NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

Navars Edutech

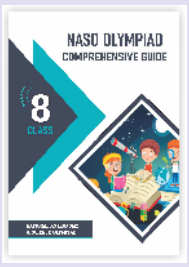
CLASS 7

MOCK TEST SERIES

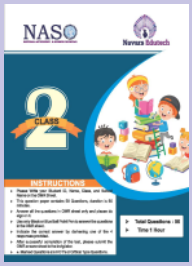
- All the questions are in MCQ format.
- In-depth analysis of each topic, followed by relevant practical and illustrative examples, with MCQ based Questions.
- Comprising questions prepared by teachers from various schools of India and abroad.
- Comprising questions of various National and International Olympiads.
- Model Test Papers with Answer Key.
- Special emphasis on concepts building and improving problem solving skills.

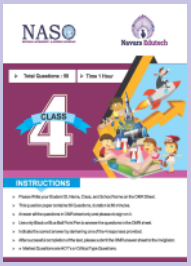
- **National Olympiad's**
- **Quizzes**
- **International Olympiad's**

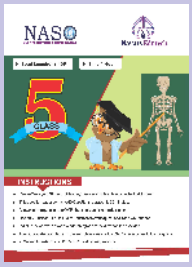
NASO OLYMPIAD COMPREHENSIVE GUIDE

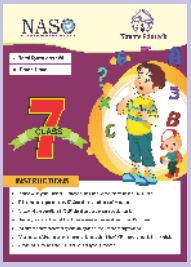


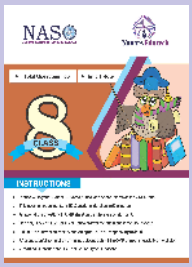
NASO QUESTION PAPER 2018

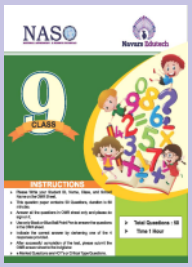




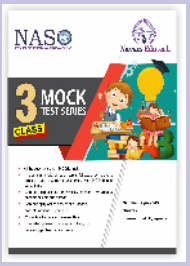


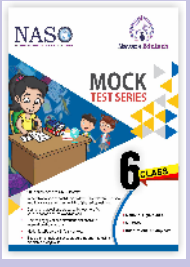






NASO MOCK TEST SERIES





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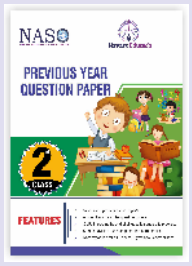
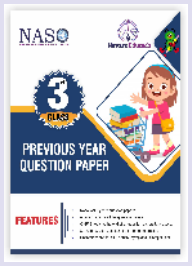
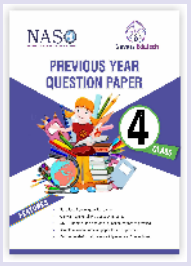
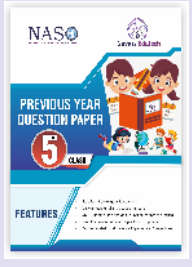
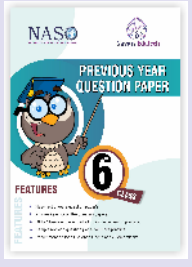
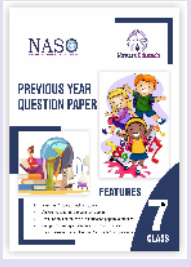


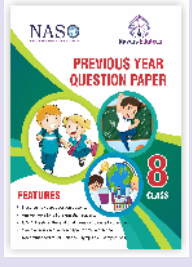


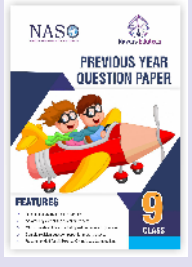


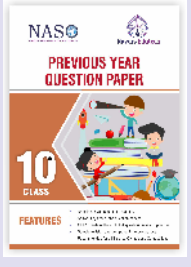




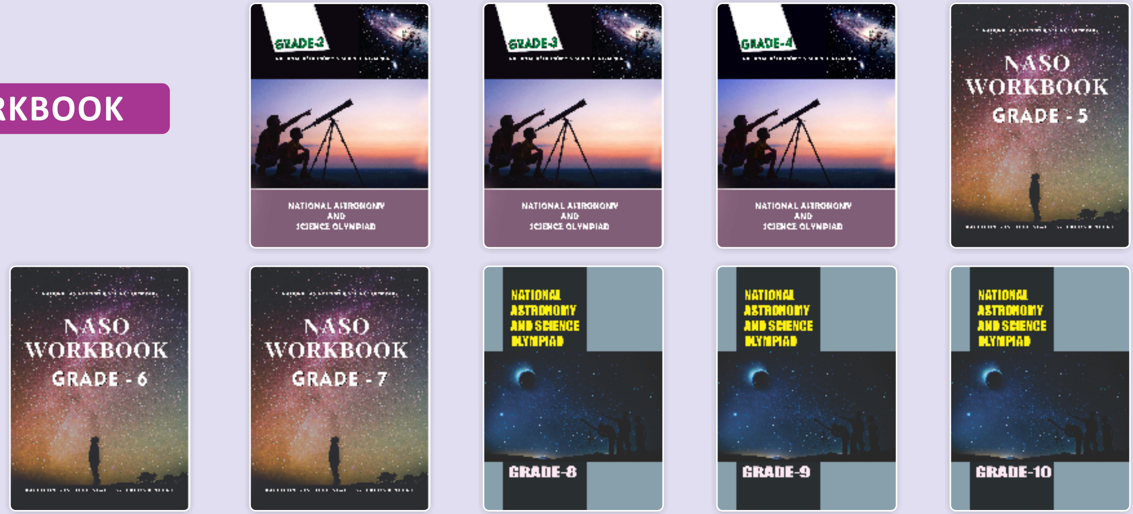








NASO WORKBOOK

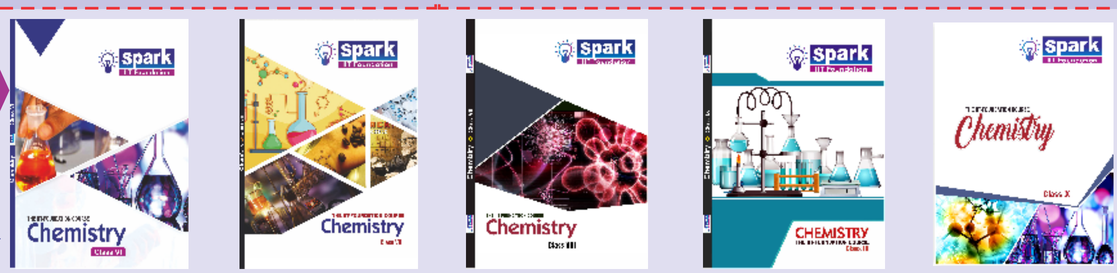


SMART BAIN IQ PUZZLE

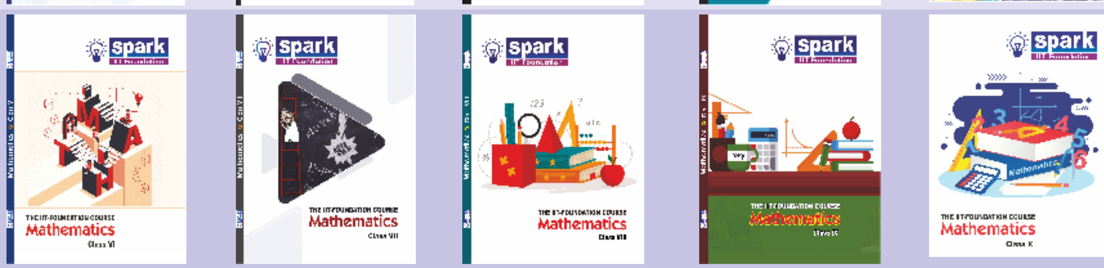
NASO EXCELLENCE GUIDE

SPARK IIT FOUNDATION

CHEMISTRY



MATHEMATICS



PHYSICS

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INDEX

GRADE 7

MOCK TEST-1

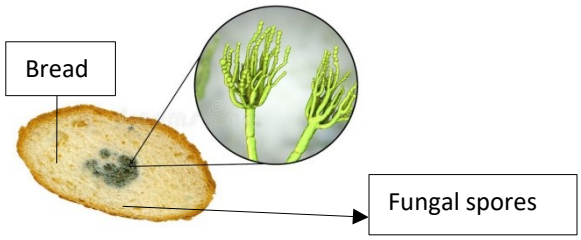
1 Read the given statements and select the correct option.

Statement 1: Chewing breaks down the food into small pieces and aids in digestion.
Statement 2: Chewing increases the surface area of food for the saliva to act upon.

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

2. The given figure illustrates_____?

A. Autotrophic nutrition
B. Saprotrophic nutrition
C. Parasitic nutrition
D. Symbiotic nutrition



3. The steps in the digestive process listed below are not in order. What is the correct order of these events as food passes through the human digestive tract?

(i) Water and vitamin absorption begins
(ii) Food is liquefied; breakdown of proteins begins
(iii) Food is moistened; breakdown of starch begins
(iv) Proteins, carbohydrates, and fats break down; nutrients are absorbed into the bloodstream.

A. (ii), (iv), (i), iii)
B. (iv), (ii), (iii), (I)
C. (i), (iii), (ii), (iv)
D. (iii), (ii), (iv), (i)

4. Select the correct option from the following table_____?

Option	Name of breed	Quality of wool	State where found
(A)	Lohi	Brown fleece	Himachal Pradesh
(B)	Rampur bushair	Coarse wool	Uttar Pradesh
(C)	Nali	For hosiery	Gujarat
(D)	Bakharwal	For woolen shawls	Jammu & Kashmir

5. Read the given statements and select the correct option.
Statement 1: Shearing does not harm the sheep.
Statement 2: The uppermost layer of the skin is made up of dead cells.

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

6. Look at the figures below. These figures show different steps in the production of wool A number from (i) to (vi) is written in each block. Find the correct order of the figures?

A. (vi), (ii), (iv), (v), (iii), (i)

B. (vi), (v), (ii), (iv), (iii), (I)

C. (v), (vi), (iii), (ii), (iv), (I)

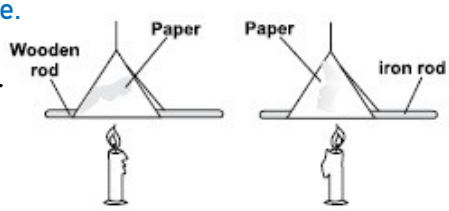
D. (vi), (iii), (ii), (iv), (i), (v)

7. Match the two columns and select the correct option from the codes given below.

Column I	Column II
(a) Clothing material	(i) Nylon
(b) Twisted fibre	(ii) Fabric
(c) Synthetic fibre	(iii) Yarn
(d) Animal fibre	(iv) Cotton
(e) Plant fibre	(v) Silk

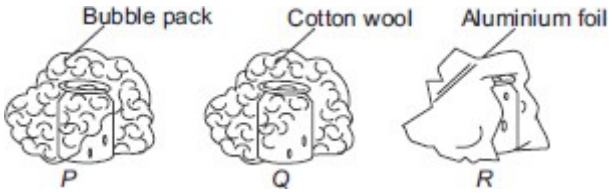
A. (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv), (e) - (v)
B. (a) - (ii), (b) - (iii), (c) - (v), (d) - (i), (e) - (iv)
C. (a) - (ii), (b) - (iii), (c) - (i), (d) - (v), (e) - (iv)
D. (a) - (i), (b) - (iv), (c) - (iii), (d) - (ii), (e) - (v)

8. A scientist took a metal rod and a wooden rod and wrapped each of them in a piece of paper. These were then heated as shown. It was found that the paper around the metal rod does not burn whereas the one around the wooden rod catches fire. It is because.

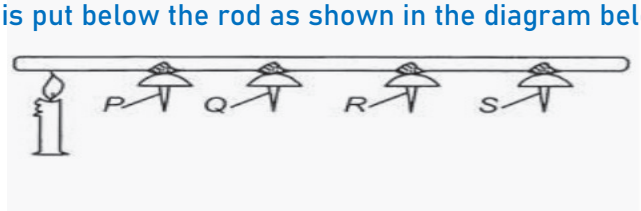


A. Iron being a good conductor conducts away heat given to paper
B. Wood being an insulator takes away all the heat
C. Candle in case of iron rod, is near to the paper
D. Paper, in first case, it thicker

9. Which canned drink will remain cold the longest?



10. Read the experiment and answer Paperpins are stuck to a metal rod with wax and a lighted candle is put below the rod as shown in the diagram below



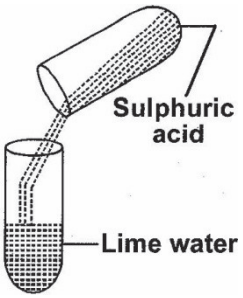
Which one of the paperpins will fall off the metal rod first?

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

11. Amit found that a glass P was stuck inside another glass Q. What could he do to separate the two glasses?

A. Pour hot water into glass P and put glass Q in hot water
B. Pour hot water into glass P and put glass Q in cold water
C. Pour cold water into glass P and put glass Q in cold water
D. Pour cold water into glass P and put glass Q in hot water

12. An Observe the given figure carefully and select the correct option……?



A. A white precipitate is obtained
B. Effervescence is observed in test tube containing lime water
C, The test tube containing lime water becomes hot
D. Both (A) & (C)

13. Study the table carefully_____?

Sample	Blue litmus to red	Blue litmus to red
(i)Tamarind juice	Ö	X
(ii) Sugar syrup	X	Ö
(iii) Lime water	X	Ö
(iv)Soap solution	Ö	X

Which of the above are correctly matched?

A. (i) & (iii) B. (ii) & (iv) C. (i), (ii) & (iii) D. (i), (iii) & (iv)

14. Match column I with column II and select the correct option from the-codes given below?

Column I (Common name)	Column II (Chemical formula)
(a) Slaked Lime	(i) KOH
(b) Caustic soda	(ii) Mg(OH)2
c) Caustic potash	(iii) Ca(OH)2
(d) Milk of magnesia	(iv) NaOH

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

15. Which of these represent a chemical change?

(i) Growth of speed to a tree

(ii) Formation of dew on leaves

(iii) Burning of a sparkler

A. (i) & (ii) B. (ii) & (iii) C. (i) & (iii) D. All of these

16. Match the column I with column II and select the correct option from the codes given below.

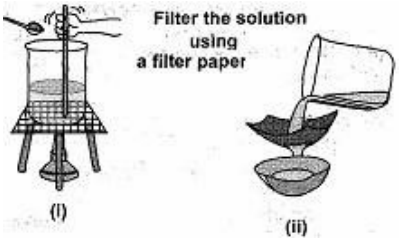
Option	Column-1	Option	Column-2
(a)	Expansion of metals on heating	(i)	Neither physical nor chemical change
(b)	A stone kept in the sunlight	(ii)	Chemical change
(c)	Burning of a candle	(iii)	Combination of physical and chemical change
(d)	Curdling of milk	(iv)	Physical change

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

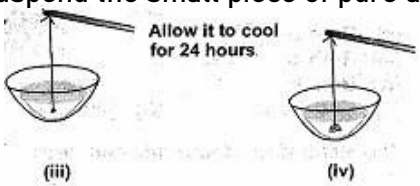
17. Acetic acid + Sodium hydrogen carbonate ® (i) (v) + $Ca(OH)_2$ ® (ii) + Water What could (i) and (ii) be ?

Option	(i)	(ii)
A	CaCO3	CO2
B	H2O	CaCO3
C	CO2Ca	CO3
D	H2O	CO2

18. Add a small amount of impure alum powder to the water and stir with the glass rod. When it gets dissolved add more alum powder and continue doing so till alum stops dissolving in the water



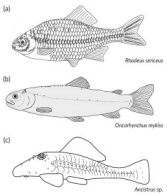
Suspend the small piece of pure alum tied with a thread in this solution.



What is the process which takes place in going from stage (iii) to (iv)?

A. Crystallization B. Loading C. Substitution D. None of these

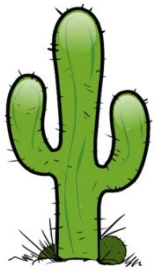
19. Three species of fishes X, Y and Z with different body patterns are found in a lake. A predator, who feeds on all the three fishes X, Y and Z, is introduced into the river. Which of these fishes will be least affected?



A. Fish Z because it lives near the ground.
B. Fish Y because it shows camouflage.
C. Fish X because it lives near surface.
D. All the three fishes will be equally affected.

20. Which of the following statements are true about the given plants?

Water hyacinth



cactus

(i) Both of the plants have swollen leaf stalks.
(ii)Both are food producers
(iii)Both are flowering plants
(iv) Both have waxy leaves

A. (i) & (ii)
B. (ii) & (iii)
C. (iii) & (iv)
D. (i) & (iv)

ANSWER KEYS

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	A	The teeth chew the food and thus break down food into smaller pieces, this is known as mastication. Thus, chewing increases the surface area of food for the saliva in the mouth to act upon and aids in digestion.
QUESTION-2	B	The figure shows the growth of fungus on decayed moistened bread. Fungi secrete digestive juices on the dead and decaying matter and convert it into a soluble form. Then they absorb the nutrients from it. This mode of nutrition in which organisms obtain their nutrients from dead and decaying matter is called saprotrophic nutrition. Most of the fungi get food from saprotrophic mode of nutrition.
QUESTION-3	D	Correct order was 1.Food is moistened; breakdown of starch begins 2.Food is liquefied; breakdown of proteins begins 3. Proteins, carbohydrates, and fats break down; nutrients are absorbed into the bloodstream. 4.Water and vitamin absorption begins
QUESTION-4	D	<table><tr><th>Sheep breed</th><th>Quality of wool</th><th>State where found</th></tr><tr><td>Lohi</td><td>Good quality wool</td><td>Rajasthan, Punjab</td></tr><tr><td>Rampur bushair</td><td>Brown fleece</td><td>Uttar Pradesh, Himachal Pradesh</td></tr><tr><td>Nali</td><td>Carpet wool</td><td>Rajasthan, Haryana, Punjab</td></tr><tr><td>Bakharwal</td><td>For woolen shawls</td><td>Jammu and Kashmir</td></tr></table>
QUESTION-5	A	Shearing is the process by which the fleece on the body of a sheep is removed. In this process uppermost layer of skin is removed and it does not harm the sheep because cells of uppermost skin are generally dead.

