CLASS
8

SAMPLE PAPER

Science Olympiad Foundation
For Excellence in Science, Maths & IT

NATIONAL CYBER OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 3 sections, 15 questions in section I, 15 in section II and 20 in section III.

SYLLABUS

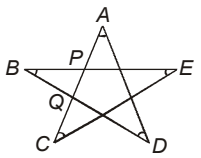
Section – I (Mental ability) : Rational numbers, Operation on rational numbers, Decimal representation of rational numbers, Exponents, Direct and inverse variations, Percentage and its application, Algebraic expression, Factorization of algebraic expressions, Linear equation in one variable, More about triangles, Congruent triangles, Quadrilaterals, Circles, Area of rectangular Paths, Surface area and volumes, Statistics, Square and square roots, Cube and cube roots.

Section – II (Logical and analytical reasoning) : Problem based on figures, Find odd numeral out, Series completion, Coding-decoding, Mathematical reasoning, Analytical reasoning, Mirror images, Embedded figures.

Section – III (Computer and IT) : History of computers: A review, Components of computer system: Hardware, Software, Virus infection, MS word, Introduction to spreadsheet: Lotus 123, Introduction to MS excel, Introduction to database: Foxpro, Html, Network at a glance and internet, Multimedia.

MENTAL ABILITY

1. In the star shape shown in figure, the sum of the angles marked at the corners A, B, C, D, E is



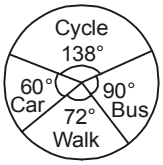
(A) 90 (B) 135 (C) 180 (D) 140
(E) None of these.

2. An acute angle is an angle whose measure is between 0° and 90°.
Using the rays in the diagram, how many different acute angles can be formed?

(A) 12 (B) 9 (C) 15 (D) 10 (E) None of these.

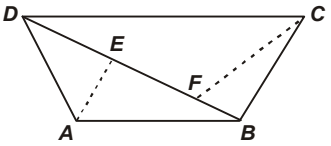
3. The age of a man is same as his wife's age with the digits reversed. Then sum of their ages is 99 and the man is 9 years older than his wife. How old is the man?
(A) 50 (B) 49 (C) 54 (D) 44 (E) None of these.

4. 50 students from a certain colony attend a public school. With the help of the given pie-chart, find the total number of students who walk to school?



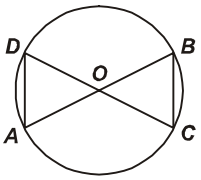
(A) 12 (B) 10 (C) 18 (D) 8
(E) None of these.

5. Total area of quadrilateral $ABCD$ is 20 cm^2 and offsets on BD are 2 cm and 3 cm. The length of BD is



(A) 5 cm (B) 6 cm (C) 8 cm (D) 10 cm
(E) None of these.

6. In the adjoining figure, AOB and COD are the diameters of a circle. If $\angle ADO = 55^o$ then $\angle OCB$ is



(A) $27\frac{1}{2}^\circ$ (B) $62\frac{1}{2}^\circ$ (C) 55° (D) 35°
(E) None of the above.

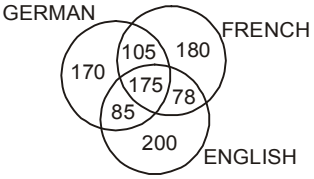
7. How many small cubes with edges of 10 cm can be just accommodated in a cubical box of 1 m edge?
(A) 10 (B) 100 (C) 1000 (D) 10000 (E) None of these.

8. A cylinder and a cone have the same height and the same radius of the base. The ratio between the volumes of the cylinder and the cone is
(A) 1:3 (B) 3:1 (C) 1:2 (D) 2:1 (E) None of these.

LOGICAL & ANALYTICAL REASONING

9. If in a certain code SAND is VDQG and BIRD is ELUG, then what is the code for LOVE?
(A) PRYG (B) ORTG (C) NPUH (D) ORYH (E) None of these.

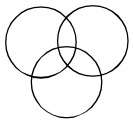
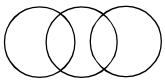
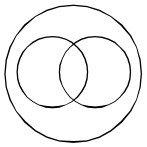
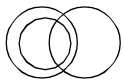
10. A survey was conducted on a sample of 1000 persons with reference to their knowledge of English, French and German. The results of the survey are presented in the given Venn diagram. The ratio of the number of persons who do not know any of the three languages to those who know all the three languages is



(A) $\frac{1}{27}$ (B) $\frac{1}{25}$ (C) $\frac{7}{175}$ (D) $\frac{175}{1000}$ (E) None of these.

11. The number of times in a day the hour-hand and the minute-hand of a clock are at right angles is
(A) 44 (B) 48 (C) 24 (D) 12 (E) 16.

12. Which one of the following diagrams correctly represents the relationship among tennis fans, cricket players and students?

(A)  (B)  (C)  (D)  (E) None of these.

13. A, B, C, D, E and F, not necessarily in that order, are sitting on six chairs regularly placed around a round table. It is observed that A is between D and F, C is opposite D, D and E are not on neighbouring chairs. The person sitting opposite B is

(A) A (B) D (C) E (D) F (E) None of these.

COMPUTERS & INFORMATION TECHNOLOGY

14. Who defined the binary system ?

(A) A.N.D. Leibniz (B) Pascal (C) Newton (D) Aristotle (E) None of these.

15. Computers use the seven digit code called ASCII. What does ASCII stand for?

(A) American Standard Code for Information Interchange
(B) Association of Software Coding and Information Institute
(C) American Standard Computing and Information Institute
(D) American Scientists Convention for Information Interchange
(E) None of these.

16. Match the following

Binary Number	**Corresponding decimal number**
1. 1010101	A. 31
2. 101011	B. 85
3. 11111	C. 139
4. 10001011	D. 43

(A) 1B, 2D, 3A, 4C (B) 1D, 2A, 3B, 4D (C) 1C, 2B, 3C, 4A
(D) 1A, 2C, 3D, 4B (E) None of these.

17. What is the addition of 101010 with 111111 ?

(A) 1101001 (B) 1001001 (C) 1111001 (D) 1100001 (E) None of these

18. Modern Computers do not work with decimal numbers. Instead they process binary numbers, groups of 0's and 1's because

(A) Electronic devices are most reliable when designed for two state (binary) operation
(B) Binary circuits are simple
(C) Memory is only possible for binary numbers
(D) With decimal numbers, the circuits are complex and costly
(E) None of these.

19. The first Indian analog computer was assembled by Indian Statistical Institute (ISI) of Calcutta in

(A) 1953 (B) 1946 (C) 1950 (D) 1963 (E) None of these.

20. Debug is a term denoting

(A) Error correction processs (B) Writing of instructions in developing a new program
(C) Fault detection in equipment (D) Determining useful life
(E) None of these.

ANSWER KEY

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