
SCIENCE

1 When alcohol was poured on the leaves of a plant continuously, the plant could not prepare food on its own. The plant failed to prepare food because

- [A] Alcohol dissolved the chlorophyll
 - [B] Alcohol dissolved all the minerals
 - [C] Alcohol did not allow carbon dioxide to enter the leaves
 - [D] Alcohol absorbed all the food
-

2 The bacterium *Rhizobium* helps the crops to get nitrogen. Select the statement that is INCORRECT about Rhizobium.

- [A] Rhizobium converts atmospheric nitrogen into a soluble form that the plants can absorb
 - [B] Rhizobium makes its own food
 - [C] Rhizobium lives in the roots of leguminous plant
 - [D] Leguminous plants provide food and shelter to Rhizobium
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3 Read the following statements carefully and choose the correct options

STATEMENT I: **In saprophytic mode of nutrition organisms take the nutrients in solution from dead and decaying matter**

STATEMENT II: **Fungi is a Saprophyte**

STATEMENT III: **Saprotrophs help in recycling of nutrients**

- [A] Statements (I) & (III) are incorrect but statement (II) is correct
 - [B] Statements (I) & (II) are incorrect but statement (III) is correct
 - [C] All statements are correct
 - [D] All statements are incorrect
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4 Assimilation is

- [A] The process of change of digested absorbed substances into complex substances and its use
- [B] Utilization by living organisms of absorbed food materials in process of growth, reproduction and repair
- [C] Both the above are correct
- [D] None of the above are correct

5 *Read the following statement of assertion and statement of reason carefully and select correct option.*

Assertion: Pulmonary artery carries impure blood to the lungs

Reason: Pulmonary veins carries impure blood from lungs to heart

[A] Assertion is true and Reason is false

[B] Assertion is false and Reason is true

[C] Both Assertion and Reason are true and Reason is the correct explanation of Assertion

[D] Both Assertion and Reason are true and Reason is not the correct explanation of Assertion

6 Given below are the various steps involved in animal nutrition

I	Assimilation
II	Ingestion
III	Absorption
IV	Digestion
V	Egestion

Arrange them in

proper sequential order

[A] III, II, IV, I, V

[B] III, I, IV, II, V

[C] III, IV, II, V, I

[D] II, IV, III, I, V

7 Which of the following groups represent correctly the substances that the capillaries exchange between blood and tissues?

[A] Oxygen, Carbon dioxide, RBC, food

[B] Oxygen, Carbon dioxide, food, waste products

[C] Water, Plasma, WBC, RBC

[D] Oxygen, Carbon dioxide, WBC, RBC

8 These are asexual reproductive bodies which are covered by a hard protective coating and they can survive for a long time. The plants of moss and ferns reproduce by means of these bodies. They are

[A] Stamen

[B] Stigma

[C] Spores

[D] None of these

9 Corolla in a flower helps

[A] To produce male gametes

[B] To produce female gametes

[C] To hold pollen grains

[D] To attract insects

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- 10 Arteries are a type of blood vessel
- [A] which carry oxygen rich blood from the heart to all other parts of the body
 - [B] which carry deoxygenated blood from the heart to all other parts of the body
 - [C] which carry deoxygenated blood and have thick elastic units
 - [D] None of the above are correct
-
- 11 The process of filtering the waste containing body fluids is carried out by blood capillaries in which of the following parts of our body?
- [A] Urinary bladder
 - [B] Kidney
 - [C] Trachea
 - [D] Artia
-
- 12 Which of the following remains constant when a substance changes from one state to another at its melting or boiling point?
- [A] Density
 - [B] Volume
 - [C] Temperature
 - [D] Pressure
-
- 13 You are provided with two solutions **X** and **Y**. The colour of turmeric stain on your shirt on coming in contact with solution **X** changes to brick red and when in contact with solution **Y** changes to yellow. The solution **X** and **Y** provided to you are respectively
- [A] Soap solution and sugar solution
 - [B] Lemon juice and vinegar
 - [C] Soap solution and Lemon juice
 - [D] Lemon juice and soap solution
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Questions 14 to 17: Read the following passage and answer the questions that follow.

