



S I M S[®]

(SCHOLARS INTEGRAL MATHS & SCIENCE OLYMPIADS)



BIGGEST NATIONAL LEVEL OLYMPIADS (STAGE - II) : 2018-19

MAX. MARKS : 100

SISO QUESTION PAPER

TIME: 60 MIN.

NAME OF THE STUDENT :
HALL TICKET NUMBER :
NAME OF THE SCHOOL :

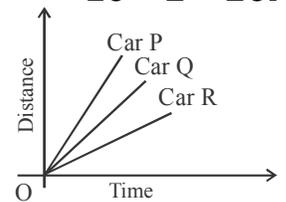
INSTRUCTIONS TO THE STUDENTS :

- ☞ Write your Hall ticket number immediately after receiving the question paper booklet.
- ☞ Darken the answers only on the OMR Sheet.
- ☞ Read the instructions given on the OMR sheet and follow them accordingly.
- ☞ Don't write any thing on the question paper booklet.
- ☞ To do rough work, use only the white paper provided in the examination hall.
- ☞ **No negative marks.**
- ☞ This question paper booklet consists of 45 questions.
- ☞ **PHYSICS (Q.No-1 to 15) :**
First 10 questions (1 to 10) are single correct answer type.
Each question carries TWO marks.
Next 5 questions (11 to 15) are one or more than one correct answer type.
Each question carries THREE marks.
- ☞ **CHEMISTRY (Q.No-16 to 30) :**
First 10 questions (16 to 25) are single correct answer type.
Each question carries TWO marks.
Next 5 questions (26 to 30) are one or more than one correct answer type.
Each question carries THREE marks.
- ☞ **BIOLOGY (Q.No-31 to 45) :**
All questions (31 to 45) are single correct answer type.
Each question carries TWO marks.
- ☞ Students are not allowed to use any Mathematical and Physical tables (OR) any other electronic devices.
- ☞ After completion of the examination hand over the OMR answer sheet to the invigilator without fail. You can retain the question paper with you.
- ☞ Students should not leave the examination hall before the last bell rings.
- ☞ To know your results log in to our website **www.simsolympiads.com**.
- ☞ Stage-I branch result copy will be sent to the school mail id. Please contact your principal to know your result.

Single Correct Answer Type :

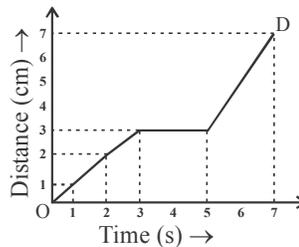
10 × 2 = 20M

1. Study the given distance - time graph for three cars P, Q and R in a race. Which of the three cars win the race?



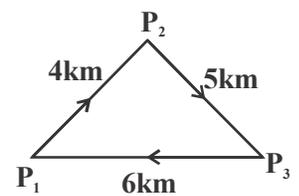
- 1) Car P
- 2) Car Q
- 3) Car R
- 4) Car R

2. The graph is given below shows the position of an ant at different times. What is its average speed



- 1) 1.5 ms⁻¹
- 2) 3 cms⁻¹
- 3) 1 cms⁻¹
- 4) 4.5 cms⁻¹

3. A cyclist travels at an average speed of 25 km h⁻¹. How long will it take for him to travel a triangular journey through three places P₁, P₂ and P₃ as shown in the figure?



- 1) 20 minutes
- 2) 36 minutes
- 3) 1 hour
- 4) 1 hour 20 minutes

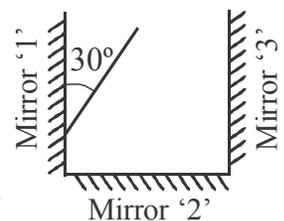
4. When we touch a steel rod and a sheet of paper simultaneously, why do we feel that steel rod is colder than the sheet of paper?

- 1) Steel, being a good conductor, absorbs heat from our body
- 2) Paper being a good conductor, absorbs more heat from our body
- 3) Heat flows from steel to our body
- 4) Heat flows from the paper to our body

5. Phani needs a box which can absorb the heat from the sun very fast but lose it very slowly. How should the outer and the inner surface of the box be coloured so that he gets the best result?

