is observed on the night of 11th January 20XX, then what is expected to appear on the night of 26th January?
- Old Crescent Moon
 - Young Gibbous
 - Old Gibbous
 - Full Moon
-
28. Read the given paragraph.
- The American spacecraft Apollo - 7 carrying three passengers *viz.* Neil Armstrong, Edwin Aldrin and Yuri Gagarin landed on Moon on 21st July, 1979. This was a remarkable day in the history of mankind. They left a flag of NASA there which was specially designed to stay taut on the Moon, where there is no air.
- There are some errors in the given paragraph. Select the option that correctly identifies their number.
- 2
 - 3
 - 4
 - 5
-
29. A forest catches fire and burns completely. Which of the following communities will appear first?
- 
- P** **Q**
R
- P
 - Q
 - R
 - P or Q.
-
30. The Earth's axis is tilted with respect to its orbital plane as shown in the figure. This means that if on day 1, one pole is directed away from the Sun then after around 182 days the same pole will be directed towards the Sun.
- 

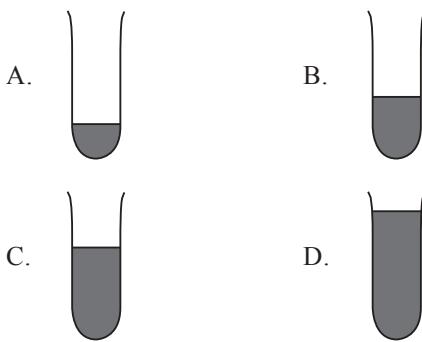
Which of the following two conclusions can be drawn from the above given passage and figure about days at North and South poles in the first and second half of the year respectively?

- | First half of year | Second half of year |
|---------------------------------------|---------------------------------|
| A. 24 hours of daylight at South pole | Complete darkness at North pole |
| B. Complete darkness at North pole | Complete darkness at South pole |
| C. 24 hours of daylight at North pole | Complete darkness at South pole |
| D. Both A and B | |
-

31. Venus is the hottest planet of the Solar system even though Mercury is the closest planet to the Sun. The best explanation to this is _____.
- Venus has an atmosphere rich in carbon dioxide which is a greenhouse gas.
 - Venus has no atmosphere to regulate the temperature.
 - Venus has the lowest tilt of all other planets.
 - Atmospheric pressure on Venus is very high as compared to other planets of solar system.
-
32. Select the correct option regarding the given figure, if alphabet 'P' represents the star at the centre of our solar system.
- 
- If Q is Mars then the number of R around it will be 2.
 - If Q is Venus then the number of R around it will be 3.
 - If Q is Jupiter, then the number of R around it will be 58.
 - If Q is Neptune, then the number of R around it will be 0.
-

33. Select the correct comparison among the following.
- | Inner planets | Outer planets |
|-----------------------------------|-------------------------------------|
| A. All of them have moons | Not all of them have moons |
| B. Made of gases | Made of rocks |
| C. Mercury, Venus, Earth and Mars | Jupiter, Saturn, Uranus and Neptune |
| D. Have no solid surfaces | Have solid surfaces |

34. Which one of the following will produce the sound with the lowest pitch, when you blow across the mouth of the test tube?

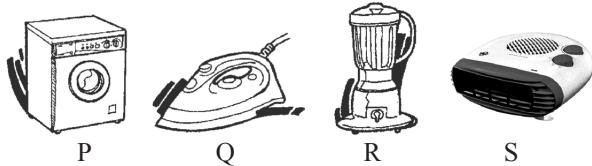


35. Select the odd one out among the following agricultural practices on the basis of their frequency during a crop cycle.
- A. Irrigation B. Harvesting
C. Weeding D. Manuring

36. Kavita wanted to toast some bread with the electric toaster. When she switched on the toaster, she received a mild electric shock. However, when her sister Komal tried the same, she did not feel any shock. What could be the possible reason for the difference in their experiences?

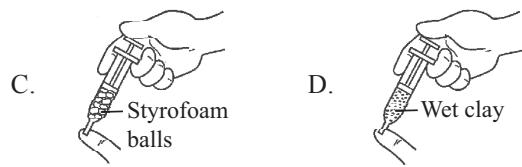
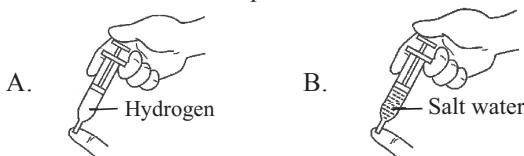
- (i) Kavita's hands were wet but Komal's hands were dry.
(ii) Kavita was barefoot but Komal was wearing a pair of rubber slippers.
(iii) Kavita's body was a better conductor of electricity than Komal's.
- A. (i) and (ii) only
B. (i) and (iii) only
C. (ii) and (iii) only
D. (i), (ii) and (iii)

37. Which of the following appliances work by converting electrical energy into heat energy and are used to keep our surroundings warm?



- A. P and Q only B. Q only
C. P, Q, R and S D. S only

38. Four identical syringes were filled with different substances as shown. In which syringe will the plunger not move at all when pushed in?



39. Vaibhav had four magnets of different shapes. He brought the north pole of each magnet near a pile of 40 pins. His observations were recorded in the table below.

Magnet	Distance between the magnet and the pins	Number of pins attracted
U-shaped magnet	6 cm	8
Bar magnet	2 cm	9
Ring magnet	4 cm	5
Rod magnet	2 cm	7

Based on the data given in the table above, which of the magnets has most likely the strongest pull?

- A. U-shaped magnet
B. Bar magnet
C. Ring magnet
D. Rod magnet

40. Three persons P, Q and R suffering with different diseases were put in separate rooms, each with four healthy people under similar conditions. After a few days, it was observed that only the people sharing the room with Q fell ill. Select the option that most correctly identifies the diseases of persons P, Q and R.

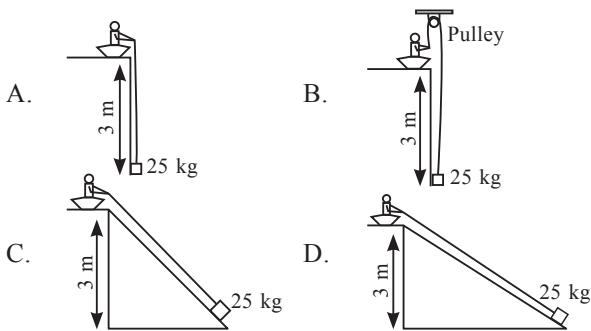
P	Q	R
A. Cholera	Cancer	Flu
B. Flu	Anaemia	Rickets
C. Anaemia	Flu	Asthma
D. Asthma	Rickets	Conjunctivitis

41. Anil and Brij are hammering a nail into two pieces of wood to join them. Sunita covered her ears, because she said that hammering is noisy. She told them that they are wasting energy because most of the energy they used in hammering is getting lost. Anil disagreed with what Sunita said. Brij explained that some of the energy is converted to sound and heat, but not lost. Anil then added that energy can never be lost or destroyed.

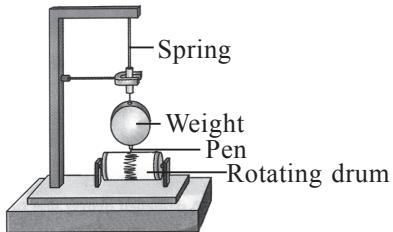
Who among Anil, Brij and Sunita is/are right?

- A. Brij only
B. Anil only
C. Sunita only
D. Anil and Brij only

42. Bhavika tries lifting the same object weighing 25 kg in different ways as shown here. She is standing on a 3 m tall platform. Which of these ways would require the least effort?



43. The instrument shown in the figure is used for recording a natural phenomenon which is caused by _____.

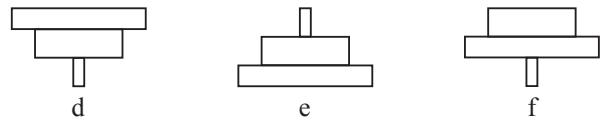


- A. Building of low pressure area over sea
B. Excessive rainfall

- C. Collision of Earth's underground plates
D. None of these

44. Select the correct match of the following food chains (i) and (ii) with the pyramids d, e and f shown here.

- (i) Grass → Goat → Lion
(ii) Lime tree → Caterpillars → Mynas



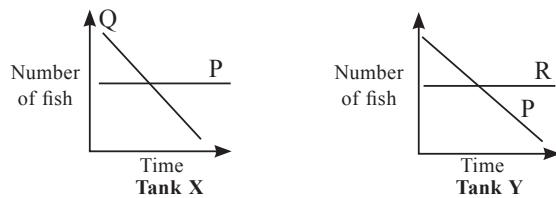
- A. (i) - d, (ii) - e B. (i) - d, (ii) - f
C. (i) - e, (ii) - f D. (i) - f, (ii) - d

45. Which of the following changes is different from the other three?

- A. Opening of the lid of a bottle jar on submerging in hot water.
B. Breaking of telephone wires hung overhead on poles in cold weather.
C. Cracking of a thick-walled glass when hot water is poured into it rapidly.
D. Buckling of railway lines.

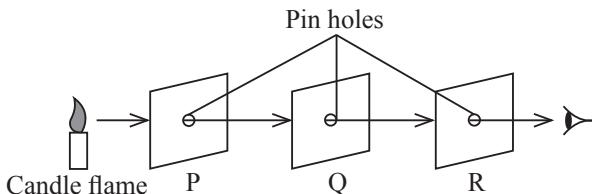
ACHIEVERS SECTION

46. Jayesh bought three different kinds of fish, P, Q and R. He put fish P population and fish Q population into tank X, and fish P population and fish R population into Y. He recorded the number of each fish in each tank for a week. There were no dead fish in the tank when he checked every day. The graphs below show the results at the end of the week.



Which of the following shows the prey-predator relationship between the three fishes?

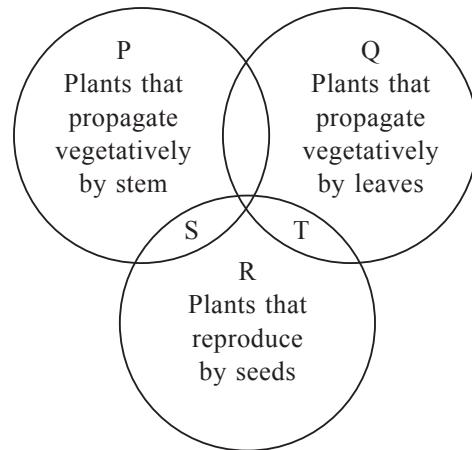
- A. P → Q → R B. Q → P → R
C. R → P → Q D. Q → R → P
47. Sunidhi could see a pointed beam of light on setting-up an experiment as shown here. She used sheets P, Q and R made of three different materials respectively. She noticed that when she replaced the sheet P with a sheet made of the same material as sheet Q, then she could see the whole candle.



Which of the following options is correct regarding P, Q and R?

- A. Sheet Q is made of a transparent material.
B. Sheet R is made of a transparent material.
C. Sheet P is made of an opaque material.
D. All of these.

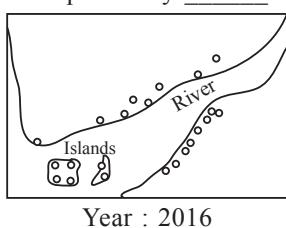
48. Refer to the given Venn diagram.



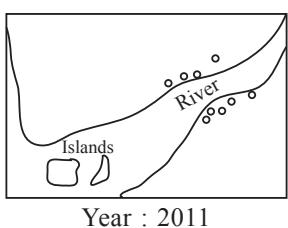
Select the correct option regarding P, Q, R, S and T.

- A. S could be a rose plant whereas P could be a potato plant.
B. Q could be *Bryophyllum* and T could be strawberry.
C. R could be a fern or an alga.
D. Q could be spinach and P could be colocasia.

49. The given maps show the population of a plant as found presently, and five years ago.
Based on the maps, it can be concluded that the plant is dispersed by _____.



Year : 2016



Year : 2011

- A. Wind
B. Animals

- C. Water
D. Splitting

50. P and Q are two distant places on earth located at about 125 kms distance. Which of the following assumptions can be made about these places?



- A. The temperature at a particular time will be higher at place P than that at place Q.
B. Air current will flow from place P to Q.
C. It is afternoon at place Q while evening at place P.
D. None of these assumptions can be made.

SPACE FOR ROUGH WORK



LEVEL - 2

Year 2016-17

SCIENCE

1. Study the given table and select the correct option regarding P, Q and R.

Reproductive parts other than seeds	Roots	Q	R
Example of plants	P	Ginger	Bryophyllum

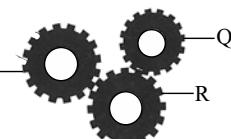
- A. P is modified to store food as in sweet potato or peepal.
 B. Q is always underground and modified to store food.
 C. R is non-green and non-photosynthetic and performs the function of reproduction only.
 D. P could be dahlia or turnip.
-

2. Which of the following animals' breathing organ is not hidden in the given word grid?

- A. Whale
 B. Scoliodon
 C. Grasshopper
 D. Earthworm

G	O	S	W	H
I	P	P	S	O
L	U	N	G	S
L	T	I	H	R
S	K	I	N	S
Q	S	P	O	R

3. The given diagram shows three gears arranged to work in a mechanical system. If gear P moves in an anticlockwise direction, in which direction would gears Q and R move?



- A. P-Anticlockwise, R-Clockwise
 B. P-Clockwise, R-Clockwise
 C. P-Clockwise, R-Anticlockwise
 D. P-Anticlockwise, R-Anticlockwise
-

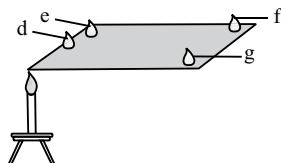
4. One afternoon Ravi and Mohit were playing in park. All of a sudden, Ravi felt uneasy and started to bleed through nose. What should Mohit do immediately to handle the situation?

- A. He should blow some warm air on a handkerchief and put it over Ravi's mouth.
 B. He should make Ravi sit on a bench or chair with his head held back.
 C. He should block Ravi's nose with a piece of cloth to stop the bleeding.
 D. He should apply some antiseptic within Ravi's nose using some cotton.
-

5. d, e, f and g are drops of wax placed on a rectangular piece of metal. When the metal frame is heated at the point shown in the diagram, the drops of wax will melt.

Which of the following shows the order in which the drops of wax will melt?

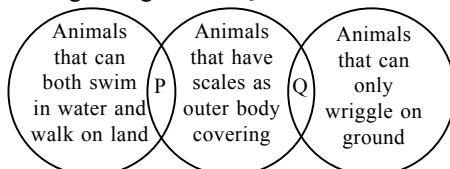
- A. d, e, f and g
 B. d, e, g and f
 C. g, f, e and d
 D. g, f, d and e



6. One night, Lissy watched a constellation over a period of several hours. She found that the constellation seemed to move across the sky. Which of these can explain this?