Almost all living things need oxygen. They use this oxygen during the process of creating energy in living cells. Just as water moves from the sky to the earth and back in the hydrological cycle, oxygen is also cycled through the environment. The cycle that maintains the level of oxygen in the atmosphere is called oxygen cycle. The oxygen in the atmosphere is used up in three processes, namely respiration, combustion and in the formation of oxides of nitrogen. Oxygen is returned to the atmosphere in only one major process, photosynthesis.

Plants mark the beginning of the oxygen cycle. Plants convert carbon dioxide and water into carbohydrates and oxygen by using the energy of sunlight in a process called photosynthesis.

Animals form the other half of the oxygen cycle. The animals take in oxygen which they use to break down carbohydrates to release energy in a process called respiration. The carbon dioxide produced during respiration is breathed out by animals into the air. So oxygen is created in plants during photosynthesis and used up by animals in respiration.

But the oxygen cycle is not actually quite that simple. Plants must break carbohydrates down to release energy to carry out their life processes as animals do. During the day, plants hold onto a bit of the oxygen which they produced in photosynthesis and use that oxygen to break down carbohydrates. But in order to maintain their metabolism and continue respiration at night, the plants absorb oxygen from the air and give off carbon dioxide as animals do.

14 Read the following statements

I Photosynthesis and Respiration are opposite processes.

II Respiration in plants takes place only at night.

III Plants release carbon dioxide during respiration.

Which of the statements given above are correct?

[A] Statements I, II and III

[B] Statements I and II

[C] Statements A and C

[D] Statement A only

15 Carbohydrates + Oxygen \longrightarrow Carbon dioxide + Water + Energy

The equation given above represents

[A] Photosynthesis

[B] Respiration

[C] Oxygen cycle

[D] None of these

16 The main source of atmospheric carbon dioxide is

[A] Respiration & Photosynthesis

[B] Photosynthesis and Combustion

[C] Respiration, Combustion and Nitrification

[D] Respiration and Combustion.

17 The level of oxygen in the atmosphere is maintained by

[A] Plants

[B] Animals

[C] Both of these

[D] None of these

18 A boy buys common salt from the market which is contaminated with NH_4Cl and sand. The procedure he should adopt to obtain pure NaCl is

[A] Mix the sample in water and evaporate the solution

[B] Mix the sample in water and evaporate the decanted solution

[C] Mix the sample in acetone and evaporate the decanted solution

[D] Heat the sample, then mix in water and evaporate the decanted solution

19 The process of washing fleece to remove dirt, dust and grease is called

[A] Reeling

[B] Scouring

[C] Shearing

[D] Grading

20 In which of the following situations a chemical reaction does not occur?

[A] Common salts exposed to air

[B] Coal is burnt in air

[C] Sodium is placed in water

[D] Iron is kept in moist air

21 Match the list I with the list II and select the correct option.

List I		List II	
I	Fertilizer	P	King of chemicals
II	Sulphuric acid	Q	Basic
III	Lime water	R	Magnesium hydroxide
IV	Milk of magnesia	S	Potassium nitrate

	I	II	III	IV
[A]	S	P	Q	R
[B]	R	P	Q	S
[C]	S	Q	P	R
[D]	S	P	R	Q

22 Read the following statements carefully and choose the correct option

STATEMENT I: Cultivation of silkworms for the purpose of producing silk is called sericulture

STATEMENT II: Silk is called queen of textile

STATEMENT III: Reeling is the process of unwinding the silk filaments from the cocoon.

- [A] Statement (i) & (iii) are incorrect but statement (ii) is correct
- [B] Statement (i) & (ii) are incorrect but statement (iii) is correct
- [C] All the three statements are correct
- [D] All the three statements are incorrect

23 *Read the following statement of assertion and statement of reason carefully and select correct option.*

Assertion: The substance which shows the nature of a solution as acidic or basic with the change in colour are called indicators

Reason: Red litmus turns blue in a solution containing vitamin 'C'

- [A] Assertion is true and Reason is false
- [B] Assertion is false and Reason is true
- [C] Both Assertion and Reason are true and Reason is the correct explanation of Assertion
- [D] Both Assertion and Reason are true and Reason is not the correct explanation of Assertion

24 The substance which form hydronium ions (H_3O^+) in water are called

- [A] Alkalies [B] Bases
[C] Acids [D] None of these
-

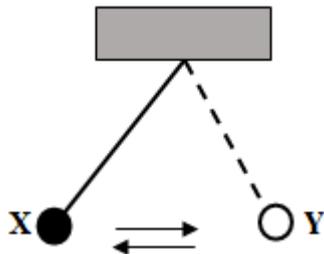
25 Which of the following is NOT true?