- 1) Outer - Silver, Inner - Silver
- 2) Outer - Black, Inner - Black
- 3) Outer - Silver, Inner - Black
- 4) Outer - Black, Inner - Silver

6. Mirrors '1', '2' and '3' are placed at right angles as shown below and a beam of light is made incident on mirror '1'

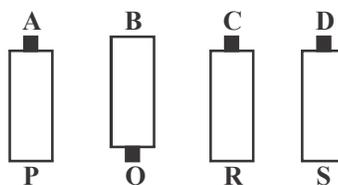


What will be the angle of reflection from mirror '3'?

- 1) 30°
- 2) 45°
- 3) 60°
- 4) The reflected ray from mirror '2' will be parallel to the surface of mirror '3'

7. Four cells are fixed on a board as shown below

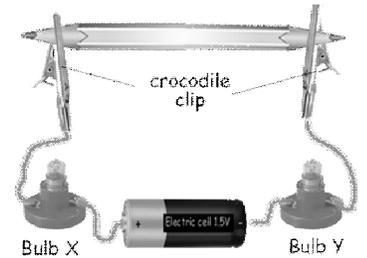
How will you connect the terminals with wires to make a battery of four cells



- 1) A - Q, C - D, D - P
- 2) P - B, R - S, Q - C
- 3) A - B, Q - R, C - S
- 4) A - B, Q - R, C - D

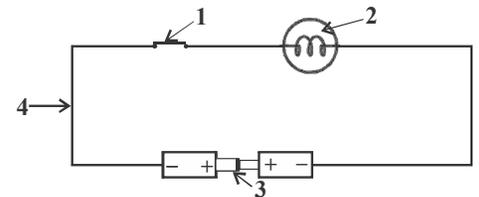
8. When a light ray is reflected repeatedly by a set of parallel plane mirrors, the intensity of light rays decreases after some reflections. This is because of
- 1) Poor reflection from mirrors
 - 2) Absorption of some amount of light by mirrors
 - 3) Dispersion of light when the rays travel through the atmosphere
 - 4) Scattering of light by the mirrors.

9. A wooden pencil is sharpened at both ends. It is connected to two bulbs and a battery as shown. The two crocodile clips are connected to the wooden part of the pencil. Why do the two bulbs not light up?



- 1) The battery is connected the wrong way round
- 2) If we connect the clips to lead part of pencil, then it will glow
- 3) The wood is a conductor
- 4) All of these

10. The bulb in the circuit shown below does not glow. Which of the following labelled parts is responsible for this?



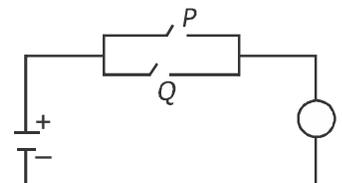
- 1) 4
- 2) 2
- 3) 3
- 4) 1

Multi Correct Answer Type :

5 × 3 = 15M

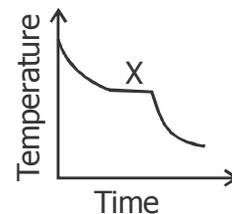
11. Which of the following does not help us save electricity?
- 1) Switch off the air conditioner and open the refrigerator door to cool the house
 - 2) Ironing of one (or) two clothes by using electric iron at a time
 - 3) Connect more than one electric appliance to one power point
 - 4) Use the solar panels to produce electricity on top of building
12. Which of the following statements is/are correct?
- 1) If the velocity of a body changes, it must have some acceleration
 - 2) If the speed of a body changes, it must have some acceleration
 - 3) If the body has acceleration, its speed must change
 - 4) If the body has acceleration, its speed may change
13. Choose the correct options regarding refraction of light.
- 1) Refraction is the change in direction of wave propagation due to a change in its transmission medium
 - 2) The ratio of sine of angle of incidence and refraction is always constant
 - 3) The pencil dipped in water appeared bending at the place of contact with water is due to refraction
 - 4) Incase of refraction snells law does not gives the relation between angle of incidence and angle of refraction

14. In the given circuit diagram, P and Q are switches. Lamp will glow when



- 1) P is open, Q is closed
- 2) P is closed, Q is open
- 3) P is closed, Q is closed
- 4) P is open, Q is open

15. 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?