- A. Some constellations are moving constellations.
 B. As the Earth rotates, constellations seem to move.
 C. The outer portions of the galaxy rotate very slowly around the Earth.
 D. All constellations move randomly through the sky.
-

7. Refer to the given Venn diagram and select the correct option regarding P and Q.

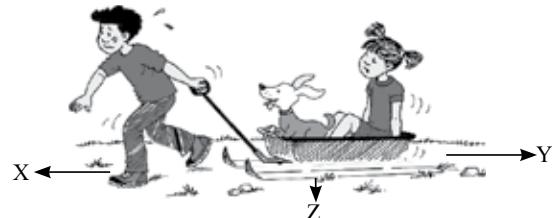


- A. P - Siberian crane, Q - Alligator
 B. P - Crocodile, Q - Rattle snake
 C. P - Seal, Q - Turtle
 D. P - Salmon, Q - Lizard
-

8. Which of the following is not a reflex action?

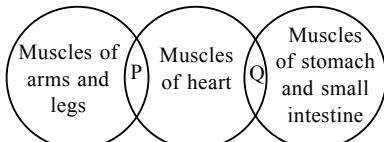
- A. Stepping back when toe is pricked by a sharp nail.
 B. Contraction of pupils of the eyes when exposed to bright light all of a sudden.
 C. Coughing or sneezing on intake of an irritant material.
 D. Recalling and writing the mugged up content in exam paper.
-

9. Refer to the given figure indicating three types of forces, X, Y and Z and select the incorrect option.



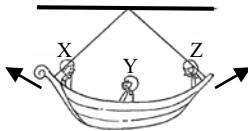
- A. An astronaut floats in space due to absence of force Z.
 B. When we use pulley to lift a bucket of water from well (pulling vertically downward) then pulley makes X in opposite direction of Z making it easier to lift the bucket.
 C. Force Y is responsible for wearing and tearing of tyres of vehicles.
 D. We can walk only on those surfaces which offer no Y.

10. Refer to the given Venn diagram and identify characteristics P and Q.



- A. P-Voluntary in nature, Q-Never take rest
- B. P-Presence of striations, Q-Involuntary in nature
- C. P-Get fatigued easily, Q-Non-striated
- D. P-Involuntary in nature, Q-Never take rest

11. The diagram shows three people taking a ride at a fair as shown here. As the boat swings back and forth, which of the following statement(s) is/are true about the three persons, X, Y, and Z ?



- (i) X experiences the most potential energy when the boat swings left.
 - (ii) Z experiences the most potential energy when the boat swings right.
 - (iii) Y experiences the most potential energy as the boat passes the rest position during swinging.
- A. (i) only B. (ii) only
C. (i) and (ii) only D. (i), (ii) and (iii)

12. X is a plant whose seeds are dispersed by wind whereas Y is a plant whose seeds are dispersed by animals. Which of the following holds true regarding plants X and Y?

- A. The seeds of plant X may have either wings or hair like structures.
- B. The fruits of plant Y may or may not be edible.
- C. The seeds of plant X are dispersed in a small radius around parent plant whereas seeds of plant Y are dispersed to very far off places.
- D. Both A and B

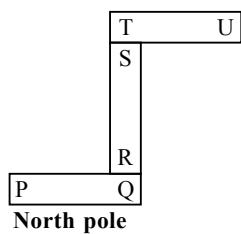
13. Starting from the first letter strike out every alternate letter to get the name of a sedimentary rock formed when large rounded clasts get cemented together in a matrix.

- A. PQSUTAURJTKZOIWTLEM
- B. MORBTSUIVDWIXAYNZ
- C. SGQRPMAMNLIGTKE
- D. LCYOMNEGTLUOJMGEKRIASTPEQ

14. Identify the incorrect statement from the following.
- A. Matter exists in different forms.
 - B. Matter can be changed from one form to another.

- C. A new substance is formed in a chemical change.
- D. Ice is heavier than water.

15. The given diagram shows arrangement of three magnets where their poles in contact stick to each other.



Which of the following arrangements is not possible with above given magnets?

- A.

Q	P	S	R
---	---	---	---
- B.

T	U	Q	P
---	---	---	---
- C.

S	R	U	T
---	---	---	---
- D.

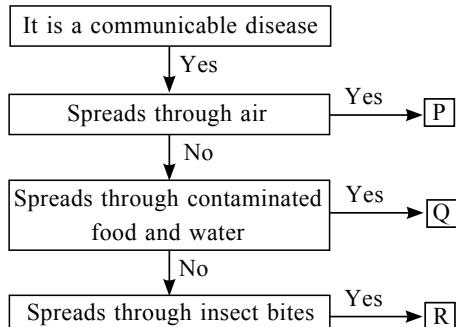
P	Q	T	U
---	---	---	---

16. Refer to the given relationship based on eating habit and select the option which satisfies the same relationship.

Wildebeest :: Eagle :: Bear

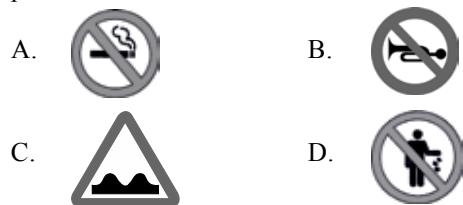
- A. Crocodile :: Vulture :: Wolf
- B. Zebra :: Leopard :: Crow
- C. Elephant :: Sparrow :: Giraffe
- D. Kangaroo :: Hippopotamus :: Snake

17. Refer to the given flow chart and select the correct option regarding P, Q and R.

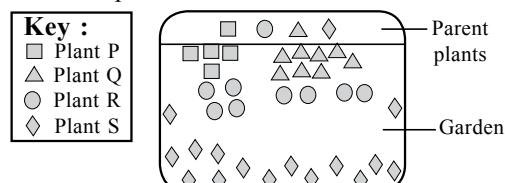


- A. P could be tuberculosis or leprosy, caused by virus.
- B. Q could be cholera or typhoid, caused by bacteria.
- C. R could be malaria or sleeping sickness, caused by Anopheles mosquito.
- D. P, Q and R are non-infectious but contagious diseases.

18. Which of the following signs does not warn against pollution?

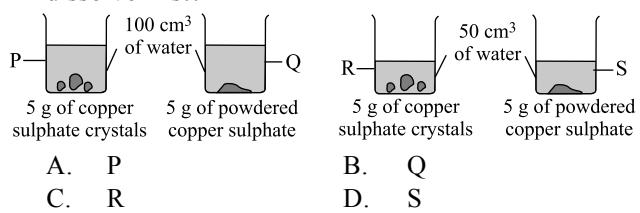


19. Raman planted four plants P, Q, R and S near the boundary of his garden. The diagram shows the distribution of these plants in the garden area after a certain time period.



Which one of the plants is most likely to be dandelion?

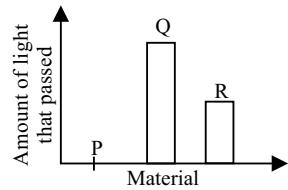
- | | |
|------------|------------|
| A. Plant P | B. Plant Q |
| C. Plant R | D. Plant S |
20. Four beakers with copper sulphate at the bottom are shown below. Each beaker is left undisturbed for some time. In which beaker would the copper sulphate dissolve first?



21. Select the incorrect statement.

- A. Jupiter is the largest planet which takes about 12 years to orbit once around the Sun.
 B. Neptune appears bluish in colour due to the presence of helium gas.
 C. Mars contains a lot of rusted iron that makes it look red.
 D. Jupiter, Saturn, Uranus and Neptune have more than one moon but Mercury and Venus do not have any moon.

22. Raj shone torchlight on three objects P, Q and R one at a time and measured the amount of light that passed through each one of them by using light sensors. The given graph shows the result of his experiment.



Which of the following options correctly identifies P, Q and R?

P Q R

- | | | |
|---------------------|---------------------|------------------|
| A. Frosted glass | Mirror | Cellophane paper |
| B. Cardboard | Clear plastic sheet | Tracing paper |
| C. Window pane | Aluminium foil | Sand paper |
| D. Cellophane paper | Tracing paper | Mirror |
23. Seema carried out an experiment to find out how fast water can pass through four different types of soil. She placed each type of soil into a pot and put a dish

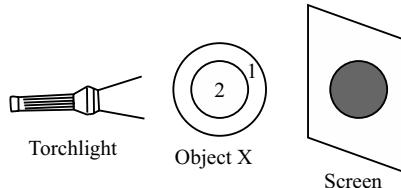
at the bottom of pot to collect the water. She used a stopwatch to measure the time taken for water to reach the level, she had marked in each dish. She tabulated the results as shown here.

Type of soil	W	X	Y	Z
Time (in sec)	40	60	20	110

Which soil is best suited for rice cultivation?

- | | |
|------|------|
| A. W | B. X |
| C. Y | D. Z |

24. The object X is made up of two materials 1 and 2. When the light is shone on it, it casts a shadow on screen as shown in the picture.

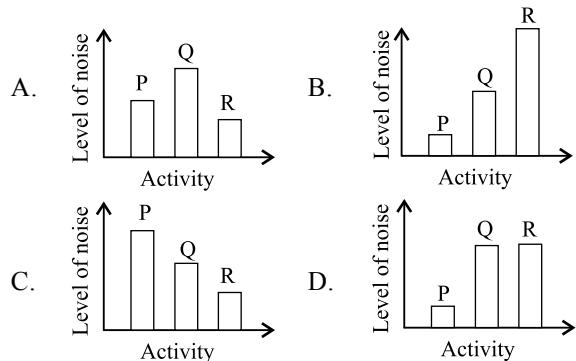


Identify materials 1 and 2 of which object X is made.

- | | |
|---------------------------|---------------------|
| Material 1 | Material 2 |
| A. Aluminium foil | Thermocol |
| B. Cardboard | Clear plastic sheet |
| C. Clear cellophane paper | Styrofoam |
| D. Thermocol | Cardboard |

25. Which of the given graphs correctly shows the level of noise produced by three activities P, Q and R given in the box?

P - Puja whispering into Reema's ears.
 Q - A group of children burning the crackers.
 R - A plane taking off.



26. Which of the following statements is/are incorrect?

- (i) Milky Way is a spiral-shaped galaxy.
 (ii) Planet Venus has 63 Moons.
 (iii) Satellites are small heavenly bodies that revolve around the Sun.
 (iv) One revolution of the Earth is completed in about $365 \frac{1}{4}$ days. This time period is called a solar year.
- | | |
|----------------------|------------------------|
| A. (i) and (iv) only | B. (ii) and (iii) only |
| C. (i) and (ii) only | D. (iii) and (iv) only |

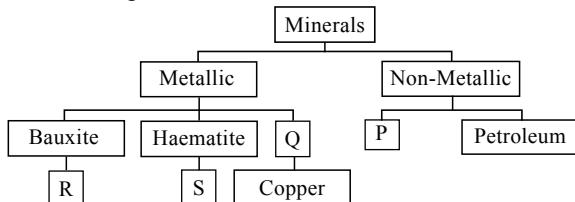
27. Rohan categorised simple machines used at his home into two groups as shown here.

Which of the following can be categorised in group 1 and 2 respectively?

- A. Stapler, Wheelbarrow
- B. Crowbar, Broom
- C. Badminton racquet, Bottle opener
- D. Nutcracker, Shovel

Group 1	Group 2
Scissor	Tweezers
Seesaw	Fishing rod
Pliers	Ice tong
-----	-----

28. Refer to the given classification chart and select the correct option.



- A. P is a non-renewable fuel source which is also responsible for environmental pollution and global warming.
- B. Q could be pyrite or calamine.
- C. R and S are good conductors of heat and electricity hence used in making utensils, wires, etc.
- D. Both A and C

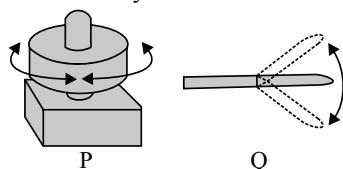
29. Which of the things listed below are biodegradable ?

- | | |
|---------------------|----------------------|
| (i) Log | (ii) Plastic toys |
| (iii) Gold necklace | (iv) Roasted chicken |
| (v) Credit card | (vi) Apple |
- A. (i) and (ii) only
 - B. (iii) and (iv) only
 - C. (iii), (iv) and (v) only
 - D. (i), (iv) and (vi) only

30. Raju, a farmer got his field checked for soil toxicity. The report showed high level of toxic chemicals in his field. How can these toxic chemicals in the soil be harmful?

- A. They may enter any nearby waterbody due to runoff and cause algal bloom.
- B. They are absorbed by food plants growing in the soil making them unfit for consumption.
- C. They may get evaporated in the air causing air pollution.
- D. Both A and B

31. Figures P and Q represent the movement of two types of joints in our body.



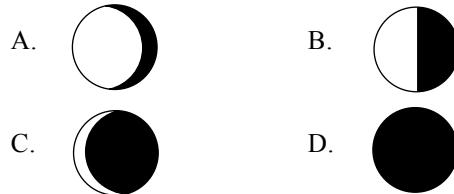
Select the correct statement regarding them.

- A. Movement of bones having joint P can be

compared to the movement of a joystick on computer.

- B. Bones having Q joint can show movement in only one plane.
- C. Joint P is present in our elbows and knees.
- D. Joint Q is present between our backbone and skull.

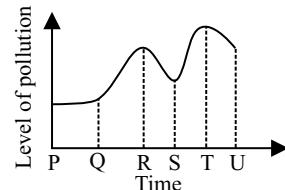
32. Preeti looked at the night sky of 13th August and observed a Full Moon. What shape of Moon will she most probably observe on 26th August?



33. The celestial bodies which revolve around the Sun between the orbits of Mars and Jupiter are called

- A. Asteroids
- B. Comets
- C. Meteors
- D. Meteorites.

34. The given graph shows the changes in level of pollution in an area over a time period.



Which of the following can be inferred from the given graph?

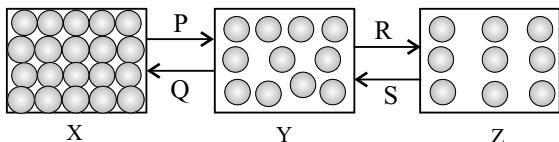
- A. At point P a lot of forest land was cleared for human consumption whereas at point Q large scale afforestation was done.
- B. At point R a new factory was set up in the area.
- C. People cut down the use of fossil fuels in the interval S – T as compared to its earlier usage.
- D. Intervals R – S and T – U indicate activities like use of bioinsecticides and biopesticides instead of chemicals in farming, use of public transport instead of private transport, etc.

35. The strong storms in the Atlantic and northeastern Pacific oceans are called P whereas in northwestern Pacific Ocean they are called Q. In the Indian Ocean and south Pacific Ocean they are called R.

Identify P, Q and R in the given paragraph.

- A. P-Hurricanes, Q-Typhoons, R-Cyclones
- B. P-Typhoons, Q-Hurricanes, R-Cyclones
- C. P-Cyclones, Q-Typhoons, R-Hurricanes
- D. P-Hurricanes, Q-Cyclones, R-Typhoons

36. The given figure shows three states X, Y and Z in which a matter can exist.



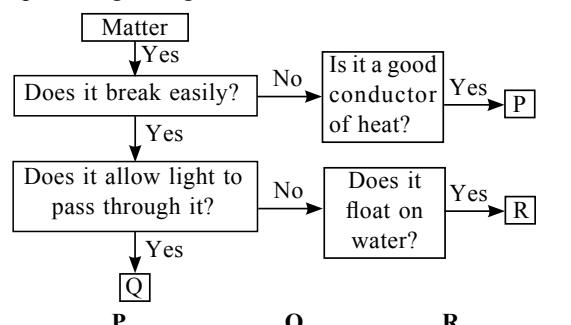
Identify these states and processes (P, Q, R and S) and select the incorrect option regarding them.

