



NATIONAL CYBER OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 3 sections: 15 questions in section I, 30 in section II, and 5 in section III.

SYLLABUS

Section – I (Logical Reasoning) : Verbal and Non-verbal Reasoning.

Section – II (Computers and IT) : Algorithms and Flowcharts in Programming, Visual Basic, Animations, HTML, Internet and Viruses, MS-Word, MS-Excel, MS-PowerPoint, Hardware, Software, Input & Output Devices, Memory & Storage Devices, Flash CS6, Networking, Latest Developments in the field of IT.

Section – III (Achievers Section) : Syllabus as per section II.

Questions are based on Windows 7 and MS-Office 2010.



NATIONAL SCIENCE OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 3 sections: 15 questions in section I, 30 in section II and 5 in section III.

SYLLABUS

Section – I (Logical Reasoning) : Verbal and Non-verbal Reasoning.

Section – II (Science) : 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, Diversity in Living Organisms, Why Do We Fall Ill, Natural Resources, Improvement in Food Resources.

Section – III (Achievers Section) : Syllabus as per Section II.



**INTERNATIONAL
MATHEMATICS OLYMPIAD**

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 4 sections: 15 questions in section I, 20 in section II, 10 in section III and 5 in section IV.

SYLLABUS

Section – I (Logical Reasoning) : Verbal and Non-verbal Reasoning.

Section – II (Mathematical Reasoning) : Number Systems, Polynomials, Coordinate Geometry, Linear Equations in Two Variables, Introduction to Euclid's Geometry, Lines and Angles, Triangles, Quadrilaterals, Areas of Parallelograms and Triangles, Circles, Constructions, Heron's Formula, Surface Areas and Volumes, Statistics, Probability.

Section – III (Everyday Mathematics) : The syllabus of this section will be based on the syllabus of Mathematical Reasoning and Quantitative Aptitude.

Section – IV (Achievers Section) : Syllabus as per Section II.



**INTERNATIONAL
ENGLISH OLYMPIAD**

IN ASSOCIATION WITH



The actual test paper has 50 questions. Time allowed : 60 minutes. There are 4 sections.

SYLLABUS

Section – I (Word and Structure Knowledge) : Concord, Question forms, Tenses, Conditionals, Modals, Reported speech. Collocations, Phrasal verbs, Idioms, Homonyms and homophones, Words related to social cause, Travel, Workplace, etc.

Section – II (Reading) : Search for and retrieve information from various text types like flyers, Classifieds, Dictionaries, etc., Understand information presented in instruction manual format, Message format and others. Acquire broad understanding of and look for specific information in longer texts like editorials, Essays, etc.

Section – III (Spoken and Written Expression) : Ability to understand situation-based variations in functions like Giving advice, Stating preferences, Discussing probability, Making an offer, etc.

Section – IV (Achievers Section) : Syllabus as per Sections I, II and III.



National Cyber Olympiad

LOGICAL REASONING

- Step 1** : Add 4
Step 2 : Subtract 1
Step 3 : If less than 15, jump to step 1 and continue from there; otherwise proceed to step 4
Step 4 : Add 3
Step 5 : If greater than 18, subtract 2
 If you start with a value of 1 and then apply the above instructions, what is the end result?
 (A) 11 (B) 17 (C) 18 (D) 19.
- On planet X, the local terminology for Earth, Water, Light, Air and Sky are Light, Air, Earth, Sky and Water respectively. If someone is thirsty there, what would he drink?
 (A) Sky (B) Water (C) Air (D) Light
- 'MILD' is related to 'NKOH' in the same way as 'GATE' is related to _____.
 (A) HCWI (B) HCWT (C) HWCT (D) EYRC
- Hari, Pinto, Oliver, Chris, and Tony drew different geometric figures: a circle, a pentagon, a trapezoid, a hexagon, and an octagon. No person's name begins with the same first letter as that person's drawing. Chris, Pinto and Tony drew figures with more than 4 sides. Chris drawing has the most sides. Oliver's drawing has exactly one pair of parallel lines. What did Chris draw?
 (A) Circle (B) Octagon (C) Hexagon (D) Pentagon
- If 'P + Q' means P is the brother of Q; 'P - Q' means P is the mother of Q; 'P × Q' means P is the sister of Q, then which of the following means M is the maternal uncle of R ?
 (A) M - R + K (B) M + K - R (C) M + K + Q (D) M - K - R
- Select a figure from the options which completes the Figure matrix.

