



SIMS[®]

(SCHOLARS INTEGRAL MATHS & SCIENCE OLYMPIADS-HYD)



BIGGEST STATE LEVEL OLYMPIAD : 2025-26

SISO QUESTION PAPER : STAGE - I

MAX. MARKS : 90

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 30 questions.
- ☞ **PHYSICS (Q.No-1 to 10) :**
 - First 7 questions (1 to 7) are single correct answer type.
 - Each question carries THREE marks.
 - Next 3 questions (8 to 10) are one or more than one correct answer type. Each question carries THREE marks.
- ☞ **CHEMISTRY (Q.No-11 to 20) :**
 - First 7 questions (11 to 17) are single correct answer type.
 - Each question carries THREE marks.
 - Next 3 questions (18 to 20) are one or more than one correct answer type. Each question carries THREE marks.

BIOLOGY (Q.No-21 to 30) :

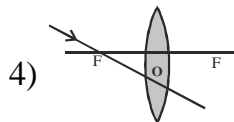
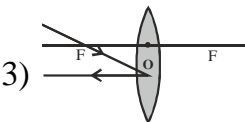
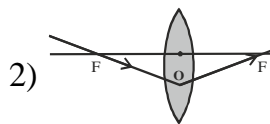
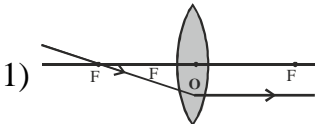
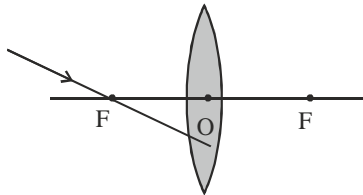
All questions (21 to 30) are single correct answer type.
Each question carries THREE marks.

- ☞ 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 :

7 × 3 = 21M

1. Which of the following ray diagram is correct for the ray of light incident on a lens as shown in the below figure?



2. A ray of light is incident on a plane mirror at an angle of 30° . The deviation produced in the ray is

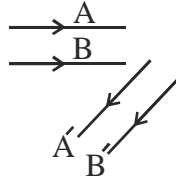
- 1) 30° 2) 60° 3) 90° 4) 120°

3. A concave lens of glass, refractive index 1.5 has both surfaces of same radius of curvature R . On immersion in a medium of refractive index 1.75, it behave as a
- 1) Convergent lens of focal length $3.5R$
 - 2) Convergent lens of focal length $3R$
 - 3) Divergent lens of focal length $3.5R$
 - 4) Divergent lens of focal length $3R$
4. Animal and plant life in lakes and ponds are not destroyed because



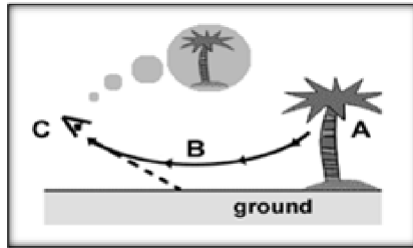
- 1) Freezing takes place at the bottom first
 - 2) Freezing takes place at the top first and bottom layers are not frozen as temperature in bottom layers is more than zero
 - 3) Water contracts on cooling at all temperatures
 - 4) Water expands on heating at all temperatures
5. 180 equal intervals between two reference points on Fahrenheit scale correspond to
- 1) 90 equal intervals on Celsius scale
 - 2) 100 equal intervals on Celsius scale
 - 3) 110 equal intervals on Celsius scale
 - 4) 50 equal intervals on Celsius scale

6. The below figure shows two rays 'A' and 'B' being reflected by a mirror and going as 'A'' and 'B''. The mirror:



- 1) Is plane
- 2) Is concave
- 3) Is convex
- 4) May be any spherical mirror

7. A mirage is produced because



- 1) Total internal reflection
- 2) Reflection
- 3) Refraction
- 4) Dispersion

Multi Correct Answer Type :

3 × 3 = 9M

8. Which of the following statement is incorrect?

- 1) A ray of light passing from rarer medium to denser medium, bends away from the normal
- 2) A ray of light passing from denser medium to rarer medium, bends away from the normal
- 3) A ray of light passing from rarer medium to denser medium, bends toward the normal
- 4) A ray light passing from denser medium to rarer medium, bends towards the normal

9. Energy transferred when _____
- 1) 1 gram of steam at 100°C turns into ice at 0°C is 720 cal
 - 2) 1 gram of boiling water at 100°C cools to water at 0°C is 80 cal
 - 3) 1 gram of boiling water at 100°C condenses to water at 100°C is 540 cal
 - 4) 1 gram of water at 0°C freezes to ice at 0°C is 80 cal
10. Expansion of water is called anomalous because
- 1) It expands on cooling from 4°C to 0°C
 - 2) It contracts on heating from 0°C to 4°C
 - 3) It contracts on cooling from 4°C to 0°C
 - 4) It expands on heating from 0°C to 4°C

Single Correct Answer Type :