- A. Process R is responsible for drying of wet clothes when put on clothesline.
 - B. Process S is responsible for formation of clouds in the atmosphere.
 - C. A naphthalene ball converts from its X state to Y state and *vice versa* by involving processes P and Q.
 - D. During processes P and R, heat energy is used to overcome the force of attraction between the particles.
-

37. Read the given statements and select the option that correctly fills blanks in any three of these.

- (i) A _____ is a bandage tightly tied over the wound to stop bleeding.
 - (ii) A crack or break in a bone is called a _____.
 - (iii) _____ is a bandage passing over the shoulder to support an injured upper limb.
 - (iv) A strip of rigid material that is used to hold a broken bone in position is called _____.
 - (v) Throwing water on fire caused by defective wiring can cause _____.
- A. (i)-Sling, (iv)-Compression, (v)-Discolouration
 - B. (ii)-Fracture, (iii)-Sling, (v)-Electrocution
 - C. (ii)-Sprain, (iv)-Splint, (v)-Electroplating
 - D. (i)-Tourniquet, (iii)-Splint, (iv)-Sling
-

38. Refer to the given flow chart and select the correct option regarding P, Q and R.



- | | | |
|-------------------|----------------|-----------------|
| P | Q | R |
| A. Iron rod | Sand paper | Eraser |
| B. Spectacle lens | Styrofoam cup | Steel tumbler |
| C. Wooden door | Aluminium foil | Cardboard |
| D. Gold earrings | Window pane | Thermocol plate |
-

39. Terrace farming is done in hilly areas. It helps in reducing soil erosion occurring due to rains because

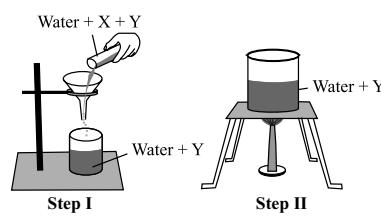
- A. It reduces the speed of flowing water
- B. It does not allow rain water to hit directly on crop plants

- C. It stagnates the rainwater which can be used by crop plants later on
 - D. Both A and C
-

40. Match column I with column II and select the correct option.

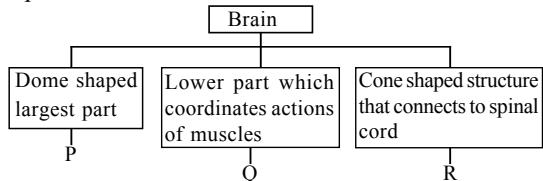
Column I	Column II
(a) Arctic tern	(i) Migrates from sea to river to reproduce
(b) Salmon	(ii) Migrates to escape harsh winter
(c) African antelope	(iii) Migrates to escape drought during summer
(d) Eel	(iv) Migrates from river to sea to reproduce
A. (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)	
B. (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)	
C. (a)-(i), (b)-(iv), (c)-(ii), (d)-(iii)	
D. (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)	

41. The given setup shows the separation process of a mixture containing water, X and Y. X and Y respectively are _____.



- A. Mud and Salt
 - B. Salt and Sugar
 - C. Sugar and Salt
 - D. Mud and Clay
-

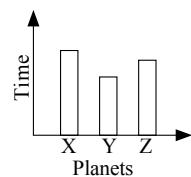
42. Refer to the given flow chart and select the incorrect option.



- A. Part P will help a student think, learn and recall her lessons.
 - B. Part Q will help a child to learn the art of riding a bicycle.
 - C. Part R controls our breathing and heartbeat even when we are asleep.
 - D. Part Q will help a person retract his hand when touched by a hot object.
-

43. A ball of mass 'm' was dropped from height 'h' on 3 different planets X, Y and Z one at a time. The given graph shows the comparative account of time taken by the ball to reach the surface of these planets when dropped from the same height.

Which of the following holds true regarding this?



- A. The ball will weigh heaviest on planet X and lightest on planet Y.
 B. It will be easier to lift a load on planet X as compared to planets Y and Z.
 C. The layer of atmosphere is most likely to be absent on planet Y but present on planets X and Z.
 D. Both A and C

44. Match column I with column II and select the correct option.

Column I	Column II
(a) Circular transparent area in the front portion of eye	(i) Optic nerve
(b) The coloured part of eye	(ii) Retina
(c) An opening in the centre through which light enters the eye	(iii) Iris
(d) Layer of eye containing cells sensitive to light and colour	(iv) Pupil
(e) Nerve that carries impulses from eye to brain	(v) Cornea
A. (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i), (e)-(v)	
B. (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii), (e)-(v)	

- C. (a)-(v), (b)-(iii), (c)-(iv), (d)-(ii), (e)-(i)
 D. (a)-(ii), (b)-(v), (c)-(iii), (d)-(i), (e)-(iv)

45. Two persons X and Y went to see a doctor for their respective diseases. The given box shows what they communicated to the doctor about their illness.

Person X : "I have swollen gums that bleed when I brush my teeth or eat anything. My joints are also swollen and keep paining."

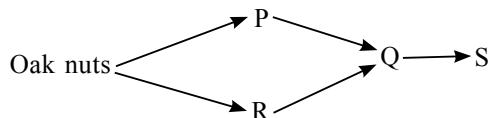
Person Y : "I am unable to see properly in dim light."

What can be concluded about these persons?

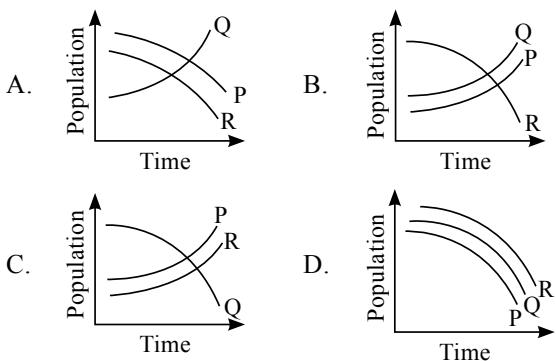
- A. Person X does not take citrus fruits in his diet.
 B. Person Y is suffering from iron deficiency. So he should take lots of green leafy vegetables in his diet.
 C. Person X is suffering from scurvy whereas person Y is suffering from rickets.
 D. Both the persons are diseased due to deficiency of vitamins but person X is having vitamin A deficiency and person Y is having vitamin C deficiency.

ACHIEVERS SECTION

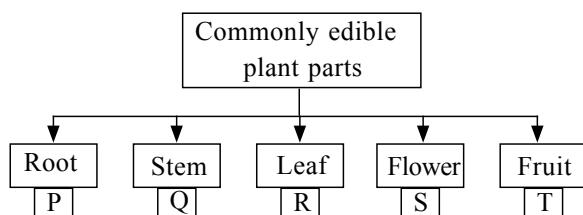
46. Study the given food web.



Which of the following graphs shows how the populations of P, Q and R are likely to be affected if the population of S is increased?



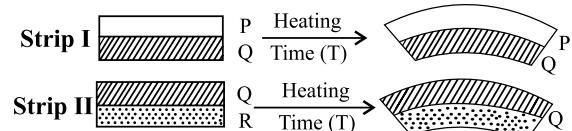
47. Refer to the given flow chart and select the correct option regarding P, Q, R, S and T.



	P	Q	R	S	T
A.	Argemone	Bamboo	Cabbage	Clove	Chenopodium
B.	Tapioca	Lotus	Lettuce	Banana	Brinjal
C.	Mustard	Kale	Castor	Mint	Wheat
D.	Broccoli	Chinaberry	Candytuft	Fennel	Tomato

48. Ritu took two bimetallic strips, I and II (of equal size, length and breadth) made up of metals P and Q; and Q and R, respectively as shown here.

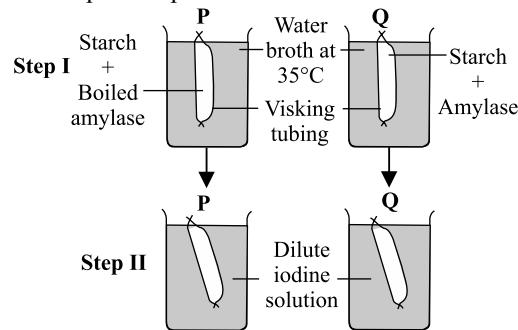
She subjected each bimetallic strip to heating for same time period. The given diagram shows her experiment.



Which of the following cannot be inferred from the above experiment?

- A. Metal P expands more as compared to metals Q and R on heating for the same time period.
 B. Metal R contracts more as compared to metals P and Q on heating for the same time period.
 C. The ascending order of expansion of these metals when subjected to heating is R < Q < P.
 D. Both B and C

49. Ravi set up an experiment as shown below.



Which of the following holds true regarding set ups P and Q?

- A. In set up P, the solution inside Visking tubing will become blue black at step II as all the starch is converted to simple sugars.
- B. In set up Q, the solution inside Visking tubing will become blue black at step II as starch is not digested at all.
- C. In set up P, the solution inside Visking tubing will become blue black at step II as starch is not digested by boiled amylase.

- D. In set up Q, the solution inside Visking tubing will become blue black at step II as all the starch is converted to simple sugars by amylase.

50. Which of the following is not present in the given word grid?

F	B	T	S	U	N	A	M	I
L	F	Y	C	Y	C	L	O	N
O	I	P	W	X	Z	Y	P	Z
O	E	H	U	R	R	I	C	A
D	R	O	U	G	H	T	E	T
P	V	O	L	C	A	N	O	U
J	L	N	E	A	R	T	H	Q

- A. A strong tropical storm with fast spinning winds called as hurricane in Southern USA.
- B. Natural disasters caused due to excessive or no rainfall at all in an area
- C. An opening or rupture in Earth's surface or crust through which hot molten rock, ash and gases escape
- D. A natural havoc whose intensity is measured on a seismograph

SPACE FOR ROUGH WORK

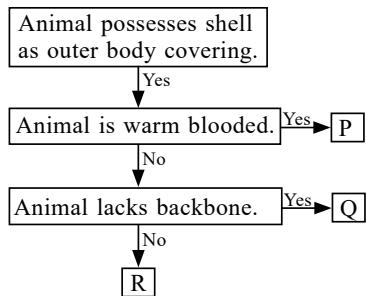


LEVEL - 2

Year 2017-18

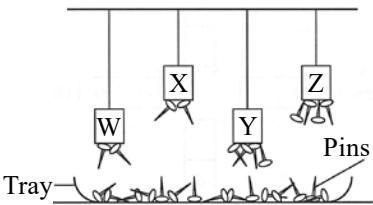
SCIENCE

1. Refer to the given flow chart and identify animals P, Q and R.



- | P | Q | R |
|--------------|----------|-------------|
| A. Hamster | Hedgehog | Clam |
| B. Armadillo | Oyster | Turtle |
| C. Porcupine | Pangolin | Snail |
| D. Caiman | Platypus | <i>Pila</i> |

2. Four magnets, W, X, Y and Z are hanging from strings of two different lengths as shown in the given diagram.



A tray of pins is placed below the magnets and different numbers of pins are attracted to the magnets.

Which is the weakest magnet?

- | | |
|------|------|
| A. W | B. X |
| C. Y | D. Z |

3. Select the option in which odd member is encircled correctly.

- | | |
|--|--|
| A. Scissors, (Pliers), Tweezers | B. (Nutcracker), Hammer, Bottle opener |
| C. Fishing rod, Wheelbarrow, (Ice tongs) | D. Stapler, (Seesaw), Wheelbarrow |

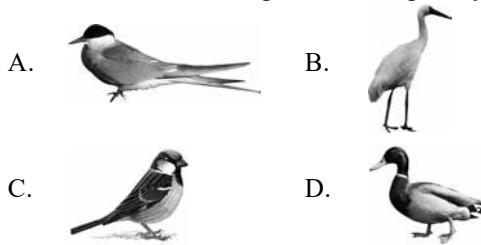
4. X is a gaseous planet that rotates in clockwise direction unlike others. Which of the following could be X?

- | | |
|----------|------------|
| A. Venus | B. Jupiter |
| C. Mars | D. Uranus |

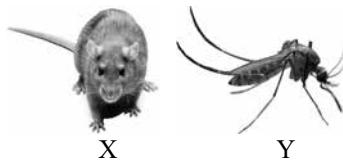
5. Shred a paper into tiny pieces. Take a comb and comb your hair. Now bring the comb closer to the paper pieces. What will you observe?

- | | |
|--|---|
| A. The paper pieces will get repelled due to magnetic force. | B. The paper pieces will get repelled due to electrostatic force. |
| C. The paper pieces will get attracted and stick to the comb due to electrostatic force. | D. The paper pieces will get attracted and stick to the comb due to frictional force. |

6. Which of the following is not a migratory bird?



7. Following animals have been paired based on the manner in which they obtain and consume their food.



Select the option that correctly pairs animals on the same basis.

- | X | Y |
|--------------|-------------|
| A. Python | Grasshopper |
| B. Hamster | Bed bug |
| C. Viper | Housefly |
| D. Cassowary | Butterfly |

8. Which of the following is a reflex action?

- | | |
|--|--|
| A. Teaching a group of students | B. Sneezing in response to irritation of nose lining |
| C. Responding to questions asked in oral examination | D. Making a beautiful sketch of a model |

9. Four pupils were asked to identify forces X and Y from the given description and also give one more application of each one of these forces.

Force X is responsible for falling of a fruit that gets detached from tree on the ground whereas force Y is responsible for slowing down a ball rolling on the ground. Which of the pupils stated the correct applications of these forces?

Pupil	Force X	Force Y
A. Ravi	It helps any object to float on water.	It helps us to walk.
B. Rinki	It helps us to stay on ground.	It helps us to write with a pencil or pen.
C. Kartik	Electric air purifiers use this force to purify polluted air of factories.	Car brakes can be applied because of this force.
D. Nilu	It helps the astronauts to float in space.	It helps any stretchable object to regain its original shape on being stretched.

10. Select the correct statement among the following.
- The European stork travels from Europe to Africa every summer.
 - Arctic tern travels the longest distance among the migratory birds.
 - Whales travel to cold water for reproduction and warmer water for feeding.
 - Butterflies have short lifespan thus they do not migrate.

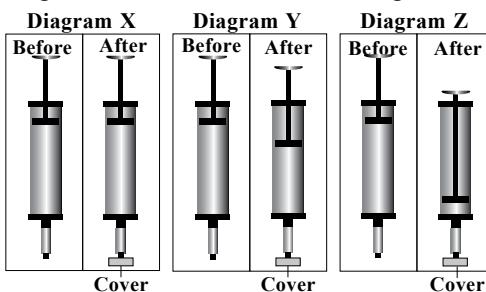
11. Garima performed an experiment to test the properties of four different objects and tabulated her results as follows.

Property	Objects			
	W	X	Y	Z
Can be attracted by magnet	✗	✓	✗	✗
Breaks when hit by hammer	✓	✗	✓	✓
Floats on water	✓	✗	✓	✗
Waterproof	✓	✓	✗	✓

Based on the above given information, which of the following best represents object W, X, Y and Z?

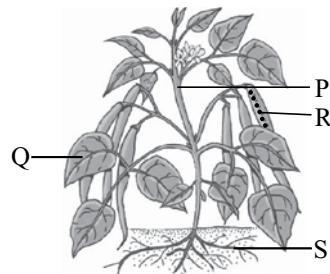
W	X	Y	Z
A. Iron ball	Thermocol bead	Glass bead	Plastic ball
B. Glass bead	Plastic ball	Iron ball	Thermocol bead
C. Thermocol bead	Iron ball	Wooden bead	Glass bead
D. Rubber ball	Plastic ball	Thermocol bead	Iron ball

12. Three different types of matter were put into the syringes as seen in the 'Before' diagrams. The opening of each syringe was then covered tightly and the piston was pushed as hard as possible. The results for each syringe are shown in the 'After' diagrams.