- 1) Boiling 2) Condensation
3) Evaporation 4) Solidification

CLASS : VII

CHEMISTRY

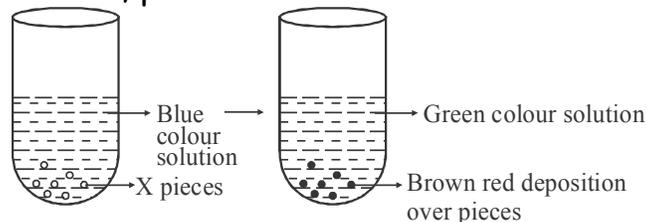
Single Correct Answer Type :

10 × 2 = 20M

16. Consider the following two experimental set-ups.

The equation correctly representing the given shown, process is

- 1) $ZnSO_4 + Cu \longrightarrow CuSO_4 + Zn$
2) $CuSO_4 + Fe \longrightarrow FeSO_4 + Cu$
3) $FeSO_4 + Cu \longrightarrow CuSO_4 + Fe$
4) $CuSO_4 + Zn \longrightarrow ZnSO_4 + Cu$

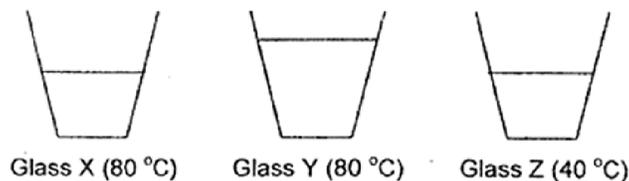


17. Complete the following table by choosing appropriate words for P, Q, R and S.

Name of substance	Litmus used	Colour change
Curd	Red	No change
Window cleaner	Blue	P
Sugar	Red	Q
Vinegar	R	Red
Slaked lime	S	Blue

- 1) P-No change, Q-No change, R-Blue, S-Red 2) P-Red, Q-No change, R-Blue, S-Red
3) P-No change, Q-Blue, R-Blue, S-Red 4) P-No change, Q-Red, R-Red, S-Blue

18. The glasses below are filled with different amount of water of different temperature. Arrange the glasses in order, beginning with the one that has the most heat.



- 1) X, Y, Z 2) Y, Z, X
3) Y, X, Z 4) Z, X, Y

19. Shruti took a mixture of sulphur powder and iron turning. She could separate them with the help of magnet. Then, she heated the mixture. After heating, she tried to separate the iron turning by using magnet but she failed. This is because

- 1) Heating melts the sulphur in which iron gets dissolved
2) Heating results in evaporation of iron and sulphur is left behind
3) Heating changes the nature of iron, so it is not attracted by magnet
4) Heating results in the formation of a new substance

20. Match the following columns.

	Column - I		Column - II
A.	Sunny days	1.	Clouds in the sky making the weather pleasant
B.	Rainy days	2.	Fast moving wind blows
C.	Cloudy days	3.	Welcomed by farmers and children
D.	Windy days	4.	Cloudless, warm and bright

- 1) A-4, B-1, C-2, D-3 2) A-2, B-3, C-4, D-1 3) A-4, B-1, C-3, D-2 4) A-3, B-4, C-2, D-1

21. Match the items of Column - I with the items of Column - II and choose the correct answer using the codes given below.

	Column - I		Column - II
A.	Depositing a layer of zinc on iron	1	Rust
B.	Iron oxide	2	Chemical change
C.	Dissolving common salt in water	3	Galvanisation
D.	Souring of milk	4	Physical change

- 1) A-3, B-2, C-4, D-2 2) A-3, B-1, C-4, D-2 3) A-4, B-2, C-3, D-1 4) A-4, B-1, C-2, D-3
22. Match the columns and select the correct option from the codes given below.