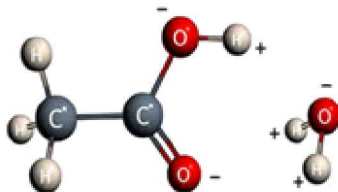
$7 \times 3 = 21\text{M}$

11. What happens when a solution of an acid is mixed with a solution of a base in a test tube?



- a) The temperature of the solution increases
 - b) The temperature of the solution decreases
 - c) The temperature of the solution remains the same
 - d) Salt formation takes place
- 1) d only 2) and d 3) c and d 4) a and d

12. A student mixed some acetic acid with water. He would observe the solution formed as



- 1) Green and transparent 2) Pink and opaque
 3) Yellow and transparent 4) Colourless and transparent

13. The drying of milk of lime (white washing) is due to the action of ____ .



- a) Oxygen in air b) Nitrogen
 c) Hydrogen in air d) Carbon dioxide in air

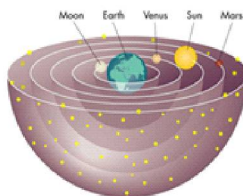
- 1) a and d 2) a, c and d 3) d only 4) c and d

14. Which of the following element highest atomic size ?

- 1) Hg 2) Ga 3) Cs 4) Fr

15. The most abundant element in the universe is _____ .

- 1) Hydrogen
 2) Helium
 3) Oxygen
 4) Carbon



16. The positions of four elements X, Y, Z and L (with wrong symbols) in the periodic table are shown below :

Group 13	Group 14	Group 15
X	–	–
–	Y	–
Ga	Z	L

Which of the following statements are correct ?

I : X, Y, Z and L are metalloids.

II : The oxide of X will have the formula X_2O_3 .

III : Atomic size of Y is bigger than that of Z.

IV : L belongs to chalcogen family.

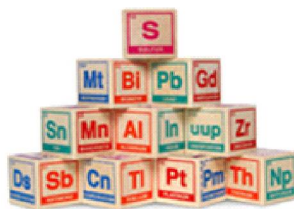
1) I and II only

2) III and IV only

3) I, II and III only

4) II, III and IV only

17. From left to right, each period of the periodic table terminates in a (n).



1) Inert gas

2) Active metal

3) Highly active non-metal

4) Weakly active non-metal

Multi Correct Answer Type : **$3 \times 3 = 9M$**

18. Identify the non-permissible sets of quantum numbers from the following :

- 1) $n = 3, l = 1, m = -1, s = 1$
- 2) $n = 3, l = 3, m = -2, s = +1/2$
- 3) $n = 3, l = 0, m = -1, s = -1/2$
- 4) $n = 3, l = 0, m = 0, s = +1/2$

19. Which of the following is/are pair of isotones ?

- 1) ${}_{18}\text{Ar}^{40}, {}_{20}\text{Ca}^{40}$
- 2) ${}_{16}\text{S}^{32}, {}_{15}\text{P}^{31}$
- 3) ${}_{32}\text{Ge}^{76}, {}_{33}\text{As}^{77}$
- 4) ${}_{17}\text{Cl}^{37}, {}_{20}\text{Ca}^{40}$

20. Rohith went to chemistry lab and observed four solutions A, B, C and D which are labelled with pH values 1, 9, 3 and 13 respectively.

Which of the following statements about these solutions are correct ?

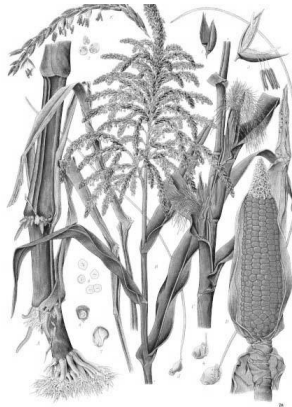
- 1) Solution B has lower concentration of hydroxyl ions than solution D
- 2) Solutions A and B will turn red litmus solution blue
- 3) Solution A has higher concentration of hydrogen ions than solution C
- 4) Solution A is highly acidic while solution B is weakly basic

Single Correct Answer Type : _ $10 \times 3 = 30M$

21. Match the digestive enzymes with their respective food type.

Enzyme	Substrate
P) Lipase	1) Carbohydrate
Q) Amylase	2) Fat
R) Protease	3) Starch
S) Maltase	4) Protein
1) P-1, Q-2, R-3, S-4	2) P-2, Q-3, R-4, S-1
3) P-3, Q-4, R-2, S-1	4) P-4, Q-1, R-2, S-3

22. Photosynthesis in a C_4 plant :

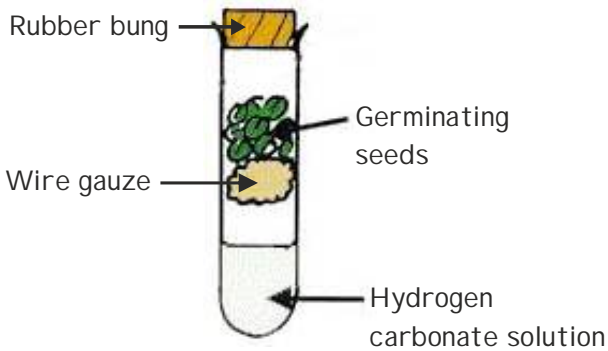


- 1) CO_2 is accepted by the substrate RuBp and is fixed as PGA.
- 2) CO_2 is accepted by the substrate RuBp and is fixed as Oxaloacetic acid.
- 3) CO_2 is accepted by the substrate PEP and fixed as PGA.
- 4) CO_2 is accepted by the substrate RuBp and is fixed as Oxaloacetic acid.