QUESTION-6	B	They have to be in the process of shearing, washing, carding, spinning, dyeing, knitting
QUESTION-7	C	The codes should be matched accordingly (a)fabric,(b)yarn,(c)nylon,(d)silk, (e)cotton
QUESTION-8	A	The process of Iron being a good conductor, conducts away heat given to paper.
QUESTION-9	D	Bubble pack is a bad conductor of heat since the air trapped inside it acts as an insulating layer and does not allow heat to flow in.
QUESTION-10	C	The paperpin *P* falls off first as the heat travels along the length of the rod from the hot end to the cold end.
QUESTION-11	D	Pouring cold water in glass *P* causes contraction while putting glass *Q* in hot water expands it. So, glass *P* can easily be taken out of glass *Q*.
QUESTION-12	D	A white precipitate is obtained and then the test tube contains lime water becomes hot.
QUESTION-13	A	Sugar syrup is neutral and hence the colour of blue litmus and red litmus remains unchanged. Tamarind juice is acidic, so blue litmus turns red but red litmus shows no change. Lime water and soap solution are basic which turns red litmus to blue whereas blue litmus remains unchanged.
QUESTION-14	A	It has the process of (1)CA(OH)2 (2)NAOH (3)KOH (4)MG(OH)2
QUESTION-15	C	Growth of seed to a plant is permanent and chemical change. Only change in the state of water by condensation is involved during the formation of dew on leaves and no new substance is formed, hence it is a physical change. Burning of a sparkler releases a lot of energy, *i.e.*, change in energy is involved, so it is a chemical change. Therefore, (i) and (iii) represent a chemical change.
QUESTION-16	A	IT HAS THE PROCESS OF -PHYSICAL CHANGE -NEIGHER PHYSICAL NOR A CHEMICAL CHANGE -COMBNATION OF PHYSICAL CHANGE -CHEMICAL CHANGE.
QUESTION-17	C	$\text{Acid} + \text{Metal hydrogencarbonate} \rightarrow \text{Salt} + CO_2\uparrow + H_2O$ $CH_3COOH + NaHCO_3 \rightarrow CH_3COONa + CO_2\uparrow + H_2O$ Acetic acid, Sodium hydrogen carbonate, (i) $CO_2\uparrow + Ca(OH)_2 \rightarrow CaCO_3 + H_2O$ (i), (ii)
QUESTION-18	A	The process of filtrization from one test tube to another is usually called as crystallization
QUESTION-19	B	Camouflage is a high degree of similarity between an animal and its visual Environment, which enables it to remain unnoticed from distance or get concealed. By blending into the background, the animal can escape from predators or remain invisible to its potential prey. In the given figure, fish Y is camouflaging aquatic weeds, because it has same pattern on its body as the aquatic weeds. Therefore, on introducing predator into the lake, fish Y will be least affected.
QUESTION-20	B	It has the food producer and the another one is the flower and plant producer

NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

Candidate's Name

INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

Mobile No.

Candidate's Signature

Invigilator's Signature

GRADE 7

MOCK TEST-2

1. Read the following statements.
(a) In India, rain is mainly brought by two kinds of humidity-laden winds, _____ and _____
(b) Scientists who study and predict weather are known as _____
(c) The climate in Kerala is _____ and _____.
Select the option which correctly fills the blanks in any two of these statements.

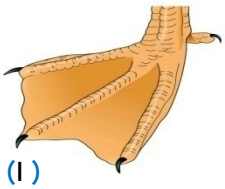
A. (b) - Geologists; (c) - Hot, Dry
B. (a) - South-west monsoon, North-east monsoon; (c) - Hot, Wet
C. (a) - South-east monsoon, North-west monsoon; (b) – Meteorologists
D. (a) - South-east monsoon, North-west monsoon; (b) - Geologists

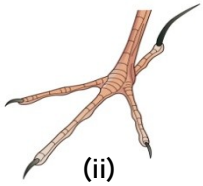
2. Charulatha wanted to see what body shape would enable an animal to travel most easily through the water. She cut out shapes using pieces of Styrofoam and tied a piece of string to each of them. Then she pulled them through the fish pond in school. What factors should she keep the same so that the experiment is a fair one?

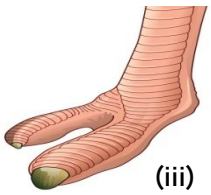
(i) The length of the string.
(ii) The size of the shaped-pieces.
(iii) The material used to make the string.
(iv) The material used to make the shaped-pieces.
(v) The strength with which she pulled each shaped-piece through the water.

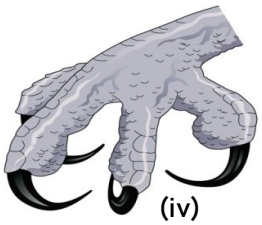
A. (i), (ii) and (iii)
B. (i), (iii) and (iv)
C. (i), (iii), (iv) and (v)
D. (i), (ii), (iii), (iv) and (v)

3. The pictures below show the feet of four different birds.


(I)


(ii)


(iii)


(iv)

What is each type of feet adapted to do?

A

To run on flat ground	iii
To walk on muddy ground	i
To grip prey	ii
To run on flat worms	iv

B.

To run on flat ground	ii
To walk on muddy ground	iv
To grip prey	i
To run on flat worms	ii

C.

To run on flat ground	i
To walk on muddy ground	iii
To grip prey	iv
To run on flat worms	ii

D.

To run on flat ground	iii
To walk on muddy ground	i
To grip prey	iv
To run on flat worms	ii

4. The given figure shows a turkey, a flightless bird. Why cannot a turkey fly?

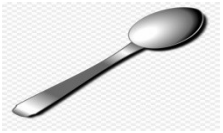
(i) It has underdeveloped wings.
(ii) It is too heavy.
(iii) It has hollow bones.
(iv) It has very few feathers.

A . (ii) Only
B . (i) and (ii)
C . (ii) and (iv)
D . (i), (ii), (iii) and (iv)

5. A thunderstorm is accompanied by

A. Lightning
B. Cyclone
C. Hurricane
D. Tornado

6. Observe the following figures carefully.

(i) 
(ii) 
(iii) 
(iv) 

If (i) represents all the water present on the earth then what does (iv) represent?
A. Total freshwater on the earth
B. Ground-water
C. Water present in all the lakes and rivers of the world.
D. None of the above.

7. Which of the following statements are correct?
(i) Some animals help us in keeping our environment clean. They consume dead animals and dispose them off. They are called scavengers.
(ii) Quinine a forest product obtained from the bark of Cinchona tree is widely used to treat typhoid.
(iii) Van Mahotsava is a festival of cutting down trees.
(iv) World forest Day is celebrated on 21st March every year.

A. (i) and (iv)
B. (ii) and (iii)
C. (i) and (ii)
D. (iii) and (iv)

8. The pharynx actually has two apertures one opening into the windpipe and the other into the _____The aperture opening into the windpipe is guarded by It closes the windpipe when you take _____ Complete the above paragraph by selecting the correct sequence of words from the following options?

A. Oesophagus, uvula, food
B. Kidney, epiglottis, water
C, Oesophagus, epiglottis, food
D. Liver, uvula, water

9. Which of the following is the correct order for travel of air through different organs of respiratory system?

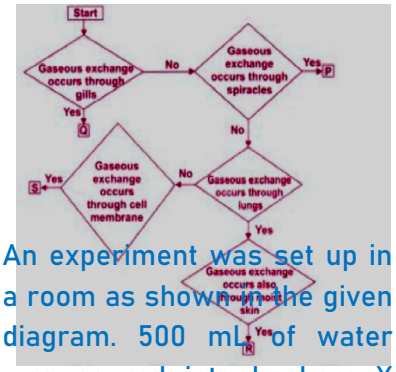
A. Nostrils →larynx →trachea →alveoli → bronchi →bronchioles
B. Nostrils → trachea →larynx →alveoli → bronchi → bronchioles
C. Nostrils →larynx → trachea → bronchi → bronchioles → alveoli
D. Nostrils → trachea → larynx →bronchi → bronchioles →alveoli

10. Ritu, Shweta and Urvashi wanted to find out who among them had the biggest lung capacity. They decided to blow into a balloon in one breathe and see how big it will become. Which of the following factors they must keep the same to make the test a fair one?

(i) Colour and design of the balloon
(ii) Size and shape of the balloon
(iii) Whether to breathe in before blowing
(iv) Material the balloon is made of

A. (i) and (ii) B. (ii) and (iii) C. (i), (iii) and (iv) D. (ii), (iii) and (iv)

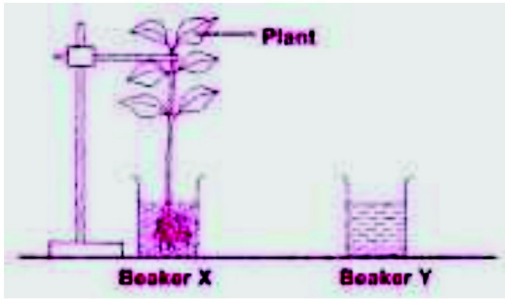
11. Study the given flowchart about respiratory structures in different organisms. Identify the organisms P, Q, R and S and select the correct option.

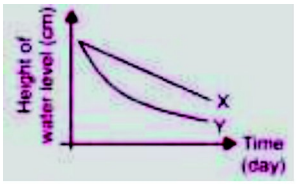


A. A B. B C. C D. D

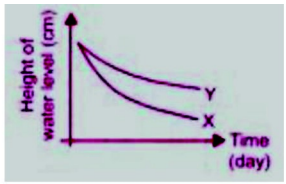
option	Column-P	Column-Q	Column-R	Column-S
A	Cockroach	Tadpole	Pigeon	Earthwarm
B	Grasshopper	Fish	Frog	Amoeba
C	Spider	Frog	Crab	Paramecium
D	Mynah	Snake	Penguin	Leech

12. An experiment was set up in a room as shown in the given diagram. 500 mL of water was poured into beakers X and Y. A small plant was placed in X. The heights of the water level in both X and Y was recorded every day for a week. The results were presented in a graph. Which graph correctly shows the changes in water level in both X and Y?

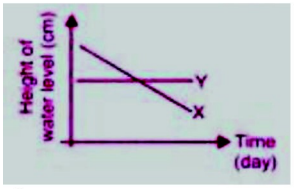




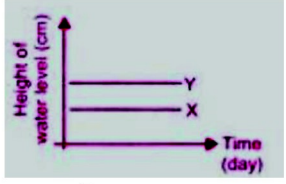
A.



B.

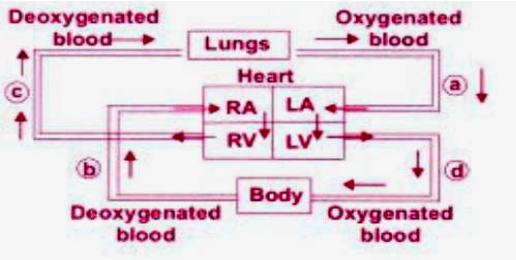


C.



D.

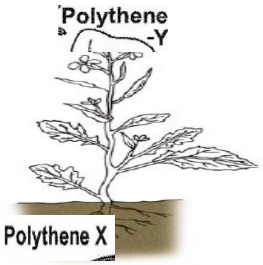
13. The figure shows the pulmonary and systemic circulation. Identify the parts labelled as a, b, c, and d in the diagrammatic representation and select the correct option.



Option	Column-A	Column-B	Column-C	Column-D
A.	Pulmonary artery	Pulmonary vein	Arota	veni
B.	Pulmonary vein	veni	Pulmonary artery	Arota
C.	Pulmonary vein	Arota	veni	Pulmonary artery
D.	Arota	veni	Pulmonary vein	Pulmonary artery

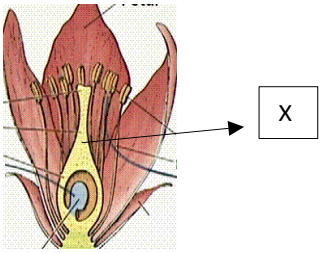
A . A B . B C . C D . D

14. Take a potted plant and water it. Cover a branch of the plant with a polythene bag and mark it X. Remove the leaves of another branch and cover that leafless branch with another polythene bag. Mark this branch as Y. Keep the potted plant in sunlight for few hours. In which polythene bag would you observe water droplets and why?



A. Polythene X because transpiration takes place through leaves
B. Polythene Y because transpiration takes place through stems
C. Polythene X because photosynthesis takes place through leaves
D. Polythene Y because photosynthesis takes place through stems

15. The diagram shows part of a flower at one stage during reproduction. What is structure X?



A. An ovule before pollination, but after fertilization
B. An ovule before fertilization, but after pollination
C. A pollen grain before pollination, but after fertilization
D. A pollen grain before fertilization, but after pollination

16. Which of the following is an incorrect match?

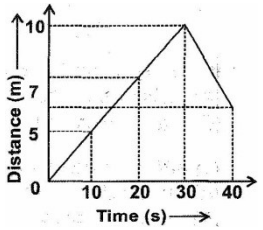
Fruit	Agent of Dispersal	Part of seed which helps in dispersal
(A) Drum stick	Wind	Wings of seed
(B) Madar	Water	Hairy seeds
(C) Coconut	Water	Spongy outer coat
(D) Xanthium	Animals	Hooks in fruits

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

17. Sheela takes 15 minutes from her house to reach school on her bicycle with a speed of 2 m/s. The distance between her house and the school is_____?

A. 1.8 km B. 3 km C. 1 km D. 2.5 km.

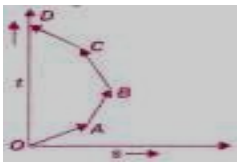
18. Study the distance time graph of a toy car given here arid choose the incorrect statement from the following



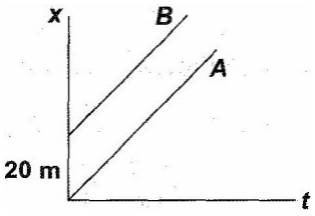
A. The toy car is fastest during first 10 seconds
B. The toy car is slowest in between 10 and 20 seconds
C. Distance travelled during last 10 seconds is 5 m
D. None of these.

19. Which of the following options is correct for the object having a straight line motion represented by the graph shown in Figure?

A. The object moves with constantly increasing velocity from O to A and then it moves with constant velocity.
B. Velocity of the object increases uniformly
C. Average velocity is zero
D. The graph shown is impossible.



20. The displacement-time graphs of two bodies A and B are shown in fig. Which of the following statements is correct?



A. A is moving faster than B
B. B is moving faster than A
C. B is always 20 m behind A
D. A is always 20 m behind B

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	B	There will be a season South-west monsoon, North-east monsoon; Hot, Wet
QUESTION-2	D	Thereare ways of steps taken are -The length of the string. -The size of the shaped-pieces. -The material used to make the string. -The material used to make the shaped-pieces. -The strength with which she pulled each shaped-piece through the water.
QUESTION-3	D	1- To run on flat ground- (iii) 2- To walk on muddy gound-(i) 3- To grip prey-(iv) 4- To run on flat worms-(ii)
QUESTION-4	B	Turkey is a domesticated bird; its body weight is quite heavy. It bears underdeveloped wings that are why turkey is called as flightless bird.
QUESTION-5	A	In a thunderstorm, the swift movement of the falling water droplets along with the rising air create lightning and sound.
QUESTION-6	C	In the fourth The Water present in all the lakes and rivers of the world
QUESTION-7	A	Quinine is used to treat malaria. Van Mahotsava is a festival of planting trees.
QUESTION-8	C	The pharynx has two apertures one opening into the windpipe and the other into the oesophagus. The aperture opening into the windpipe is guarded by a flap like Structure called the epiglottis. It closes the windpipe when we swallow food, so that the food particles do not enter into it.
QUESTION-9	C	The order format travels in the air is Nostrils →larynx → trachea → bronchi → bronchioles → alveoli
QUESTION-10	D	The final size of the balloon after blowing air in it will depend on the initial shape and size of the balloon, the material it is made up of and the amount of air which we breathe in before blowing. For example, if a small sized balloon made up of less elastic rubber is blown without or very less breathe in of air, then it will attain only a small size, that too in more time. The colour and design of the balloon does not matter in attaining the final size of the balloon.
QUESTION-11	B	The options are P-grassopher,Q-fish,R- frog,S-amoeba
QUESTION-12	B	The water level in the beaker 'X' is decreasing more rapidly as compared to the water level in beaker 'Y'. This is because beaker 'X' has rooted plant in it. Roots absorb water from the beaker and transport it to the leaves, from where the water is lost to the atmosphere through transpiration. Also the water is evaporating from the surface of water in the beaker 'X'. While in beaker 'Y', only evaporation of water is taking place.