Column - I

Column - II

(a) Wind carrying water

(i) Hurricane

(b) Dark funnel shaped cloud

(ii) Tornado

(c) Moving air

(iii) Monsoon

(d) Cyclone

(iv) Wind

1) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)

2) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

3) (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)

4) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

23. Read the two statements given below:

Statement I : Unlike photographic films which can be used only once, DVD-RW can be used again and again.

Statement II : Photography involves chemical change but DVD-RW recording is a physical change.

- 1) Statement I is correct, Statement II is incorrect
 2) Both Statements I and II are incorrect
 3) Both Statement I and Statement II are correct and Statement II is the correct explanation of Statement I
 4) Both Statement I and Statement II are correct but Statement II is not the correct explanation of Statement I
24. The gas we use in the kitchen is called Liquefied Petroleum Gas (LPG). In the cylinder, it exists as liquid. When it comes out from the cylinder, it becomes a gas (Change-A) then it burns (Change-B). The following statements pertain to these changes. Choose the correct one.
- 1) Process A is a chemical change 2) Process B is a physical change
 3) Process A is a physical change but B is chemical change
 4) Process A is a chemical change but B is physical change

25. Match the acids given in Column - I with their sources given in Column - II and choose the correct answer using the codes given below.

Column - I

Column - II

A) Formic acid

1) Vinegar

B) Acetic acid

2) Amla

C) Ascorbic acid

3) Grapes

D) Tartaric acid

4) Ant's sting

1) A-4, B-2, C-3, D-1 2) A-4, B-1, C-2, D-3 3) A-4, B-2, C-1, D-3 4) A-4, B-1, C-3, D-2

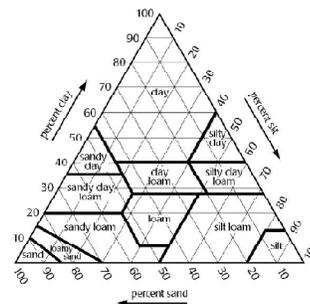
Multi Correct Answer Type :**5 × 3 = 15M**

26. Choose the correct statements :
- 1) In physical change there is no net absorption (or) release of energy
 - 2) In chemical change there net absorption (or) release of energy
 - 3) In physical change molecular properties remain same
 - 4) In chemical change molecular composition of a substance changes completely
27. Which of the following statements are correct ?
- 1) Ammonia used in the manufacture of fertilizers
 - 2) Magnesium hydroxide used in the making of antacid
 - 3) When acids are slowly added to water, heat energy is released
 - 4) When acids are slowly added to water, heat energy is absorbed
28. Which of the following statements are correct ?
- 1) Carbon dioxide dissolved in water
 - 2) Carbon dioxide is used in the preparation of aerated drinks
 - 3) Solid carbon dioxide is called dry ice
 - 4) Carbon dioxide is produced when some metal hydrates and sulphates
29. Which of the following is not acid-base reaction ?
- 1) $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
 - 2) $\text{H}_2\text{SO}_4 + \text{Ca(OH)}_2 \rightarrow \text{CaCl}_2 + \text{H}_2\text{O}$
 - 3) $\text{CaCO}_3 + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{CO}_2$
 - 4) $\text{Na}_2\text{CO}_3 + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{H}_2\text{CO}_3$
30. Consider the following statements are correct
- 1) Their taste of dark chocolate is sour
 - 2) When acid concentrated is more, when they are corrosive in nature
 - 3) Calcium hydroxide used to make cement
 - 4) Lemon juice contains some acidic substance

CLASS : VII**BIOLOGY****Single Correct Answer Type :****15 × 2 = 30M**

31. Using the soil texture triangle, a soil with 20% clay, 40% sand and 40% silt would be classified as a :

- 1) Silt loam
- 2) Loam
- 3) Clay loam
- 4) Sandy loam



32. A kidney bean was soaked until it was soft. The seed coat was removed and the seed was split open as shown in diagram. Both halves, P and Q, were placed on damp cotton wool and left aside for a few days. The halves were then observed. Which of the following is the correct observation?