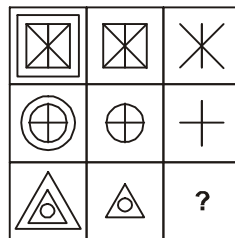
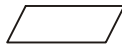





Fig.(X)

- (A) (B) (C) (D)

COMPUTERS AND INFORMATION TECHNOLOGY

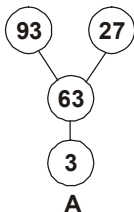
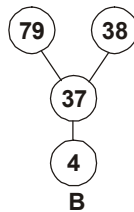
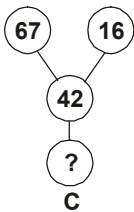
- A technique used to redirect a legitimate website's traffic to another illegitimate website in order to gain access to a user's personal information is known as _____.
 (A) Phishing (B) Pharming (C) Spamming (D) Clickjacking
- Which of the following animation techniques involves the use of live humans as stop motion characters?
 (A) Pixilation (B) Model animation (C) Go animation (D) Model animation
- In Visual Basic, Hour() function returns _____.
 (A) An Integer specifying a whole number (B) A whole number between 0 and 23
 (C) The hour of the day (D) All of these
- Which of the statements about HTML is INCORRECT ?
 (A) Attribute names are not case sensitive. (B) LINK defines the color of the unvisited link.
 (C) The line break element is a container element.
 (D) The default colouring of VLINK attribute is purple.

11. What does a disc fragmenter 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.
-
12. What does OCR stand for?
 (A) Optical Character Render (B) Optical Character Recognition
 (C) Operational Character Reader (D) Only Character Reader
-
13. Match the following
- | | |
|--------------|------------------|
| 1. Scanner | A. Input Device |
| 2. OCR | B. Output Device |
| 3. Light pen | |
| 4. Plotter | |
| 5. Printer | |
- (A) 1A, 2B, 3A, 4B, 5A (B) 1A, 2A, 3A, 4B, 5B
 (C) 1A, 2A, 3B, 4B, 5B (D) 1A, 2B, 3A, 4B, 5B
-
14. The smallest unit of memory is _____.
 (A) 16 bytes (B) 8 bits (C) 1 kilobyte (D) 1 GB
-
15. Which of the following symbols will be used to end the flowchart?
 (A)  (B)  (C)  (D) 



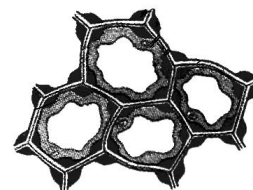
National Science Olympiad

LOGICAL REASONING

1. A number series is given with one term missing. Choose the correct option that will continue the same pattern.
 (2, 3), (3, 5), (5, 7), (7, 11) (11, 13), (...)
 (A) (13, 15) (B) (15, 16) (C) (13, 17) (D) (13, 26)
-
2. In a certain code, EXPLAINING is written as PXEALNIGNI. How is PRODUCTION written in that code?
 (A) ORPUDTINO (B) ROPUDTIONC (C) ORPUBTCNOI (D) ORPUBTCNIO
-
3. In this question, a set of figures carrying certain characters, is given. Assuming that the characters in each set follow a similar pattern, find the missing character.
- | | | |
|--|--|---|
|  <p>A</p> |  <p>B</p> |  <p>C</p> |
|--|--|---|
- (A) 5 (B) 6 (C) 8 (D) 9
-
4. Which of the following options shows the correct mirror of the given combination of letters and numbers if the mirror is placed vertically to the left?
 A 2 N 6 Z 8 W 9
 (A) eW8ZδNζA (B) eW8ΣδNζA (C) eW8Z9ИζA (D) eW8ΣδИζA
-
5. In the following series, how many 5's are there which are immediately preceded by 9 and followed by 6?
 9 6 9 5 8 4 3 2 9 5 6 2 3 5 9 8 7 6 5 9 4 5 6 1
 (A) 0 (B) 1 (C) 2 (D) 3