QUESTION-13	B	Our heart has four chambers, top chambers are called atria (singular atrium) and lower ones are called ventricles. The right atrium receives carbon dioxide rich blood (*i.e.*, deoxygenated blood) from the various parts of the body (through the veins), which is then pumped out to the lungs by the right ventricle through the pulmonary artery. The left atrium receives oxygen rich blood (*i.e.*, oxygenated blood) from the lungs (through the pulmonary vein), which is then pumped to the rest of the body by the left ventricle (through the aorta).
QUESTION-14	A	The process was Polythene X because transpiration takes place through leaves
QUESTION-15	D	The stage during reproduction in a flower is A pollen grain before fertilization, but after pollination
QUESTION-16	B	Seeds and fruits of different plants are carried away by wind, water and animals. Hairy seeds of Madar get blown or dispersed off with the wind to far places.
QUESTION-17	A	The distance to her home was 1.8kms Time (t) = 15 min = 15 ´ 60 = 900 s speed (v) = 2 m s^{-1} distance (s) = ? As v = $\frac{s}{}$ or s = v x t s = 900 x 2 = 1800m or s = $\frac{}{1800}$ = 1.8 *k m*
QUESTION-18	C	The distance travelled during last 10 seconds is 5 m
QUESTION-19	C	The average velocity is zero.
QUESTION-20	D	As clear from the distance time graph, *B* has already covered 20 m distance while *A* was at origin. So, *A* will always be behind *B* by 20 m.

NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

Candidate's Name

INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

Mobile No.

Candidate's Signature

Invigilator's Signature

GRADE 7

MOCK TEST-3

1. Which of the following appliances does not use an electro magnet?

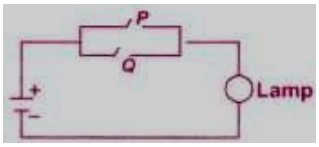
A .  B.  C.  D. 

2. The necessary requirement for a fuse wire is

A. Conductor with low melting point
B. Insulator with low melting point
C. Conductor with high melting point
D. Insulator with high melting point

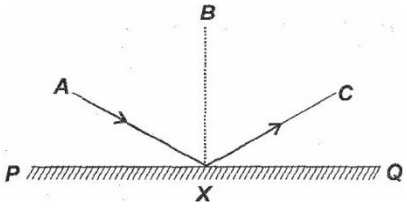
3. In the given circuit diagram, P and Q are switches. Lamp will glow when_____?

A. P is open, Q is closed
B. P is closed, Q is open
C. P is closed, Q is closed
D. All of the above



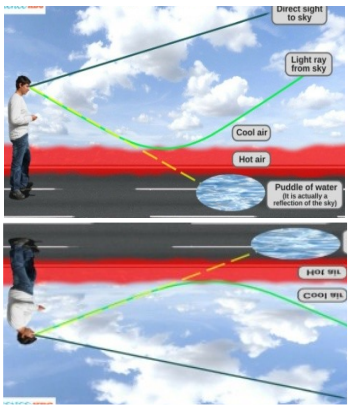
4. From the diagram below, given that PQ is a plane mirror, which is the normal ray is B

A. AX
B. BX
C. XC
D. AC



5. A mirage is observed when_____?

A. Density of air decreases with increase of height
B. Density of air increases with height
C. Refractive index of air decreases with increase of height
D. Earth acts like a mirror



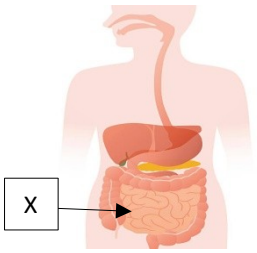
6. The given list shows the four steps needed to do a starch test but in a random order.

(i) Pluck a leaf from the plant. (ii) Leave a potted plant out in the Sun for a few hour.
(iii) Boil the leaf in alcohol. (iv) Boil the leaf in water.

Wash the leaf and then add a few drops of iodine solution over it. Select the option with correct order of these steps.

A. (i), (ii), (iii), (iv) B. (i), (ii), (iv), (iii)
C. (ii), (i), (iv), (iii) D. (ii), (i), (iv), (iii),

7. What is X in the figure and what is its function?



A. Small intestine - absorbs nutrients from digested food
B. Stomach - breaks down food using acids and enzymes
C. Appendix - has no specific function in the body
D. Appendix-breaks down food using acids arid enzymes

8 . Read the given statements.

(i) Paramecium has stiff hair-like structures called _____ all over its body, which are used for _____
(ii) Hydra has a number of_____ around its mouth, that entangle small aquatic animals and kill them with their
(iii) Frog uses its long, sticky_____ to catch insects.
(iv) Mosquito sucks up the blood of animals with its _____

Select the option which correctly fills the blanks in any two of these statements.
A. (ii) - Cilia, Absorptive; (iii) – Hand
B. (i) - Tentacles, Ingestion; (iv) - Feeding tube
C. (i) - Cilia, Ingestion; (ii) - Tentacles, Stinging
D. (iii) - Tongue; (iv) - Pseudopodia

9. Read the given paragraph carefully.

The female silk (i) lays eggs. When the eggs hatch, a tiny caterpillar called silkworm or (ii) crawls out. It feeds on leaves and grows. When it is ready to enter the next stage in its life cycle, it first weaves a net to hold itself. It then secretes a fibre made of (iii) which hardens on exposure to air. This is the silk fibre. It covers itself completely with this fibre, to form a (iv). At this stage, the larva is called a (v), which grows and changes inside the cocoon. A few weeks later the cocoon opens and an adult moth comes out. Select the correct sequence of words to complete the above paragraph.

Option	Column-1	Column-2	Column-3	Column-4	Column-5
A.	Moth	Larva	Protein	Pupa	cocoon
B.	Larva	Moth	carbohydrates	Pupa	cocoon
C.	Moth	Larva	Protein	cocoon	Pupa
D.	Moth	Larva	Fat	cocoon	Pupa

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

10. The silkworm ____ lays tiny eggs. These eggs hatch into small _____ It moults its skin _____times after which it stops growing. Then it spins a cocoon of silk threads around itself. At this stage it is known as _____?

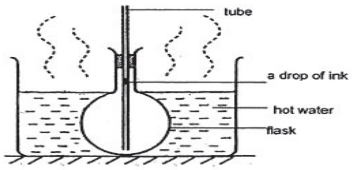
A. Larvae, moth, two, caterpillar.
B. Moth, caterpillar, four, pupa.
C. Caterpillar, pupa, five, moth.
D. Moth, pupa, three, caterpillar.

11. Telephone wires are always hung loosely between two poles to allow for ___

Telephone wires are always hung loosely between two poles to allow for ___
A. Messages to be sent.
B. The flow of electricity
C. Expansion and contraction
D. Lightning to travel to the ground

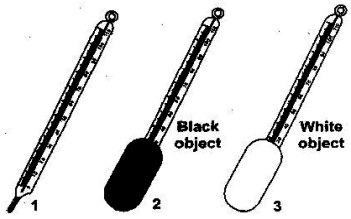
12. In the experiment below, when the flask was placed in hot water, the level of the drop of ink dropped and then rose because the _____ expanded first, followed by the expansion of

A. Flask; air in the flask
B. Air in the flask; flask
C. Water; air in the flask
D. Air in the flask; water



13. Robbin wants to test whether a white object or a black object would heat up faster in the Sun. The picture shows you his experiment. These thermometers were left out in the Sun for 30 minutes

Which of the following statements is true?



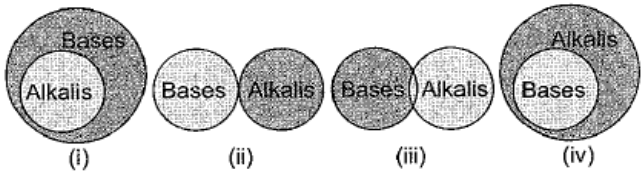
A. Thermometer 1 reads the same as thermometer 3
B. Thermometer 2 shows a higher temperature than thermometer 3
C. Thermometer 3 shows higher temperature than thermometer 1
D. Thermometer 1 reads the same as thermometer 2.

14. Read the given statements and select the correct option.
Statement 1; Acids are sour in taste while bases are bitter in taste.
Statement 2: Baking soda does not taste sour

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

15. Which of the following diagram(s) represents alkalis and bases in the correct form?

A. (i)
B. (iii)
C. (i) and (iv)
D. (iii) and (iv)



16. Read the statements given below and mark the correct option.

Statement 1: A chemical change may be accompanied by evolution of a gas and change in colour, shape or smell.

Statement 2: Photosynthesis and digestion are chemical changes.

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

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

Statement I: Breaking of a bone china plate is a chemical change.

Statement II: When a bone china plate breaks, the pieces cannot be joined to get back the original plate?

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

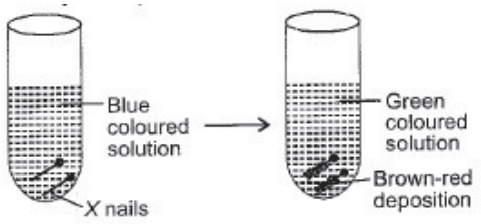
18. Which of the following reactions explains the above change most appropriately?

A. $ZnSO_4 + Cu \rightarrow CuSO_4 + Zn$

B. $CuSO_4 + Fe \rightarrow FeSO_4 + Cu$

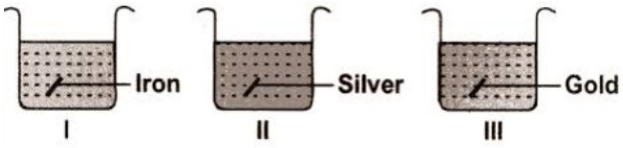
C. $FeSO_4 + Cu \rightarrow CuSO_4 + Fe$

D. $CuSO_4 + Zn \rightarrow ZnSO_4 + Cu$



19. Vishakha took few wire pieces made up of different metals and placed them in blue solution of copper sulphate. What will be the changes in the colour of the solutions present in beakers I, II and III?

Option	Column-1	Column-2	Column-3
A.	Green	Blue	Green
B.	Blue	Green	Green
C.	Green	Blue	Blue
D.	Blue	Blue	Blue



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

20. Desert plants lose very little water through. The leaves in desert plants are either absent, very small, or they are present in the form of _____. Photosynthesis in these plants is usually carried out by the _____. The stem is covered with a _____ layer which helps to _____ water

Select the correct sequence of words to complete the above paragraph.

A. Transpiration, Spines, Stem, Waxy, Retain
B. Photosynthesis, Palm, Flowers, Thin, Lose
C. Transpiration, Spines, Flowers, Waxy, Lose
D. Photosynthesis, Palm, Stem, Waxy, Retain.

Answer Keys

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	C	Electric heater is a heating element and thus works on the heating effect of electric current.
QUESTION-2	A	An electric fuse should be a conductor with low melting point. This is because if a sudden heavy current flows through it, then it melts and break the circuit preventing the damage due to this current
QUESTION-3	D	Bulb will glow when any one switch e *P* or *Q* is closed or both switches are closed.
QUESTION-4	B	The perpendicular drawn to the reflecting surface at a point of incidence is called normal. In the given figure *BX* is a normal.
QUESTION-5	A	A dentist uses a concave mirror to see a virtual, erect and magnified image of the teeth.
QUESTION-6	D	First we have to take Leave a potted plant out in the Sun for a few hour.And then Pluck a leaf from the plant then boil the leaf in water after that oil the leaf in alcohol.
QUESTION-7	C	Appendix is labelled as X in the figure. It is a finger like outgrowth near the junction of the small and large intestine. It is a vestigial organ and does not perform any function.
QUESTION-8	C	(iii) Tongue, (iv) Proboscis
QUESTION-9	C	The correct sequence was Mouth ,larva,protein ,protein,cacoon&pupa
QUESTION-10	B	The stage are Moth, caterpillar, four, pupa
QUESTION-11	C	The telephone wires expand in summer and contract in winter.
QUESTION-12	A	Complete air will be filled in the flask
QUESTION-13	B	A black surface absorbs more heat than a bright surface. Thus, thermometer 2 shows a higher temperature than thermometer 3.
QUESTION-14	B	Acids are chemical substances which have sour taste. *e.g.* curd, vinegar, etc.The substances that are bitter in taste and feel soapy on touching are known as bases *e.g.* milk of magnesium, baking soda, soap, etc.
QUESTION-15	A	All alkalis are bases but all bases are not alkalis. Alkalis are bases which dissolve in water to form basic solutions. Some bases are not soluble in water.
QUESTION-16	C	Physical change is one in which a substance undergoes a change in its physical properties such as shape, size, colour and state. A physical change is generally reversible. In such a change no new substance is formed. While a chemical change is a change in which chemical reaction has taken place and new substances are formed. In addition to new products, a chemical change may be accompanied by evolution of heat, light or radiation, evolution of gas, change in colour, smell or sound.
QUESTION-17	C	Breaking of bone china plate is a physical change as no new substance is formed. The broken pieces are also made up of bone china.
QUESTION-18	B	The blue coloured solution is CuSO 4 solution. Iron (Fe) is more reactive than copper (Cu). So Fe displaces Cu from the CuSO 4 solution forming FeSO 4 solution which is green in colour. Brownred deposition in tube is copper. Such type of reactions are called displacement reactions.
QUESTION-19	C	Iron is more reactive than copper, it displaces copper from copper sulphate solution and green solution of iron sulphate is formed
QUESTION-20	A	The order format is Transpiration, Spines, Stem, Waxy, Retain

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NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

Candidate's Name

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6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

Mobile No.

Candidate's Signature

Invigilator's Signature

GRADE 7

MOCK TEST-4

1. Which of the following adaptations of polar bear are not meant for hunting prey and getting protection from predators?

(i) White colour of the fur
(ii) Huge teeth
(iii)Long hair between the pads on its feet
(iv)Two thick layers of the fur Sharp claws on each foot.

A. (i) B. (iv) C. (iii) D. (ii)

2. Read the following statements.

(i) Polar bears have two thick layers of fur, as well as a layer of fat under the skin.
(ii) At the poles, there is six months of day and six months of night.
(iii) The day-to-day conditions of the atmosphere at a place with regard to factors like temperature, humidity, rainfall, speed and direction of wind, etc., is called the climate of that place.
(iv) Seals have a thick deposition of fat, called blubber that protects them from the cold.

Which of these statements are correct?

A. (i) and (ii) B. (i), (iii) and (iv) C. (i), (ii) and (iv) D. All of these.

3. Which of the following are true for the cactus plant?

(i) Their leaves are needle-like (ii)Their leaves can carry out photosynthesis
(iii)Their stems are thick (iv)Their stems cannot carry out photosynthesis

A. (i) & (ii) B. (i) & (iii) C. (ii) & (iv) D. (iii) & (iv)

4. In northern hemisphere, usually the longest day and the shortest day are respectively

A. 21st December and 21st June B. 21st June and 22ndDecember
C. 21st July and 22nd December D. 22nd December and 21st July

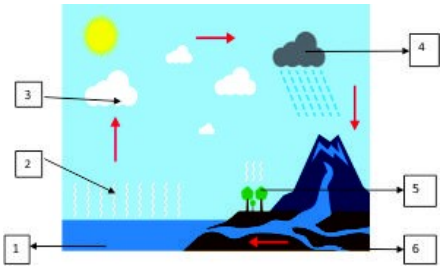
5. During the formation of rain, when water vapour changes back to liquid in the form of rain drops

A. Heat is absorbed. B. Heat is released.
C. Heat is first absorbed and then released. D. There is no exchange of heat.

6. Which of the following is not one of the ways to prevent water pollution?

A. Toxic products like paints, automobile oil, polishes, and cleaning products should be stored and disposed properly.
B. Non-degradable products like disposable plates, glass, plastic, etc. should not be thrown into the drain.
C. Farmers should try using natural fertilizers and pesticides.
D. Cooking oil, ghee, mayonnaise and fats should be poured down the drains as they will help in greasing the draining pipes and thus making the flow of other wastes easy.

7. Refer the given figure of water cycle and answer



In the above figure if (1) represents the river water, then what does (5) represent?

A. Condensation
B. Evaporation
C. Transpiration
D. Precipitation

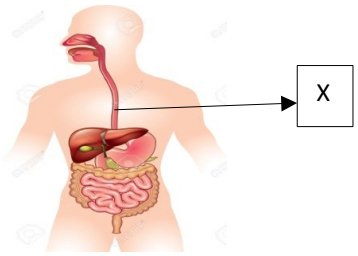
8. Rashidh did not know what kind of soil would be suitable for growing the seedlings he had been given. He put different types of soil into 4 pots and put 2 seedlings into each pot. He recorded the average height of the plants in each pot at the end of each week for 3 weeks as shown.

Which pot contained the most suitable soil for the seedlings?

Pot	Week 1	Week 2	Week 3
P	6 cm	7.5 cm	10 cm
Q	6 cm	6 cm	6 cm
R	6.5 cm	7 cm	8 cm
S	6 cm	8 cm	8 cm

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

9. What is the function of 'X' in the given figure?



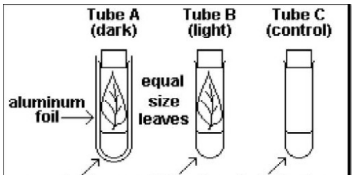
A. It helps in producing sound
B. It helps in regulating air flow
C. It helps in regulating passage of food
D. It helps in filtering and air conditioning of air

10. Read the given paragraph. Sometimes during strenuous activity such as long distance running, your body cannot get enough (i) to roduce the required energy. To get the additional energy, (ii) respiration occurs within your muscle cells. In this process, there is partial breakdown of (iii) to produce, (iv) the accumulation of which in the body causes (v) .