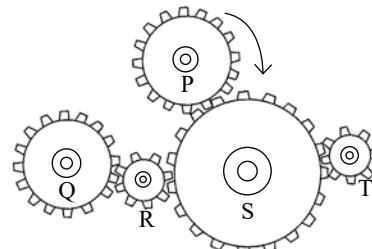
Which syringe is most likely to have turmeric powder in it?

- Syringe in diagram X
 - Syringe in diagram Y
 - Syringe in diagram Z
 - None of these
13. The given figure shows plant parts labelled as P, Q, R and S. Which of the following options correctly lists the plants in which labelled part is edible?



- P – Sugarcane, Potato, Sweet potato
- Q – Maize, Cauliflower, Cabbage
- R – Rajma, Soybean, Pea
- S – Ginger, Carrot, Onion

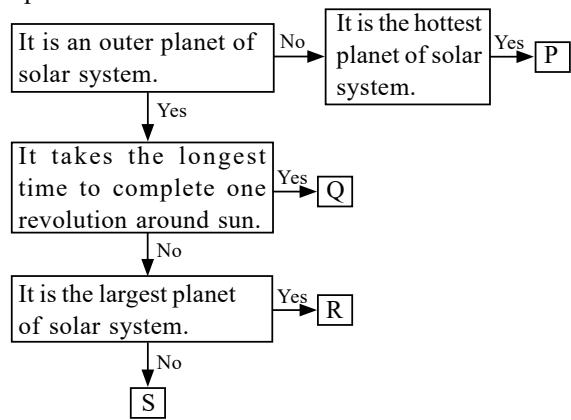
14. Refer to the given figure.



If gear P rotates in clockwise direction, select the directions in which other gears will rotate.

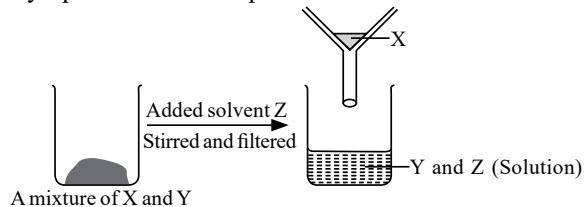
- Q – Anticlockwise, R – Clockwise, S – Anticlockwise, T – Clockwise
- Q – Clockwise, R – Anticlockwise, S – Clockwise, T – Anticlockwise
- Q – Anticlockwise, R – Anticlockwise, S – Clockwise, T – Clockwise
- Q – Clockwise, R – Clockwise, S – Anticlockwise, T – Anticlockwise

15. Refer to the given flow chart and select the correct option.



- P takes only 88 days to complete one revolution around the sun.
- Q has total 14 known moons and its Indian name is Varun.
- R appears bluish in colour due to the presence of methane gas in its atmosphere.
- Surface of S is covered by red dust and its atmosphere is composed of carbon dioxide, nitrogen, argon, oxygen and water vapour.

16. Riya performed an experiment as shown below.



Select the correct option regarding it.

- A. X could be common salt, Y could be sugar and Z could be water.
 - B. If Y is sugar and Z is water then Y can be recovered by evaporating Z.
 - C. Both X and Y are insoluble in solvent Z.
 - D. X is a liquid whereas Y is a solid.
17. Rajat observed a gibbous moon in the night sky of 15th February. Which of the following phases of moon must have appeared on 8th February (X) and which phase of moon will he observe on 23rd February (Y) respectively?
- A.

B.

C.

D.
18. Which of the following graphs correctly depicts the body temperature of the given animals with respect to ambient temperature over a 24 hours period?
- A.

B.

C.

D.
19. Select the correct option regarding the given food web.
- ```

 graph TD
 P --> Q
 P --> T
 P --> W
 Q --> R
 T --> F
 W --> U
 R --> S
 F --> S
 U --> S

```
- A. The energy transferred from R to S is higher than energy transferred from Q to S.
  - B. Q, T and W are the herbivores in this food web.
  - C. There are 5 food chains in this food web.
  - D. If S is removed from this community, then population of Q will increase but that of R will decrease.
20. Select the incorrect match from the following.
- A. Bleeding wound – Tourniquet
  - B. Fractured bone – Splint
  - C. Sprain – Caustic soda
  - D. Minor burn – Antiseptic lotion

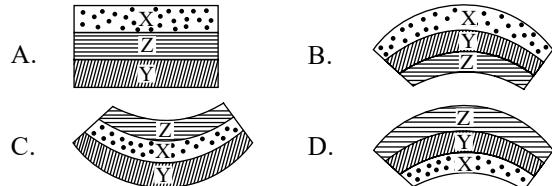
21. Given in the box below is a list of some crops.

Sorghum, Wheat, Oat, Rice, Groundnut, Barley, Pearl millet, Linseed, Chickpea, Mustard

How many of them are rabi crops?

- A. 3
- B. 6
- C. 8
- D. 4

22. The order of expansion of three metals X, Y and Z is X > Y > Z. Which of the following would be observed if trimetallic strips made of these metals are heated for the same time?



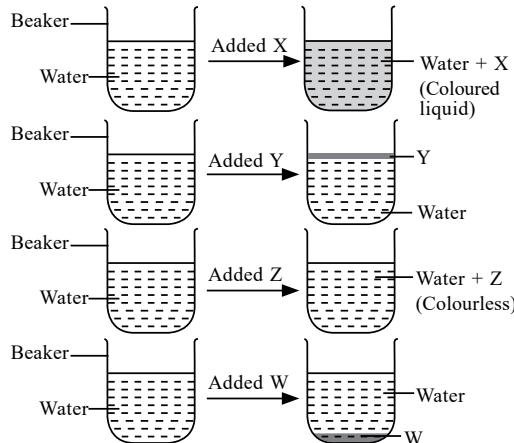
23. Chaitanya suffers from stomach ache and bad digestion whenever he eats any wheat product whereas his brother Satvik complains of bad vision in dim light. Which of the following holds true regarding them?

- A. Chaitanya is suffering from vitamin C deficiency and should take more of citrus fruits in his diet.
- B. Satvik is suffering from iron deficiency and should take more of spinach, apple, etc., in his diet.
- C. Chaitanya is allergic to wheat products so he should stop taking them to avoid illness caused due to their consumption.
- D. Satvik is suffering from vitamin B<sub>1</sub> deficiency so he should take more of carrots and papaya.

24. Select the correct statement from the following.

- A. If blisters are formed due to severe burn, they should be immediately pricked and vinegar should be applied on the burnt area.
- B. Toothpaste should be applied to the skin area where the snake has bitten and the victim should be positioned such that the bitten part lies above the level of heart.
- C. If a person is bleeding through nose he should be made to lie down flat on ground with head held back.
- D. Both A and B

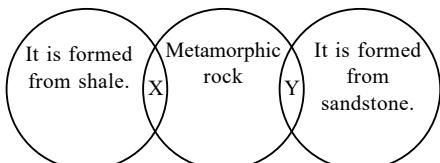
25. Saumya conducted an experiment as shown below.



Select the option that correctly identifies W, X, Y and Z.

- |    | <b>W</b>       | <b>X</b>      | <b>Y</b> | <b>Z</b>        |
|----|----------------|---------------|----------|-----------------|
| A. | Chalk          | Ink           | Oxygen   | Turmeric powder |
| B. | Carbon dioxide | Chilly powder | Ink      | Sand            |
| C. | Lemon juice    | Oil           | Chalk    | Milk            |
| D. | Sand           | Milk          | Oil      | Sugar           |
- 

26. Refer to the given Venn diagram and select the correct option regarding X and Y.



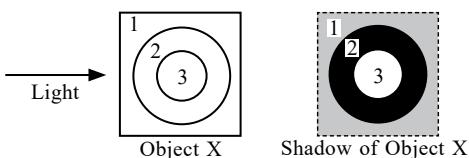
- A. X is obsidian whereas Y is conglomerate.
  - B. X is rich in mineral calcite whereas Y is rich in mineral feldspar.
  - C. X is used in making slates and blackboards whereas Y is used in making statues.
  - D. X is used to make cutting tools whereas Y is used by dentists for polishing teeth.
- 

27. Study the given table and select the incorrect option regarding P, Q, R and S.

| Animal | Characteristics |          |        |      |      |
|--------|-----------------|----------|--------|------|------|
|        | Wings           | Feathers | Scales | Fins | Hair |
| P      | ✓               | ✗        | ✓      | ✗    | ✗    |
| Q      | ✓               | ✓        | ✓      | ✗    | ✗    |
| R      | ✗               | ✗        | ✓      | ✓    | ✗    |
| S      | ✗               | ✗        | ✓      | ✗    | ✓    |

- A. P could be an animal that has six legs, is oviparous and has many stages in its life cycle.
  - B. Q and S are warm blooded animals where Q is always oviparous and lacks teeth whereas S may be viviparous and possesses teeth.
  - C. R could be a cold blooded, oviparous, aquatic animal like seal or arowana.
  - D. P could be moth, Q could be nightingale, R could be *Scoliodon* and S could be pangolin.
- 

28. An object X is made up of three materials 1, 2 and 3. When light is shone on it, it casts a shadow on screen as shown here.



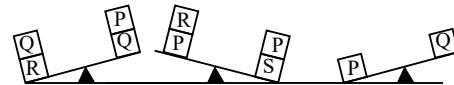
Identify materials 1, 2 and 3 of which object X is made.

- | <b>Material 1</b>   | <b>Material 2</b> | <b>Material 3</b>   |
|---------------------|-------------------|---------------------|
| A. Frosted glass    | Ceramic           | Clear plastic sheet |
| B. Aluminium foil   | Iron sheet        | Cardboard           |
| C. Cellophane paper | Clear glass       | Styrofoam           |
| D. Ceramic          | Thermocol         | Aluminium foil      |
- 

29. Select the option that correctly gives the examples of physical and chemical changes.

- | <b>Physical change</b> | <b>Chemical change</b> |
|------------------------|------------------------|
| A. Tearing of paper    | Breaking of glass      |
| B. Burning of paper    | Cooking of food        |
| C. Rusting of iron     | Melting of butter      |
| D. Formation of ice    | Burning of wood        |
- 

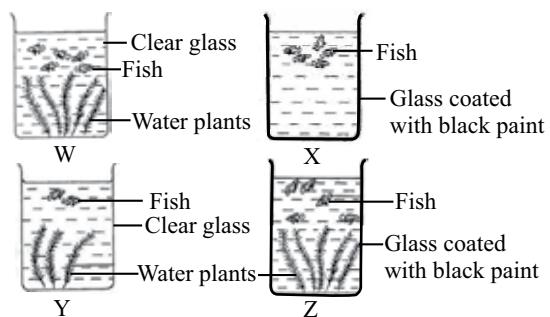
30. Four solid cubes of the same size but made from different materials are weighed against each other as shown in the diagram below.



Which of the four cubes has the greatest mass?

- A. P
  - B. R
  - C. Q
  - D. S
- 

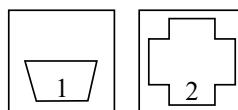
31. Nidhi wants to carry out an experiment to find out how light affects the amount of oxygen in an aquarium.



Which of the above given two set-ups should she use in order to carry out a fair test?

- A. W and Y
  - B. W and Z
  - C. X and Y
  - D. X and Z
- 

32. Shalu had two cardboards. She cut out different shapes from each of the cardboards as shown below.



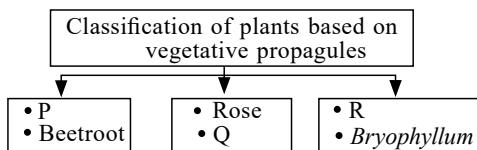
She glued cut-out pieces of cardboards by aligning sides 1 and 2 marked on them. She shone a torchlight on the cardboards as shown here.



Which of the following is most likely the shadow formed on the screen?

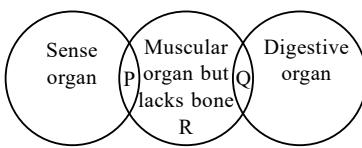
- A.
- B.
- C.
- D.

33. Refer to the given classification chart where plants have been classified based on plant parts from which they propagate vegetatively.



Now study the given relationship P :: R :: Q and select the option that correctly satisfies the same relationship.

- A. *Dahlia* :: *Zamikand* :: Water hyacinth  
 B. Turmeric :: *Tapioca* :: Onion  
 C. Garlic :: *Colocasia* :: *Kalanchoe*  
 D. *Asparagus* :: *Begonia* :: Ginger
- 
34. Aquarium keepers are typically advised to remove dead fish from an aquarium the moment they are discovered. Otherwise, the water may soon become cloudy due to a bacterial bloom. Which of the following best explains why a bacterial bloom should be avoided?
- A. The bacteria acting on the dead organism may infect other fish and aquatic organisms, causing an aquarium plague.  
 B. The cloudiness in the tank prevents the fish keepers from properly observing their pets.  
 C. The bacteria may become airborne with the evaporation of water from the aquarium and cause diseases in the external environment.  
 D. The sudden spike in bacterial population may result in insufficient dissolved oxygen for the other aquatic organisms, causing more aquatic life to die.
- 
35. A housewife was preparing hot meal for her family. She accidentally placed her fingertip into some boiling soup, but quickly withdrew it. She felt significant pain in the finger immediately after that. Which of the following is the most likely explanation for this time lag?
- A. The withdrawal of her finger is a reflex action that is triggered more quickly than the transmission of information related to pain stimulus to her brain.  
 B. The pain receptors present on her finger skin are less efficient, so information regarding pain is transmitted to brain at a slower rate as compared to that of heat.  
 C. The withdrawal of her finger is controlled by brain so it occurs very fast whereas feeling of pain is a reflex action controlled by spinal cord so it takes comparatively much more time.  
 D. None of these
- 
36. Study the given Venn diagram and select the incorrect option regarding organs P, Q and R.
- A. P could be a sense organ that also helps in mixing of food with saliva in the mouth.



- B. Q could be an organ which churns the food so that it mixes with digestive juices and acid.  
 C. P could be a sense organ that helps to take up atmospheric air and possesses hair which traps dust particles and germs.  
 D. R could be an organ that pumps blood to all other body organs through blood vessels.
- 

37. Read the given paragraph.

X is a dome shaped and largest part of brain whereas Y is a structure that connects brain to spinal cord. Now refer to the activities listed below.

- (i) Recalling mugged up content  
 (ii) Problem solving  
 (iii) Breathing while sleeping  
 (iv) Running  
 (v) Swallowing food

Select the option that correctly matches these activities with the brain parts that regulate them.

- |                   |                         |
|-------------------|-------------------------|
| A. X – (i), (iii) | B. X – (i), (iv)        |
| Y – (iv), (v)     | Y – (ii), (iii)         |
| C. X – (i), (ii)  | D. X – (i), (iii), (iv) |
| Y – (iii), (v)    | Y – (ii)                |
- 

38. Select the option in which the odd member is encircled correctly on the basis of habitat.

- A. Baseball plant, *Pistia*, *Golden barrel cactus*  
 B. *Vallisneria*, *Hydrilla*, *Acacia*  
 C. Maple, *Bladderwort*, Cotton  
 D. *Lemna*, *Eichhornia*, *Dandelion*
- 

39. Which of the following can be obtained by using the letters given in the box? (You can use each letter more than once.)