SCIENCE

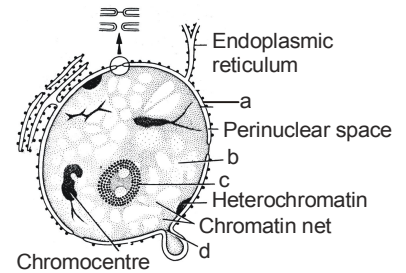
6. Elements having the same number of valence electrons in their atoms have
(A) Similar atomic sizes (B) Similar number of neutrons
(C) Similar metallic character (D) Similar chemical properties.
-
7. Suppose you are pushing a loaded shopping cart. Which of the following is true ?
(A) If action force always equals reaction force, you cannot move the cart because the cart pushes you backward just as hard as you push forward on the cart
(B) You push the cart slightly harder than the cart pushes you backward, so the cart moves forward
(C) You push before the cart has time to react, so the cart moves forward
(D) You are in contact with the earth through your high-friction shoes, while the cart is free to roll on its round wheels, so the cart moves.
-
8. The speed c of surface waves of wavelength λ travelling in deep water is given by the equation $c = \sqrt{\frac{\lambda g}{2\pi}}$ where g is the acceleration due to gravity. Which one of the following options would give a straight line graph, given that f is the frequency of the waves ?
(A) f against λ^{-1} (B) f against λ (C) f against λ^2 (D) f^2 against λ^{-1} .
-
9. Read the given statements and mark the correct option.
Statement 1 : Echo is produced only when sound is incident on hard and polished surface.
Statement 2 : Sound energy can be totally reflected by objects with soft and loose texture.
(A) Both statement 1 and statement 2 are true and statement 2 is the correct explanation of statement 1.
(B) Both statement 1 and statement 2 are true and statement 2 is not the correct explanation of statement 2.
(C) Statement 1 is true but statement 2 is false
(D) Both statement 1 and statement 2 are false
-
10. What happens to the inertia of an object when its velocity is doubled ?
(A) The object's inertia becomes $\sqrt{2}$ times greater
(B) The object's inertia becomes 2 times greater
(C) The object's inertia becomes 4 times greater
(D) The object's inertia is unchanged.
-
11. Filtration as a method of separation can be used for mixtures that are
(A) homogeneous and liquid-in-gas mixtures
(B) heterogeneous and liquid-in-liquid mixtures
(C) homogeneous and solid-in-liquid mixtures
(D) heterogeneous and solid-in-liquid mixtures.
-
12. Molten sodium chloride conducts electricity due to the presence of
(A) Free molecules of NaCl (B) Free electrons
(C) Free Na^+ and Cl^- ions (D) Free atoms of sodium and chlorine.
-
13. The given figure shows a type of permanent tissue in which cells are living, elongated and irregularly thickened at the corners. Identify it.
(A) Parenchyma
(B) Collenchyma
(C) Sclerenchyma
(D) Xylem parenchyma



15. Refer the figure and identify from the marked alphabets (a, b, c, d) which is responsible for the following functions.

- (I) Means of localization of the chromosomes within the cell
- (II) Selective barrier, allowing certain substances in or out of the nucleus
- (III) Means of sequestering many of the mRNA processing activities from the cytosol and separating nuclear and cytoplasmic constituents

- (A) a
- (B) b
- (C) c
- (D) a and d.



International Mathematics Olympiad

LOGICAL REASONING

1. Apples, cherries and grapes are arranged on a platter in the following fashion: opposite sectors contain fruit which is of equal value. To equal the value of two bunches of grapes, how much fruit must be placed in the empty sector?

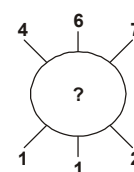
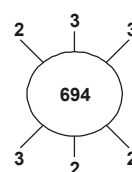
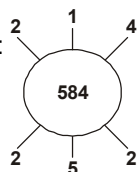
- (A)
- (B)
- (C)
- (D)



2. If L denotes \div , M denotes \times , P denotes $+$ and Q denotes $-$, then which of the following statements is true?

