

CLASS

8

SAMPLE PAPER

Science  
Olympiad  
Foundation

For Excellence in Science, Maths & IT

## NATIONAL SCIENCE OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 2 sections, 20 questions in section I and 30 in section II.

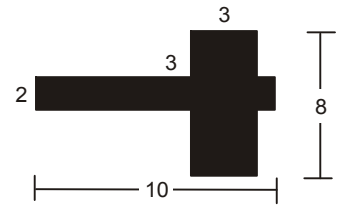
### SYLLABUS

**Section – I (Mental ability)** : Rational Numbers, Linear Equations in One Variable, Understanding Quadrilaterals, Practical Geometry, Data Handling, Squares and Square Roots, Cubes and Cube Roots, Comparing Quantities, Algebraic Expressions and Identities, Visualising Solid Shapes, Mensuration, Exponents and Powers, Direct and Inverse Proportions, Factorisation, Introduction to Graphs, Playing with Numbers.

**Section – II (Science)** : Light, Electricity & Magnetism, Universe, Sources of Energy & Energy Changes, Transformation of Substances, Structure of Atom, Metals and Non-Metals, Carbon, Soil and Air, Biological Science, Food Production and Diseases.

## MENTAL ABILITY

1. A contest began at noon one day and ended 1000 minutes later. At what time did the contest end?  
(A) 10:00 p.m. (B) Midnight (C) 2:30 a.m. (D) 4:40 a.m. (E) None of these.
2. Which of the following sets of whole numbers has the largest average?  
(A) Multiples of 2 between 1 and 101 (B) Multiples of 3 between 1 and 101  
(C) Multiples of 4 between 1 and 101 (D) Multiples of 5 between 1 and 101  
(E) None of the above.
3. Beena used a calculator to find the product  $0.075 \times 2.56$ . She forgot to enter the decimal points. The calculator showed 19200. If Beena had entered the decimal points correctly, the answer would have been  
(A) 0.0192 (B) 0.192 (C) 1.92 (D) 19.2 (E) None of these.
4. Two cyclists,  $k$  km apart, and starting at the same time, would be together in  $r$  hours if they travelled in the same direction, but would pass each other in  $t$  hours if they travelled in opposite directions. The ratio of the speed of the faster cyclist to that of the slower is  
(A)  $\frac{r+t}{r-t}$  (B)  $\frac{r}{r-t}$  (C)  $\frac{r+t}{r}$  (D)  $\frac{r}{t}$  (E) None of these
5. The shaded area formed by the two intersecting perpendicular rectangles, in square units is  
(A) 23 (B) 38  
(C) 44 (D) 46  
(E) None of these.



## SCIENCE

6. *A Brief History of Time* is the title of a book written by :  
(A) Albert Einstein (B) Stephen Hawking  
(C) Hendrick Lorentz (D) Isaac Newton (E) None of these.
7. Which of the following can produce a virtual image ?  
(A) Plane mirror (B) Concave lens (C) Convex lens (D) All of these (E) None of these.
8. A bar magnet with poles N and S marked is freely suspended. Then the end marked N would point towards  
(A) The south magnetic pole of the earth (B) The south geographic pole of the earth  
(C) The north magnetic pole of the earth (D) The north geographic pole of the earth  
(E) None of these.
9. A body immersed in a fluid experiences an upward thrust which depends on  
(A) The weight of the fluid displaced by it (B) The volume of the body  
(C) The mass of the body (D) All of these  
(E) None of the above.
10. A concave mirror may be used for all except one of the following. This is  
(A) A magnifying mirror (B) A torch reflector  
(C) A reflecting telescope (D) A car rear view mirror (E) None of these.
11. How does the eye change in order to focus on near or distant objects?  
(A) The lens moves in or out (B) The retina moves in or out  
(C) The iris changes colour (D) The lens bulges or relaxes (E) None of these.
12. Aluminium is obtained by

- (A) Heating  $\text{Al}_2\text{O}$  with iron  
(B) Heating  $\text{Al}_2\text{O}_3$  with coke  
(C) Electrolysing a solution of  $\text{Al}_2\text{O}_3$  in molten cryolite  
(D) Electrolysing fused  $\text{AlCl}_3$   
(E) None of these.
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13. Which of the following statements is true with respect to diamond ?  
(A) The carbon atoms are connected to each other by metallic bonds.  
(B) In the diamond crystal, the carbon atoms are very loosely packed.  
(C) Each carbon atom in the crystal is surrounded by four others at the corners of a regular tetrahedron.  
(D) It is a very soft substance  
(E) None of these.
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14. Under Indian space programme, the abbreviation GSLV stands for  
(A) Geosynchronous Satellite Launch Vehicle  
(B) Global Satellite Link Vehicle  
(C) Geostationary Solar Light Vehicle  
(D) Geostationary satellite link vehicle  
(E) None of the above.
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15. If there were no organic life on the Earth, the amount of oxygen in the atmosphere will  
(A) Remain unchanged  
(B) Be approximately hundred percent  
(C) Be almost nil  
(D) Be approximately fifty percent  
(E) None of these.
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16. A vaccine is usually given  
(A) At any time  
(B) At the time disease causing germs enters the body  
(C) Before the symptoms of the disease appear  
(D) After the disease has appeared  
(E) None of these.
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17. Mark the odd one out.  
(A) Colourblindness  
(B) Hexadactyly  
(C) Haemophilia  
(D) Night blindness  
(E) None of these.
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18. Some basic steps are needed in agricultural practice. Which of the following given as A, B, C, D is the right sequence?  
(1) preparation of the soil  
(2) harvesting  
(3) irrigation  
(4) broadcasting  
(5) tilling  
(6) weeding  
(7) manuring.  
(A) 1, 5, 4, 7, 6, 3, 2  
(B) 1, 3, 5, 6, 4, 2, 7  
(C) 1, 3, 5, 2, 4, 6, 7  
(D) 1, 5, 6, 2, 4, 7, 3  
(E) None of these.
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19. What does a disc fragmentor do?  
(A) It is a utility program that facilitates compression of files so that they occupy less storage space  
(B) It is a utility program that minimizes the time taken by the hard disk optical reader to read up 'split' files. It does so by rearranging the files and free space on your computer so that files are stored in contiguous memory.  
(C) It is a utility program that facilitates the backing up of the disk  
(D) It is a utility program used for creating and editing text file  
(E) None of the above.
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20. Isotopes of an element have  
(A) Same no. of neutrons  
(B) Same no. of electrons  
(C) Equal mass number but different atomic no.  
(D) Equal atomic number but different mass no.  
(E) None of these.
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### ANSWER KEY

1. (D) 2. (D) 3. (B) 4. (A) 5. (B) 6. (B) 7. (D) 8. (A) 9. (A) 10. (D)  
11. (D) 12. (C) 13. (C) 14. (A) 15. (A) 16. (C) 17. (D) 18. (A) 19. (B) 20. (D)