EHF

LEARNING FOR LIFE

EDUHEAL FOUNDATION

CLASS 9

LEVEL – 1

Set A1

EHF OLYMPIADS

• 4000 schools • 6 lakh students

• 10 olympiads • Global outreach

EHF NATIONAL INTERACTIVE MATHS OLYMPIAD

Name : .....

Roll No : .....

Class : .....

School : .....

BSE international finance olympiad (BIFO)

NATIONAL IIT-PMT OLYMPIAD (NIPO)

Level - 1 : All Level-1 successful* participants will get certificate, apititude 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 Art and Cricket.

Level - 3 : Toppers will qualify# for level-3-International level-where you will compete with students globally. Get selected for EHFs 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.

* # See prospectus/website for details

Instructions for the Candidate

1. You are allowed additional 10 minutes to fill the required details in the RESPONSE SHEET (OMR).
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.

WEBSITE : WWW.EDUHEALFOUNDATION.ORG
E-MAIL : INFO@EDUHEALFOUNDATION.ORG

ROUGH WORK

MENTAL ABILITY

1. In a tournament 14 teams play league matches. If each team plays against every other team once only then how many matches are played?
(1) 105 (2) 91
(3) 85 (4) None of these

2. P, Q, R and S are four men. P is the oldest but not the poorest. R is the richest but not the oldest. Q is older than S but not than P or R. P is richer than Q but not than S. The four men can be ordered (descending) in respect of age and richness, respectively, as:
(1) PQRS,RPSQ (2) PRQS, RSPQ
(3) PRQS, RSQP (4) None of these

3. If Rajesh, while selling two goats at the same price, makes a profit of 10% on one goat and suffers a loss of 10% on the other.
(1) He makes no profit and no loss.
(2) He makes a profit of 1%.
(3) He suffers a loss of 1%.
(4) None of these

4. Two more than three times a number is twenty. What is that number?
(1) 6 (2) 12
(3) 20 (4) None of these

5. Deepti weighs 94 pounds. This is half her mother's weight. How much does Deepti's mother weight?
(1) 198 lb (2) 96 lb
(3) 188 lb (4) None of these

6. In a clock if numbers 1 to 12 are replaced with alphabet starting from E, then which of the following position of hour-minute hand indicates 4 O'clock ?
(1) E – Q (2) E – P
(3) H – P (4) None of these

7. If a coding scheme QIAX is coded as 0123 and KCGRON is coded as 456789, what would be the encoding for word QAXCGON?
(1) 0235789 (2) 0235699
(3) 0235689 (4) None of these

8. John is Sweetie's brother, Sweetie is Rajan's sister and Rajan is Shweta's father. Who is Shweta to Jhon?
(1) Uncle (2) Nephew
(3) Aunt (4) None of these

9. Find the unit rate:
28 stamps on 2 sheets = _____ stamps per sheet
(1) 14 (2) 56
(3) 12 (4) None of these

10. 5 to the power of 0 equals what?
(1) 5 (2) 0
(3) 1 (4) None of these

MATHEMATICS

11. The product of two numbers is 24 and their sum is 10. What is the value of the largest of the two numbers?
(1) 8 (2) 4
(3) 6 (4) None of these

12. Area of parallelogram ABCD is x cm^2. If E, F, G and H are mid points of the sides, find the area of EFGH.

(Parallelogram with name ABCD and midpoint as EFGH)

(1) $\frac{x}{4}$ cm^2 (2) $\frac{x}{3}$ cm^2
(3) $\frac{x}{2}$ cm^2 (4) None of these

13. x, y and z are three sums of money such that y is the simple interest on x, z is the simple interest on y for the same value of time and same rate of interest. The relation among three sums are :
(1) $x^2 = yz$
(2) $y^2 = xz$
(3) $z^2 = xy$ (4) None of these

14. If CP of an article is ₹200 and gain in percentage is 5%. Then gain is:

(1) ₹5 (2) ₹10

(3) ₹15 (4) None of these

15. Here is a list of numbers 42.2, 28.4, 47.0, 36.4, 33.2, 40.4, 36.1 and 32.3. If the number 47 is replaced by 51 in the list, then the mean of the numbers is

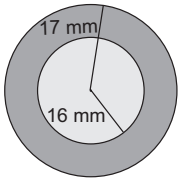
(1) 37 (2) 38.5

(3) 37.5 (4) None of these

16. Anu's office recycled a total of 6 kg of paper over 3 weeks. After 4 weeks, how many kilograms of paper will Anu's office have recycled?