- [A] Excess CO_2 in the atmosphere can cause acid rain
[B] Acids are corrosive in nature
[C] All bases are alkalis but all alkalis are not bases
[D] Salts are formed as a result of neutralization reaction
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26 Displacement is the

- [A] Shortest distance between initial and final position
[B] Actual distance between initial and final position
[C] Distance travelled by the object
[D] Distance travelled by the object in a unit time
-

27 An oscillation of a swinging pendulum occurs when the bob moves from X to Y and back to X again



Using a stop watch, which would be the most accurate way to measure the time for one oscillation of the pendulum?

- [A] Time 20 oscillations and multiply by 20
[B] Time 20 oscillations and divide by 20
[C] Time one oscillation
[D] Time the motion from X to Y, and double it
-

28 In sea breeze

- [A] Cold air moves from sea towards land during day time
[B] Hot air moves from sea towards land during day time
[C] Cold air moves from land towards sea during day time
[D] None of the above is correct
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29 A man throws a ball with a force 20N. Find the distance covered by the ball if work done is 60J in this process.

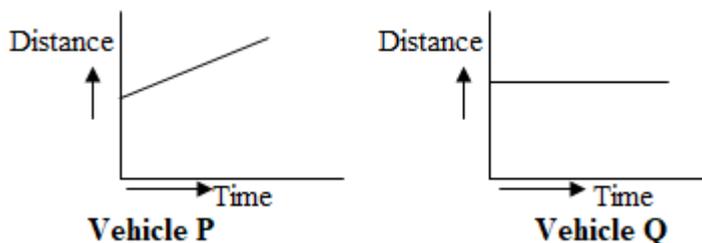
[A] 3 m

[B] 9 m

[C] 6 m

[D] 12 m

30 Study the distance –time graph of two moving vehicles given below and select the correct statement.



[A] Both the vehicles are moving with same constant speed

[B] Vehicle P is moving non-uniformly and Vehicle Q is moving uniformly

[C] Vehicle Q is moving non-uniformly and Vehicle P is moving uniformly

[D] None of the above is correct

31 Read the following statements carefully and choose the correct option

STATEMENT I: A man gets completely exhausted in trying to push a stationary wall. The work done by him is zero

STATEMENT II: Work done is the product of force and displacement

STATEMENT III: Work can be positive, negative and zero

[A] Statement (i) & (iii) are incorrect but statement (ii) is correct

[B] Statement (i) & (ii) are incorrect but statement (iii) is correct

[C] All the three statements are correct

[D] All the three statements are incorrect

32 Eye of a hurricane is the region of

[A] Very high pressure

[B] Full of vapour

[C] Whirling wind

[D] Depression and a calm area

33 Which radiation in sunlight causes heating affect?

[A] Ultraviolet

[B] Infra-red

[C] Visible light

[D] All of these

34 Study the following data and answer the question that follows

Substance	Density (g/cm ³)
Water	1
Mercury	13.6
Sodium	0.97

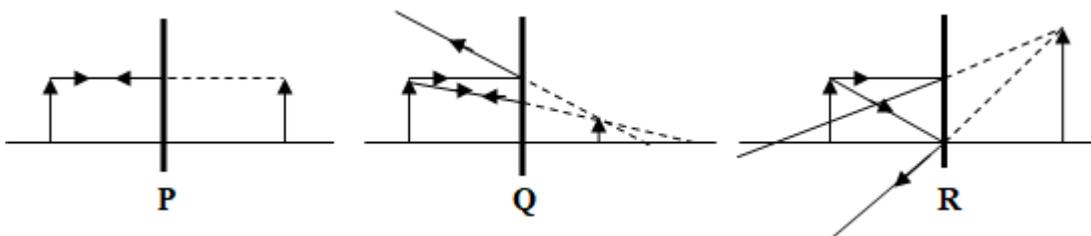
Which of the following statement is correct?

- [A] Mercury will sink in water but sodium would not
- [B] Sodium will sink in water but mercury would not
- [C] Both mercury and sodium will sink
- [D] There is no relation between density and floatation

35 When a liquid in a beaker is heated on a gas burner

- [A] Heated molecules becomes less dense and rise
- [B] Colder molecules from above move down and get heated
- [C] The heat is transferred by convection
- [D] All of the above

36 Study the following ray diagrams. P, Q and R represent different types of mirrors



Which of the following is a correct match for the mirrors?