- (A) $32 P 8 L 16 Q 4 = -\frac{3}{2}$
- (B) $6 M 18 Q 26 L 13 P 7 = \frac{173}{13}$
- (C) $11 M 34 L 17 Q 8 L 3 = \frac{38}{3}$
- (D) $9 P 9 L 9 Q 9 M 9 = -71$

3. Find the missing number :



- (A) 937
- (B) 824
- (C) 769
- (D) 678

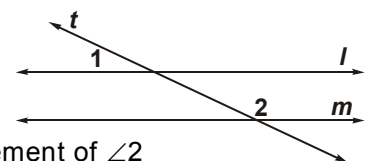
4. Complete the pattern. 6, 11, 21, 36, 56, (.....)

- (A) 42
- (B) 51
- (C) 81
- (D) 91

MATHEMATICAL REASONING

5. In the given diagram, parallel lines l and m are cut by transversal t .

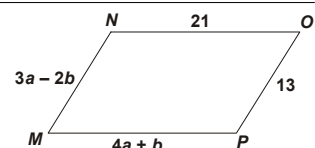
Which statement about angles 1 and 2 must be true?



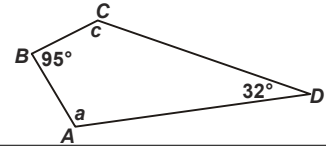
- (A) $\angle 1 \cong \angle 2$
- (B) $\angle 1$ is the complement of $\angle 2$
- (C) $\angle 1$ is the supplement of $\angle 2$
- (D) $\angle 1$ and $\angle 2$ are right angles

6. What values of a and b make quadrilateral $MNOP$ a parallelogram?

- (A) $a = 1, b = 5$
- (B) $a = 5, b = 1$
- (C) $a = \frac{11}{7}, b = \frac{34}{7}$
- (D) $a = \frac{34}{7}, b = \frac{11}{7}$



7. For the quadrilateral shown here, what is $\angle a + \angle c$?
- (A) 53° (B) 137°
 (C) 180° (D) 233°



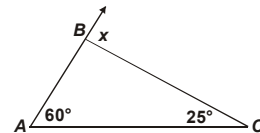
8. The median of the observations 11, 12, 14, 18, $x + 2$, $x + 4$, 30, 32, 35, 41 arranged in ascending order is 24. Find the value of x .
- (A) 22 (B) 19 (C) 21 (D) 25

9. Simplify : $\frac{16 \times 2^{n+1} - 4 \times 2^n}{16 \times 2^{n+2} - 2 \times 2^{n+2}}$
- (A) 1 (B) $6/11$ (C) 0 (D) $1/2$

10. Find the remainder when $p(y) = y^3 + y^2 + 2y + 3$ is divided by $y + 2$.
- (A) 1 (B) 4 (C) -5 (D) 3

11. The ordinate of any point on x -axis is _____.
- (A) 0 (B) 1 (C) -1 (D) any number

12. What is value of x ?
- (A) 35° (B) 60°
 (C) 85° (D) 95°

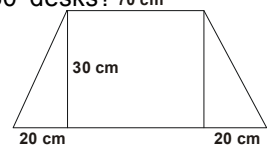


EVERYDAY MATHEMATICS

13. A right circular cone has radius 5 cm and height 8 cm. What is the lateral surface area of the cone?
- (A) 40π sq cm (B) 445π sq cm
 (C) $5\pi \sqrt{39}$ sq cm (D) $5\pi \sqrt{89}$ sq cm

14. A rectangular kitchen table is three times as long as it is wide. If it was 3 m shorter and 3 m wider it would be a square. What are the dimensions of the rectangular table?
- (A) 9×3 (B) 4×2
 (C) 12×6 (D) 16×4

15. Two carpenters decided to design desks for students at the Junior High School. The dimensions of the desk are as shown. How much wood (in cm^2) would they need for 30 desks? 70 cm
- (A) 2700 cm^2
 (B) 80000 cm^2
 (C) 21000 cm^2
 (D) 81000 cm^2



International English Olympiad

WORD AND STRUCTURE KNOWLEDGE

Direction (Q. No. 1 and 2) : Choose one suitable word/phrase for each blank. Make sure that you choose the correct form of the word/phrase.

