



**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



Scan the QR code  
for more details

**SYLLABUS**

**Section – 1 :** Verbal and Non-Verbal Reasoning.

**Section – 2 :** Motion, Force and Laws of Motion, Gravitation, Work and Energy, Sound, Matter in Our Surroundings, Is Matter Around Us Pure, Atoms and Molecules, Structure of Atom, Cell-The Fundamental Unit of Life, Tissues, Natural Resources, Improvement in Food Resources.

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

**LOGICAL REASONING**

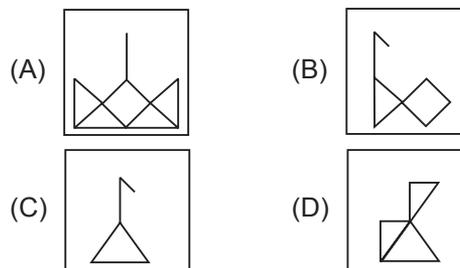
1. Find the missing character, if a certain rule is followed either row-wise or column-wise.

A	D	G
D	I	N
I	Q	?

- (A) V (B) W  
(C) X (D) Y
2. Introducing a woman, Shashank said, "She is the mother of the daughter of my son". How is the woman related to Shashank?  
(A) Daughter  
(B) Sister-in-law

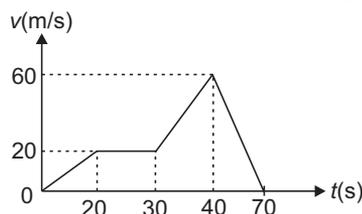
- (C) Wife  
(D) Daughter-in-law

3. In which of the following figures, Fig. (X) is exactly embedded as one of its parts?



**SCIENCE**

4. The velocity-time graph of a body is given in figure.



The maximum acceleration in  $\text{m/s}^2$  is

- (A) 4 (B) 3  
(C) 2 (D) 1
5. Two bodies of masses  $m_1$  and  $m_2$  exert a force  $F$  on each other when placed a certain distance  $d$

apart. The percentage change in force when the separation between the bodies is decreased by  $d/3$ , is

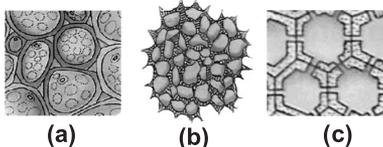
- (A) 800% decrease (B) 225% increase  
(C) 200% decrease (D) 125% increase

6. The freezing and boiling points of a substance 'P' are  $-220^\circ\text{C}$  and  $-185^\circ\text{C}$  respectively.

At which of the following range of temperatures will 'P' exist as a liquid?

- (A) Between  $-175^\circ\text{C}$  and  $-210^\circ\text{C}$   
(B) Between  $-190^\circ\text{C}$  and  $-225^\circ\text{C}$   
(C) Between  $-200^\circ\text{C}$  and  $-160^\circ\text{C}$   
(D) Between  $-195^\circ\text{C}$  and  $-215^\circ\text{C}$

7. Observe the given figures of three different plant tissues and select the correct option.



- (A) 'a' and 'b' consist of living cells while 'c' consists of dead cells.  
 (B) Cytoplasm is present in cells of 'a' while it is absent in cells of 'b' and 'c'.  
 (C) Cell walls of 'a', 'b' and 'c' bear uniform thickening of suberin.

- (D) 'a' provides mechanical strength to the plant while 'b' and 'c' serve as storage tissues.

8. Acid rain is produced when rain mixes with gases such as sulphur dioxide. This will eventually result in  
 (A) Lowering of pH and changes of temperature in ponds  
 (B) Raising of pH in ponds, encouraging growth of microorganisms  
 (C) Lowering of pH in ponds, limiting survival of aquatic organisms  
 (D) Raising of pH in ponds, limiting development of organisms.

### ACHIEVERS SECTION

9. When an ideal simple pendulum oscillates between the extreme points  $P$  and  $Q$ , there is continuous (i) of potential energy and kinetic energy. The potential energy depends on the choice of (ii). Force acting on the bob of the pendulum is maximum at (iii), and minimum at (iv).

- |     | (i)         | (ii)            | (iii)     | (iv)      |
|-----|-------------|-----------------|-----------|-----------|
| (A) | Dissipation | Reference level | Mid point | Extremes  |
| (B) | Dissipation | Mass            | Mid point | Extremes  |
| (C) | Exchange    | Reference level | Extremes  | Mid point |
| (D) | Exchange    | Velocity        | Extremes  | Mid point |

- (a) (i) is a traditional method of irrigation.  
 (b) (ii) is a common weedicide.  
 (c) In (iii), water escapes from revolving nozzle and falls like rain on the crops.  
 (d) (iv) is a technique for developing new varieties of crops by cross-breeding two different varieties.

- |     | (i)    | (ii)         | (iii)           | (iv)                 |
|-----|--------|--------------|-----------------|----------------------|
| (A) | Dhekli | Agent orange | Drip irrigation | Broadcasting         |
| (B) | Dhekli | DDT          | Chain pump      | Crop rotation        |
| (C) | Rahat  | Simazine     | Moat            | Mixed cropping       |
| (D) | Rahat  | Metachlor    | Sprinkler       | Hybridisation system |

10. Complete the given statements by selecting the correct words from the options given below.

SPACE FOR ROUGH WORK

### ANSWERS

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