Option	Column-1	Column-2	Column-3	Column-4	Column-5
A.	Food	Aerobic	Starch	Uric acid	Uremia
B.	Carbon dioxide	Anerobic	Protein	Lactic acid	Bone cramps
C.	Oxygen	Aerobic	Fructose	Hydrochloric acid	Muscular cramps
D.	Oxygen	Anerobic	Glucose	Lactic acid	Muscular cramps

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

11. Three test-tubes are set up as shown
At the start of the experiment, the indicator in each test-tube is red. The indicator changes from red to yellow when exposed to increased levels of carbon dioxide.



What will be the colour of the indicator in each test-tube after two hours?

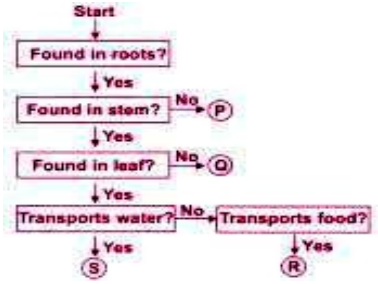
Option	Column-a	Column-b	Column-c
A.	Red	Red	Yellow
B.	Red	Yellow	Red
C.	Yellow	Red	Red
D.	Yellow	Yellow	Yellow

12. Which of the following statements regarding transport of nutrients and gases in different organisms are correct?

(i) Unicellular organisms transport materials by diffusion and streaming movements of the cytoplasm.
(ii) Plants transport water and minerals through xylem vessels. Prepared food is transported by phloem elements from the leaves to different parts of the plant.
(iii) In man, the transport of nutrients, gases and necessary chemicals is done by blood which is pumped by the heart and circulated in the blood vessels.

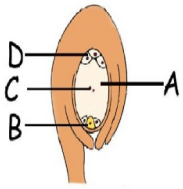
A. (i) and (ii) B. (i) and (iii) C. (ii) and (iii) D. (i), (ii) and (iii)

13. Study the given flowchart carefully and select the correct option for the following question.



What could 'P' represent?
A. Xylem B. Phloem
C. Stomata D. Root hair

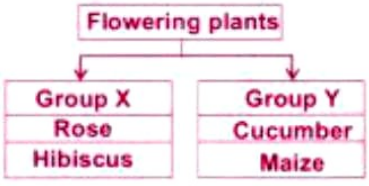
14. Look at the figure of female gametophyte inside the ovule. Where will you find the egg cell?



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

15. Look at the given classification chart carefully. How are the following plants grouped?

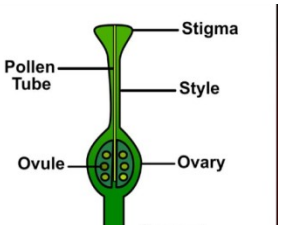
Option	Group-X	Group-Y
A.	Flowers with both male and female parts	The male and female parts are on separate flowers
B.	Plants with flowers	Plants without flowers
C.	Plant without seeds	Plants with seeds
D.	Reproduction from underground stem	Reproduction from seeds



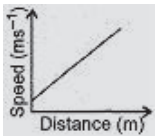
A. A B. B C. C D. D

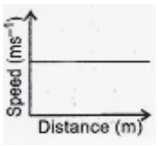
16. The given figure shows the parts of gynoecium of a flower. Which of the parts labelled P, Q or R eventually develops into a fruit?

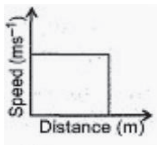
A. Overy
B. Stigma
C. Pollen tube
D. None of these.



17. Speed-distance graph of an object in uniform motion which comes to rest suddenly is

A 

B 

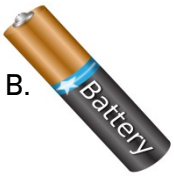
C 

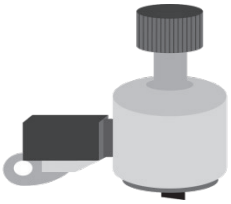
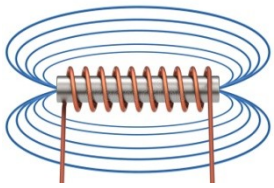
D 

18. Time period of a simple pendulum depends upon its

A. Mass of its bob
B. Length
C. Both (A) and (B)
D. None of these.

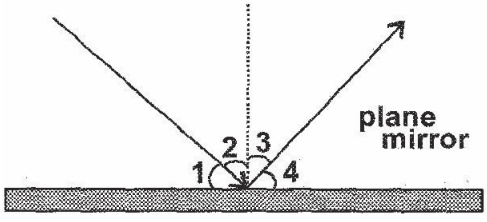
19. Which of the following is not a source of electric current?

A. 
B. 

C. 
D. 

20. The diagram below shows a ray of light being reflected from a plane mirror. Which of the labelled angles are the angle of incidence and the angle of reflection?

Option	Angle of incidence	Angle of reflection
A	1	2
B	2	3
C	1	4
D	3	1



Answer key

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	B	Long hair between the pads of their feet and two thick layers of fur enable polar bears to survive in extreme cold. They have huge teeth and sharp claws on feet to catch and eat their prey. They have white fur so that they are not easily visible in the snow, this helps them in catching their prey and also protects them from their predators.
QUESTION-2	C	The day to day conditions of the atmosphere at a place with regard to factors like temperature, humidity, rainfall, speed and direction of wind, etc., is called the weather at that place.
QUESTION-3	B	In the following statement s the cactus plant has the qualities like Their stems are thick Their stems cannot carry out photosynthesis
QUESTION-4	B	They are 21st June and 22ndDecember
QUESTION-5	B	The heat will be released
QUESTION-6	D	Cooking oil, ghee, mayonnaise and fats should not be poured down the drains as they will block the draining pipes.
QUESTION-7	C	After the raining then it is the process of water cycle is transpiration.
QUESTION-8	A	From the given table it is clear that in pot P, seedlings show an increase in growth of 4 cm (10 - 6), in pot Q, seedlings do not grow at all, in pot R, increase in growth is 1.5 cm and in pot S, seedlings show increase in growth of 2 cm. Therefore, soil in pot 'P' is the most suitable for growing the seedlings.
QUESTION-9	A	it is a throw that helps in producing sound.
QUESTION-10	D	The process of arranging like Oxygen, Anerobic, Glucose, Lactic acid, Muscular cramps.
QUESTION-11	B	In test tube a, the leaf will use available light and carbon dioxide to make food by the process of photosynthesis, releasing oxygen in the test tube. So the colour of the indicator in test tube a will remain red. In test tube b, the leaf use oxygen for respiration, releasing carbon dioxide in the test tube. So the colour of the indicator in test tube b will change to yellow. In test tube c, as there is no material, the colour of the indicator will remain the same, *i.e.*, red.
QUESTION-12	D	Unicellular organisms transport materials by diffusion and streaming movements of the cytoplasm, Plants transport water and minerals through xylem vessels. Prepared food is transported by phloem elements from the leaves to different parts of the plant, In man, the transport of nutrients, gases and necessary chemicals is done by blood which is pumped by the heart and circulated in the blood vessels.
QUESTION-13	D	In test tube a, the leaf will use available light and carbon dioxide to make food by the process of photosynthesis, releasing oxygen in the test tube. So the colour of the indicator in test tube a will remain red. In test tube b, the leafe use oxygen for respiration, releasing carbon dioxide in the test tube. So the colour of the indicator in test tube b will change to yellow. In test tube c, as there is no material, the colour of the indicator will remain the same, *i.e.*, red.
QUESTION-14	B	The eggs cells will be formed in part of -B

QUESTION-15	A	Flowers like rose, sweet pea and hibiscus contain both male and female reproductive organs. They are hermaphrodites and are known as bisexual flowers. The flowers of maize and cucumber contain only male or only female reproductive organs. They are known as unisexual flowers.
QUESTION-16	A	After fertilization of male and female gametes in flowers, the ovule (Q) in the ovary develops into seed and ovary (P) itself swells and develops into a fruit. 'R' is thalamus.
QUESTION-17	C	The body is in uniform motion, so the speed of the body is constant but the distance progresses. As the body suddenly comes to rest, it will travel no more distance. Hence (C) is the answer.
QUESTION-18	B	The time period of simple pendulum depends upon its length and is independent of mass of its bob, as $T = 2p\sqrt{\frac{l}{g}}$ Where l = length of the pendulum, g = acceleration due to gravity.
QUESTION-19	D	An electromagnet is not a source of electric current.
QUESTION-20	B	It has the angle of incidence is 2 & angle of reflection- 3

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NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

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Candidate's Name

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WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

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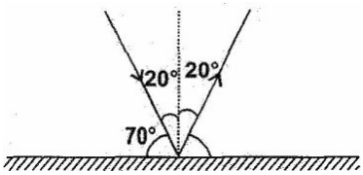
Invigilator's Signature

GRADE 7

MOCK TEST-5

1. From the diagram below, what is the angle between the incident ray and the reflected ray?

A.20°
B.40°
C.70°
D.90°

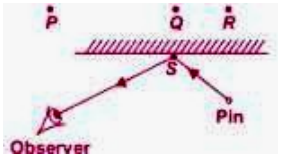


2. Which of the following shows a concave mirror?

A. 
B. 
C. 
D. 

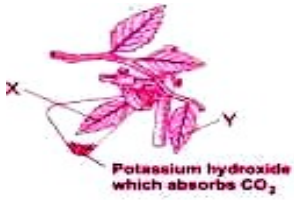
3. If a pin is placed in front of, and to the right of a plane mirror as shown in figure, then where is the image of the pin formed?

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



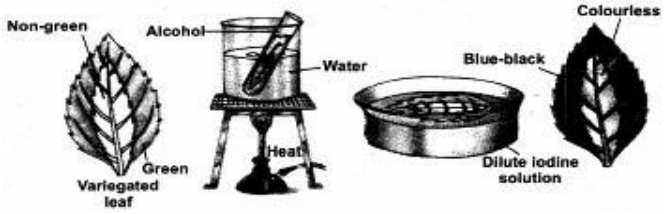
4. Ishwarya took a detached potted plant and set up an experiment as shown in the figure. She left the plant in sunlight for few hours and then tested the leaves X and Y for starch. Leaf X did not give starch test while leaf Y showed presence of starch. What is proved by this?

A. Chlorophyll is necessary for photosynthesis.
B. Carbon dioxide is necessary for photosynthesis.
C. Light is necessary for photosynthesis.
D. Oxygen is given out during photosynthesis.

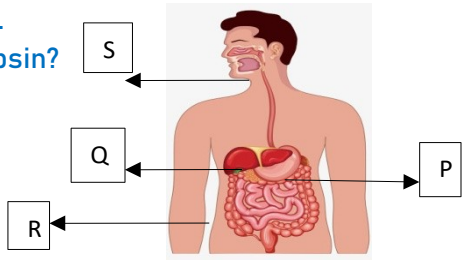


5. The given experiment is to demonstrate that Non-green_____?

A. Chlorophyll is necessary for photosynthesis
B. Sunlight is necessary for photosynthesis
C. Sugar is produced as a result of photosynthesis
D. Leaves can be doubly coloured.



6. The given figure shows human digestive system.
Which of the labelled parts secretes enzyme pepsin?



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

7. On the basis of the food habits, the organism in the given figure is a_____?

A. Parasite
B. Partial parasite
C. Autotroph
D. Saprophyte

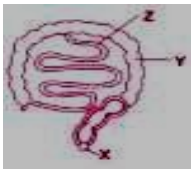
8. Match column I with column II and select the correct option from the codes given below

Column I	Column II
(a) Energy value of food is measured in calorie	(i) True
(b) Starch and sugar are proteins	(ii) False
(c) Cellulose can be digested in our digestive system	(ii)False
(d) A balanced diet is made up of six classes of nutrients	(i)True

A. (a) - (i), (b) - (ii), (c) - (ii), (d) – (i)
B. (a) - (ii), (b) - (i), (c) - (ii), (d) – (i)
C. (a) - (i), (b) - (i), (c) - (ii), (d) – (ii)
D. (a) - (ii), (b) - (ii), (c) - (i), (d) - (i)

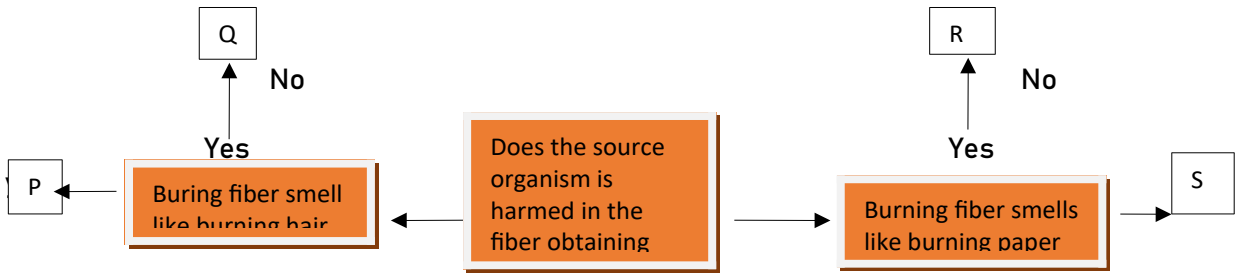
9. Refer the given diagram showing a part of the alimentary canal in human and select the correct option for the following questions

Which of the labelled structures removes water from the undigested food?



A. X only
B. Y only
C. Z only
D. Both X and Y

10. Refer the given flowchart and select the option that correctly identifies the fibres P, Q, R and S.



A. P-Wool, Q-Silk
B.R-Wool, S-Silk
C. P - Wool, R – Silk
D. Q - Jute, S – Coconut

11. Read the following statements.

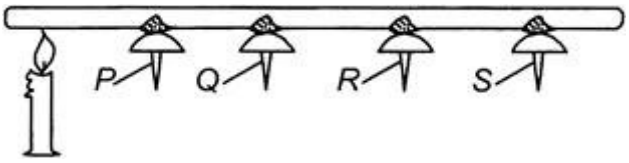
A. The plant fibres are made up of _____ which is a structural material in the plant world.
B. The process of taking out threads from the cocoon to use as silk is called as _____
C. The sheared hair of sheep is moved through tubes filled with soapy water to remove dust, dirt and grease. This is known as_____
D. Mohair, spun from the fleece of the Angora _____ is extremely lightweight.

Select the option which correctly fills the blanks in any two of the above statements.

A. (a) - Protein; (c) - Removal of burr
B. (b) - Rearing; (c) – Scouring
C. (a) - Cellulose; (d) – Goat
D. (b) - Reeling; (d) – Rabbit

12. Read the experiment and answer

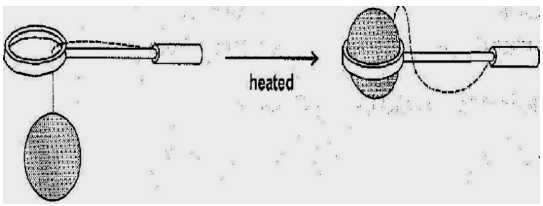
Paper pins are stuck to a metal rod with wax and a lighted candle is put below the rod as shown in the diagram below



What does this show the above experiment?
A. Wax melts easily
B. The candle flame conducts heat
C. The thumbtacks expand when heated
D. Heat travels from a hot place to a cold place

13. The above experiment shows that heat causes solids to change in their _____

A. Sizes
B. States
C. Shapes
D. Composition



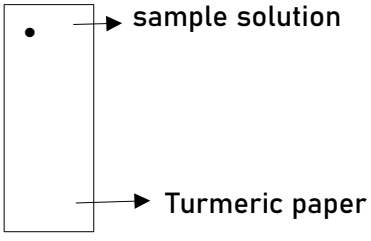
14. Raghav categorised the following household items into acids and bases.

Acids	Bases
1. Lemon	4. Baking soda
2. Antacid	5. Vinegar
3. Tea	6. Curd

Which of them is placed under the wrong category?
A. 3 and 5
B. 2 and 6
C. 3, 4 and 5
D. 2, 5 and 6

15. Smita took a spoon of turmeric powder and made a paste by adding little water to it. She cut thin stripes of a paper and applied this paste on them. After drying she put few drops of given sample solutions on these strips. What are the changes in the colour she observes?

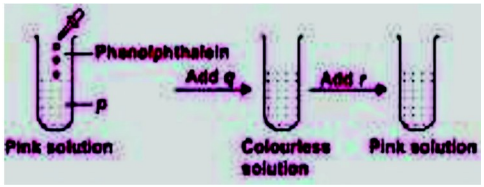
(i) Amla juice
(ii) Lime water
(iii) Common salt solution
(iv) Baking soda solution



A. (i)-Yellow, (ii)-red, (iii)-yellow, (iv)-red
B. (i)-Red, (ii)-yellow, (iii)-yellow, (iv)-red
C. (i)-Red, (ii)-red, (iii)-yellow, (iv)-yellow
D. (i)-Yellow, (ii)-yellow, (iii)-red, (iv)-red

16. Kartik performed the following experiment by taking few solutions and phenolphthalein indicator. Identify p, q and r in his experiment.

A . p ® Acid, q ® Acid, r ® Base
B . p ® Base, q ® Acid, r ® Base
C . p ® Base, q ® Base, r ® Acid
D . p ® Base, q ® Acid, r ® Acid.



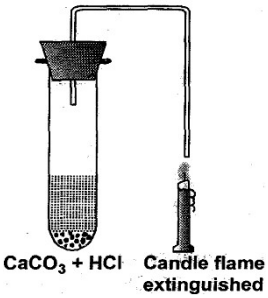
17. Match column I with column II and select the correct option from the codes given below_____?