1. I am happy you are helping me with the assignment. This kind of work is not really my _____.
- (A) Cup and sauce (B) Cup of tea (C) Cup of coffee (D) Tea cup
2. The discussion was by no means _____. It went on for more than four hours!
- (A) Cut and dried (B) Chopped and dried (C) Cut and shredded (D) Dried and cut
3. Choose the correct spelling of the word.
- (A) Believe (B) Beleive (C) Believ (D) Belev
4. Choose the correct phrase.
- (A) Down and up (B) Down and out (C) Down and town (D) Out and down

Direction (Q. No. 5 and 6) : Fill in the blanks using the correct word/phrase.

5. A class full of very good students means _____ failures for the teachers to worry about.
(A) Lesser (B) Less (C) Fewer (D) Less than

6. He seems to know a lot about you! How long have you _____ him?
(A) Known (B) Knew (C) Been knowing (D) Know

7. **Spot the error in the sentence.**

Becoming a monitor / often means / to lose friends. No error
(A) (B) (C) (D)

8. **Complete the conversation with the correct word.**

Ravi: I think it's really exciting to go to new places.

Teacher: What _____ keep in mind if you are going to a new place.

(A) Do you have to (B) Can you (C) Have you to (D) Must you have to

9. **Change the given direct sentence to indirect.**

"Drive carefully!" Ram said to me.

(A) Ram said to me drive carefully.

(B) Ram ordered me drive carefully.

(C) Ram told me to drive carefully.

(D) None of the above.

READING

Direction (Q. No. 10 and 11) : Read the passage and answer the following questions.

The fly was finally hers. It had taken Mini hours to trap it, but now, exhausted, it buzzed and crashed hopelessly around inside a pickle jar. Kneeling on a chair, she took a chapatti and spread it with a thick layer of butter, wiping the knife clean against the edge of the dish, the way her mother used to and savored her victory. She was again in control.

10. The event of trapping the fly is compared with _____.
(A) The taste of chapatti and butter (B) A war followed by celebrations
(C) A celebration by the victor (D) The defeat of the oppressed

11. Which of the following expressions would you use to describe Mini's emotions after trapping the fly?
(A) On cloud ten (B) Under a cloud
(C) On cloud nine (D) Every dark cloud has a silver lining

SPOKEN AND WRITTEN EXPRESSION

Direction (Q. No. 12 and 13) : Find one sentence to complete the dialogue.

12. Teacher to student : I thought you had been doing your homework regularly. Why are you still so irregular with your work?

(A) I will let your parents know that you have failed this year.

(B) I'm afraid, at this rate, I'll have to give you a 'D' grade.

(C) I'm expecting you to earn a 'D' grade. (D) I think you will do well this year.

13. Manasa : Vinu, it's the Maths class now! I forgot my book.

(A) Could you share your book with me today. (B) Look here! Give me that book of yours!

(C) Can I buy a Maths book?

(D) Could I borrow your Maths notebook, please!

Direction (Q. No. 14 and 15) : You need to select the two sentences that will complete the paragraph. Look at the choices given below and select the best option.

14. Sentence 1 : The blackbucks are mainly grazers and prefer to eat green fodder.

Sentence 2 : _____

Sentence 3 : _____

Sentence 4 : Unfortunately most of their habitats are being converted to agricultural fields and this is forcing them to feed on crops.

P. This has restricted their distribution to areas that are close to cultivation.

Q. They also need to drink water twice a day so they do not live far from the source of water.

R. This gives rise to man-animal conflict and hundreds of them are being killed.

(A) PQ

(B) QP

(C) PR

(D) RP

15. Sentence 1 : The Pageant's Handbook of First Aid is a must for every home.

Sentence 2 : _____

Sentence 3 : _____

Sentence 4 : Then seal and send this post-paid cover back to us.

P. All you have to do is write the names of 14 friends who enjoy reading.

Q. You can get it free, with no contest or prize to be won.

R. And we will rush you the booklet free of cost.

(A) PQ

(B) QP

(C) PR

(D) QR

