

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) : Natural numbers and whole numbers, Integers, Factors and multiples, Ratio, Proportion and unitary method, Percentage and its applications, Algebraic expressions, Linear equations in one variable, Basic geometrical concepts, Line segments, Angles, Triangles, Pairs of lines and transversal, Construction, Perimeter and area, Rational numbers, Decimal representation of rational numbers, Exponents.

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

Section – III (Computers and IT) : Evolution of computer, Fundamentals of computer, Elements of computer system, What is programming, LOGO, Basic introduction, Work more in MS DOS, More about windows 95/98, Working with word processor, Work with word star, Work with MS word, Multimedia, Internet, World wide web.

MENTAL ABILITY

1. A circular park of 20 metre diameter has a circular path just inside the boundary of width 1 metre. The area of the path is (in sq.m)
 (A) 15π (B) 17π (C) 19π (D) 25π (E) None of these.

2. In a triangle ABC , $\angle A = 90^\circ$ and D is the mid-point of AC . The value of $BC^2 - BD^2$ is equal to
 (A) AD^2 (B) $2AD^2$ (C) $3AD^2$ (D) $4AD^2$ (E) None of these.

3. 40% of ? + 180 = 564.
 (A) 960 (B) 860 (C) 950 (D) 850 (E) None of these.

4. Any cyclic parallelogram having unequal adjacent sides is necessarily a
 (A) Square (B) Rectangle (C) Rhombus (D) Trapezium (E) None of these.

5. The factorization of $25 - p^2 - q^2 - 2pq$ is
 (A) $(5 + p + q)(5 - p + q)$ (B) $(5 + p + q)(5 - p - q)$
 (C) $(5 + p + q)(5 + p - q)$ (D) $(5 + p - q)(5 - p + q)$ (E) None of these

6. The value of $\frac{6.98 \times 6.98 - 2.02 \times 2.02}{4.96}$ is
 (A) 9 (B) 4.96 (C) 3.72 (D) 6.76 (E) None of these.

7. The value of $9x^2 + 49y^2 - 42xy$ when $x = 15$ and $y = 3$ is
 (A) 636 (B) 576 (C) 386 (D) 456 (E) None of these.

8. If $\left(x - \frac{1}{x}\right) = 5$, the value of $x^2 + \frac{1}{x^2}$ is
 (A) 23 (B) 27 (C) 25 (D) 29 (E) None of these.

LOGICAL & ANALYTICAL REASONING

9. Complete the series: $\boxed{\rightarrow}$ $\boxed{\downarrow}$ $\boxed{\leftarrow}$?
 (A) $\boxed{\uparrow}$ $\boxed{\equiv}$ (B) $\boxed{\uparrow}$ $\boxed{\equiv}$ (C) $\boxed{\downarrow}$ $\boxed{\equiv}$ (D) $\boxed{\uparrow}$ $\boxed{\equiv}$ (E) $\boxed{\downarrow}$ $\boxed{\equiv}$

10. Rectangle : Square :: Ellipse : ?
 (A) Centre (B) Diameter (C) Circle (D) Radius (E) None of these.

11. In the given figure, the triangle represents girls, square represents sports-persons and circle represents coaches. Which portion of the figure represents girls who are sportspersons but not coaches?
 (A) A (B) B
 (C) C (D) D (E) None of these.

12. Five boys A, B, C, D and E are standing in a row. A is between C and D and B is between D and E. Which of the following pairs represents the boys standing at both the ends?
 (A) C, B (B) E, C (C) E, A (D) A, C (E) None of these

13. Arrange the following words in a meaningful order.
 1. Frog 2. Eagle 3. Grasshopper 4. Snake 5. Grass
 (A) 3, 4, 2, 5, 1 (B) 1, 3, 5, 2, 4 (C) 5, 3, 1, 4, 2 (D) 5, 3, 4, 2, 1 (E) None of these

COMPUTERS & INFORMATION TECHNOLOGY

14. Match the following

Term	Stands For	
1. COBOL	A. Formula Translation	
2. DOS	B. Common Business Oriented Language	
3. FORTRAN	C. Beginner's All Purpose Symbolic Instruction Code	
4. BASIC	D. Disc operating system	
(A) 1D, 2B, 3C, 4A	(B) 1A, 2C, 3D, 4B	(C) 1B, 2D, 3A, 4C
(D) 1C, 2A, 3B, 4D	(E) None of the above.	

15. Virus is a program written using one of the computer languages to cause damage to the data, the information stored in the computer, or the hardware of the computer. The most common damage done by virus is

- (A) Erase or corrupt useful data from the hard disk
(B) Increase the file size of command file by several 1000 bytes
(C) Affect hardware components
(D) Slow down the computer
(E) None of the above.

16. Match the following terms with what they stand for

Term	Stands for
1. .Com	A. Education
2. .Edu	B. India
3. .In	C. Australia
4. .Au	D. Commerce
(A) 1A, 2B, 3C, 4D	(B) 1B, 2C, 3D, 4A
(C) 1C, 2D, 3A, 4B	(D) 1D, 2A, 3B, 4C
(E) None of the above.	

17. A browser is an interactive program that permits a user to view information from the computer. The browser performs which of the following services?

- (A) Connecting to the source computer whose address is specified
(B) Requesting new page from the source
(C) Receiving new page
(D) Closing connection
(E) All of these.

18. Modern Computers compared to earlier computers are

- (A) Faster and larger
(B) Less reliable
(C) Larger and stronger
(D) Slower but more reliable
(E) Faster and smaller

19. Who is regarded as the Father of computers ?

- (A) Abacus
(B) John Napier
(C) Pascal
(D) Charles Babbage
(E) Hollerith

20. The five basic parts of a computer system are

- (A) Hardware, software, memory, VDU and Printer
(B) Store, arithmetic and logical unit, control unit, input device and output device
(C) CPU, ALU, Software, firmware and operating system
(D) Data bus, control lines, address bus, memory and CPU
(E) Magnetic tape, Printer, card punch, card reader and clock

ANSWER KEY

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