TNMHCSIREUA

- A. A natural disaster that can be measured on Richter scale.  
 B. An enormous water wave that is caused by an earthquake in the ocean floor and creates havoc in coastal areas.  
 C. A strong tropical storm with fast spinning winds.  
 D. Both B and C
- 

40. Disturbance in water cycle can lead to which of the following natural disasters?

- A. Floods                    B. Drought  
 C. Volcanic eruption     D. Both A and B
- 

41. Which of the following activities cause water pollution?

- A. Oil spills from ship  
 B. Bathing of animals and washing clothes in river water  
 C. Dumping human dead bodies and things like diyas, ashes, flowers, etc., into local water bodies on the name of rituals  
 D. All of these

42. It is possible to listen to radio programmes and watch programmes telecasted on television due to the presence of \_\_\_\_\_ layer in atmosphere.

A. Exosphere      B. Ionosphere  
C. Stratosphere    D. Troposphere

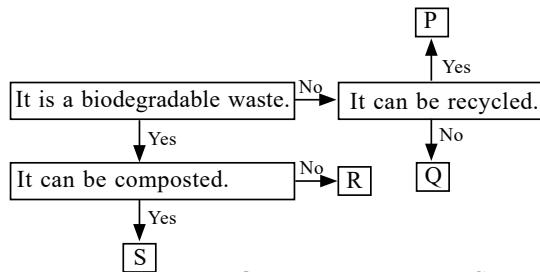
43. Match column I with column II and select the correct option from the given codes. (There can be more than one match for column I.)

**Column I**                  **Column II**

- |                       |                                     |
|-----------------------|-------------------------------------|
| (a) Soil formation    | (i) Indiscriminate felling of trees |
| (b) Soil erosion      | (ii) Terrace farming                |
| (c) Soil conservation | (iii) Embankments                   |
|                       | (iv) Overgrazing                    |
|                       | (v) Afforestation                   |
|                       | (vi) Weathering                     |

- A. (a) – (v), (b) – (ii), (vi), (c) – (i), (iii), (iv)  
B. (a) – (vi), (b) – (i), (iv), (c) – (ii), (iii), (v)  
C. (a) – (iii), (b) – (ii), (v), (c) – (i), (iv), (vi)  
D. (a) – (ii), (b) – (i), (vi), (c) – (iii), (iv), (v)

44. Refer to the given flow chart and identify wastes P, Q, R and S.



| P                    | Q            | R                    | S                                     |
|----------------------|--------------|----------------------|---------------------------------------|
| A. Plastic container | Urine bag    | Dead body of animals | Tea leaves                            |
| B. Newspaper         | Glassware    | Rotten fruit         | Syringe                               |
| C. Aluminium foil    | Ear bud      | Wooden spoon         | Discarded human organ in a transplant |
| D. Credit card       | Cotton balls | Cooked beans         | Human excreta                         |

45. Which of the following joints we use for nodding to say yes?

- A. Pivot joint      B. Gliding joint  
C. Hinge joint      D. Ball and socket joint

## ACHIEVERS SECTION

46. Aashi grouped plants on the basis of their seed dispersal mode. By mistake, she put one wrong plant in each group. Identify the odd member out and select the correct option regarding this.

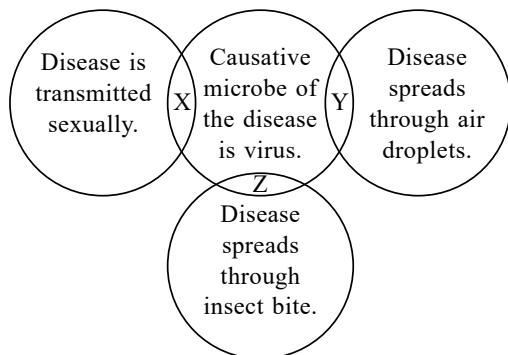
Group I : Maple, Lotus, *Dandelion*

Group II : Blackberry, Litchi, Coconut

Group III : Cocklebur, *Geranium*, Pea

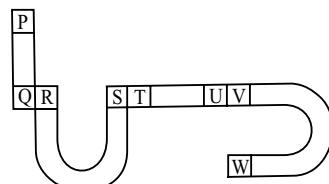
- A. Lotus is incorrectly placed in group I and should be replaced with *Euphorbia*.  
B. Litchi in group II should be interchanged with *Geranium* in group III.  
C. Blackberry is incorrectly placed in group II and should be replaced with cotton.  
D. Cocklebur is incorrectly placed in group III and should be replaced with Lupin.

47. Refer to the given Venn diagram and select the incorrect statement regarding X, Y and Z.



- A. X could be an incurable disease that damages immune system of the infected person.  
B. Disease Y could be effectively treated by antibiotics.  
C. Z could be a disease in which blood platelet count of a person goes down significantly.  
D. Both X and Y could be communicable diseases, of which Y could get cured on its own.

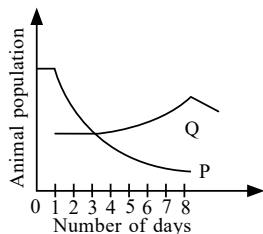
48. The diagram below shows how four magnets are attracted to one another. The poles of the four magnets are marked P to W.



Which one of the following could be another possible arrangement using any two of these magnets?

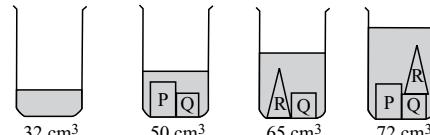
- A.   
B.   
C.   
D.

49. The population of animal P in a certain community was constant until a population of animal Q was subsequently introduced into that community. The interaction between the two populations is represented in the given graph. Which of the following can be inferred from the given graph?

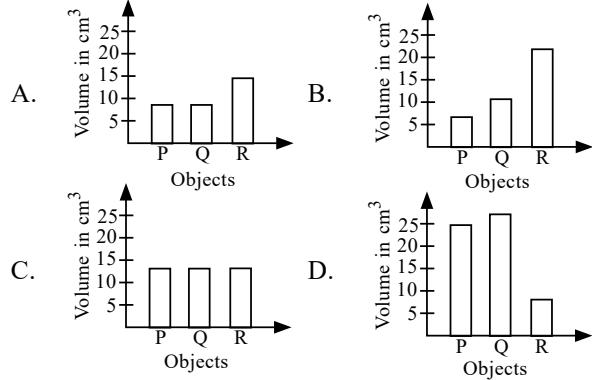


- A. Q could be a carnivore who is the predator of P who could be a herbivore or a carnivore.
- B. P could be a herbivore who feeds on some specific plants whereas Q could be an omnivore who not only feeds on those specific plants but also feeds on P.
- C. Q could be an exotic animal species which competitively drove out the entire population of animal species which is the only prey of P.
- D. All of these

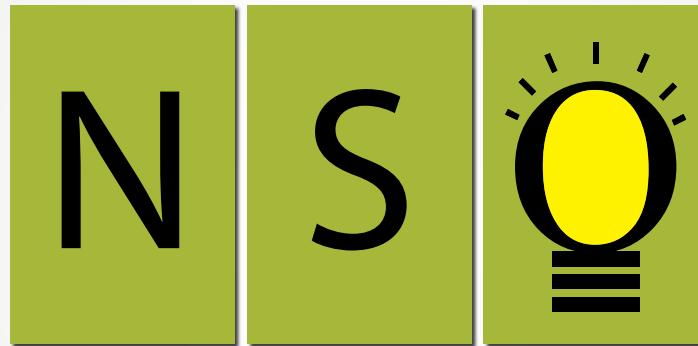
50. Shweta wanted to find out the volumes of three objects, P, Q and R. She put them into a beaker of water in different combinations as shown below.



Which of the following bar graphs correctly shows the volume of the three objects?



**SPACE FOR ROUGH WORK**



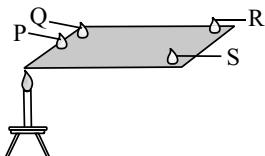
**LEVEL - 2**

**Year 2018-19**

SCIENCE

1. P, Q, R and S are drops of wax placed on a rectangular piece of metal. When the metal frame is heated at the point shown in the diagram, the drops of wax will melt. Which of the following shows the correct order in which the drops of wax will melt?

- A. P, Q, R and S
  - B. P, Q, S and R
  - C. S, R, Q and P
  - D. S, R, P and Q



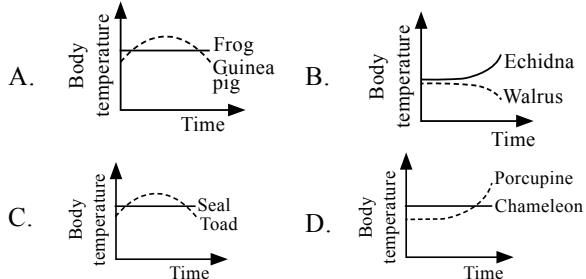
2. Match column I (nutrient) with column II (function) and column III (deficiency symptom) and select the correct option from the given codes.

|    | <b>Column I</b>                                                | <b>Column II</b>                               | <b>Column III</b>   |
|----|----------------------------------------------------------------|------------------------------------------------|---------------------|
| P. | Vitamin C                                                      | (i) For normal functioning of thyroid glands   | (a) Anaemia         |
| Q. | Iodine                                                         | (ii) Maintains normal vision                   | (b) Scurvy          |
| R. | Iron                                                           | (iii) Helps in keeping gums and joints healthy | (c) Goitre          |
| S. | Vitamin A                                                      | (iv) Required for haemoglobin formation        | (d) Night blindness |
| A. | P - (iii) - (b); Q - (i) - (c); R - (iv) - (a); S - (ii) - (d) |                                                |                     |
| B. | P - (ii) - (c); Q - (i) - (d); R - (iii) - (a); S - (iv) - (b) |                                                |                     |
| C. | P - (iv) - (a); Q - (ii) - (c); R - (i) - (b); S - (iii) - (d) |                                                |                     |
| D. | P - (i) - (b); Q - (iv) - (a); R - (iii) - (c); S - (ii) - (d) |                                                |                     |

3. Select the correct statement out of the following.

  - A. Sandy soil needs regular addition of fertilisers as it holds a larger amount of water.
  - B. Loamy soil has good qualities of both sandy and clayey soil and thus is most suitable for pottery.
  - C. Clayey soil develops cracks in hot weather causing harm to the roots of plants, thus is not suited for agriculture.
  - D. The water holding capacity is highest in clayey soil and lowest in loamy soil.

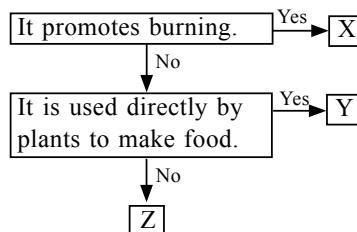
4. Which of the following graphs correctly depicts the body temperature of the given animals with respect to ambient temperature over a 24 hours period?



5. The given options show the bacterial count, oxygen level and the number of green plants and animals in the river near each of four towns A, B, C and D. Which town is situated near an unpolluted river?

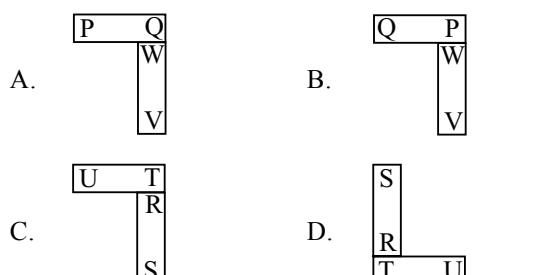
|    | Bacterial count | Oxygen level | Number of green plants | Number of animals |
|----|-----------------|--------------|------------------------|-------------------|
| A. | Low             | High         | Few                    | Few               |
| B. | High            | Low          | Few                    | Many              |
| C. | High            | Low          | Few                    | Few               |
| D. | Low             | High         | Many                   | Many              |

6. Refer to the given flow chart and identify the components X, Y and Z of air.

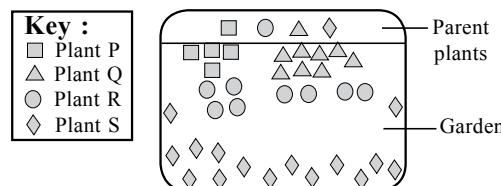


- A. X - Carbon dioxide; Y - Nitrogen; Z - Oxygen
  - B. X - Carbon dioxide; Y - Oxygen; Z - Nitrogen
  - C. X - Oxygen; Y - Carbon dioxide; Z - Nitrogen
  - D. X - Nitrogen; Y - Oxygen; Z - Carbon dioxide

7. Study the arrangement of four magnets shown in the given diagram. Which of the following is a possible arrangement of two of the magnets?



8. Raman planted four plants P, Q, R and S near the boundary of his garden. The diagram shows the distribution of these plants in the garden area after a certain time period.



Which one of the plants is most likely to be *Hiptage*?

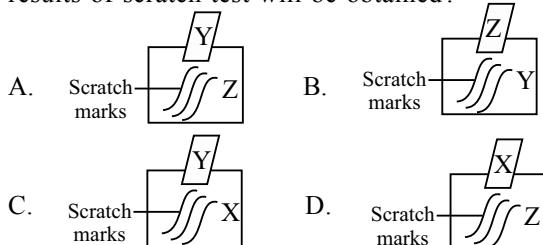
- A. Plant P                      B. Plant Q  
C. Plant R                      D. Plant S

9. The given table shows the rank of three different minerals on the scale of hardness.

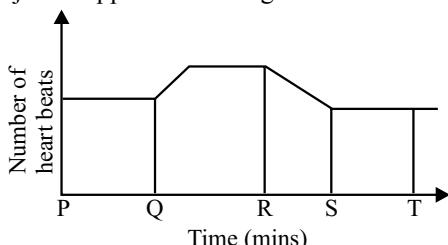
| <b>Mineral</b> | <b>Rank of hardness</b> |
|----------------|-------------------------|
| X              | 4                       |
| Y              | 2                       |
| Z              | 7                       |

The given options show the scratch marks made on the surface of one mineral by rubbing with another mineral.

Based on the above data, which of the following results of scratch test will be obtained?

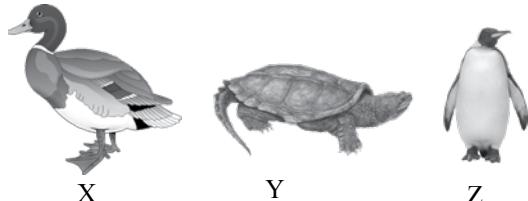


10. Shiva has just completed vigorous exercise. Which part of the graph most likely shows the time when he has just stopped exercising?





11. Refer to the given figures X, Y and Z and select the correct option.



- A. They all possess similar respiratory organs.
  - B. They all possess similar body coverings.
  - C. They all possess flippers to swim in water.
  - D. They all possess hollow bones to make the body light.

12. Raj shone torchlight on three objects P, Q and R one at a time and measured the amount of light that passed through each one of them by using light sensors. The given graph shows the result of his experiment.

Which of the following options correctly identifies P, O and R?

| P                   | Q                  | R                |
|---------------------|--------------------|------------------|
| A. Frosted glass    | Mirror             | Cellophane paper |
| B. Wood             | Clear glass window | Tracing paper    |
| C. Plastic sheet    | Aluminium foil     | Sand paper       |
| D. Cellophane paper | Tracing paper      | Mirror           |

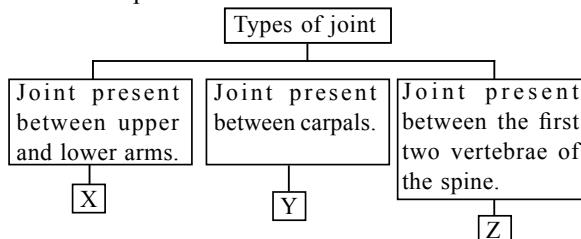
13. Seema grouped plants on the basis of their mode of vegetative reproduction. In one of the groups she placed an incorrect member by mistake. Identify this group and select the correct option.