	P	Q	R
[A]	Concave mirror	Plane mirror	Convex mirror
[B]	Plane mirror	Concave mirror	Convex mirror
[C]	Convex mirror	Concave mirror	Plane mirror
[D]	Plane mirror	Convex mirror	Concave mirror

37 A convex lens is thick

- [A] At the edge
- [B] In the middle
- [C] Same every where
- [D] No definite shape

38 Mercury thermometers are not used to measure very low temperatures. Because

- [A] Glass crack at low temperature
- [B] Heat stops flowing from the object
- [C] Mercury freezes at low temperature
- [D] Mercury becomes transparent at very low temperature

39 There are four cups made of different materials; Silver, Aluminium, wood and copper.

In which of them will hot tea remain warmer for a longer time?

- [A] Silver
- [B] Aluminium
- [C] Copper
- [D] Wood

40 The length of the shadow will be longest when the

- [A] Angle between the source of light and the object is 45°
- [B] Source of light and the object are parallel to each other
- [C] Source of light and the object are perpendicular to each other
- [D] Angle between the source of light and the object is 60°

LOGICAL REASONING

41 Look carefully for the pattern, and then choose which pair of numbers comes next.

9 16 23 30 37 44 51

- [A] 59 66
- [B] 56 62
- [C] 58 66
- [D] 58 65

42 The table shows attendance at the football game last week.

Day	Attendance
Thursday	24,587
Friday	25,872
Saturday	24,875
Sunday	25,827

Which list shows the days in order from **least** to **greatest** attendance?

- [A] Thursday, Friday, Saturday, Sunday
- [B] Sunday, Saturday, Thursday, Friday
- [C] Friday, Sunday, Saturday, Thursday
- [D] Thursday, Saturday, Sunday, Friday

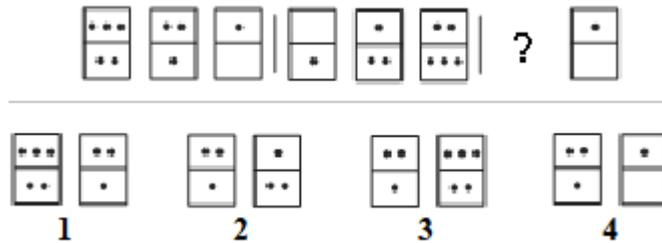
43 On Thursday, Officer Rana worked the 3 p.m. to 11 p.m. shift. At 10:55 p.m. he was called to the scene of an accident where he remained until 1:30 a.m. How long past his regular shift did Officer Rana work?

- [A] 55 minutes [B] 2 hours, 35 minutes
 [C] 2 hours [D] 2 hours, 30 minutes

44 One morning after sunrise Deepak was standing facing a pole. The shadow of the pole fell exactly his to his body, which direction was he is facing?

- [A] East [B] South
 [C] West [D] North

45 Look carefully at the sequence of symbols to find the pattern. Select correct pattern.



- [A] 1 [B] 2
 [C] 3 [D] 4

46 Here are some words translated from an artificial language.

haplesh means *cloudburst*

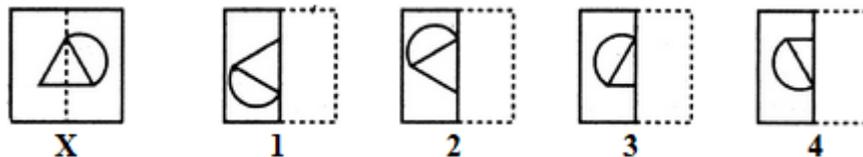
srenchoch means *pinball*

resbosrench means *ninepin*

Which word could mean "*cloud nine*"?

- [A] leshsrench [B] ochhapl
 [C] haploch [D] hapresb

47 Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



- [A] 1 [B] 2
 [C] 3 [D] 4

48 Which word does NOT belong with the others?

- [A] Unique [B] Beautiful
 [C] Rare [D] Exceptional

49 Carefully observe the following pattern and complete the series

QPO, NML, KJI, _____, EDC

[A] HGF

[B] CAB

[C] JKL

[D] GHI

50 These figures rotate in a repeating pattern. Identify the next figure.

