



# EDUHEAL FOUNDATION

## INTERACTIVE OLYMPIADS

EDUHEAL FOUNDATION CONDUCTS 8 OLYMPIADS ANNUALLY REACHING OUT TO 3,500 + SCHOOLS  
 • 4 LAKH + STUDENTS • 50,000 COORDINATING TEACHERS AND HAVING 500 RESOURCE PERSONS  
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<b>ICO</b> INTERNATIONAL CYBER OLYMPIAD	<b>NISO</b> NATIONAL INTERACTIVE SCIENCE OLYMPIAD	<b>NIMO</b> NATIONAL INTERACTIVE MATHS OLYMPIAD	<b>NBTO</b> NATIONAL BIOTECHNOLOGY OLYMPIAD	<b>IEO</b> INTERNATIONAL ENGLISH OLYMPIAD	<b>IGO</b> INTERNATIONAL G.K. OLYMPIAD
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**Level - 1** : Level-1 winners will get certificate, aptitude report, medals for the school toppers and online subscription.

**Level - 2** : Top 10 % including 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, aptitude report, medals, Mp3 player, watches, educational CDs, laptop, scholarship, online subscription etc.

**Level - 3** : Top 1% 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.

- You are allowed additional 10 minutes to fill the required details in the **RESPONSE SHEET**.
- 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 coordinator teacher.
- 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.

**NATIONAL INTERACTIVE MATHS OLYMPIAD**

**NIMO**

**8 Class** **A1 Paper Code**

### LEVEL - 1

Academic Partner — [WWW.EDUSYS.IN](http://WWW.EDUSYS.IN)

**EtG BOOKS** Creating SUCCESS Stories

EDUSYS LEARNING MEDIA  
AIIEE • IIT • PMT • OLYMPIADS

**intel** Google Science Fair

INTERNATIONAL SCIENCE AND ENGINEERING FAIR

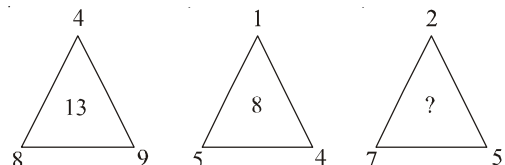
**H** THE HARVARD - MIT MATHEMATICS TOURNAMENT

**ORACLE ThinkQuest** EDUCATION FOUNDATION

### MENTAL ABILITY

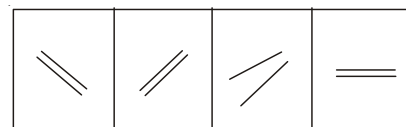
- Choose the correct alternatives from the given ones that will complete the series  
21, 9, 21, 11, 21, 13, 21, ..... ?  
(1) 15 (2) 21  
(3) 17 (4) None of these
- Which number is missing ?  
V, VIII, \_\_\_\_, XIV, XVII, XX  
(1) IX (2) XI  
(3) X (4) None of these
- Kilogram is related to quintal in the same way as paisa is related to \_\_\_\_ ?  
(1) Coin (2) Wealth  
(3) Rupee (4) None of these
- Dda : aDD :: Rrb : \_\_\_\_ ?  
(1) BBr (2) bRR  
(3) RRR (4) None of these

- What number replaces the question mark ?



- (1) 10 (2) 9  
(3) 11 (4) None of these

- Choose the figure which is different from the rest.



- (a) (b) (c) (d)
- (1) c (2) a  
(3) b (4) None of these

- Amit said – “This girl is the wife of the grandson of my mother”. How is Amit related to the girl ?

- (1) Brother (2) Grand father  
(3) Father-in-law (4) None of these

8. Find which one word cannot be made from the letters of the given word DEPARTMENT
- (1) ENTER (2) TEMPER  
(3) PERMIT (4) None of these
9. Which of the following diagrams correctly represents : Tea, Coffee, Beverages
- 
- (1) a (2) b  
(3) c (4) None of these
10. Trigonometry is related to Triangles in the same way as Mensuration is related to \_\_\_\_?
- (1) Areas (2) Circles  
(3) Geometry (4) None of these

## MATHEMATICS

11. Fill in the blanks.

$$6\frac{2}{3} \div 2\frac{1}{2} = \square$$

- (1)  $\frac{3}{8}$  (2)  $\frac{8}{3}$   
(3)  $\frac{4}{3}$  (4) None of these
12. A yacht,  $3\frac{2}{3}$  metres in height, is floating on water. If  $\frac{1}{6}$ th of its height is under water, what is the height of the yacht visible above the water ?
- (1)  $\frac{55}{18}$  (2)  $\frac{66}{18}$   
(3)  $\frac{18}{55}$  (4) None of these
13. The negative numbers, the positive numbers and zero together form the set of \_\_\_\_ ?
- (1) Integers (2) Real Numbers  
(3) Whole Numbers (4) None of these
14. Find the absolute value of  $-\frac{3}{4}$
- (1)  $\frac{4}{3}$  (2)  $-\frac{4}{3}$   
(3)  $\frac{3}{4}$  (4) None of these