- A. Potato, Ginger, Onion
  - B. Sweet potato, Dahlia, Carrot
  - C. *Bryophyllum*, *Begonia*, Sugarcane
  - D. *Hibiscus*, *Bougainvillea*, Rose

14. Select the incorrect match.

- A. Exosphere - All weather changes take place in this layer.
  - B. Stratosphere - Jet planes usually fly in this layer.
  - C. Mesosphere - Most meteoroids entering the Earth's atmosphere slow down and burn up in this layer.
  - D. Thermosphere - Space shuttles orbit in this layer.

15. Refer to the given classification table and select the correct option.



- A. X could be hinge joint whereas Z could be pivot joint.
  - B. Y could be ball and socket joint whereas Z could be gliding joint.
  - C. X could be gliding joint whereas Y could be pivot joint.
  - D. Y could be pivot joint whereas Z could be gliding joint.

16. Following animals X and Y have been paired based on the manner in which they obtain and consume their food.



Select the option that correctly pairs animals on the similar basis.

X

Y

- A. Python Grasshopper
  - B. Hamster Bed bug
  - C. Viper Housefly
  - D. Cassowary Butterfly

17. Study the given relationship.

Shale : Slate : Granite

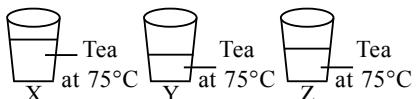
Select the option that correctly satisfies the same relationship.

- A. Conglomerate : Gneiss : Pumice
- B. Marble : Limestone : Obsidian
- C. Sandstone : Quartzite : Marble
- D. Quartzite : Marble : Conglomerate

18. Select the option which classifies non-communicable and communicable diseases correctly. [Communicable diseases (CD) and Non-communicable diseases (ND)]

- A. CD : Typhoid, Cholera  
ND : Dengue, Measles
- B. CD : Typhoid, Jaundice  
ND : Rickets, Scurvy
- C. CD : Asthma, Dengue  
ND : Malaria, Cholera
- D. CD : Scurvy, Arthritis  
ND : Chickenpox, Tetanus

19. Study the three similar glasses of tea that are placed on the table.



Which of the following statements are true about the glasses of tea X, Y and Z?

- A. The tea in glasses X, Y and Z have the same amount of heat.
- B. The tea in glasses X and Y have more heat than in glass Z.
- C. The tea in glass X has more heat than glass Z.
- D. The tea in glass Y has more heat than glasses X and Z.

20. Identify X, Y and Z from the given figure and select the correct statement regarding them.

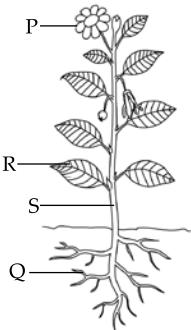


- A. Z is attached to bones whereas X is not attached to bones
- B. Y is voluntary muscle whereas Z is involuntary muscle.
- C. X is very strong muscle that works continuously.
- D. None of these

21. Select the animal group that possesses similar body covering.

- A. Crocodile, Ostrich, Newt
- B. Elephant, Frog, Rhinoceros
- C. Turtle, Tortoise, Snail
- D. Porcupine, Hedgehog, Crocodile

22. The given figure shows plant parts labelled as P, Q, R and S. Which of the following options correctly list the plants in which labelled part is edible?



- A. P – Broccoli, Cauliflower, Lettuce
- B. Q – Tapioca, Turnip, Onion
- C. R – Coriander, Spinach, Fenugreek
- D. S – Potato, Ginger, Sweet potato.

23. Read the given statements regarding the lever and select the correct ones.

- (i) In beam balance, fulcrum is in the middle.
  - (ii) A nutcracker is an example of third class lever.
  - (iii) In tongs, the fulcrum and the load are at the two ends.
  - (iv) See-saw is an example of first class lever.
- A. (i), (iii) and (iv) only
  - B. (ii) only
  - C. (iii) and (iv) only
  - D. (i) and (ii) only

24. Unscramble the letters given in column II to make meaningful terms and match column I with column II to select the correct option.

| <b>Column I</b>                           | <b>Column II</b> |
|-------------------------------------------|------------------|
| P. Tropical storm with (i)                | RACERT           |
| spinning winds                            |                  |
| Q. Hollow top of (ii)                     | UGHORDT          |
| the volcano                               |                  |
| R. Extended period (iii)                  | ELOCYNC          |
| of dry weather                            |                  |
| S. Magma erupting (iv)                    | ALAV             |
| from a volcano                            |                  |
| A. P - (i); Q - (iii); R - (ii); S - (iv) |                  |
| B. P - (iv); Q - (ii); R - (i); S - (iii) |                  |
| C. P - (i); Q - (iii); R - (iv); S - (ii) |                  |
| D. P - (iii); Q - (i); R - (ii); S - (iv) |                  |

25. The given diagram shows three gears arranged to work in a mechanical system. If gear R moves in an anticlockwise direction, in which direction would gears P and Q move?



- A. P-Anticlockwise, Q-Clockwise
- B. P-Clockwise, Q-Clockwise
- C. P-Clockwise, Q-Anticlockwise
- D. P-Anticlockwise, Q-Anticlockwise

26. Study the given relationship.

Soluble impurities : Insoluble impurities :: X : Y  
Select the option that correctly identifies separating methods X and Y.

| X                | Y            |
|------------------|--------------|
| A. Evaporation   | Distillation |
| B. Distillation  | Filtration   |
| C. Sedimentation | Decantation  |
| D. Filtration    | Distillation |

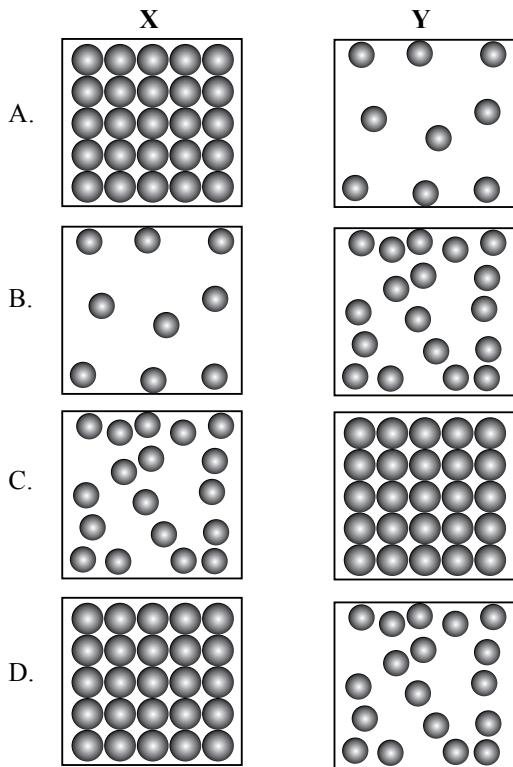
27. Study the table given below describing the characteristics of four animals W, X, Y and Z.

| Description                | W | X | Y | Z |
|----------------------------|---|---|---|---|
| It has six legs.           | ✓ | ✗ | ✓ | ✗ |
| It breathes through gills. | ✓ | ✗ | ✗ | ✓ |
| It possesses hollow bones. | ✗ | ✓ | ✗ | ✓ |

Which of the following is likely to be a mosquito?

- A. W                      B. X  
C. Y                      D. Z

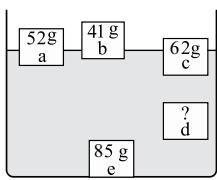
28. X changes to Y on condensation. Select the option that correctly represents the arrangement of molecules in X and Y.



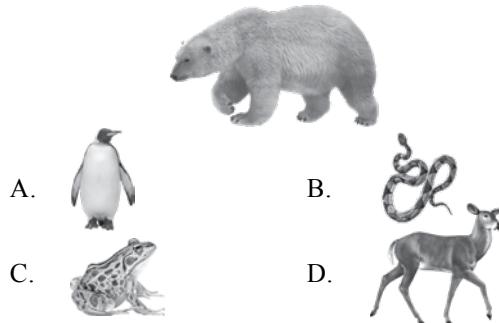
29. Five objects a, b, c, d and e of the same volume but different masses, are put into a tank of water as shown here.

Which of the following is most likely to be the mass of object d?

- A. 45 g                      B. 58 g  
C. 74 g                      D. 90 g



30. Select the animal that has similar body covering as the animal shown here.



31. In India, crops that are grown in winter are called rabi crops. Which of the following are rabi crops?

- (i) Radish                      (ii) Mustard  
(iii) Rice                      (iv) Millet  
(v) Cabbage                      (vi) Watermelon  
(vii) Peach                      (viii) Cauliflower  
A. (i), (ii) and (vii) only  
B. (iii), (iv), (v) and (vi) only  
C. (iv), (vi) and (viii) only  
D. (i), (ii), (v) and (viii) only

32. Select the option that correctly represents chemical change (X) and physical change (Y).

|    | X                  | Y                     |
|----|--------------------|-----------------------|
| A. | Bending of wire    | Ripening of mango     |
| B. | Cooking of food    | Melting of ice        |
| C. | Rusting of iron    | Burning of crackers   |
| D. | Formation of cloud | Germination of a seed |

33. Study the given table.

| Characteristic  | Material |   |   |
|-----------------|----------|---|---|
|                 | X        | Y | Z |
| Definite volume | ✓        | ✓ | ✓ |
| Opaque          | ✗        | ✓ | ✗ |
| Definite shape  | ✗        | ✓ | ✓ |

Select the option that correctly identifies X, Y and Z.

| X        | Y            | Z         |
|----------|--------------|-----------|
| A. Air   | Rubber ball  | Mirror    |
| B. Honey | Mirror       | Cardboard |
| C. Water | Wooden sheet | Glass     |
| D. Ink   | Steel plate  | Mirror    |

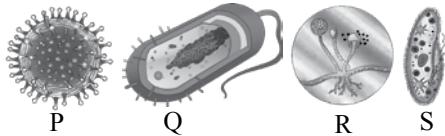
34. Which of the following is not a greenhouse gas?

- A. Carbon dioxide  
B. Methane  
C. Ozone  
D. Sulphur dioxide

35. Which of the following groups of seeds contains only dicot seeds?

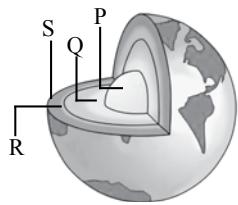
- A. Wheat, Rice, Maize  
B. Pea, Maize, Bean  
C. Pea, Bean, Gram  
D. Maize, Gram, Pea

36. Which of the following belong to the same group to which microbes that cause plague (X) and polio (Y) belong?



- |          |          |
|----------|----------|
| <b>X</b> | <b>Y</b> |
| A. Q     | R        |
| B. P     | R        |
| C. Q     | P        |
| D. P     | S        |
- 

37. Observe the given figure.



From which of the following layers does molten magma come out when a volcano erupts?

- |      |                 |
|------|-----------------|
| A. P | B. Q            |
| C. R | D. Both Q and S |
- 

38. Renu classified plants into groups as shown in the table shown here. Which of the following is the most appropriate headings for group X and group Y?

| <b>X</b> | <b>Y</b> |
|----------|----------|
| Fern     | Dahlia   |
| Moss     | Potato   |
| Pine     | Onion    |

---

**X**                                   **Y**

- |                         |                      |
|-------------------------|----------------------|
| A. Aquatic plants       | Terrestrial plants   |
| B. Heterotrophs         | Autotrophs           |
| C. Non-flowering plants | Flowering plants     |
| D. Parasitic plants     | Insectivorous plants |
- 

39. Rini was asked to write some involuntary actions. She has written some voluntary actions also as shown in the list.

- (i) Chewing food (ii) Sitting upright on a table  
 (iii) Digestion of food (iv) Beating of heart  
 (v) Singing a song (vi) Dancing (vii) Breathing  
 (viii) Writing a letter

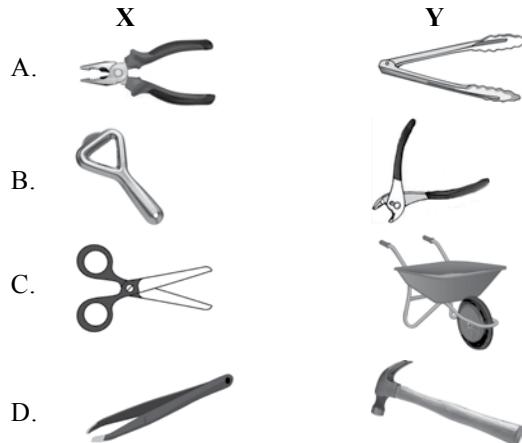
- Select the option that contains only involuntary actions.
- |                                      |
|--------------------------------------|
| A. (i), (iii), (vii) and (viii) only |
| B. (ii), (vi) and (vii) only         |
| C. (iii), (iv) and (vii) only        |
| D. (ii), (v), (vi) and (vii) only    |
- 

40. Ruchi categorised animals on the basis of their body coverings. She made three groups and by mistake placed one wrong member in each group. Identify the wrong member of each group and select the correct option.

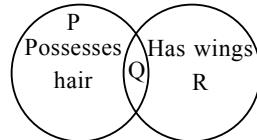
- Group I – Snake, Lizard, Crab  
 Group II – Sloth, Platypus, Salmon  
 Group III – Penguin, Pigeon, Grasshopper

- A. Crab of group I should be interchanged with grasshopper of group III.
  - B. Salmon of group II should be replaced with toad.
  - C. Platypus of group II should be interchanged with pigeon of group III.
  - D. Grasshopper of group III should be replaced with parakeet.
- 

41. Which of the following represents first class lever (X) and second class lever (Y) respectively?



42. Refer to the given Venn diagram and select the correct option.



- A. P could be cold blooded animal whereas R could be warm blooded animal.
  - B. P and R may possess endoskeleton of bones.
  - C. P breathes through spiracles whereas R breathes through gills.
  - D. Q could have hollow bones.
- 

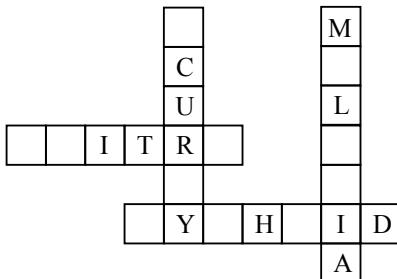
43. Study the given passage.

X, Y and Z are different parts of the brain. X controls muscular activities, Y controls learning ability and memory and Z controls activities such as breathing, heartbeat and blood pressure.

Identify X, Y and Z and select the correct statement regarding them.

- A. X is the upper part of brain that also controls our sense organs.
- B. Y is located below X towards back of the brain.
- C. X is also called brain stem and it works even when we are asleep.
- D. Z connects the brain to spinal cord whereas Y is the largest part of the brain.

44. Solve the given puzzle based on diseases and select the option that is not hidden in this puzzle.



- A. A disease that can spread by biotic agent.
- B. A disease that spreads by contaminated food or water.
- C. A disease that is caused due to the deficiency of energy giving food.
- D. A disease that is caused due to the deficiency of protective food.

45. Swati wanted to study the effect of temperature on the rate of evaporation. For this, she carried out the experiment under four different sets of conditions as shown in the table.

