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ICO INTERNATIONAL CYBER OLYMPIAD	NISO NATIONAL INTERACTIVE SCIENCE OLYMPIAD	NIMO NATIONAL INTERACTIVE MATHS OLYMPIAD	NBTO NATIONAL BIOTECHNOLOGY OLYMPIAD	IEO INTERNATIONAL ENGLISH OLYMPIAD	IGO INTERNATIONAL G.K. OLYMPIAD	BIFO BSE INTERNATIONAL FINANCE OLYMPIAD
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Level - 1 : All Level-1 successful* participants will get certificate, aptitude report and online subscription, and school toppers will be eligible for school hero medals.

Level - 2 : School toppers* will be selected for level-2-National level - online computer based interactive test held at exam centres all over India. Besides selection for level-3, winner will get merit certificate, medals, educational CDs, laptop, scholarship and other prizes. There is no level 2 in G.K. and Biotech.

Level - 3 : Toppers will qualify# for level 3-International level-where you will compete with students globally. Get selected for EHF's International Olympiad training camp. Only Indian organization giving students exposure to global competitions. Represent India & win laurels. Guidance by top scientists. Prizes ranges from cash (millions of \$), gadgets, foreign trips, publicity, fame, scholarships, Internships, conference participation and more. Level 3 is in Maths, Science & Cyber only.

*# See prospectus/website for details

1. You are allowed additional 10 minutes to fill the required details in the **RESPONSE SHEET (OMR)**. **STUDENTS OF CLASS 1 & 2 HAVE TO UNDERLINE** THE CORRECT ANSWER IN THE QUESTION PAPER ITSELF. THEY ARE NOT REQUIRED TO USE THE RESPONSE SHEET (OMR). THEY HAVE TO FILL THEIR NAME, ROLL NUMBER, CLASS, SCHOOL NAME IN THE SPACE PROVIDED IN THE QUESTION PAPER.
2. The question paper is made as per syllabus guidelines & pattern given in the information Booklet. The Question Paper for Classes 1 to 6 contains 25 Questions each to be answered in 40 minutes. The Question paper for classes 7 to 12 contains 50 Questions each to be answered in 60 minutes. All questions are compulsory. Further instructions are given in the instruction letter to the teacher.
3. Use the response sheet to mark your responses by darkening the required circle. The response sheet has to be returned to the foundation, duly filled in. The student can retain the Question Paper except for classes 1 and 2.

**NATIONAL
INTERACTIVE
MATHS
OLYMPIAD**

NIMO

9
Class

A1
Paper
Code

LEVEL - 1



MENTAL ABILITY

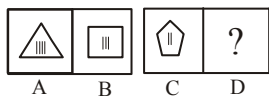
1. Write the missing term.
97, 86, 73, 58, 45, (.....)
(1) 34 (2) 54
(3) 55 (4) None of these
2. In a certain code, 'nee tim see' means 'how are you' 'ble nee see' means 'where are you', what is the code for 'where'?
(1) nee (2) tim
(3) see (4) None of these
3. Name the mathematician, who first computed the decimal expansion of π (pi).
(1) Archimedes (2) Aryabhatta
(3) Varahamihira (4) None of these
4. In a certain code language, 'Mink Yang Pe' means 'Fruits are ripe', 'Pe Lao May Mink' means 'oranges are not ripe' and 'May Pe Nuie mink' means 'Mangoes are not ripe'. Which word in that language means 'Oranges'?
(1) May (2) Pe
(3) Lao (4) None of these
5. A cuboid has six sides of different colours. the red side is opposite to black. The blue side is adjacent to white. The brown side is adjacent to blue. The red side is face down. Which one of the following would be the opposite to brown?
(1) Red (2) White
(3) Black (4) Blue
6. A person X has four notes of Rupee 1, 2, 5 and 10 denomination. The number of different sums of money she can get from them is.
(1) 16 (2) 15
(3) 12 (4) 8
7. Half of the villagers of a certain village have their own houses. One-fifth of the villagers cultivate paddy. One-third of the villagers are literate. Four-fifth of the villagers are below twenty five. Then, which one of the following is certainly true?
(1) All the villagers who have their own houses are literate.
(2) Some villagers under twenty five are literate.
(3) A quarter of villagers who have their own houses cultivate paddy.
(4) Half of the villagers who cultivate paddy are literate.