	Column I	Column II
	(a) Ammonium hydroxide	(i) Spinach
	(b) Tartaric acid	(ii) Window cleaner
	(c) Zinc carbonate	(iii) Tamarind
	(d) Oxalic acid	(iv) Calamine
	A . (a) -(ii), (b) -(iii), (c) - (iv), (d) - (i)	
	B . (a) - (iv), (b) - (i), (c) - (ii), (d) - (iii)	
	C . (a) - (ii), (b) - (iii), (c) - (i), (d) - (iv)	
	D . (a) - (iii), (b) - (ii), (c) - (iv), (d) (i)	

18. Read the given statements and select the correct option_____?
Statement 1; Water is neutral.
Statement 2; Water turns red litmus blue

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

19. What causes the candle flame to get extinguished?



A. Evolution of O2 gas
B. Evolution of CO2 gas
C. Formation of Ca(OH)2
D. Formation of CaCl2

20. In a pressure-kerosene stove
A.We pump kerosene and convert it into vapours.
B.The vapours are then ignited.

Which of the following is true about the above statements?
A. (i) is a chemical change; (ii) is a physical change
B. (i) is a physical change; (ii) is a chemical change
C. (i) and (ii) both are physical changes
D. (i) and (ii) both are chemical changes

Answer keys

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	B	The exact angle is for the both rays is 40°
QUESTION-2	A	A concave mirror, or converging mirror, has a reflecting surface that is recessed inward (away from the incident light). Concave mirrors reflect light inward to one focal point. They are used to focus light.
QUESTION-3	C	The image of a object in case of plane mirror is formed exactly behind the mirror as shown here.
QUESTION-4	B	The given figure, leaf X did not give starch test because it was inside the jar filled with potassium hydroxide (KOH). KOH absorbs CO2 released during respiration by leaf. So the leaf inside the jar will not get CO2 and hence it will not participate in photosynthesis and will not form starch. Thus, we can conclude CO2 is essential for photosynthesis.
QUESTION-5	C	The sugar is produced as a result of photosynthesis
QUESTION-6	A	Stomach (labelled as P in the given figure) secretes enzyme pepsin, which helps in digestion by breaking down of proteins to smaller fragments called peptones.
QUESTION-7	D	An organism that is able to form nutritional organic substances from simple inorganic substances such as carbon dioxide.
QUESTION-8	A	Starch and sugar are carbohydrates. Cellulose cannot be digested in our digestive system. It acts as roughage and provides bulk to the food, thus, aiding in proper bowel movement. Our body does not produce enzyme cellulase which helps in digestion of cellulose and converts it into simple sugar. This cellulase enzyme is produced in the digestive system of cows, buffaloes etc. with the help of certain bacteria which helps in the digestion of cellulose.
QUESTION-9	B	Large intestine (Y) absorbs most of the water from the undigested food.
QUESTION-10	C	Identifies the fiber P - Wool, R - Silk
QUESTION-11	C	The process of taking out threads from the cocoon to use as silk is called as reeling. (c) The sheared hair of sheep are moved through tubes filled with soapy water to remove dust, dirt and grease. This is known as scouring.
QUESTION-12	A	The given experiment clearly shows that the heat travels from hot end to the cold end of the rod
QUESTION-13	A	Heating causes the expansion and hence changes the size of the substance.
QUESTION-14	D	Lemon contains 56% of citric acid. Vinegar contains 58% of acetic acid. Tea contains tannic acid. Curd contains lactic acid. So, all of these are acidic in nature. Antacids are basic in nature which neutralise the excess acid generated in the stomach and thus relieve the person from acidity. Baking soda is sodium bicarbonate which is basic in nature.
QUESTION-15	A	Turmeric strip turns red in basic solutions like lime water, Ca(OH) 2 and baking soda solution (NaHCO3). While it remains yellow in acidic solutions like amla juice as well as in neutral solution like common salt solution.

QUESTION-16	B	Phenolphthalein gives a pink colour in basic solution so, (*p*) is a base. When an acid (*q*) is added to above solution, it neutralises base and the solution turns neutral in nature. Phenolphthalein remains colourless in neutral solution. Again when base (*r*) is added to the solution, phenolphthalein again turns pink in basic solution.
QUESTION-17	A	Tartaric acid is present in tamarind. Oxalic acid is present in spinach. Window cleaners contain ammonium hydroxide in them. Calamine is a basic solution containing zinc carbonate.
QUESTION-18	C	Water is neutral, so it has no effect on red litmus.
QUESTION-19	B	Candle flame to get evolution of CO2 gas
QUESTION-20	B	Pumping kerosene and conversion to its vapours involves change in state only (from liquid to vapours) and no new substance is formed. So it is a physical change. During ignition of vapours, a lot of heat is given out. Therefore, it is a chemical change.

NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

Candidate's Name

INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

Mobile No.

Candidate's Signature

Invigilator's Signature

GRADE 7

MOCK TEST-6

1. Read the following statements carefully and select the option which correctly identifies true (T) and false (F) ones.

(i) The seasonal movement of the complete population of animals from one area to another is termed migration.

(ii) Heavy and solid bones help penguins to swim through water at a speed up to 15 miles per hour.

(iii) Toucans have four claws in each leg, two in front and two at the back.

Most rainforests lie between the Tropic of Cancer and the Tropic of Capricorn that is why they are often called as Tropical Rainforests.

Option	Column-1	Column-2	Column-3	Column-4
A.	F	T	T	T
B.	T	T	F	T
C.	T	F	T	T
D.	F	F	F	T

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

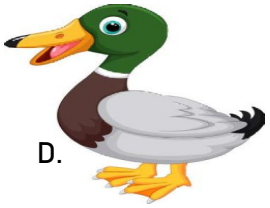
2. Birds have specially adapted beaks to help them in feeding. Which of the following has beak for eating?

Seeds?

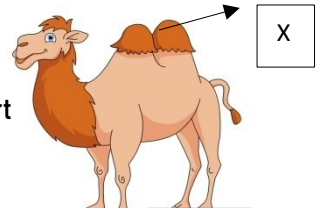
A 

B. 

C. 

D. 

3. What is the function of the part labelled as 'X' in the given figure?



A. To protect the camel from its enemy

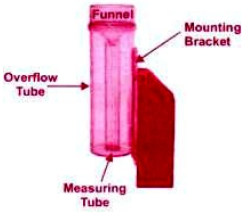
B. To store fat to be used when food becomes scarce in the desert

C. To provide a place to put the saddle on

D. To allow the sand to slide off the body of the camel

4. The figure shows an instrument which is used to measure _____.

A. Earthquake
B. Rainfall
C. Storm
D. Water level



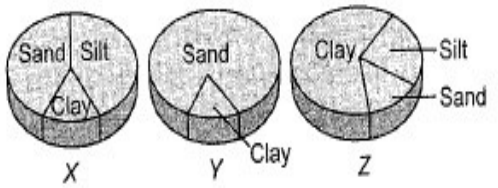
5. Mr. Khanna had a pond in his garden filled with all kinds of aquatic plants. He wanted to prevent mosquitoes from breeding in the pond without harming the plants in any way. He could _____.

(i) Add salt into the water
(ii) Add some goldfish into the pond
(iii) Spray a film of oil on the surface of the pond

A. (i) Only B. (ii) Only C. (iii) Only D. (i), (ii) and (iii)

6. The given pie charts show the composition of three types of soil samples X, Y and Z. Which of the following is correct regarding these?

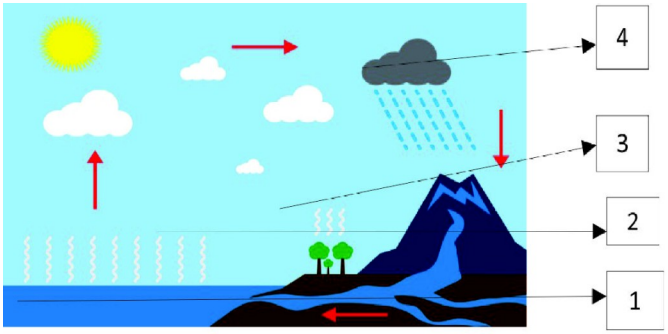
A. X is unable to hold water or nutrients.
B. Y is used for pot making.
C. Z provides good amount of oxygen to roots for breat
D. X is best suited for cultivation.



7. Read the given statements and select the correct option.
Statement 1 : Forests prevent soil erosion.
Statement 2: Canopy formed by crown of leaves of forest trees reduces the force and speed of raindrops.

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

8. Refer the given figure of water cycle and answer

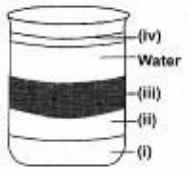


Which of the following represent the process of evaporation in the above figure?

A. 1 B. 3 C. 2 D. 4

9. Dig up a handful of garden soil and place it in a beaker. Add about 500 ml of water and shake the beaker for a little while. Now allow the soil to settle down. In what order the soil components arrange themselves from (i) to (iv) in the figure?

Option	Column-1	Column-2	Column-3	Column-4
A.	Sand	silt	Clay	Gravel
B.	Gravel	Sand	Clay	Humus
C.	Clay	Gravel	Sand	Humus
D.	Humus	Gravel	Sand	clay

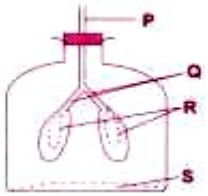


10. Which of the following statements are true/false?

(i) In insects, circulating body fluids serve to distribute oxygen to tissues.
(ii) Yeasts respire aerobically; therefore, they are used to make wine and beer.
(iii) CO2 concentration is more in alveolar air than in expired air.
(iv) On an average, an adult human being at rest breathes in and out 15-18 times in a minute.
(v) Capacity of human lungs for air in a healthy person is 1500 ml.
(vi) Sneezing expels the foreign particles from the inhaled air.

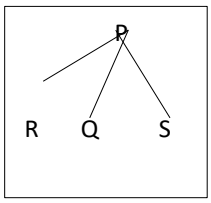
A. (i) (ii) (iii) false, (iv), (v) & (vi) re true
B. (i) & (iv) are false, (i), (iii), (v) & (vi) are true
C. (ii) and (vi) are false, (i), (iii), (iv) and (v) are true
D. (i), (ii) & (v) are false, (iii), (iv) & (vi) re true.

11. Study the given diagram which shows a model of the human respiratory system.
Which labelled part represents the part of the respiratory system in which the exchange of gases takes place?



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

12. Study the given pie chart which shows the composition of air. Oxygen is represented by which of the following letters?



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

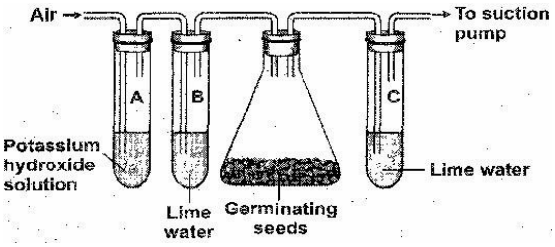
13. Match column I with column II and select the correct option from the codes given below.

Column - I	Column - II
(a) Earthworm	(i) Pulmonary respiration
(b) Human	(ii) Branchial respiration
(c) Prawn	(iii) Tracheal respiration
(d) Insects	(iv) Cutaneous Respiration

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

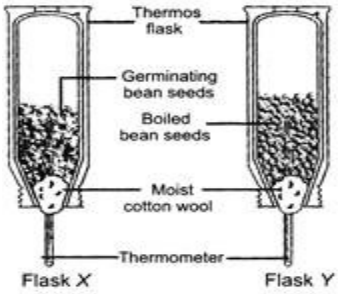
14. Study the given set up of an experiment. You will observe that Air.

A. Lime water in test tube B turns milky
B. Lime water in test tube C turns milky
C. Potassium hydroxide solution in test tube A turns red
D. Temperature in the flask will go down



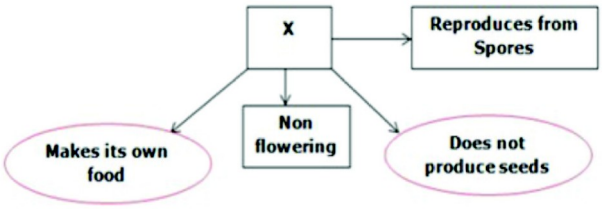
15. Arshad ali soaked some bean seeds in water overnight. Next morning she drained the water and kept the seeds moist till they started germinating.
She boiled half of the seeds and then kept the germinating seeds in one thermos flask (A) and the boiled seeds in another thermos flask (B). She covered the mouths of both flasks with moist cotton wool. Then she inserted thermometers in both flasks and kept the flasks as shown in the figure. What would be her observation?

A. Temperature of flask A increases because it has photosynthesising seeds.
B. Temperature of flask A increases because it has respiring seeds.
C. Temperature of flask B increases because it has boiled seeds.
D. Both (B) and (C).



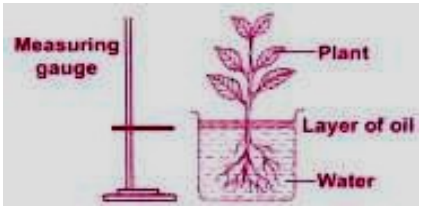
16. The flowchart shows certain characteristics of X. Identify X.

A. Fern.
B. Apple.
C. Begonia.
D. Pineapple.



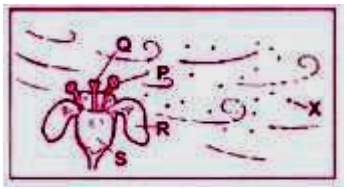
17. Refer the following experimental set-up prepared by a group of students and select the correct option for the following question.
Why do the students place a layer of oil over the water?

A. To prevent plant from dying
B. To prevent evaporation of water
C. To prevent breeding of mosquitoes
D. Both (B) and (C)



18. Bees that collect nectar from the flower help carry 'X' to other places. Which part of the flower should the bees touch to collect 'X'?

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

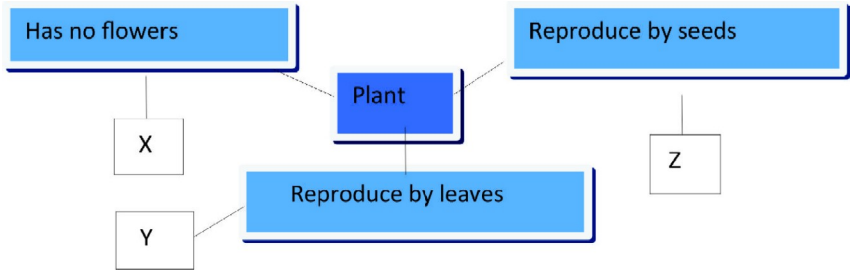


19. The given table lists some plants and their reproductive structures. What should be at X and Y?

A. X - Fern, Y – Spores
B. X - Pineapple, Y – Suckers
C. X - Moss, Y - Underground stems
D. X - Moss, Y – Leaves

Plants	Reproductive structures
Bean plant	Seeds
X	Spores
Onion	Y

20. Study the concept map given below.
Which one of these correctly shows X, Y and Z based on the below mapping?



A. Bird's nest fern Begonia Papaya
B. Bird's nest fern Pineapple Begonia
C. African violet Begonia Staghorn fern
D. Staghorn fern Papaya Pineapple

Answer Key

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	C	Penguins have streamlined bodies and webbed feet that help them in swimming.
QUESTION-2	B	The sparrow bird can beak to help them in feeding
QUESTION-3	B	The part of camel labelled as 'X' is the hump of camel. The camel's hump is not filled with water, but composed mostly of fat which acts as food reserve. The fat and flesh contained within the humps are absorbed as nutrition when food is scarce.
QUESTION-4	B	The figure shows a rain gauge, by this instrument we can measure quantity of rain. It consists of a measuring tube/cylinder with a funnel on the top to collect rainwater.
QUESTION-5	B	He can add fish which eat mosquitoes, for example, *Gambusia*.
QUESTION-6	D	X is best suited for cultivation as it contains all the types of soil (sand, silt and clay) in right proportion. Silt is the most fertile soil and clayey soil can hold enough water, whereas sandy soil is well aerated.
QUESTION-7	A	Canopy is the highest level of branches and foliage in a forest, formed by the crowns of the trees. Canopy reduces the force and speed of falling raindrops thus, preventing soil erosion.
QUESTION-8	A	it will takes by evaporation and it will give us rain in the format of water cycle

QUESTION-9	B	When garden soil is added to water in the beaker, the different sized soil particles separate out to form different layers in the beaker. At the bottom, there will be a layer of gravel, which has the heaviest particles. Above this, will be a layer of sand, and a layer of silt. The top layer consists of clay. The humus, being lighter than water, floats on the water.
QUESTION-10	A	These are the correct statements (i) (ii) (iii) false, (iv), (v) & (vi) re true
QUESTION-11	C	Exchange of gases takes place in lungs labelled as R in the given figure. Lungs have a rich supply of blood for exchange of gases, which occurs at the level of small sacs called alveoli.
QUESTION-12	B	Composition of different gases in atmospheric air is : Nitrogen (N_2) = 79% Oxygen (O_2) = 20.9% Carbondioxide (CO_2) = 0.03% Water vapours and other gases = variable.
QUESTION-13	B	The column -1 matches with Cutaneous Respiration, Pulmonary respiration, Branchial respiration, Tracheal respiration
QUESTION-14	B	The given experimental setup is to show that carbon dioxide is released during respiration. As the air passes through test tube A, the potassium hydroxide absorbs carbon dioxide. This can be tested by passing the air through lime water which will not turn milky. The air then passes through the flask in which germinating seeds take oxygen from air for respiration and release carbon dioxide. This carbon dioxide in test tube C will turn lime water milky.
QUESTION-15	B	Flask A shows rise in temperature because heat is generated during respiration. Boiled seeds will not respire.
QUESTION-16	A	
QUESTION-17	D	Because to prevent evaporation of water and a breeding of mosquitoes
QUESTION-18	A	In the given diagram, P is anther which bears pollen grains (X). During collection of nectar, bees accidentally carry pollen grains along with them to other places to help in pollination to occur. Q in the given diagram represents stigma and, R and S both represent petals.
QUESTION-19	C	Plants of lower orders, such as mosses, ferns, moulds, etc., reproduce by spore formation. A spore is a tiny, spherical, unicellular body protected by a thick wall. New plants of onion are produced from its bulbs. Bulbs are underground stems with thick leaves.
QUESTION-20	A	Some lower plants such as mosses and ferns (*e.g.*, Bird's nest fern = X) do not possess flowers, fruits and seeds. They reproduce by means of spores. The leaves of *Begonia* (= Y) have many buds on their margins. These buds give rise to new plants. Most plants like papaya (= Z) reproduce sexually and develop fruits and seeds. Their new ones develop from their seeds.