23. Insects have a structure analogous to the mammalian kidney called Malpighian tubules, which remove metabolic nitrogenous wastes from the insects haemolymph. What sort of nitrogenous waste would the malpighian tubules be removing ?

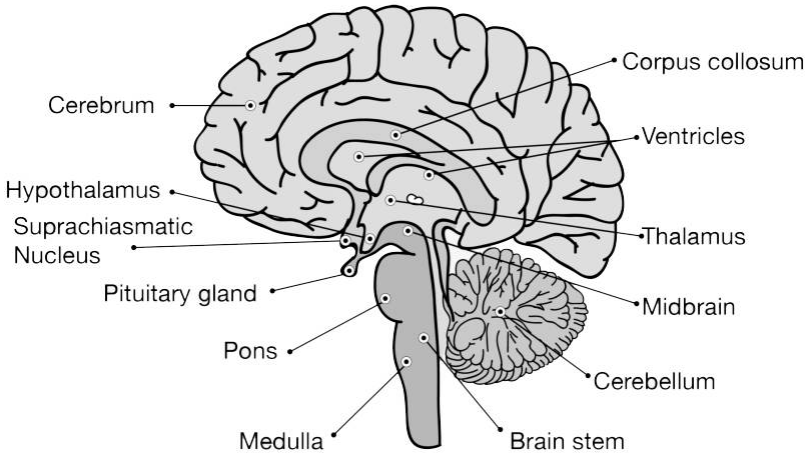
- 1) $C_6H_{12}O_6$ 2) CO_2 3) Uric acid 4) Amino acid

24. In the experimental setup shown below hydrogen carbonate solution changes from red to yellow. What is the conclusion ?



- 1) Seeds are using up starch.
 2) Seeds are producing heat energy.
 3) Seeds are germinating and producing O_2 .
 4) Seeds are germinating and producing CO_2 .
25. 'Secretin' is released by the _____ in response to _____. It travels to the _____ to stimulate and release of _____
- 1) Gall bladder, Fat, Duodenum, Lipase.
 2) Stomach, Bicarbonate, Liver, Bile.
 3) Pancreas, Protein, Duodenum, Pepsin.
 4) Duodenum, Acid, Pancreas, Bicarbonate.

26. Breathing, heart beat, blood pressure, coughing, swallowing are all under the control of :



- | | |
|----------------------|---------------|
| 1) Medulla oblongata | 2) Cerebellum |
| 3) Ponsveroli | 4) Mid brain |

27. Which of the following equation represents process of “EXCRETION”?

- 1) Excretion = Filtration – Reabsorption + Filtration.
- 2) Excretion = Filtration – Reabsorption + Secretion.
- 3) Excretion = Reabsorption – Filtration + Secretion.
- 4) Excretion = Secretion – Reabsorption + Filtration.

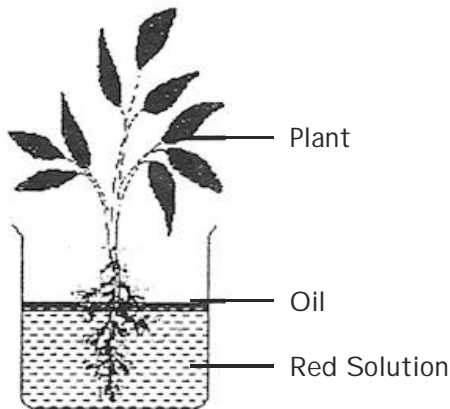
28. Which of the following occur when we exercise ?

- 1) We need more oxygen to produce required energy.
- 2) We get more energy from anaerobic respiration.
- 3) Our rate of breathing increases.
- 4) Partial breakdown of glucose occurs to produce lactic acid.

29. Show the correct path of blood flow from lungs to hand of a person.

- 1) Left atrium → Left ventricle → Aorta
- 2) Left atrium → Aorta → Right ventricle
- 3) Right atrium → Right ventricle → Aorta
- 4) Right atrium → Aorta → Right ventricle

30. An apparatus set up by kumar. It was left in sunny place for one day. What changes would you observe ?



- i) Oil level drops.
 - ii) Veins of the leaf becomes red.
 - iii) Volume of water in the beaker decreases.
- 1) (i) & (ii)
 - 2) (i) & (iii)
 - 3) (ii) & (iii)
 - 4) (i), (ii) and (iii)

❖❖❖ ALL THE BEST ❖❖❖