15. Express  $\frac{5}{6}$  as a decimal.
- (1) 0.83 (2)  $0.8\bar{3}$   
(3) 8.3 (4) None of these
16. Solve  $13.186 \times 24.28$
- (1) 320.15608 (2) 321.14608  
(3) 320.15708 (4) None of these
17.  $\frac{x+2}{2} = 13$ , solve for x.
- (1) 25 (2) 24  
(3) 23 (4) None of these
18. A triangle has \_\_\_\_ sides and \_\_\_\_ angles.
- (1) 2,3 (2) 3,3  
(3) 3,2 (4) None of these
19. The hypotenuse of a right – angled triangle is 15 cm. One of its legs is 9 cm. What is the length of the other side ?
- (1) 12 cm (2) 13 cm  
(3) 14 cm (4) None of these
20. Find the area of a Circle whose diameter is 28 cm.
- (1)  $615 \text{ cm}^2$  (2)  $661 \text{ cm}^2$   
(3)  $616 \text{ cm}^2$  (4) None of these
21. Find the complement of  $13^\circ$ .
- (1)  $76^\circ$  (2)  $77^\circ$   
(3)  $74^\circ$  (4) None of these
22. If 25% of a journey is 650 km, how long is the whole journey ?
- (1) 2,600Km (2) 2,500Km  
(3) 2,000Km (4) None of these
23. Start with the integer 3 and subtract 10. From the answer, subtract 1, then multiply the answer by  $-3$ . Now subtract 20 from the answer. What do you get ?
- (1) 4 (2) 3  
(3) 1 (4) None of these
24. Find the sum of  $\frac{2}{5}$  and  $-\frac{3}{9}$  ?
- (1) 15 (2)  $\frac{1}{15}$   
(3) 14 (4) None of these
25. Convert  $3\frac{5}{16}$  into decimal numbers.
- (1) 3.2125 (2) 3.1253  
(3) 3.3125 (4) None of these

26. Arrange the following in ascending order :

$$\frac{7}{9}, \frac{5}{6}, \frac{11}{12}, \frac{-1}{3}, \frac{-3}{4}$$

(1)  $\frac{-3}{4}, \frac{-1}{3}, \frac{7}{9}, \frac{5}{6}, \frac{11}{12}$  (2)  $\frac{11}{12}, \frac{5}{6}, \frac{7}{9}, \frac{-1}{3}, \frac{-3}{4}$

(3)  $\frac{-3}{4}, \frac{-1}{3}, \frac{11}{12}, \frac{7}{9}, \frac{5}{6}$  (4) None of these

27. Three friends, Nisha, Pooja, Malini divided a box of apples weighing  $15\frac{9}{10}$  Kg equally between the three of them. How many Kg of apples did each get ?

(1)  $3\frac{5}{10}$  (2)  $5\frac{3}{10}$

(3)  $5\frac{2}{10}$  (4) None of these

28.  $x^a \div x^b = ?$

(1)  $x^{a+b}$  (2)  $x^{a-b}$

(3)  $x^{ab}$  (4) None of these

29. Express  $0.86 \times 10^4$  in expanded form

(1) 8.600 (2) 86  
(3) 8600 (4) None of these

30. Simplify:  $\left[\left(\frac{2}{3}\right)^2\right]^2$

(1)  $\frac{81}{16}$  (2)  $\frac{16}{81}$

(3)  $\frac{15}{81}$  (4) None of these

31. Find the product of  $(-7x)(13x^3)$

(1)  $-91x^4$  (2)  $91x^4$   
(3)  $91x^2$  (4) None of these

32. Fill in the blank :

An algebraic expression with only one term is called a \_\_\_\_\_

(1) Trinomial (2) Binomial  
(3) Monomial (4) None of these

33. Add the following terms  $9x^2y, 4xy^2, -6x^2y, -3, 3xy^2$

(1)  $3x^2y + 7xy^2 - 3$  (2)  $3x^2y + 6xy^2 - 3$

(3)  $3x^2y + 7xy^2$  (4) None of these

34. Is this a triangle ?  $\angle R = 100^\circ, \angle P = 70^\circ, \angle Q = 30^\circ$

(1) Yes (2) No  
(3) Can't say (4) None of these

35. Find the radius of a circle with circumference 39 cm

(1) 4.6 cm (2) 3.62 cm  
(3) 6.2 cm (4) None of these

36. The cross-section of which of the following three dimensional solids can be of the shape of a square, when the solid is given either a horizontal or vertical cut ?