8. Some statements are given as
- The perpendicular distance of a point from the y -axis, measured along the x -axis, is called its ordinate.
 - The perpendicular distance of a point from the y -axis, measured along the x -axis, is called its abscissa.
 - The perpendicular distance of a point from the x -axis, measured along the y -axis, is called its ordinate.
 - The perpendicular distance of a point from the x -axis, measured along the y -axis, is called its abscissa.

Which two given statements are **correct**?

- (iv) and (i)
 - (iii) and (iv)
 - (ii) and (iii)
 - (i) and (ii)
9. Six persons M, N, O, P, Q and R are sitting in two rows, three in each. Q is not at the end of any row, P is second to the left of R. O is the neighbour of Q and is sitting diagonally opposite to Q. N is the neighbour of R. On the basis of above information, who is facing N?
- R
 - Q
 - P
 - M

10. **Direction :** In the given question figures A, B, C and D constitute the problem set while figures (1), (2) and (3) constitute the answer set. There is definite relationship between figures A and B. Establish a similar relationship between figures C and D by choosing a suitable option from the Answer set.



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-
-
- None of these

MATHEMATICS

11. What is the value of a in the equation $\frac{7}{2}a + 11 = 53$
- 10
 - 12
 - 14
 - None of these
12. The sum of three consecutive prime numbers is 59, the number are-
- 17, 19, 23
 - 13, 17, 19
 - 23, 29, 31
 - 2, 3, 5
13. If $y - \frac{y}{2} = \frac{7}{2}$, then the value of 'y' is
- 5
 - 6
 - 6
 - 7
14. Which of the following quadrilaterals is a regular polygon?
- Trapezium
 - Rhombus
 - Square
 - Kite

15. Which one of the following is a perfect square ?
- 622
 - 393
 - 5778
 - 729
16. Cube of a negative odd number is a
- Positive even number
 - Negative odd number
 - Negative even number
 - Positive odd number

17. The value of $\frac{1}{\sqrt{0.25}} \times \sqrt{1.96}$ is
- 0.028
 - 2.8
 - 0.28
 - 14.01

18. A yoga instructor wants to arrange maximum possible number of 6000 students in a ground so that the number of rows is same as the number of columns. How many rows will be there if 71 students were left out after the arrangement?

- 80
- 88
- 77
- 78

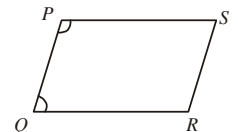
19. By applying Pythagorean triplet method, which one of them can't be the sides of a right triangle ?

- 12, 13 and 5
- 27, 26 and 25
- 6, 8 and 10
- 3, 4 and 5

20. The given figure shows parallelogram $PQRS$, where the measure of $\angle P$ and $\angle Q$ are in the ratio 7 : 5.

The measures of $\angle P$, $\angle Q$, $\angle R$ and $\angle S$ are respectively.

- $104^\circ, 76^\circ, 104^\circ$ and 76°
- $105^\circ, 75^\circ, 105^\circ$ and 75°
- $120^\circ, 60^\circ, 120^\circ$ and 60°
- $130^\circ, 70^\circ, 120^\circ$ and 40°

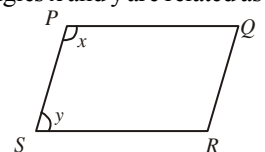


21. A quadrilateral has 3 acute angle measuring 70° . The measure of the fourth angle is

- 140°
- 150°
- 105°
- None of these

22. PQRS is a parallelogram. Then the angles x and y are related as

- $x = y$
- $y = x$
- Both (1) and (2)
- None of these



23. PQRS is a quadrilateral. $PQ = QS = SR = RP$ and $\angle P = \angle Q = \angle R = \angle S = 90^\circ$. Then PQRS can be called

