



**SOF NATIONAL
SCIENCE OLYMPIAD**

Total Questions : 50

Time : 1 hr.

PATTERN & MARKING SCHEME			
Section	(1) Logical Reasoning	(2) Science	(3) Achievers Section
No. of Questions	10	35	5
Marks per Ques.	1	1	3

SYLLABUS

Section – 1 : Verbal and Non-Verbal Reasoning.

Section – 2 : Heat, Motion and Time, Electric Current and its Effects, Winds, Storms and Cyclones, Light, Acids, Bases and Salts, Physical and Chemical Changes, Weather, Climate and Adaptations of Animals to Climate, Fibre to Fabric, Nutrition in Plants and Animals, Respiration in Organisms, Transportation in Plants and Animals, Reproduction in Plants, Natural Resources and Their Conservation (Soil, Water: A Precious Resource, Forests our Lifeline, Wastewater Story).

Section – 3 : Higher Order Thinking Questions - Syllabus as per Section – 2.

LOGICAL REASONING

1. Tarun faces towards North. Turning to his right, he walks 25 metres. He then turns to his left and walks 30 metres. Next, he moves 25 metres to his right. Finally, he turns to the right and moves 40 metres. In which direction is he now from his starting point?
(A) South-West (B) South
(C) North-West (D) South-East

2. Which of the following is exactly in the middle of the 17th element from the right end and 18th element from the left end in the given arrangement?
3 D 6 \$ C 4 E 8 # N 5 F 1 A P ★ 9 M @ K 2 B % 7 H U
(A) A (B) 1
(C) F (D) %

3. Select a figure from the options which does not satisfies the same condition of placement of the dots as in Fig. (X).

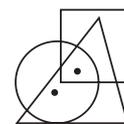
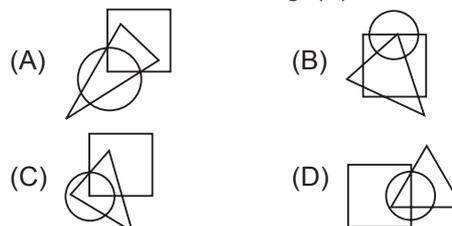
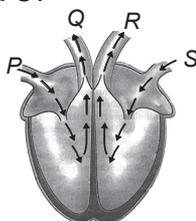


Fig. (X)



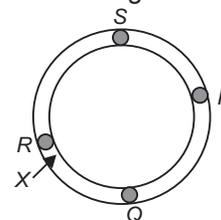
SCIENCE

4. X is present in the stomach. However, presence of excess of it causes indigestion, which requires the intake of milk of magnesia to undo the effect of X. What is X?
(A) HCl (B) H₂SO₄
(C) NaOH (D) KOH
5. The given diagram shows blood circulation pathway in the heart. Which of the following correctly shows the relative amount of oxygen and carbon dioxide at P, Q, R and S?



- | | | |
|-----|----------------------|---------------------|
| | More CO ₂ | More O ₂ |
| (A) | R | P, Q, S |
| (B) | Q and R | P and S |
| (C) | S | R |
| (D) | P and Q | R and S |

6. Some blobs of wax are placed on a silver ring as shown in the diagram. If the ring is heated at X, then choose the correct option regarding the melting of wax because of heating.



- (A) Only *R* blob melts.
- (B) Blobs *R*, *S* and *Q* melt together.
- (C) Melting of blobs occurs in the order *R*, *Q*, *S* and *P*.
- (D) *P*, *Q*, *R* and *S* blobs melt together.

7. Which one of the following is true for all chemical reactions?

- (A) There is a change in volume
- (B) Heat is evolved
- (C) Chemical bonds are broken or formed
- (D) There is a change in mass

8. Garima carried out a fair test to find out the speed with which water passed through four different kinds of soil. She recorded her findings in the table below.

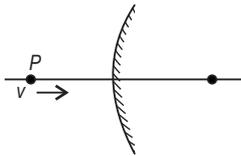
Kind of soil	<i>P</i>	<i>Q</i>	<i>R</i>	<i>S</i>
Time taken (seconds)	33	23	45	18

In which type of soil would you find the mangrove trees growing in?

- (A) *P*
- (B) *Q*
- (C) *R*
- (D) *S*

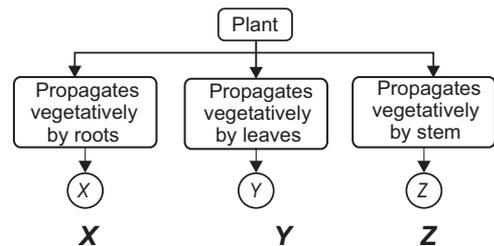
ACHIEVERS SECTION

9. A point object *P* moves towards a convex mirror with a constant speed v , along its optic axis. The speed of the image



- (A) Is always less than v
- (B) Is always more than v
- (C) Is equal to v
- (D) Decreases as *P* comes closer to the mirror.

10. Study the given flow chart and select the option that correctly identifies *X*, *Y* and *Z*.



- (A) *Bryophyllum* *Bougainvillea* Carrot
- (B) *Dahlia* *Begonia* Potato
- (C) *Begonia* Ginger *Asparagus*
- (D) *Bryophyllum* Strawberry *Dahlia*

SPACE FOR ROUGH WORK

ANSWERS

NSO – 1. (D) 2. (A) 3. (B) 4. (A) 5. (D) 6. (C) 7. (C) 8. (C) 9. (A) 10. (B)