(1) Sphere (2) Cuboid  
(3) Triangular Pyramid (4) None of these

37. Solve  $\frac{2}{3}x + 3 = 13$  for x.

(1) 15 (2) 10  
(3) 13 (4) None of these

38. Find the value of the expression substituting the given value of the unknown.

$$x^2y^2 + xy + 1 \text{ when } x = 3 \text{ and } y = 2$$

(1) 43 (2) 42  
(3) 36 (4) None of these

39. Area of a triangle \_\_\_\_\_

(1) base  $\times$  height (2)  $\frac{1}{2}$  base  $\times$  height

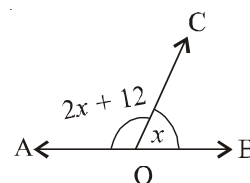
(3)  $(\text{base} \times \text{height})^2$  (4) None of these

40. A square park is of side 100 m. A road 5 m wide is made all around the garden inside it. Find the area of the road?

(1)  $975\text{m}^2$  (2)  $1800\text{m}^2$   
(3)  $900\text{m}^2$  (4) None of these

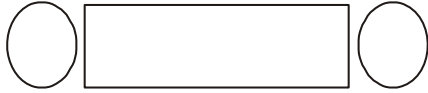
### ETG INTERACTIVE SECTION

41. Find the measure of  $\angle COB$  in figure.



(1)  $39^\circ$  (2)  $56^\circ$   
(3)  $54^\circ$  (4) None of these

42. Which solid figure could have the shapes below as faces



- (1) Cylinder (2) Cube  
(3) Cuboid (4) None of these.

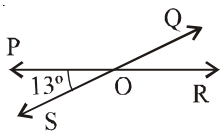
43. The given data shows the distribution of the monthly expenditure of 170 students of a college

Monthly Expenditure	Frequencies
2000 - 3000	25
3000 - 4000	50
4000 - 5000	45
5000 - 6000	30
6000 - 7000	20

How many students spend less than 5000 in a month?

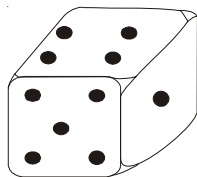
- (1) 130 (2) 120  
(3) 140 (4) None of these.

44. Find the measure of  $\angle QOR$  in figure.



- (1)  $13^\circ$  (2)  $167^\circ$   
(3)  $40^\circ$  (4) None of these

(45 – 46) Work out the chance of making these scores with a dice.



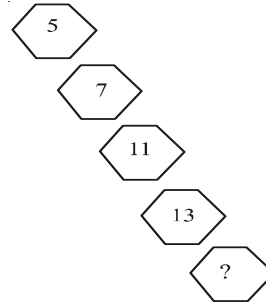
45. What are the chances of rolling a 'six' ?

- (1)  $1/6$  (2)  $2/6$   
(3) Can't say (4) None of these

46. What is the probability of rolling a 'six' or a 'one' ?

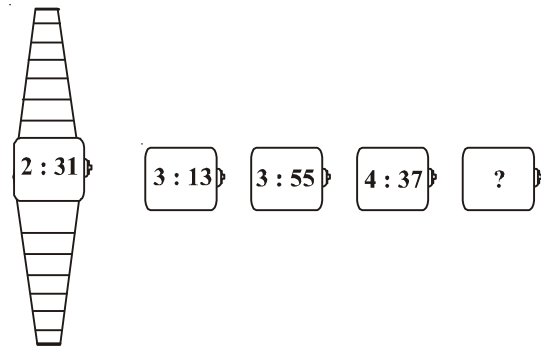
- (1)  $1/3$  (2)  $5/6$   
(3)  $1/6$  (4) None of these

47. Complete the series.



- (1) 15 (2) 17  
(3) 19 (4) None of these

48. What time should the last watch show ?



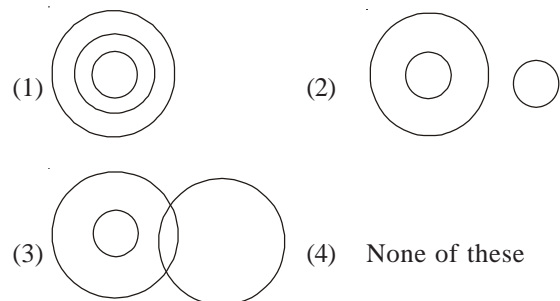
- (1) 5:19 (2) 5:20  
(3) 5:21 (4) None of these

49. Find the missing number

3	15	4
7	38	5
3	?	5

- (1) 15 (2) 19  
(3) 18 (4) None of these

50. Which one of the following Venn diagrams best illustrates the three classes :



- (3) (4) None of these



**END OF THE EXAM**