- Rhombus
- Square
- Parallelogram
- Trapezium

24. What is the value of a in the expression $(416 \times 418 = a^2 - 1)$?

- 419
- 418
- 417
- 416

25. $\sqrt{0.09}$ is equal to :
- (1) 0.3 (2) 0.03
(3) 0.034 (4) 0.94

26. What is the value of the expression $\left[\sqrt[3]{225^3} - \sqrt[2]{36^3} + \sqrt[3]{343} \right]$?
- (1) 17 (2) 16
(3) 15 (4) 14

27. $\sqrt[3]{\sqrt{0.000729}}$ is equal to
- (1) 0.3 (2) 0.003
(3) 0.03 (4) 3

28. Latika invested a certain sum of money in a bank that paid simple interest. The amount grow to ₹240 at the end of 2 years. She waited for another 3 years and got a final amount of ₹300. What was the principal amount that she invested in the beginning ?
- (1) ₹200 (2) ₹150
(3) ₹210 (4) ₹175

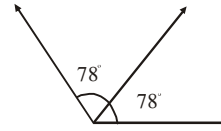
29. You bought Roses at a price of ₹50 per dozen and manage to sell three fourth of them at the rate of ₹80 per dozen during the day. If you sell the remaining in a special evening sale at a lower rate of ₹40 per dozen. What is the rate of profit ?
- (1) 40 percent (2) 35 percent
(3) 45 percent (4) 20 percent

30. Sohan bought a shirt for ₹702 including sales tax. The marked price of the shirt is ₹650. How much sales tax is imposed on the shirt?
- (1) 7% (2) 8%
(3) 9% (4) 10%

31. The simplified form of the expression $(2x + 7y)(-x + y + 5z)$
- (1) $-2x^2 + 7y^2 + z^2 - 5xy + 10xz + 35y^2$
(2) $4(x^2 + y^2 + z^2) - x(y + z + 3x)$
(3) $-2x^2 - 5xy + 10xz + 35yz + 7y^2$
(4) None of these

32. If the length, breadth and height of a cuboid are respectively 36 mn^2 , $\frac{1}{9} l^2 \text{ m}$, and r^3 , then What is the volume of the cuboid?
- (1) $4l^3 m^3 n^3 r^3$
(2) $8l^2 m^2 n^2 r^3$
(3) $4l^2 m^2 n^2 r^3$
(4) $4l m n r$

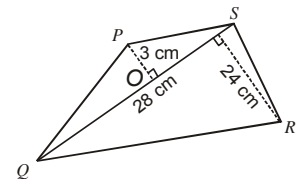
33. If an angle is bisected to form two new 78° angles, what was the measure of the original angle ?



- (1) 180° (2) 156°
(3) 78° (4) None of these

34. The area of a chalkboard is 24 square feet. The perimeter is 20 feet. What are the dimension of the board ?
- (1) 4 feet by 6 feet (2) 6 feet by 2 feet
(3) 4 feet by 2 feet (4) 4 feet by 3 feet

35. What is the area of the given quadrilateral PQRS?



- (1) 370 cm^2
(2) 378 cm^2
(3) 380 cm^2
(4) 390 cm^2
36. The total surface area of a cylinder whose height is twice the radius, is
- (1) $8\pi r^2$ (2) $36\pi r^2$
(3) $6\pi r^2$ (4) $81\pi r^2$

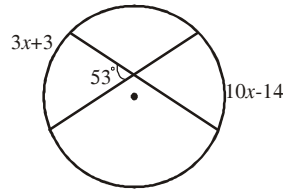
37. What is the exponential form of the number $\frac{1}{16807}$?
- (1) 7^{-5} (2) 5^7
(3) 5^{-7} (4) 7^5