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ANSWER SHEET

National Astronomy & Science Olympiad

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6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

Mobile No.

Candidate's Signature

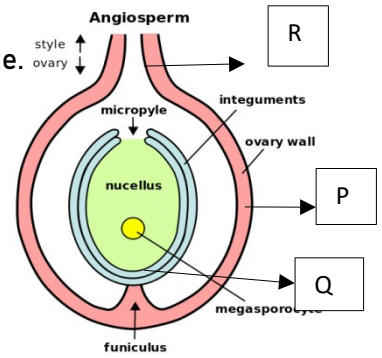
Invigilator's Signature

GRADE 7

MOCK TEST-7

1. Refer the given figure and select the correct option.

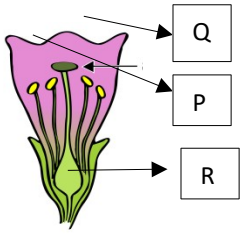
(i) The part labelled 'P' gives rise to fruit.
(ii) The part labelled 'R' is responsible for transfer of female gamete.
(iii) The part labelled 'Q' transforms into endosperm.
(iv) The part labelled 'Q' is male gamete.
(v) The part labelled 'R' carries pollen



A. (i) Only
B. (i), (iii) & (v)
C. (iii) & (iv)
D. (i) & (v)

2. Refer the given figure and select the correct option from the codes given below.

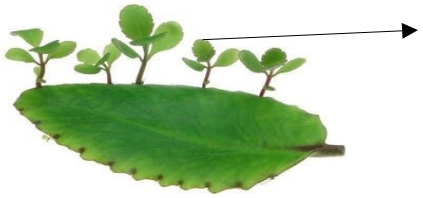
(i) The part labelled 'P' is a part of pistil.
(ii) The part labelled 'Q' is the male part of the flower.
(iii) The part labelled 'R' contains pollen.
(iv) The part labelled 'R' helps in fertilization of egg.
(v) The part labelled 'R' is a part of pistil



A. (ii) & (v)
B. (ii), (iii) & (iv)
C. (ii), (iv) & (v)
D. (i), (ii), (iv)

3. Which of the following plants is grown in the same manner as shown in the figure?

A. Rose
B. Bryophyllum
C. Bougainvillea
D. Morning glory

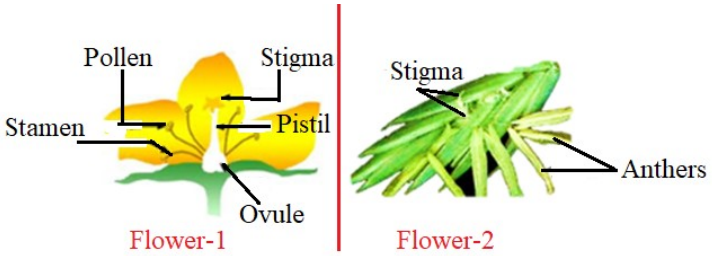


4. Anjali bagged four different kinds of flowers on the potted plants as shown below and left them undisturbed. Which of these four flowers is most likely to produce fruits and seeds?

A. 
B. 
C. 
D. 

5. A student took stigmas of two different flowers and recorded her observations as:

FLOWER 1	Stigma is sticky.
FLOWER 2	Stigma is feathery.



What is the purpose of a sticky or feathery stigma?

A. To produce seeds.

B. To produce pollen grains.

C. To receive pollen grains.

D. To make food.

6. Oscillations are set in a simple pendulum whose length is 2 m and mass of the bob is 2 kg. Its time period

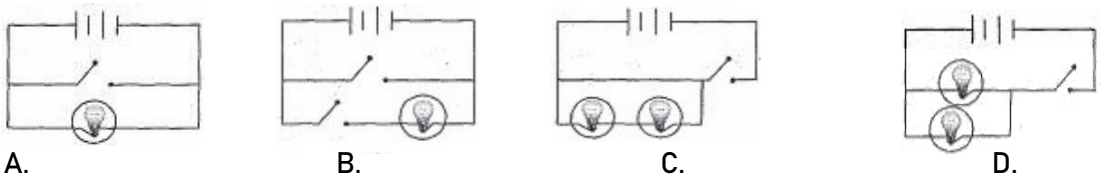
A . Is always constant

B . Increases slowly

C . Decreases slowly

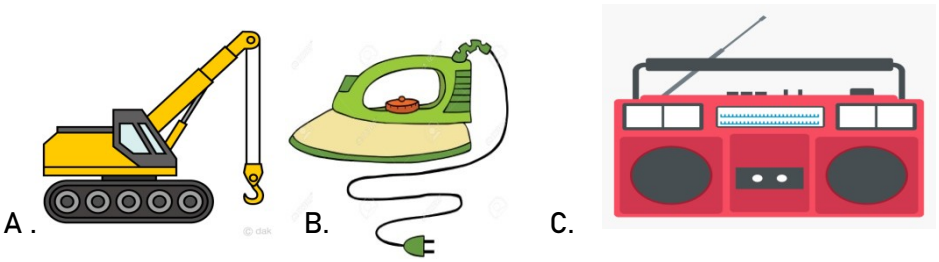
D . First increases then decreases

7. Bulb will glow in which1of the following circuits?



A. B. C. D.

8. Which of these does not use the magnetic effect of electric current?



A . B. C. D . None of these

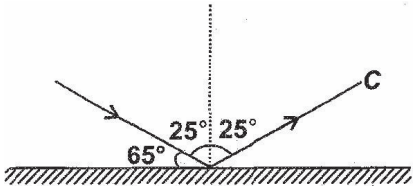
9. From the diagram below, what is the angle of incidence?

A. 25°

B. 50°

C. 65°

D. 90°

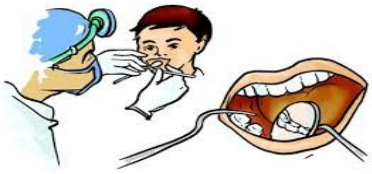


10. Which of the following shows a diverting lens?

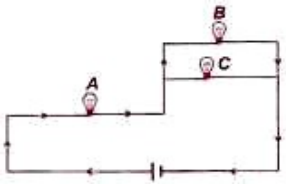
A.  B.  C.  D. 

11. The image of the teeth seen by a dentist while testing teeth is

A. Erect and real
B. Erect and virtual
C. Inverted and virtual
D. Inverted and real

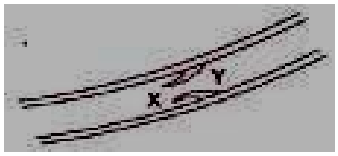


12. Three bulbs A, B and Care connected as shown in figure. The bulbs B and Care identical. If the bulb C is fused



A. Both A and B will glow more brightly than before
B. Both A and B will glow less brightly than before
C. A will glow less brightly
D. None of the bulb will glow

13. Refer the given figure of a sectional view of a blood vessel having a valve. Select the correct statement regarding it.



A. Blood flows from X to Y.
B. Muscles in the wall relax and close the valve, preventing backflow.
C. The elastic wall causes the valve to close between heart beats.
D. The valve is forced open when the blood pressure at Y is greater than at X.

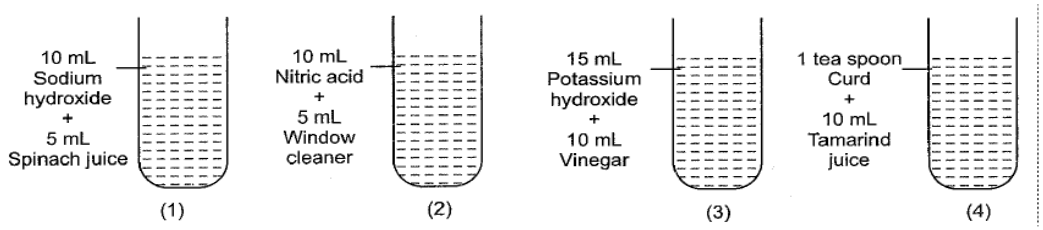
14. Consider the following statements (I-IV) each with one or two blanks.

I. An antacid such as ___P___ is used to cure indigestion.
II. Lime water contains ___Q___ which turns milky with carbon dioxide.
III. Soap solution is basic due to presence of ___R___ . It turns turmeric stain of shirt to red.
IV. Baking soda is ___S___ which reacts with vinegar to evolve carbon dioxide gas.

Option	Column-P	Column-Q	Column-R	Column-S
A.	Milk of magnesia	Calcium hydroxide	Sodium hydroxide	Sodium hydrogen carbonate
B.	Calcium hydroxide	Milk of magnesia	Sodium hydroxide	Sodium hydrogen carbonate
C.	Sodium hydroxide	Sodium hydrogen carbonate	Calcium hydroxide	Milk of magnesia
D.	Sodium hydrogen carbonate	Calcium hydroxide	Milk of magnesia	Sodium hydroxide

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

15. A science teacher has arranged the following sets of test tubes as



She asked the students to find out the incorrect statement about the above experimental set-up.

A. 1 and 3 turn turmeric solution to red.
B. 2 and 4 turn China rose indicator to green.
C. Methyl orange turns yellow in 1 and 3.
D. Phenolphthalein remains colourless in 2 and 4.

16. Read the given statement and mark the correct option

Statement 1: The displacement of a stone thrown up or down from a tower will be same as it reaches the ground.

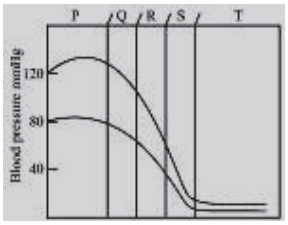
Statement 2: Distance travelled by the stone thrown up is more than the distance travelled by the stone thrown down.

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

17. The given graph represents the pressure (systolic and diastolic) of a volume of blood moving through circulatory system via different blood vessels labelled as P, Q, R, S and T.

Match the vessels given in Column-I with their corresponding letters given in Column-II and select the correct option.

Column-I	Column -II
(a) Venules	(i) P
(b) Capillaries	(ii) T
(c) Arterioles	(iii) R
(d) Veins	(iv) Q
(e) Arteries	(v) S

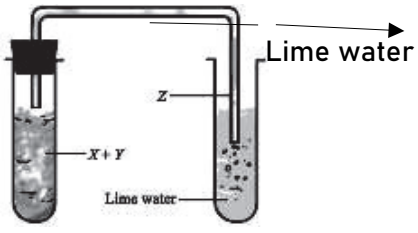


A. a-(i), b-(iv), c-(ii), d-(iii), e-(v)
B. a-(i), b-(iii), c-(v), d-(iv), e-(ii)
C. a-(v), b-(iii), c-(iv), d-(ii), e-(i)
D. a-(ii), b-(iii), c-(iv), d-(v), e-(i)

18. Study the given set up to pass gas Z through lime water.

X is _____ and Y is _____ .When (Z) is passed through lime water, _____ is formed which makes lime water milky.

A. Hydrochloric acid, zinc carbonate, hydrogen gas, calcium hydroxide
B. Vinegar, sodium carbonate, hydrogen gas, calcium carbonate
C. Acetic acid, baking soda, carbon dioxide, calcium carbonate
D. Hydrochloric acid, vinegar, carbon dioxide, calcium hydroxide



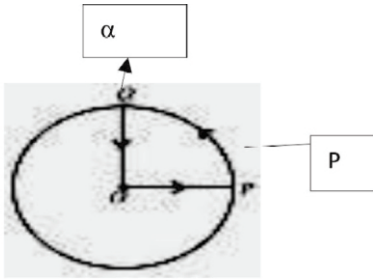
19. A cyclist starts from the centre O of a circular park of radius 1 km, reaches the edge P of the park, then cycles along the circumference and returns to the centre along QO as shown in figure. If the round trip takes 10 minutes, then the average speed of cyclist is

A. $\frac{p+4}{10}$ km per minute

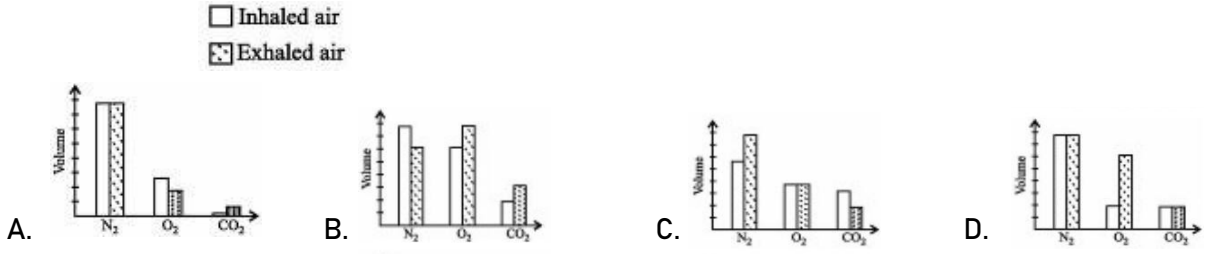
B. $\frac{p+4}{20}$ km per minute

C. $\frac{A}{4}$ km per minute

D. p km per minute.

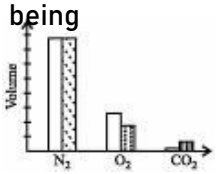


20. Which one of the following bar charts best represents the composition of nitrogen (N2), oxygen (O2) and carbon dioxide (CO2) in inhaled and exhaled air during breathing in human beings?



Answer Keys

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	B	P gives rise to fruit , Q transforms into endosperm,R carries pollen.
QUESTION-2	A	Q is the male part of the flower, R is a part of pistil
QUESTION-3	B	It grows the plants on the edge of the leaves
QUESTION-4	C	Flower (C) is most likely to produce fruits and seeds, because it is a complete flower bearing both male and female reproductive parts. In other flowers either male or female part is present, so, there is need of pollination in them. But, as they are bagged, pollination cannot occur and thus they cannot produce fruits and seeds.
QUESTION-5	C	
QUESTION-6	A	The time period of a simple pendulum is the time taken by the pendulum to complete one oscillation which remains constant. However, it can be changed by changing the length of the pendulum.
QUESTION-7	A	Circuit (A) is a closed circuit so, current flows through a circuit and hence bulb glows. Circuit (B), (C) and (D) are open circuits.
QUESTION-8	B	Iron box will not be contain the magnetic effect of current
QUESTION-9	A	i = 90° 65° = 25°.

QUESTION-10	C	A convex lens, also known as a converging or positive lens, will focus light rays to a point, as does a magnifying glass. It will always be thicker in the center than at the edges. A concave, diverging, or negative lens disperses light and is thinner in the middle than at the edges.
QUESTION-11	B	When an object is placed within the focal point of the concave mirror it forms a virtual, erect and magnified image of the object. This property of the concave mirror makes it useful for making the dentist mirrors.
QUESTION-12	B	If the c is fused then A and B will glow less brightly than before
QUESTION-13	D	The valve is forced open when the blood pressure at Y is greater than at X.
QUESTION-14	A	The blanks are Milk of magnesia, Calcium hydroxide, Sodium hydroxide, Sodium hydrogen carbonate.
QUESTION-15	B	The incorrect statement was 2 and 4 turn China rose indicator to green.
QUESTION-16	B	The correct statement was Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
QUESTION-17	C	The correct options are S,R,Q,T,P
QUESTION-18	C	The blanks are Acetic acid, baking soda, carbon dioxide, calcium carbonate
QUESTION-19	B	$\frac{p+4}{20}$ km per minute
QUESTION-20	A	The diagram clearly shows that the process of air breath and release of human being 

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WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

Mobile No.

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Invigilator's Signature

GRADE 7

MOCK TEST-8

1. Refer the given passage and answer the following questions.
Some organisms like fungi, etc. take in nutrients in solution form from dead and decaying matter, and are called saprotrophs. Fungi also grow on pickles, leather clothes and other articles that are left in hot and humid weather for long time. Certain fungi live in the roots of trees and share shelter and nutrients. This is called symbiotic relationship. Which of the following statements is/are incorrect?

(i) Fungi are called saprotrophs because they grow on pickles, leather and clothes.
(ii) Saprotrophs lack chlorophyll, so cannot make food by photosynthesis.
(iii) Like some fungi, lichens also show symbiotic relationship.
(iv) The bacterium called Rhizobium shows symbiotic relationship as it provides shelter, water and minerals to legumes and, in return, the legumes provide food which they prepare by photosynthesis.

A. (i) and (iv) B. (i) and (ii) C. (ii) and (iii) D. (iv) only

2. Which of the following statement(s) is/are true about the image formed by concave mirror?
(i) Virtual image is formed when the object is between F and P
(ii) Diminished image is formed when the object is beyond C.
(iii) Always form diminished image.

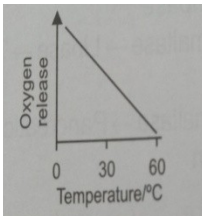
A. (i) and (ii) only
B. (ii) and (iii) only
C. (i) and (iii) only
D. (i), (ii) and (iii)

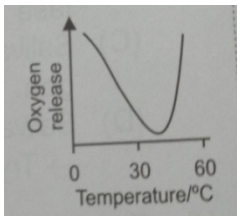
3. A large area of forest was cleared by burning. Which of the following statements is/ are correct?