(1) 4 kgs (2) 6 kgs

(3) 8 kgs (4) None of these



17. Both circles have the same centre. What is the area of the shaded region? (Use 3.14 for π. Write your answer as a whole number or a decimal rounded to the nearest hundredth)

(1) 3419 sq mm (2) 910 sq mm

(3) 2512 sq mm (4) None of these

18. Which point is in Quadrant III?

(1) (1, –4) (2) (–1, –3)

(3) (–2, 3) (4) None of these

19. Find the slope of the line that passes through (1, 9) and (6, 1).

(1) $\frac{-8}{5}$ (2) $\frac{8}{5}$

(3) $\frac{10}{7}$ (4) None of these

20. What expression does this set of algebra tiles represent? (10 square tiles written x^2 over it, 2 rectangular tiles with x over it and 2 square tiles with 1 over it)

(1) $10x^2 + 2x + 2$ (2) $x^2 + x + 2$

(3) $6x^2 + 2x + 1$ (4) None of these

21. A rectangular yard measures 8 m by 6 m. What happens to the area if each dimension is doubled?

(1) It becomes 4 times smaller

(2) It becomes twice as large

(3) It becomes 3 times greater

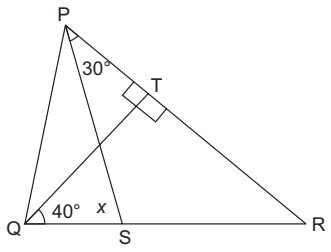
(4) None of these

22. If the root of the equation $3x^2 - kx - 2 = 0$ is 2, then what is the value of k?

(1) 0 (2) –2

(3) 5 (4) None of these

23. In the given figure, QT ⊥ PR, what is the value of x?



(1) 80°

(2) 60°

(3) 100°

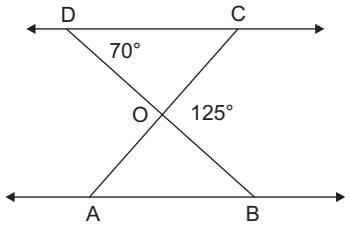
(4) None of these

24. After rationalizing the denominator of $\frac{7}{3\sqrt{3}} - 2\sqrt{2}$, we get the denominator as

(1) 13 (2) 19

(3) 5 (4) None of these

25. In the given figure, ΔODC ~ ΔOBQA, ∠BOC = 125° and ∠CDO = 70°, find ∠OAB.



(1) 70° (2) 55°

(3) 125° (4) None of these

26. Find the quotient and remainder when $4t^3 - 12t^2 + 14t - 13$ is divided by $t - \frac{1}{2}$

(1) $4t^2 - 10t + 9, -\frac{17}{2}$ (2) $4t^2 + 10t - 9, \frac{17}{2}$

(3) $4t^2 - 10t - 9, \frac{19}{2}$ (4) None of these

27. The coefficient of x in the expansion of $(x + 3)^3$ is

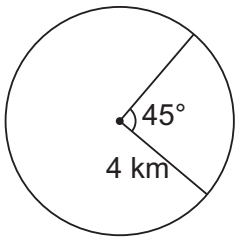
(1) 9

(2) 18

(3) 27

(4) None of these

28. The radius of a circle is 4 km. What is the area of a sector bounded by a 45° arc?



Give the exact answer in simplest form.

(1) 2π km

(2) 3π km

(3) 5π km

(4) None of these

29. Karishma purchases a scooter costing ₹36,450 and the rate of sales tax is 9%, then the total amount paid by her is

(1) ₹36,490.50 (2) ₹39,730.50

(3) ₹36,454.50 (4) None of these

30. Sheetal purchased a hair-dyer for ₹5400 including 8% VAT. Find the price before VAT was added.

(1) ₹5000 (2) ₹4000

(3) ₹4500 (4) None of these

31. 39 persons can repair a road in 12 days, working 5 hours a day. In how many days will 30 persons, working 6 hours a day, complete the work?

(1) 10 (2) 13

(3) 14 (4) None of these

32. 7 identical pipes fill 3 identical tanks in 45 mins, 5 pipes fill one of these tanks in

(1) 20 min (2) 21 min

(3) 15 min (4) None of these

33. 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.