38. The value of 'a' in exponential equation $(97)^{a-5} = 1$, is equal to
- (1) -5 (2) 5
(2) 6 (4) 7

39. A man is paid ₹5 per hour for a regular working day and ₹8 per hour for overtime. A regular working day has 8 hours and a regular week has 5 working days. If he earns ₹920 in 4 weeks, then what is the total number of hours that he worked assuming that he was present on all regular working days?
- (1) 200 hours (2) 180 hours
(3) 175 hours (4) 160 hours

40. $\frac{1}{5} : \frac{1}{b} = \frac{1}{b} : \frac{1}{125}$, then the value of b is
- (1) 15 (2) 20
(3) 25 (4) 30

41. Two chords intersect within a circle to form an angle whose measure is 53° . If the intercepted arcs are represented by $3x + 3$ and $10x - 14$, find the measure of larger of these two arcs.



- (1) 9 (2) 13
 (3) 30 (4) 76

42. Five coins are simultaneously tossed 400 times. The given frequency distribution table shows the result of the experiment.

Outcomes	5 heads	4 heads	3 heads	2 heads	1 head	No head
Frequency	72	102	76	67	55	28

What is the probability of getting atmost 1 tail, if the five coins are tossed once more?

- (1) $\frac{250}{550}$ (2) $\frac{200}{415}$
 (3) $\frac{174}{400}$ (4) $\frac{317}{400}$

43. A particular town has certain number of Government High Schools (having Grades 6 to 10). A survey is conducted in these schools to find the relationship between the heights of students and their respective Grades. For this purpose, 500 students are selected at random from these schools. The given table shows the result of the survey.

Grade	Height (in cm)				
	120-130	130-140	140-150	150-160	160-170
6	22	25	15	27	11
7	12	33	24	22	9
8	15	34	21	17	13
9	21	25	13	29	12
10	9	17	42	15	17

What is the probability that a randomly chosen student is studying in Grade 9 or 10 and has a height between the class 150 - 160 cm?

- (1) 0.132 (2) 0.656
 (3) 0.088 (4) 0.0351

44. Which of the following values of probability is not possible for an event F?

- (1) $P(F) = \frac{3}{8}$
 (2) $P(F) = 0.35$

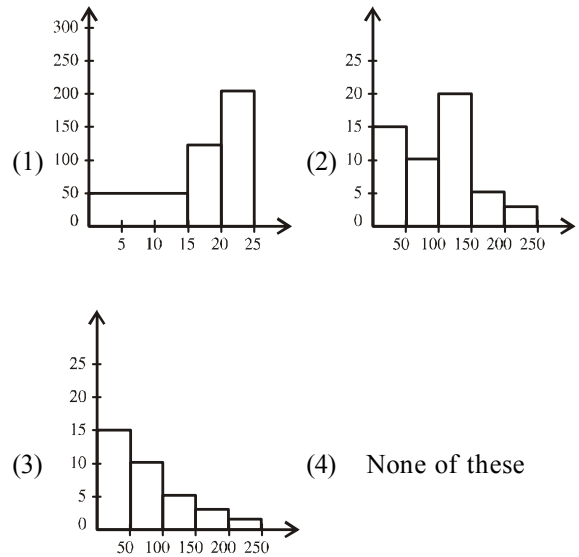
(3) $P(\text{of event F not occurring}) = 1$

(4) $P(\text{of event F not occurring}) = \frac{10}{7}$

45. The given data shows, the monthly expenses by 50 students, on their lunch.

Class interval (in ₹)	1-50	50-100	100-150	150-200	200-250
No. of Students	15	10	20	3	2

Which of the following diagram represents the given data ?



46. A survey was conducted among 100 students of a particular school to know their heights. The given table shows the results of the survey.

Height (cm)	120-135	135-150	150-165	165-180	180-195
Number of students	22	32	28	5	13

Which frequency polygon correctly represents the given data?