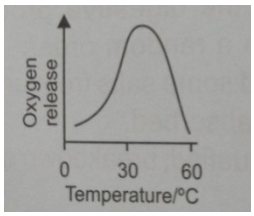
I. Rise in soil erosion as soil is directly exposed to wind and rain.
II. The land will have more fresh air as there are lesser trees to take in oxygen.
III. Wildlife will easily thrive in the cleared area because more space is available now.
IV. New trees will grow faster to replace the burnt ones as the ash of the burnt trees will make the soil more fertile.

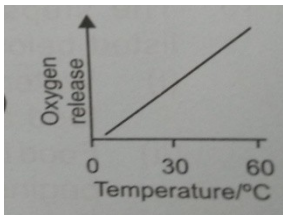
A. I only B. I and IV C. I, II and IV D. I, II, III and IV

4. Which graph shows the effect of temperature on the rate of photosynthesis of the aquatic plant such as Elodea?

A. 

B. 

C. 

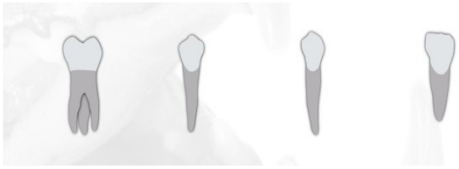
D. 

5. The small intestine is smaller in diameter than large intestine. The length of small intestine and large intestine is nearly?

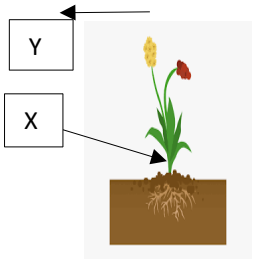
A. 7.5 and 1.5 metres respectively
B. 1.5 and 7 metres respectively
C. 7.5 and 7 metres respectively
D. 1.5 and 1.5 metres respectively

6. The given figures show different types of teeth. Which of these is used for piercing and tearing pieces of food?

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

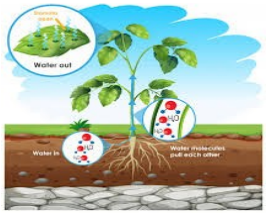


7. Refer the given figure. What does it represent?



A. Autotrophic mode of nutrition as the organism Y is obtaining food for itself.
B. Parasitic mode of nutrition because the organism X is being harmed by organism Y.
C. Symbiotic mode of nutrition as both the organisms X and Y are being benefitted in the process.
D. Predatory mode of nutrition as organism X is being eaten by the organism Y.

8. The given parts of the plant help out in



A. Photosynthesis
B. Respiration
C. Transpiration
D. All of the above

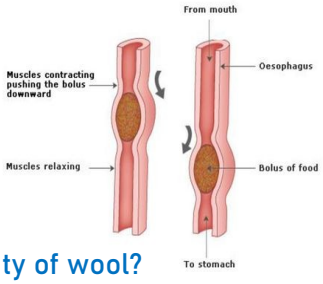
9. Match Column - I with Column - II and select the correct option from the codes given below.

Column - I	Column – II
(a) Chlorophyll	(i) Rhizobium
(b) Symbiosis	(ii) Starch
(c) Insectivorous plant	(iii) Lichen
(d) Nitrogen fixing organism	(iv) Mistletoe
(e) Partial parasite	(v) Pitcher plant

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

10. The given figure shows the movement of food through the oesophagus. This movement is aided by the muscles of the oesophagus in a wave-like action called

A. Diapedesis
B. Peristalsis
C. Rumination
D. Muscularisation.



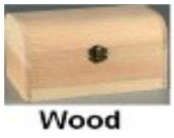
11. Which of the following factors decide the quality of wool?

(i) Thickness (ii) Length (iii) Shine
(iv) Strength (v) Colour

A. (i), (iii) and (iv) B. (ii), (iv) and (v)
C. (ii), (iii), (iv) and (v) D. All of these

12. Four boxes made of different materials are left under the Sun for half an hour. Which one of the boxes will be the hottest after half an hour?

A. 

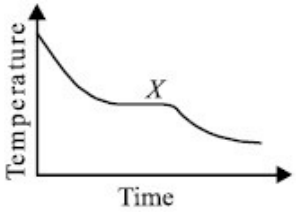
B. 

C. 

D. 

13. A hot liquid is carefully poured into a beaker. The graph shows how its temperature changes as it cools towards room temperature. Which processes are taking place at region X?

A. Boiling and evaporation.
B. Condensation only.
C. Evaporation only.
D. Solidification and evaporation.

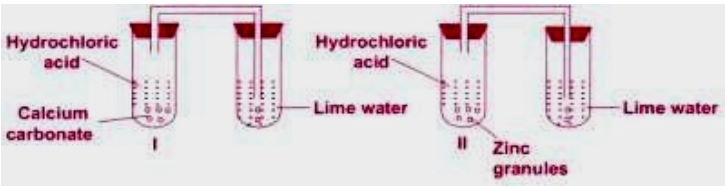


14. Match both the columns and mark the correct option from the codes given below

Column I	Column II
(a) Limestone	(i) $NaHCO_3$
(b) Blue vitriol	(ii) $CuSO_4$
(c) Vinegar	(iii) $CaCO_3$
(d) Baking soda	(iv) CH_3COOH

Option	Column-a	Column-b	Column-c	Column-d
A.	(iii)	(ii)	(iv)	(i)
B.	(i)	(ii)	(iv)	(iii)
C.	(ii)	(iii)	(i)	(iv)
D.	(iv)	(i)	(ii)	(iii)

15. Karthik took two test tubes marked as I and II. In test tube I, he put calcium carbonate and hydrochloric acid while in test tube II, he put zinc granules and hydrochloric acid. He passed the gas coming out from both the test tubes in lime water. What are his observations?



A. The gas coming out from test tube I turns lime water milky.
B. The gas coming out from test tube II turns lime water milky.
C. The gases coming out from both the test tubes turn lime water milky.
D. None of these.

16. Match the column I with column II and mark the correct option from the codes given below.

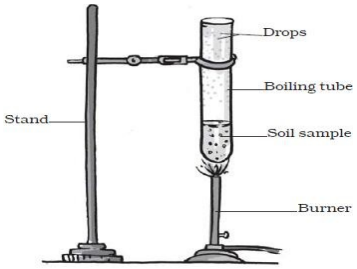
A. (a) - (iii), (b) - (ii), (c) - (iv), (d) – (i)
B. (a) - (i), (b) - (ii), (c) - (iv), (d) – (iii)
C. (a) - (ii), (b) - (iii), (c) - (I), (d) – (iv)
D. (a) - (iv), (b) - (i), (C) - (ii), (d) – (iii).

	Column I		Column II
(a)	Limestone	(i)	$NaHCO_3$
(b)	Blue vitriol	(ii)	$CuSO_4$
(c)	Vinegar	(iii)	$CaCO_3$
(d)	Baking soda	(iv)	CH_3COOH

17. If the percolation rate of water of a particular soil sample is 20 Ml/min, then how much time 200 mL of water will take to percolate completely into the soil?

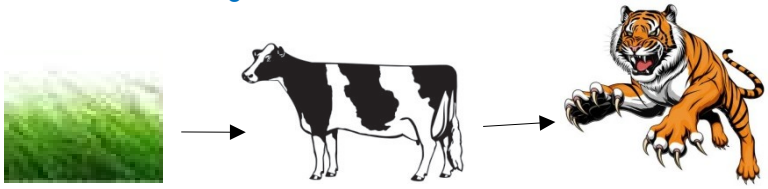
A. 800 s B. 600 s C. 200 s D. 400 s

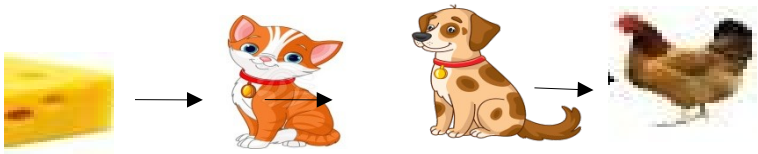
18. The experimental set up in the given figure shows that

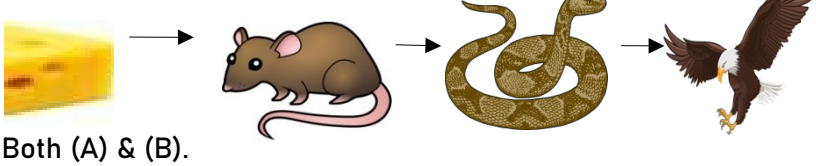


A. Soil reacts with air to form water vapour
B. Soil reacts with moisture from atmosphere
C. Soil contains moisture.
D. On heating, soil converts into water.

19. Which of the following is not a correct food chain?

A. 

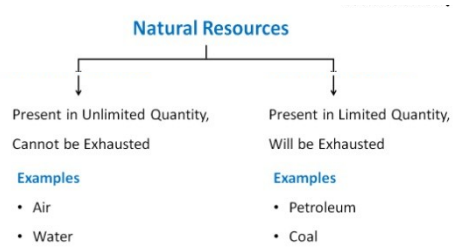
B. 

C. 

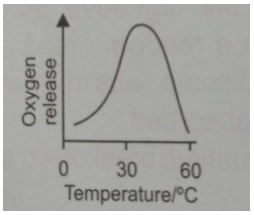
D. Both (A) & (B).

20. The given classification is done on the basis of

A. Renewable and non renewable resources
B. Inexhaustible and exhaustible resources
C. Both (A) & (B)
D. None of these.



Answer Keys

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	A	The incorrect statement was Fungi are called saprotrophs because they grow on pickles, leather and clothes. The bacterium called Rhizobium shows symbiotic relationship as it provides shelter, water and minerals to legumes and, in return, the legumes provide food which they prepare by photosynthesis.
QUESTION-2	A	The true statement of imaged formed by concave mirror are Virtual image is formed when the object is between F and P, Diminished image is formed when the object is beyond C.
QUESTION-3	A	The correct statement was Rise in soil erosion as soil is directly exposed to wind and rain.
QUESTION-4	C	The temperature on the rate of photosynthesis of the aquatic plant such as Elodea is option-c in the graph. 
QUESTION-5	A	The length of small intestine is7.5 and large intestine is 1.5 metres
QUESTION-6	B	W: Canine- piercing and tearing X : Incisor - biting and cutting Y : Premolar - grinding and crushing Z : Molar - grinding and crushing
QUESTION-7	D	This mode of nutrition is predatory mode of nutrition in which *Hydra* (Y, predator) feeds on prey (X).
QUESTION-8	D	It helps in photosynthesis nad respiration and transpiration.
QUESTION-9	C	the codes matches with column-1 are Starch, Lichen, Pitcher plant, Rhizobium, Mistletoe
QUESTION-10	B	Peristalsis refers to the movement that takes place in the oesophagus to push the food forward. This movement helps to push the food into the stomach from mouth through oesophagus.
QUESTION-11	D	The quality of wool varies from one breed of sheep to another. The quality is decided on the basis of thickness, length, shine, strength and colour of the fibre.

QUESTION-12	A	Out of iron, wood, glass and plastic, iron is the good conductor of heat and hence becomes hottest when placed under sun.
QUESTION-13	A	At region *X*, both solidification and evaporation is taking place.
QUESTION-14	A	The correct options for the code is(iii) CaCO3, (ii) CuSO4, (iv) CH3COOH, (i) NaHCO3
QUESTION-15	A	$CaCO_3$ (Calcium carbonate) + 2HCl (Hydrochloric acid) $\rightarrow$ $CaCl_2$ (Calcium chloride) + CO_2 (Carbon dioxide) + H_2O (Water) Carbon dioxide gas turns lime water milky. CO_2 (Carbon dioxide) + $Ca(OH)_2$ (Lime water) $\rightarrow$ $CaCO_3$ (Calcium carbonate (milky)) + H_2O
QUESTION-16	A	Correct options are column -1 with 2 is (iii)CaCo3,(ii) CuSO4, (iv) CH3COOH, (i) NaHCO3,
QUESTION-17	B	Time taken by 20 ml of water to percolate = 1 min = 60 seconds Time taken by 200 ml of water to percolate $\frac{60}{20} X\ 200$ = 600 seconds.
QUESTION-18	C	The figure shows that soil contains moisture
QUESTION-19	B	Answer B was not correct because the hen cannot eat the dog .
QUESTION-20	B	Those are Inexhaustible and exhaustible resources.

NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

Candidate's Name

INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

Mobile No.

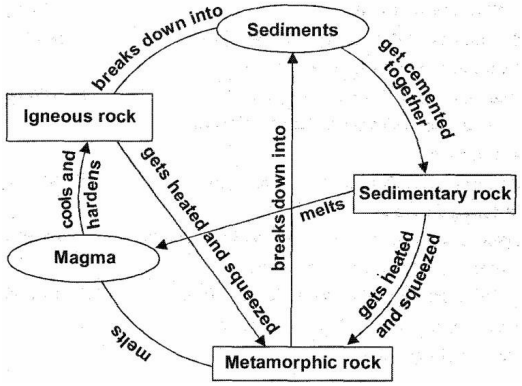
Candidate's Signature

Invigilator's Signature

GRADE 7

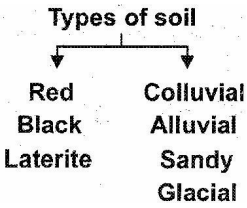
MOCK TEST-9

1. What does this given figure show?



A. Changes which the rocks continuously go through
B. How water moves through the atmosphere
C. Causes of weathering and erosion
D. How carbon dioxide and oxygen are exchanged.

2. On what basis the given classification of soil is done?



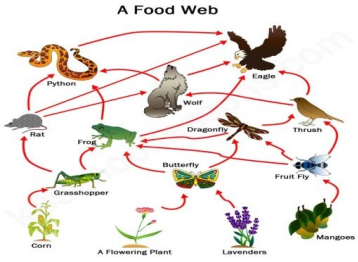
A. Residual soil and mountain soil
B. Transported soil and mountain soil
C. Residual soil and transported soil
D. Chemical nature and size of mineral particles

3. Read the following statements.

(P) The branchy part of a tree above the trunk is known as the _____ of the tree.
(Q) The branches of tall trees look like a roof over the other plants. This is known as _____.
(R) The _____ is covered with a layer of dead and decaying leaves, fruits, seeds, twigs and herbs.
(S) In rainforests, the vegetation that grows under the shade of the canopy is known as the _____. Select the option that correctly fills up the blanks in any two statements.

A. (Q) - Crown; (S) - Forest floor
B. (P) - Crown; (S) – Understorey
C. (Q) - Canopy; (R) – Understorey
D. (P) - Canopy; (R) - Forest floor

4. In the given food web how many primary consumers are there?



A. 1
B. 2
C. 3
D. 4

5. A person put warm water in an aquarium, thinking that the fish would be more comfortable in it. However, the fish died. What can be the reason for this?

A. The concentration of oxygen decreases in water.
B. The concentration of carbon dioxide increases in warm water.
C. Fish cannot bear the extreme heat of the water.
D. All of these.

6. Match column I with column II and select the correct option from the codes given below

Column I	Column II
(a) Earthworm	(i) Pulmonary
(b) Human	(ii) Branchial
(c) Prawn	(iii) Tracheal
(d) Insects	(iv) Cutaneous

Option	Column-a	Column-b	Column-c	Column-d
A.	(i)	(ii)	(iii)	(iv)
B.	(iv)	(i)	(ii)	(iii)
C.	(iii)	(ii)	(iv)	(i)
D.	(iv)	(ii)	(i)	(iii)

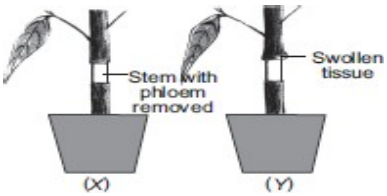
7. Which of the following processes, if absent, would most significantly affect the movement of water through xylem in the stem?

A. Minerals salt being taken in by active transport in the roots.
B. Water lost from the aerial parts of the plant.
C. Water being given of during respiration.
D. Water taken in by osmosis in the roots.

8. Pulmonary _____ carries _____ rich blood from the heart to the lungs and pulmonary _____ carries _____ rich blood from the lungs to the heart.
Select the option that correctly fills up the blank spaces in the above passage.

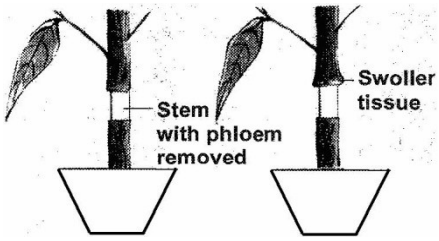
A. Vein, Carbon dioxide, Artery, Oxygen
B. Vein, Oxygen, Artery, Carbon dioxide
C. Artery, Carbon dioxide, Vein, Oxygen
D. Artery, Oxygen, Vein, Carbon dioxide

9. The given figure shows a set-up at the start of an experiment (X) and after a few days (Y). The change observed in set up Y is due to



A. Upward movement of food getting blocked
B. Downward movement of food getting blocked
C. Upward movement of water getting blocked
D. Downward movement of water getting blocked

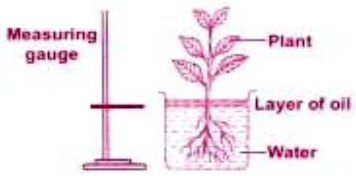
10. Take a plant with thick stem. Remove the phloern tissue as shown in the figure. Observe the stem after a few days. The stem shows swelling in the upper portion. This is due to



A. Upward movement of food getting blocked
B. Downward movement of food getting blocked
C. Upward movement of water getting blocked.
D. Downward movement of water getting blocked

11. Refer the following experimental set-up prepared by a group of students and select the correct option for the following question.
What will happen to the water level in the beaker after a week?