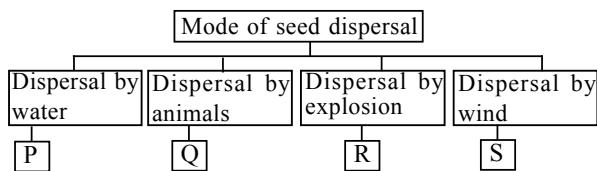
| Characteristic                       | Set W              | Set X               | Set Y              | Set Z               |
|--------------------------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Surface area of the container</b> | 80 cm <sup>3</sup> | 120 cm <sup>3</sup> | 80 cm <sup>3</sup> | 120 cm <sup>3</sup> |
| <b>Humidity</b>                      | 80%                | 90%                 | 90%                | 90%                 |
| <b>Temperature</b>                   | 75°C               | 120°C               | 75°C               | 75°C                |

Which of the following is best suited to conclude the effect of temperature on the rate of evaporation?

- A. Set W and Set Z
- B. Set X and Set Z
- C. Set Y and Set Z
- D. Set W and Set Y

## ACHIEVERS SECTION

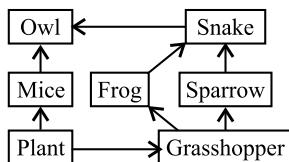
46. Study the given flow chart.



Select the option that correctly identifies P – S.

- | P              | Q         | R       | S          |
|----------------|-----------|---------|------------|
| A. Castor      | Cotton    | Cherry  | Lotus      |
| B. Coconut     | Xanthium  | Pea     | Madar      |
| C. Lotus       | Dandelion | Mango   | Tiger nail |
| D. Spear grass | Madar     | Coconut | Dandelion  |

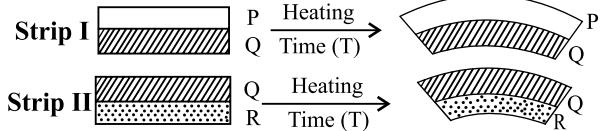
47. Refer to the given food web. If a population of an organism *X* is introduced in this community who preys on mice and snake then what will not be the likely consequence over time?



- A. The population of owl will decline with time.
- B. The populations of frog and sparrow will increase with time.
- C. Plant and grasshopper populations will remain unaffected.
- D. Both A and B

48. Ritu took two bimetallic strips, I and II (of equal size, length and breadth) made up of metals P and Q; and Q and R, respectively as shown in the figure.

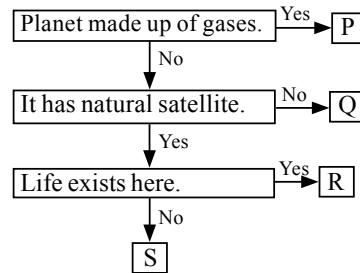
She subjected each bimetallic strip to heating for the same time period. The given diagram shows her experiment.



Which of the following can be inferred from the given experiment?

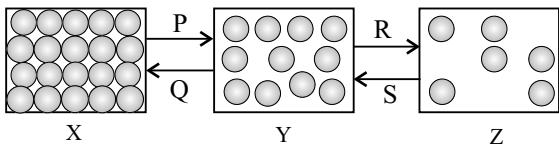
- A. Metal Q expands more as compared to metals P and R on heating for the same time period.
- B. Metal R contracts more as compared to metals P and Q on heating for the same time period.
- C. The order of expansion of these metals when subjected to heating is R < Q < P.
- D. Both B and C

49. Study the given flow chart and select the correct option regarding P – S.



- A. P could be the largest planet whereas Q could be the red planet.
- B. Q could be known as morning and evening star whereas R could be the lightest planet.
- C. Q could be the hottest planet whereas P could be the coldest planet.
- D. Q and S may have rings orbiting them whereas R may have no rings orbiting them.

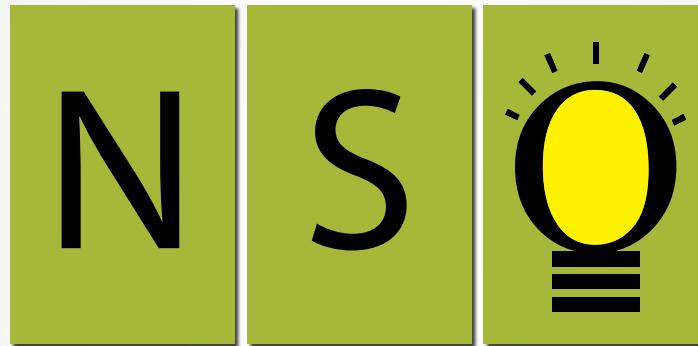
50. The given figure shows three states X, Y and Z in which a matter can exist.



Identify these states and processes (P, Q, R and S) and select the correct option regarding them.

- A. Process S is responsible for drying of wet clothes when put on clothesline.
- B. Process Q is responsible for formation of clouds in the atmosphere.
- C. A naphthalene ball converts from its X state to Y state and *vice versa* by involving processes P and Q.
- D. During processes P and R, heat energy is used to overcome the forces of attraction between the particles.

SPACE FOR ROUGH WORK

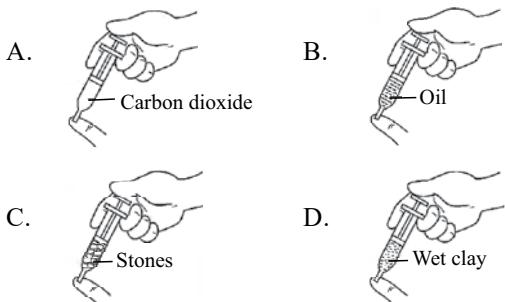


**LEVEL - 2**

**Year 2019-20**

# SCIENCE

1. Ravi filled four identical syringes with different substances as shown in the given figures. In which syringe will the plunger move the fastest when pushed in?

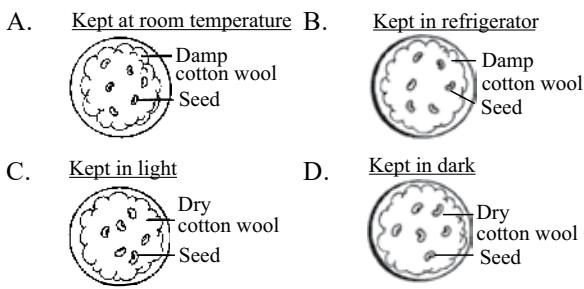


2. What is common among the given diseases?

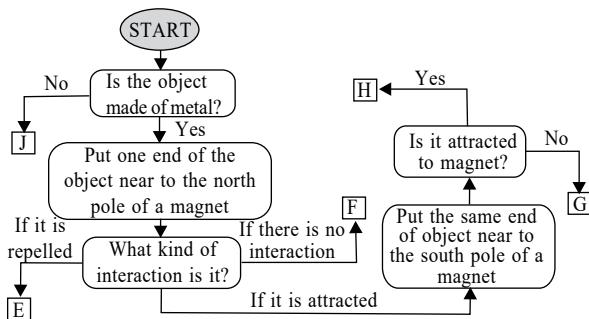
Beri-beri, Scurvy, Goitre

- A. These are deficiency diseases that can be cured by intake of citrus fruits.
- B. These are deficiency diseases that are non-communicable.
- C. It is possible to prevent these diseases through vaccination.
- D. These diseases are caused due to the deficiency of vitamin B complex.

3. Amyra set up an experiment as shown in the given figures. In which of the following petri dishes would the seeds germinate successfully?

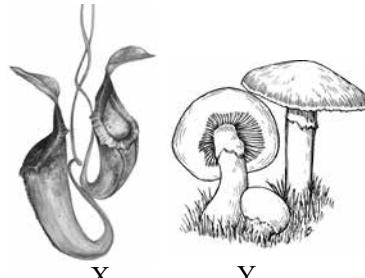


4. Virat made use of the given flow chart to find out whether aluminium (object) works like a magnet or is a magnetic or a non-magnetic material. The points J, E, F, G and H are called 'exit points'. Which 'exit point' would Virat get for the aluminium?



- A. E
- B. F
- C. G
- D. H

5. Identify X and Y shown in the given figures and select the correct statement regarding them.



- A. Both X and Y can make their own food.
- B. X cannot make its own food but Y can make its own food.
- C. X depends partly on animals for food and can also make its own food, while Y cannot make its own food.
- D. X cannot make its own food at all, while Y depends on decaying matter for food.

6. Read the given statements and select the correct option.

Statement 1 : Moon is a very silent place.

Statement 2 : Air is present on the Moon.

- A. Both statements 1 and 2 are correct and statement 2 is the correct explanation of statement 1.
- B. Both statements 1 and 2 are correct but statement 2 is not the correct explanation of statement 1.
- C. Statement 1 is correct but statement 2 is incorrect.
- D. Both statements 1 and 2 are incorrect.

7. Five friends ate some dishes in the lunch as shown in the given table.

|        | Fruits | Jeera rice | Vegetable salad | Pulses | Cheese burger | Butter |
|--------|--------|------------|-----------------|--------|---------------|--------|
| Monica | ✓      | ✓          | ✓               | ✓      | ✗             | ✓      |
| Manav  | ✗      | ✓          | ✗               | ✓      | ✗             | ✗      |
| Hitesh | ✗      | ✗          | ✗               | ✓      | ✗             | ✗      |
| Gauri  | ✗      | ✗          | ✗               | ✗      | ✓             | ✗      |
| Arhan  | ✓      | ✗          | ✓               | ✗      | ✗             | ✗      |

Refer to the given table and select the option that correctly answers the following questions.

- (a) Who among them had a balanced meal?
- (b) Who among them ate only body building food?
- (c) Who among them ate only protective food?

| <b>a</b>  | <b>b</b> | <b>c</b> |
|-----------|----------|----------|
| A. Monica | Arhan    | Gauri    |
| B. Arhan  | Manav    | Hitesh   |
| C. Monica | Hitesh   | Arhan    |
| D. Hitesh | Arhan    | Manav    |

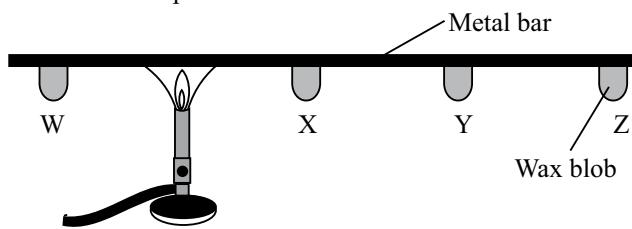
8. Which of these natural resources is a source of lumber used for building a house?

- A. Ores
- B. Coal
- C. Trees
- D. Grasses

9. Which of the following is an incorrect match?

| <b>Characteristics</b>             | <b>Mode of dispersal</b> |
|------------------------------------|--------------------------|
| of seeds                           |                          |
| A. Light, have hair or wings       | - Air                    |
| B. Spongy or have fibrous covering | - Water                  |
| C. Have hooks or spines            | - Air                    |
| D. Burst open and scatter when dry | - Explosion              |

10. Some candle wax is fixed on a metal bar. A flame is then placed below the bar as shown in the figure. Which wax blob among W, X, Y and Z will be the last to drop?



- A. Z
- B. Y
- C. X
- D. W

11. Read the given statements regarding the lever and select the incorrect ones.

- (i) In a beam balance, fulcrum is in the middle.
  - (ii) A nutcracker is an example of third-class lever.
  - (iii) In tongs, the fulcrum and the load are at the two ends.
  - (iv) See-saw is an example of first class lever.
- A. (i), (iii) and (iv) only
  - B. (ii) only
  - C. (iii) and (iv) only
  - D. (i) and (ii) only

12. Greenhouse gases cause global warming. Which of the following is a greenhouse gas?

- A. Oxygen
- B. Nitrogen
- C. Carbon dioxide
- D. Magnesium oxide

13. Keshav conducted an experiment where 4 identical metal balls were allowed to roll down 4 similar curves with surfaces of different texture. The time taken for the ball to come to a complete stop for each of the different surfaces was recorded in the given table.

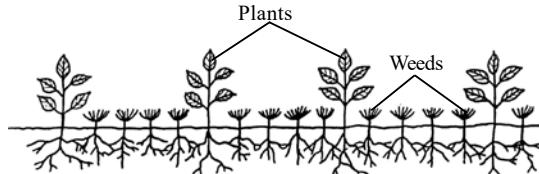


| <b>Surface</b> | <b>Time taken for ball to stop (seconds)</b> |
|----------------|----------------------------------------------|
| L              | 24                                           |
| M              | 19                                           |
| N              | 28                                           |
| O              | 12                                           |

Which curve has the roughest surface?

- A. L
- B. M
- C. N
- D. O

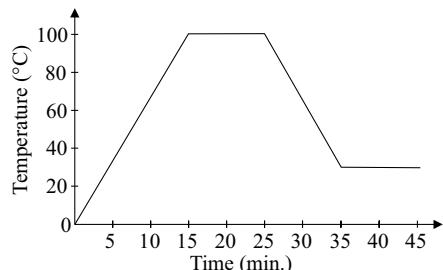
14. The given diagram shows some plants and weeds growing together.



Due to the presence of weeds, for which of the following do plants need to compete?

- 1. Water
  - 2. Nutrients
  - 3. Space
- A. 1 and 2 only
  - B. 1 and 3 only
  - C. 2 and 3 only
  - D. 1, 2 and 3

15. Taniya heated a beaker of iced water until it started boiling. She boiled it for few minutes and then left it to cool down at room temperature. She recorded the temperature of water at intervals of five minutes and used the results to draw the graph as shown in the given figure. Approximately how long did the boiling water take to cool to the room temperature?



- A. 20 minutes
- B. 10 minutes
- C. 15 minutes
- D. 30 minutes

16. Select the correct statement.

- A. Uranus is the second largest planet in the solar system.
- B. Neptune takes about 165 Earth years to orbit around the Sun.
- C. The distinguishing feature of Venus is the 'Great Red Spot' on its surface.
- D. Mercury is the hottest planet in the solar system.

17. Select the incorrect match.

| Animal          | Locomotory organs         |
|-----------------|---------------------------|
| (P) Pigeon      | - Wings, legs             |
| (Q) Locust      | - Wings, legs             |
| (R) Salmon      | - Webbed feet, hind limbs |
| (S) Snake       | - Fins, spiracles         |
| A. P and R only |                           |
| B. S only       |                           |
| C. R and S only |                           |
| D. Q and R only |                           |

18. Acid rain could cause

- (i) Erosion of stone statues and buildings
  - (ii) Global warming
  - (iii) Depletion of the ozone layer
  - (iv) Threat to the life of aquatic beings.
- A. (i) and (ii) only
  - B. (i) and (iv) only
  - C. (i) and (iii) only
  - D. (ii) and (iii) only

19. Which of the following statements regarding the Taj Mahal is incorrect?

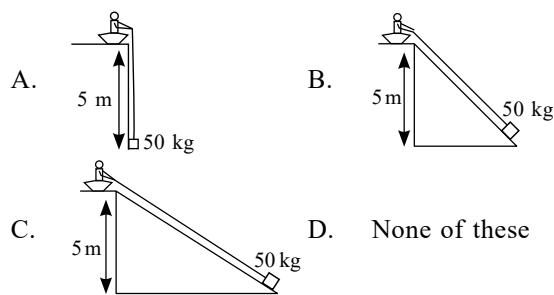
- A. It was designed by Ustad Ahmad Lahori.
- B. It is situated on the bank of river Ganga.
- C. Emperor Shah Jahan built it in the memory of his wife Mumtaz Mahal.
- D. None of these

20. Which of the following is correct regarding the animal shown here?



- A. It reproduces by laying eggs.
- B. It withdraws its body into a shell on sensing danger.
- C. It breathes through its skin and blowholes.
- D. None of these

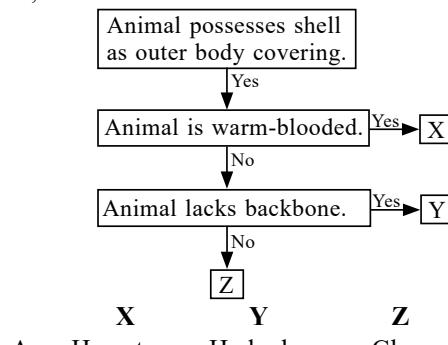
21. Rainav was trying to lift the same object in different ways as shown in the given figures. The weight of the object is 50 kg and he is standing on a 5 m high platform. In which of the following situations the least effort is required? (Assume the friction between the object and incline is negligible.)