(1) 80 (2) 88

(3) 77 (4) None of these

34. If $x > 0$ and $y < 0$, then the point (x, y) lies in

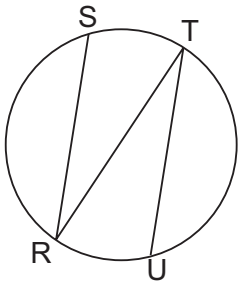
(1) I Quadrant

(2) II Quadrant

(3) IV Quadrant

(4) None of these

35. What is the length of line segment TU?



(RS line segment is 28, SR arc and TU arc are 81° each)

(1) 28 (2) 29

(3) 30 (4) None of these

36. If $y97 + 97$ is divided by $y + 1$ the remainder is:

(1) 1 (2) 95

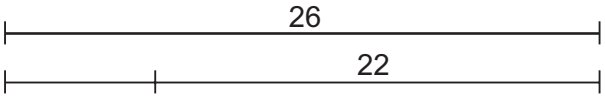
(3) 96 (4) None of these

37. If α and β are the roots of the polynomial $ax^2 + bx + c$, then find the value of $\alpha^2 + \beta^2$

(1) $\frac{b^2 - 2ac}{a^2}$ (2) $b^2 - 4ac$

(3) $\frac{b^2 + 2ac}{a^2}$ (4) None of these

38. Write an equation that says that the length of the thinner line is equal to the length of the bold line. Combine like terms.



(1) $y - 22 = 26$ (2) $y = 26 + 22$

(3) $y + 22 = 26$ (4) None of these

39. You have two marbles one is black another is orange. You pick a marble at random. What is P(orange)? Find your answer as a percentage.

(1) 50% (2) 100%

(3) 75% (4) None of these

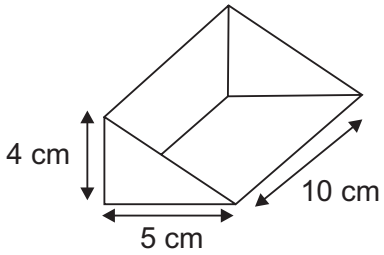
40. What is the volume of the given figure?

(1) 200 sq cm

(2) 200 cu cm

(3) 2000 cu cm

(4) None of these



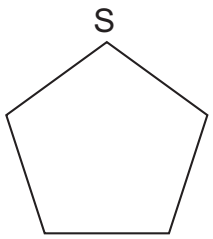
INTERACTIVE SECTION

41. Raju plays squash every 3rd day and plays badminton ever 4th day. He played both squash and badminton on 4th April, what is the next date when he will play both games?

(1) 15th April (2) 16th April

(3) 18th April (4) None of these

42. A rabbit is walking on periphery of a regular polygon as shown below.



(Show the midpoint as A, B, C, D, E clockwise)

If it starts from point S, rabbit will be on which side after walking $\frac{22}{25}$ distance of the periphery in

clock-wise direction?

(1) B (2) D

(3) E (4) None of these

43. There are a total of 9 chocolates – 3 each in the flavors of coffee, banana and mango. There are also 4 children. If each child is allowed to choose their own favorite flavor, what is the probability that all of them will get flavor, what is the probability that all of them will get flavors of their choice?

(1) $\frac{1}{28}$ (2) $\frac{25}{27}$

(3) $\frac{26}{27}$ (4) None of these

44. A Bakery just opened and is increasing the number of items they bake. For example, the bakery made 979 carrot cakes in October, 979 carrot cakes in November, 979 carrot cakes in December, and 979 carrot cakes in January. What kind of sequence is this?

(1) Arithmetic (2) Geometric

(3) Both (4) None of these

45. What is the hypothesis in this conditional statement?

If a number is greater than 0, then it is positive.

(1) The number is positive

(2) The number is greater than 0

(3) Can't say

(4) None of these

46. A doctor wants to subscribe to some magazines so that her patients have something to read in the waiting room. She wants to subscribe to one of 2 news magazines and one of 4 fashion magazines. How many different combinations of magazines can the doctor order?

(1) 8 (2) 10

(3) 6 (4) None of these

47. Rohan is meeting his friends at 7:30 PM. The average speed of the bus is 28 km/h, and he needs to travel 20 km. When is the latest time he should catch the bus?

(1) 6:50 PM (2) 6:43 PM

(3) 6:47 PM (4) None of these

48. At a candy factory, butterscotch candies were packaged into bags of different sizes.

Butterscotch candies per bag	
Stem	**Leaf**
5	4
6	0 4 4 7
7	0 2 4 8 8
8	0 1 1 2 3 4 7 7 7
9	0

How many bags had at least 57 butterstotch candies?

(1) 18 (2) 19

(3) 20 (4) None of these

49. Sohan grew 12 plants with 6 seed packets. With 9 seed packets, how many total plants can Sohan have in her back garden? Assume the relationship is directly proportional.

(1) 9 plants (2) 18 plants

(3) 10 plants (4) None of these

50. Ella did 180 random maths problems from each maths book in her library. Each maths book in the library has an equal number of problems. Is this sample of the maths problems in the library likely to be biased?

(1) Yes (2) No

(3) Can't say (4) None of these

END OF THE EXAM