A. Water level will go up
B. Water level will go down
C. Water level will remain same
D. Cannot be predicted



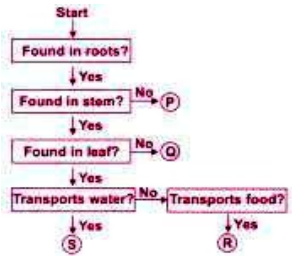
12. Four containers were heated on a flame. Which one will absorb the greatest amount of heat?

A. 1
B. 2
C. 3
D. 4

13. Study the given flowchart carefully and select the correct option for the following question.
Which of the following is a correct match of xylem and phloem with the letters?

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

	Xylem	Phloem
(A)	P	R
(B)	R	S
(C)	S	R
(D)	Q	R

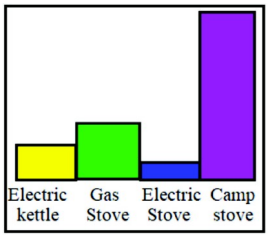


14. Read the following statements.
(i) Each heartbeat can be heard as _____ sounds.
(ii) If a person's kidneys are damaged, doctors remove body wastes bya medical process known as _____.
(iii) The heart has a number of _____ that allow the blood to flow in one direction only.
(iv) Oxygen combines with haemoglobin to form a compound called .
Select the option that correctly fills up the blanks in any two of the statements.

A. (i) - Two; (iv) – Oxyhaemoglobin
B. (ii) - Transplantation; (iii) – Valves
C. (i) - Three; (ii) Dialysis
D. (iii) - Atria; (iv) – Carboxyhaemoglobin

15. This graph below represents the cost of heating water for cooking. The height of the graph represents cost. Each device transfers thermal energy to the water and hence water gains thermal energy. Which appliance will prove the most inexpensive to use for cooking?

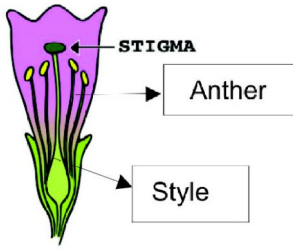
A. Electric kettle.
B. Gas stove.
C. Electric stope.
D. Camp stove.



16. Listed below are the stages of budding in yeast but they are not in the correct order.
(i) One of the nuclei enters the bud.
(ii)A bud forms on the outer surface of a parent cell.
(iii)The bud breaks away to become a new daughter cell.
(iv)The nucleus then doubles and divides.
(v)A cell wall is formed between the parent cell and the bud.
Which of the following options has the correct sequence of budding in yeast?

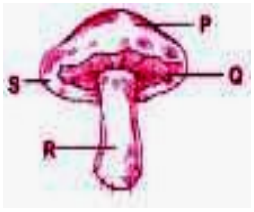
A. (i), (ii), (iv), (v), (iii)
B. (ii), (i), (v), (iii), (iv)
C. (ii), (iv), (i), (v), (iii)
D. (iv), (i), (ii), (v), (iii)

17. The given figure shows a type of pollination that is seen in which of the following plants?



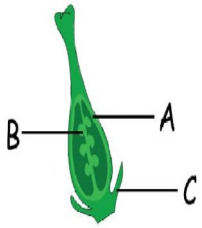
A. Apples
B. Pears/ Datura
C. Peach
D. Both (A) & (B)

18. From which of the labelled parts of the mature mushroom shown in the figure, spores will be released?



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

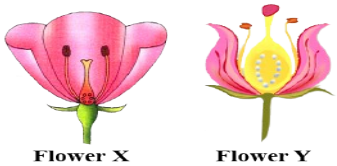
19. The given figure shows the parts of a plant. Which of the part labelled 'P', 'Q' or 'R' eventually develops into a fruit?



A. A
B. B
C. C
D. None of the above

20. Study the given diagrams showing the cross-section of two flowers.
Which of the following statements is/are correct regarding them?
(i) The flowering plants have developed from seeds.
(ii) Flower X is a female flower and flower Y is a bisexual flower.
(iii) Fertilization can take place in both flowers.

A. (i) only
B. (ii) only
C. (i) and (iii)
D. (ii) and (iii)



Answer Keys

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	A	The figure shows that Changes which the rocks continuously go through
QUESTION-2	C	The classification of soil is residual soil and transported soil
QUESTION-3	B	(P) - Crown (Q) - Canopy (R) - Forest floor (s) – Understorey
QUESTION-4	D	Primary consumers are those consumers that feed directly on plants. In the given figure, there are four primary consumers, grasshopper, butter fly, fruit fly, rat,.
QUESTION-5	A	The concentration of dissolved oxygen decreases in water on heating, which adversely affects respiration in fish, leading to the death of fish.
QUESTION-6	B	correct option from the codes are(iv)cutaneous, (i)pulmonary, (ii)branchial, (iii)tracheal.
QUESTION-7	B	Aerial parts of the plant like leaves lose water during transpiration. This creates a force that results in movement of water from the roots to the leaves through xylem vessels. This force is called transpirational pull. Thus, if there is no loss of water from the aerial parts, this would significantly affect the movement of water through xylem in the stem.
QUESTION-8	C	the correct format for fill ups is Artery, Carbon dioxide, Vein, Oxygen
QUESTION-9	B	If the phloem tissue is removed from the stem of the plant, as shown in the figure, then the stem shows swelling in the upper portion due to the accumulation of food material which is being synthesized in the leaves. This happens because after removal of phloem tissue, the downward movement of food gets blocked as the phloem transports the food from leaves to other parts of the plant.
QUESTION-10	B	This is due to Downward movement of food getting blocked
QUESTION-11	B	The level of water in the beaker will go down, as the water gets absorbed by the roots and is transported to the leaves through the stem.
QUESTION-12	B	
QUESTION-13	C	The function of xylem is to transport water and minerals upwards from roots through stem to the tips of leaves. And function of phloem is to transport food synthesised by the leaves downward to all the parts of a plant.
QUESTION-14	A	(i) Two; (ii) Dialysis; (iii) Valves; (iv) Oxyhaemoglobin
QUESTION-15	C	
QUESTION-16	C	The correct order is A bud forms on the outer surface of a parent cell. The nucleus then doubles and divides. One of the nuclei enters the bud. A cell wall is formed between the parent cell and the bud. The bud breaks away to become a new daughter cell.
QUESTION-17	D	It can bee seen in the apples and peach and datura flower .

QUESTION-18	B	Gills, labelled as Q in the diagram, bear millions of spores. Once these spores are dispersed from gills, they will germinate and give rise to baby mushroom.
QUESTION-19	A	The A is the complete egg cell which is already formed will eventually develops into a fruit.
QUESTION-20	C	Flower X contains both the anthers as well as ovules present in an ovary. Similarly, flower Y bears both the stamens and the carpals. As both male and female reproductive organs are present in flowers X and Y, so these are bisexual flowers, in which fertilization can take place and new plants can develop from the seeds.

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7. Do not use marker or white fluid to hide the mark.

WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
3	○	○	○	○	8	○	○	○	○	13	○	○	○	○	18	○	○	○	○
4	○	○	○	○	9	○	○	○	○	14	○	○	○	○	19	○	○	○	○
5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

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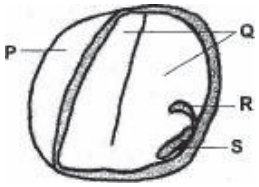
GRADE 7

MOCK TEST-10

1. The given figure shows the parts of a germinating seed. At this stage, the plant cannot make its own food. It obtains its food supply from



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

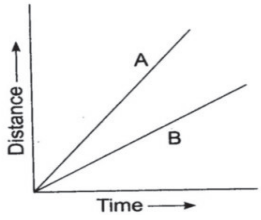
2. The diagram shows part of an island where two types of plants, are growing. How fruits or seeds of the given two types of plants are most likely dispersed?

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

3. A Scooterist covers a distance of 3 km in 5 minutes. He travels with a speed of

A. 100 m s^{-1}
B. 360 km h^{-1}
C. 100 cm s^{-1}
D. 600 m min^{-1}

4. The figure shows the distance-time graph for the motion of two vehicles X and Y. Which one of them is moving faster?



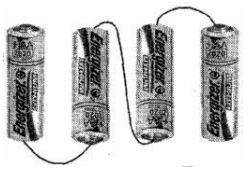
A. X
B. Y
C. Both move with same speed
D. Y is faster initially, and then X gets faster

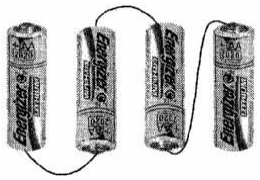
5. Which of the following does not use the heating effect of current?

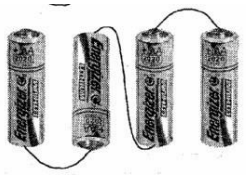
A. 
B. 
C. 
D. 

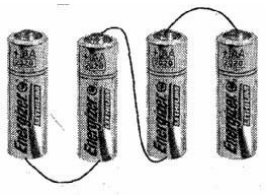
6. Shown below are four cells fixed on a board.

The correct connection of their terminals to make a battery of four cells is

A. 

B. 

C. 

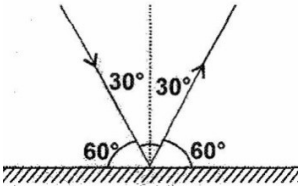
D. 

7. When electric current is flown through a conductor, some amount of

A. Electrical energy is converted into heat energy.
B. Electrical energy is converted into mechanical energy.
C. Mechanical energy is converted into electrical energy.
D. Heat energy is converted into electrical energy.

8. From the diagram below, what is the angle of reflection?

A. 30°
B. 40°
C. 60°
D. 90°



9. Which one shows lateral inversion?

A. 
Plane mirror

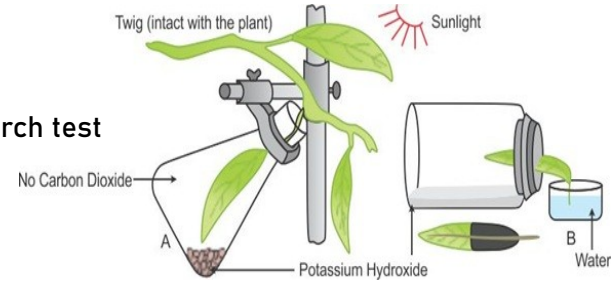
B. 
Convex mirror

C. 
Concave mirror

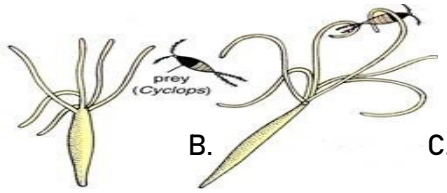
D . None of these

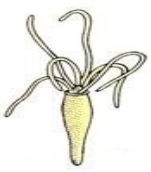
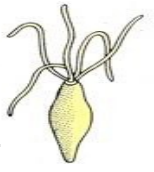
10. The given figure represents an experimental set up to demonstrate the necessity of carbon dioxide in photosynthesis. What will you observe after few hours of this experiment?

A. Leaf inside the conical flask will turn blue-black on starch test
B. Leaf outside the flask will turn blue-black on starch test
C. Both (A) & (B)
D. None of the above



11. What do the following figures represent?

A. 

B. 
C. 
D.

A. Amoeba using its pseudopodia for nutrition
B. Hydra using its tentacles for nutrition
C. Hydra using its cillia for nutrition
D. Paramecium using its tentacles for nutrition

12. Read the given paragraph.
The (i) secretes bile juice which is stored in the (ii) . The bile breaks up (iii) into tiny droplets that can be digested and absorbed more easily. The digestive juices then act on these tiny droplets to form simpler compounds known as (iv) and (v) Select the option which correctly completes the above paragraph.

Option	Column-1	Column-2	Column-3	Column-4	Column-5
A.	Pancreas	Spleen	Proteins	Amino acids	Glycerol
B.	liver	Gall bladder	Starch	Fructose	Maltose
C.	Liver	Gall bladder	Fats	Fatty acids	Glycerol
D.	Small intestine	Spleen	Fats	Amino acids	Fatty acids

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

13. The children employed in the silk industry face certain problems that include respiratory disorders, hearing problems, blisters and open wounds, etc. What do you think is the main cause of their respiratory problems?

A. Cramped, damp, dark and poorly ventilated work space
B. Loud, deafening music playing in the background
C. Inhalation of vapours from the boiling cocoons and the diesel used to run machines
D Checking of the hot water to see whether the silk threads have loosened enough to be removed from the cocoons

14. Match column I that consists of different types of silk with column II having plants on which respective silkworms are reared and select the correct option from the codes given below.

Column - I	Column – II
(a) Muga silk	(i) Polyanthus
(b) En silk	(ii) Sal
(c) Tassar silk	(iii) Castor

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

15. The properties below describe which of the following fabrics?

(i) Cool to wear (ii) Absorbs water easily
(iii) Soft to touch (Iv) Creases easily
(v) Can be washed and ironed easily

A. Cotton B. Silk C. Wool D. Nylon

16. Mark the correct statement

A. Burning of coal does not produce a new substance
B. Rust is hydrated Fe2O3
C. The fizz that comes out when a soda bottle is opened is due to a chemical change
D. Respiration is a physical process.

17. How does cyclone decrease the fertility of the soil in the coastal areas?

A. By flooding the land with saline water B. By dissolving soil and rocks
C. By increasing the water table of the place D. By decreasing the water table of the place

18. The factor which contributes to the development of cyclones is/are (i) Wind speed (ii) Temperature (iii) Humidity.

A. (i) only B. (ii) & (vi) only C. (i) & (iii) only D. All of the above

19. Read the following statements.
(a) _____ and _____ soils are both suitable for growing wheat and gram.
(b) Paddy requires soil rich in _____ and _____, with a good capacity to retain water.
(c) For pulses, _____ soil that drains water easily, is best suitable.
Select the option which correctly fills the blanks in any two of the statements.

A. (a) - Clayey, Loamy, (c) – Loamy
B. (b) - Sandy, Gravel (c) – Clayey
C. (a) - Clayey, Sandy, (b) - Loam, Organic matter
D. (b) - Clayey, Loamy, (c) - Sandy

20. Read the given data and select the correct option for the following question.
Raman carried out an experiment to find out how fast water can pass through four different types of soil. He put each type of soil into a pot with hole at the base and placed a dish at the bottom to collect water. He used a stopwatch to record the time taken for water to reach the level he had marked in each dish. His recording is given in the table as shown below.

Type of soil	X	Y	Z
Time (in seconds)	3 5	6 2	120

Which soil is most suitable for a plant that thrives in wet and clayey soil?

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

Answer Keys

QUESTION NO	ANSWER	SOLUTION
QUESTION-1	B	It obtains its complete food supply from Q
QUESTION-2	C	As the plants  are growing near the sea, their seeds or fruits are most probably dispersed by the water. The plants  are growing away from the sea on an island (where strong winds usually blow), their seeds or fruits are most probably dispersed by the wind.
QUESTION-3	D	Distance (s) = 3 km = 3000 m Time (t) = 5 minutes As speed (v) = $\frac{\text{distance(s)}}{}$ $v = \frac{3000}{5} = 600 m \text{ min}^{-1}$
QUESTION-4	A	More is the speed, more will be the slope (inclination) of distance -time graph. So, vehicle *X* represents the high speed, i.e., *X* moves faster than *Y*.
QUESTION-5	D	Electric iron, immersion rod, and electric bulb work on the principle of heating effect of electric current. While option (D) is a car battery which is a combination of six cells connected internally and is a source of electric current.
QUESTION-6	C	The c cells which are correctly arranged is C.
QUESTION-7	A	When electric current flows through a conductor, it produces magnetic field around the conductor. So the electrical energy is converted into magnetic energy and a part of electrical energy is dissipated in the form of heat energy.
QUESTION-8	A	The angle of reflection was 30°
QUESTION-9	A	The lateral version was plane mirror
QUESTION-10	B	After few hours of this we can observe Leaf outside the flask will turn blue-black on starch test.
QUESTION-11	B	The figure represents that Hydra using its tentacles for nutrition
QUESTION-12	C	The options which correctly completes is Small intestine, Spleen, Fats, Amino acids, Fatty acids
QUESTION-13	C	Workers working in silk industry are adversely affected by a number of diseases. Inhalation of vapours arising from cocoons undergoing boiling and from diesel used to run machines causes breathing problems like asthma and other respiratory ailments.
QUESTION-14	D	Correct options are in order is(i)polyanthus, (iii)castor, (ii)sal
QUESTION-15	A	It is completely a cotton fabric.
QUESTION-16	B	The correct statement is Rust is hydrated Fe2O3
QUESTION-17	A	Cyclone brings saline sea water to the land which decreases the fertility of the land.
QUESTION-18	D	The development of cyclones is wind speed and temperature and humidity.
QUESTION-19	A	Paddy requires soil rich in clay and organic matter, with a good capacity to retain water.
QUESTION-20	D	Soil Z is most suitable for a plant that thrives in wet and clayey soil as it holds water for a longer period than other types of soils as shown in the table.

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ANSWER SHEET

National Astronomy & Science Olympiad

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WRONG METHODS CORRECT METHOD

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	6	○	○	○	○	11	○	○	○	○	16	○	○	○	○
2	○	○	○	○	7	○	○	○	○	12	○	○	○	○	17	○	○	○	○
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5	○	○	○	○	10	○	○	○	○	15	○	○	○	○	20	○	○	○	○

Mobile No.

Candidate's Signature

Invigilator's Signature

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