



**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 : 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 the Atom, Cell-The Fundamental Unit of Life, Tissues, Diversity in Living Organisms, Why Do We Fall Ill, Natural Resources, Improvement in Food Resources.

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

LOGICAL REASONING

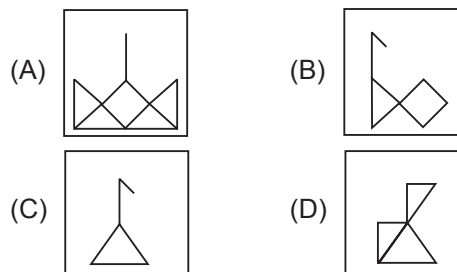
1. Find the missing character, if a certain rule is followed either row-wise or column-wise.

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

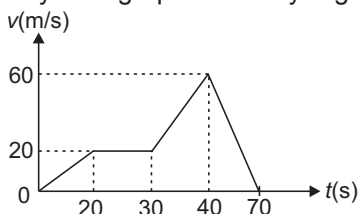
- (C) Wife
(D) Daughter-in-law

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 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 $-220^\circ C$ and $-185^\circ C$ respectively.

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

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

7. Leech, *Nereis*, *Scolopendra*, prawn and scorpion all have segmented body organisation, but still they cannot be classified in one group. Which of the following is the correct basis for the classification of these organisms into different groups?
- (A) Leech and *Nereis* belong to the Phylum Annelida because they have metamerically segmented body.
- (B) *Scolopendra*, prawn and scorpion belong to Phylum Arthropoda, as they possess jointed appendages.
- (C) Leech, *Nereis* and *Scolopendra* belong to Phylum Annelida because they possess closed blood vascular system.

(D) Both (A) and (B)

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

10. Complete the given statements by selecting the correct words from the options given below.
- (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	Siniazine	Moat	Mixed cropping
(D)	Rahat	Metachlor	Sprinkler	Hybridization system

SPACE FOR ROUGH WORK

ANSWERS

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