- 1) A seedling emerged from P and Q remained unchanged
- 2) Nothing happened to both P and Q
- 3) Q shrivelled up and turned brown while P remained the same
- 4) A large seedling grew from P than from Q

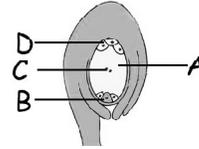


33. Given below are some possible reasons for a sharp decline in population of the species given in figure. Which of the following are correct?



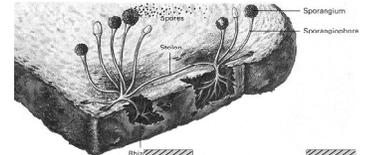
- (i) Cleared forests (ii) Flooded large areas
 (iii) Polluted air and water (iv) Scarcity of food
- 1) (i) and (ii) 2) (i) & (iv) 3) (i), (ii) and (iv) 4) (i), (ii), (iii) and (iv)

34. Look at the figure of female gametophyte inside the ovule of a flowering plant. Which of the labelled parts is the egg cell?



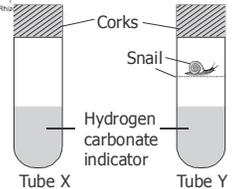
- 1) A 2) B
 3) C 4) D

35. Refer the given figure. It illustrates



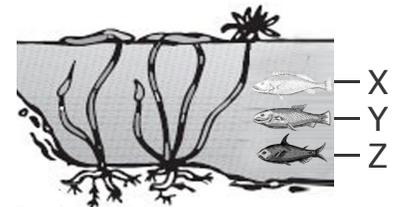
- 1) Autotrophic nutrition 2) Saprotrophic nutrition
 3) Parasitic nutrition 4) Symbiotic nutrition

36. Kalyan sets up an experiment as shown in the figure. Hydrogen carbonate indicator used in the experiment turns yellow in the presence of carbon dioxide. What would she observe in both tubes after one hour?



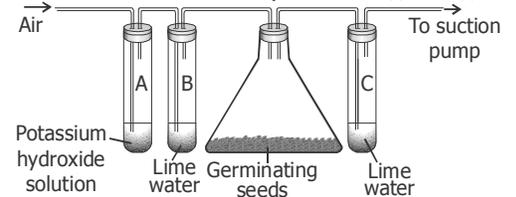
- | | |
|---|--------------------------------------|
| Tube X | Tube Y |
| 1) Indicator turns yellow | No change in the colour of indicator |
| 2) No change in the colour of indicator | Indicator turns yellow |
| 3) No change in the colour of indicator | No change in the colour of indicator |
| 4) Indicator turns yellow | Indicator turns yellow |

37. 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?



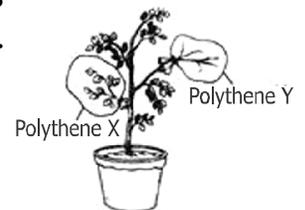
- 1) Fish Z because it lives near the ground
 2) Fish Y because it shows camouflage
 3) Fish X because it lives near surface
 4) All the three fishes will be equally affected

38. Kunal set up an experiment as shown in the figure. What will he observe after sometime?



- 1) Lime water in test tube B turns milky
 2) Lime water in test tube C turns milky
 3) Potassium hydroxide solution in test tube A turns blue
 4) Temperature in the flask will go down

39. Kiran took a potted well watered plant and set-up an experiment as shown in figure. He kept the potted plant in the sunlight for few hours. Which of the following options is correct regarding his observation?



- 1) Water droplets are visible in polythene X as transpiration takes place through leaves.
 2) Water droplets are visible in polythene Y as transpiration takes place through stems
 3) Water droplets are visible in polythene X as photosynthesis occurs in leaves
 4) Water droplets are visible in polythene Y as photosynthesis occurs in stem.