22. Which of the following changes is caused by expansion?

- A. Opening the tightly sealed metal lid of a bottle jar by running hot water over the lid.
- B. The tube of a cycle tyre bursts on its own when cycle is left in Sun for a long time.
- C. Rising of mercury in a thermometer while measuring body temperature during fever.
- D. All of these

23. Refer to the given flow chart and identify animals X, Y and Z.



- | X            | Y         | Z      |
|--------------|-----------|--------|
| A. Hamster   | Hedgehog  | Clam   |
| B. Armadillo | Oyster    | Turtle |
| C. Pangolin  | Porcupine | Snail  |
| D. Platypus  | Crocodile | Pila   |

24. There are two forces P and Q. Force P is responsible for falling of a fruit that gets detached from tree on the ground whereas force Q is responsible for slowing down a ball rolling on the ground.

Which of the pupils stated the correct applications of these forces?

| Pupil     | Force P                                                                    | Force Q                                                                             |
|-----------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| A. Rajiv  | It helps any object to float on water.                                     | It helps us to walk.                                                                |
| B. Rakesh | It helps us to stay on ground.                                             | It helps us to write with a pencil or pen.                                          |
| C. Ajay   | Electric air purifiers use this force to purify polluted air of factories. | Car brakes can be applied because of this force.                                    |
| D. Sanjay | It helps the astronauts to float in space.                                 | Any stretchable object regains its original shape after removing the applied force. |

25. On the basis of habitat, monkey belongs to \_\_\_\_\_ group of animals whereas Arctic tern belongs to \_\_\_\_\_ group of animals.
- (i) (ii)
- A. Aquatic      Aerial  
 B. Aerial      Arboreal  
 C. Aquatic      Arboreal  
 D. Arboreal      Aerial
- 
26. Refer to the given figure.
- 
- If gear D rotates in clockwise direction, select the directions in which other gears will rotate.
- A. E - Anticlockwise, F - Clockwise,  
 G - Anticlockwise, H - Clockwise  
 B. E - Clockwise, F - Anticlockwise,  
 G - Clockwise, H - Anticlockwise  
 C. E - Anticlockwise, F - Anticlockwise,  
 G - Clockwise, H - Clockwise  
 D. E - Clockwise, F - Clockwise,  
 G - Anticlockwise, H - Anticlockwise
- 
27. Navya performed an experiment to test the properties of four different objects and tabulated her results as follows.
- | Property                   | Objects |   |   |   |
|----------------------------|---------|---|---|---|
|                            | L       | M | N | O |
| Can be attracted by magnet | ✗       | ✓ | ✗ | ✗ |
| Can be beaten into sheets  | ✗       | ✓ | ✗ | ✗ |
| Floats on water            | ✓       | ✗ | ✓ | ✗ |
| Waterproof                 | ✓       | ✓ | ✗ | ✓ |
- Based on the above given information, which of the following best represents objects L, M, N and O?
- | L                 | M              | N              | O              |
|-------------------|----------------|----------------|----------------|
| A. Iron ball      | Thermocol bead | Glass bead     | Plastic ball   |
| B. Glass bead     | Plastic ball   | Iron ball      | Thermocol bead |
| C. Thermocol bead | Iron ball      | Wooden log     | Glass marble   |
| D. Rubber ball    | Plastic ball   | Thermocol bead | Iron ball      |
- 
28. Dravya observed a waxing Gibbous Moon in the night sky of 15<sup>th</sup> February. Which of the following phases of Moon must have appeared on 8<sup>th</sup> February (X) and 22<sup>nd</sup> February (Y)?
- X      Y
- A.
- B.
- C.
- D.
- 
29. Shaurya suffers from bleeding gums and swollen joints whereas his brother Anant complains of bad vision in dim light. Which of the following statements holds true regarding them?
- A. Shaurya is suffering from vitamin C deficiency and should take more of citrus fruits in his diet.  
 B. Anant is suffering from an iron deficiency and should take more of spinach, apple, etc., in his diet.  
 C. Shaurya is suffering from vitamin A deficiency and should take more of green leafy vegetables.  
 D. Anant is suffering from vitamin B<sub>1</sub> deficiency so he should take more of carrots and papaya.
- 
30. Artificial satellites do not help in
- A. Communication  
 B. Weather forecasting  
 C. Navigation  
 D. Producing high tides.
- 
31. Which of the following is a correct match?
- A. Odissi - Manipur  
 B. Kuchipudi - Andhra Pradesh  
 C. Chhau - Karnataka  
 D. Kathakali - Tamil Nadu
- 
32. Refer to the given classification chart where plants have been classified based on plant parts from which they propagate vegetatively.
- | Classification of plants based on vegetative propagules |            |                      |
|---------------------------------------------------------|------------|----------------------|
| • X<br>• Sweet potato                                   | • Turmeric | • Z<br>• Bryophyllum |
- Select the option that correctly identifies the plants that can be placed at X, Y and Z respectively.
- A. Dahlia, Zamikand, Kalanchoe  
 B. Mint, Tapioca, Onion  
 C. Garlic, Colocasia, Water hyacinth  
 D. Asparagus, Begonia, Ginger

33. Read the given paragraph.

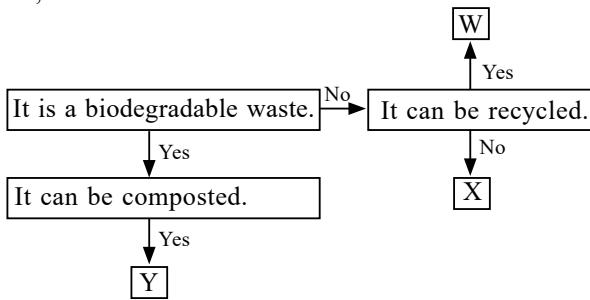
L is a dome shaped and largest part of brain whereas M is a structure that connects forebrain to spinal cord. Now, refer to the activities listed below.

- p. Recalling mugged up content
- q. Problem solving
- r. Breathing
- s. Running
- t. Heartbeat

Select the option that correctly matches these activities with the brain parts that regulate them.

- |                         |                         |
|-------------------------|-------------------------|
| A. L - p, r<br>M - s, t | B. L - p, s<br>M - q, r |
| C. L - p, q<br>M - r, t | D. L - p, r, s<br>M - q |

34. Refer to the given flow chart and identify wastes W, X and Y.



| W                    | X              | Y                                     |
|----------------------|----------------|---------------------------------------|
| A. Plastic container | Melamine       | Tea leaves                            |
| B. Wooden chair      | Glassware      | Dead body of animals                  |
| C. Aluminium foil    | Plastic bottle | Discarded human organ in a transplant |
| D. Wooden pencil     | Cotton balls   | Human excreta                         |

35. Which of the following is not a part of Qutub complex?

- A. Alai Darwaza
- B. Iron Pillar
- C. Char Minar
- D. Tomb of Imam Zamin

36. Which of the following is an incorrect statement?

- A. Inner ear is the main site of hearing.
- B. Retina is a layer of light sensitive receptors.
- C. Cerebellum maintains balance and posture of the body.
- D. None of these

37. Aashu and Brijesh are hammering a nail into two pieces of wood to join them together. Samiha covers her ears, because she finds the hammering sound loud and noisy. She tells them that they are wasting

energy because most of the energy they are using in hammering is getting lost. Aashu disagrees with what Samiha said. Brijesh explains that some of the energy is used in producing sound, but not lost. Aashu then added that energy can never be lost or destroyed. Who is/are right?

- A. Brijesh only
- B. Aashu only
- C. Samiha only
- D. Aashu and Brijesh only

38. Select the correct statement from the following.

- A. Milky way is the only spiral shaped galaxy in the Universe.
- B. Planet Venus is the hottest planet of our solar system.
- C. Satellites like Moon are small heavenly bodies that revolve around a star.
- D. A solar year consists of 363 days.

39. Which of the following statements is correct?

- A. Quartzite is formed from sandstone.
- B. Marble is formed of clay particles that have been hardened together under high pressure.
- C. Gneiss is formed from basalt.
- D. Obsidian is formed due to slow cooling down of lava.

40. Which of the following will not cause soil pollution?

- A. Fruit peel
- B. Polythene bag
- C. A pen made of plastic
- D. Both A and C

41. Refer to the given features regarding animal P.

- (i) Forelimbs adapted for flying
- (ii) Body covered with feathers
- (iii) Light and hollow bones
- (iv) Streamlined body

P could be

- A. Sparrow
- B. Bat
- C. Eel
- D. Opossum.

42. Component of air that is utilised during respiration is present in what percentage in air?

- A. 78%
- B. 21%
- C. 1%
- D. 0.03%

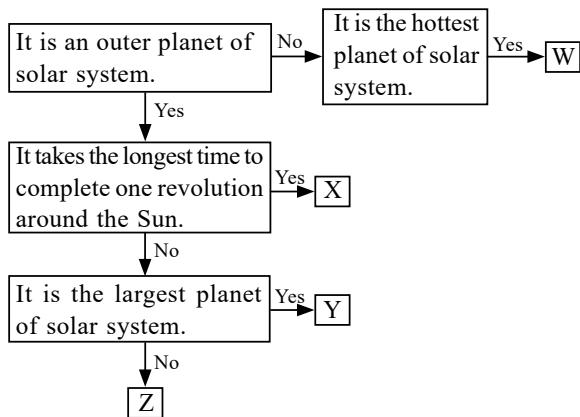
43. Which of the following setups represents a second class lever?

- A.  $\frac{L \ F \ E}{\Delta}$
- B.  $\frac{F \ L \ E}{\Delta}$
- C.  $\frac{L \ E \ F}{\Delta}$
- D. None of these

44. Select the correct statements.
- Tremors that follow massive earthquakes are called aftershocks.
  - Mt. Etna is a dormant volcano.
  - Earthquake is measured on the Vernier scale.
  - Breaking of dam can cause floods.
- (i) and (ii) only
  - (i) and (iv) only
  - (ii) and (iv) only
  - (ii) and (iii) only
45. Select the correct statements.
- Vanmahotsav was started by K.M. Munshi.
  - Forests help to increase rainfall.
  - Bo* tribe is the largest tribal group of India.
  - Tribal people do not celebrate festivals.
- (i) and (ii) only
  - (i) and (iv) only
  - (i), (ii) and (iii) only
  - (ii), (iii) and (iv) only

## ACHIEVERS SECTION

46. Identify planets from the given flow chart and select the incorrect statement regarding them.



- A. W takes only 88 Earth days to complete one revolution around the Sun.  
 B. X has total 10 known moons and its Indian name is *Arun*.  
 C. Y takes about 12 Earth years to orbit around the Sun whereas Z could take about 84 Earth years to orbit around the Sun.  
 D. Both A and B

47. Study the given table and select the incorrect option regarding W, X, Y and Z.

| Animal | Characteristic |          |        |      |      |
|--------|----------------|----------|--------|------|------|
|        | Wings          | Feathers | Scales | Fins | Hair |
| W      | ✓              | ✗        | ✓      | ✗    | ✗    |
| X      | ✓              | ✓        | ✓      | ✗    | ✗    |
| Y      | ✗              | ✗        | ✓      | ✓    | ✗    |
| Z      | ✗              | ✗        | ✗      | ✗    | ✓    |

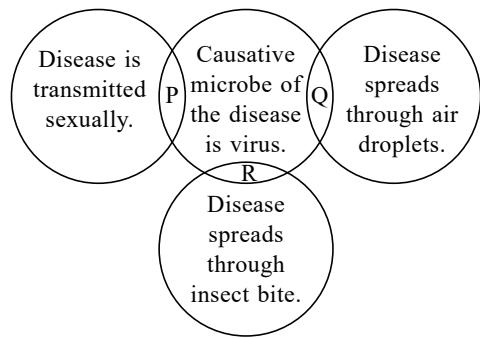
- A. W could be an animal that has six legs, is oviparous and has different stages in its life cycle.  
 B. X and Z are warm blooded animals where X is always oviparous whereas Z may be viviparous or oviparous.  
 C. Y could be a cold blooded, oviparous, aquatic animal like seal or arowana.

- D. W could be moth, X could be nightingale, Y could be *Scoliodon* and Z could be rat.

48. Aarohi grouped plants on the basis of their mode of seed dispersal. By mistake, she put one wrong member in each group. Identify the odd member and select the correct option regarding this.

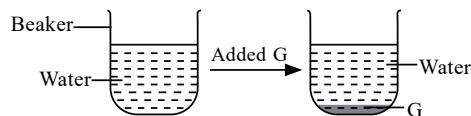
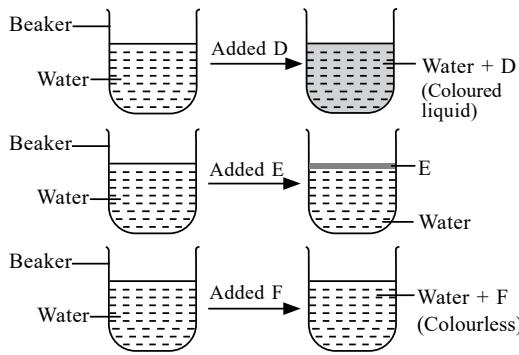
- Group I : Maple, Lotus, *Dandelion*  
 Group II : Blackberry, Litchi, Coconut  
 Group III : Cocklebur, *Geranium*, Pea
- Lotus is incorrectly placed in group I and should be replaced with *Euphorbia*.
  - Litchi in group II should be interchanged with *Geranium* in group III.
  - Blackberry is incorrectly placed in group II and should be replaced with cotton.
  - Cocklebur is incorrectly placed in group III and should be replaced with Balsam.

49. Refer to the given Venn diagram and select the correct statement regarding P, Q and R.



- A. P could be an incurable disease that damages immune system of the infected person.  
 B. R could be a disease in which blood platelet count of a person goes down significantly.  
 C. Both P and Q could be communicable diseases, of which Q could get cured on its own.  
 D. All of these

50. Suraj conducted an experiment as shown in the given figure.



Select the option that correctly identifies D, E, F and G.

| <b>D</b>        | <b>E</b>      | <b>F</b> | <b>G</b>        |
|-----------------|---------------|----------|-----------------|
| A. Chalk powder | Ink           | Oxygen   | Turmeric powder |
| B. Oil          | Chilli powder | Ink      | Sand            |
| C. Ink          | Oil           | Salt     | Sand            |
| D. Sand         | Milk          | Oil      | Sugar           |

**SPACE FOR ROUGH WORK**

## **ANSWER KEYS**

### **NSO 2016**

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

### **NSO 2017**

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

### **NSO 2018**

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

### **NSO 2019**

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

## NSO 2020

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