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INTERNATIONAL CYBER OLYMPIAD	NATIONAL INTERACTIVE SCIENCE OLYMPIAD	NATIONAL INTERACTIVE MATHS OLYMPIAD	NATIONAL BIOTECHNOLOGY OLYMPIAD	INTERNATIONAL ENGLISH OLYMPIAD	INTERNATIONAL G.K. OLYMPIAD

Level - 1 : Level-1 winners will get certificate, apititude report, medals for the school toppers and online subscription.

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Level - 3 : Top 1% 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.

NATIONAL INTERACTIVE MATHS OLYMPIAD

NIMO

10 Class **A1 Paper Code**

L E V E L - 1

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

MENTAL ABILITY

1. If L denotes ×, M denotes ÷, P denotes + and Q denotes –, then

16 P 24 M 8 Q 6 M 2 L 3 = ?

(1) $\frac{13}{6}$ (2) $\frac{1}{6}$

(3) 10 (4) None of these

2. In an examination Harish got more marks than Nitin but not as many as Shilpa. Shilpa got more marks than Manish and Dimple. Manish got less marks than Nitin but his marks are not the lowest in the group. Who is second in the descending order of marks?

(1) Shilpa (2) Dimple

(3) Harish (4) None of these

3. If the first and third letters in the word NECESSARY were interchanged, also the fourth and the sixth letters and the seventh and the nineth letters, which of the following would be the seventh letter from the left?

(1) A (2) Y

(3) R (4) None of these

4. Rajan is the brother of Sachin and Manick is the father of Rajan. Jagat is the brother of Priya and Priya is the daughter of Sachin. Who is the uncle of Jagat ?

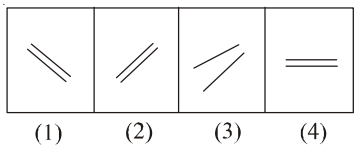
(1) Rajan (2) Sachin

(3) Manick (4) None of these

5. If MACHINE is coded as 19-7-9-14-15-20-11, how will you code DANGER ?

(1) 10-7-20-13-11-24 (2) 11-7-20-16-11-24
(3) 13-7-20-9-11-25 (4) None of these

6. Choose the figure which is different from the rest?



(1) (2) (3) (4)

(1) 2 (2) 3

(3) 4 (4) None of these

7. If BOMBAY is written as MYMYMY, how will TAMIL NADU be written in that code ?

(1) TIATIATIA (2) MNUMNUMNU

(3) IATIATIAT (4) None of these

8. Complete the series 17, 34, 51, 68, ___ .

(1) 58 (2) 85

(3) 68 (4) None of these

9. Mary purchased 8 books for ₹56. Jane purchased 12 books. How much did Jane pay?

(1) 84 (2) 94

(3) 34 (4) None of these

10. If ÷ means +, – means ÷, × means – and + means ×, then $\frac{(36\times 4)-(8\times 4)}{(4+8\times 2+16\div 1)}=?$

(1) 8 (2) 12

(3) 0 (4) None of these

MATHEMATICS

11. Solve $(p^2 - 7p - 18) / (p - 9)$

(1) $(p + 2)$ (2) $(p + 3)$

(3) $(p + 4)$ (4) None of these

12. The areas of two circles are in the ratio of 4 : 9 . The ratio between their circumference is

(1) 1 : 2 (2) 2 : 3

(3) 3 : 4 (4) None of these

13. $\left(\text{Sec}^2\theta-1\right)\left(1-\text{Cosec}^2\theta\right)=$

(1) –1 (2) 1

(3) 0 (4) None of these

14. Find the area of an equilateral triangle whose one side is 8 cm.

(1) $15\sqrt{3}$ sq.units (2) $16\sqrt{3}$ sq.units

(3) $12\sqrt{3}$ sq.units (4) None of these

15. What is 70% of $\frac{10}{7}$?

(1) 1 (2) 2

(3) 1.2 (4) None of these

16. A man travels a distance at 60 km/h and then returns by the same route at 40 km/h. What is his average rate for the round trip in km/h ?

(1) 50 km/h (2) 48 km/h

(3) 49 km/h (4) None of these

17. Factorise : $4x^2 - 8x + 3$

(1) $(2x - 1)(2x - 3)$ (2) $(2x + 1)(3x - 1)$

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

18. Solve for x : $\frac{1}{3}(x - 3) - (x + 3) = 2(x - 1)$

(1) – 3/4 (2) 3/4

(3) 4/3 (4) None of these

19. Evaluate :

$2\sin^2 30^\circ - 4\cos^4 60^\circ + 2\tan^5 45^\circ - 3\sec^2 45^\circ + 4\cot^2 30^\circ - 5$

(1) 4/13 (2) 13

(3) 13/4 (4) None of these

20. The radius and height of a cylinder are in the ratio 5 : 7 and its volume is 550 cm^3. Find its radius.

(1) 5 cm (2) 4 cm

(3) 3 cm (4) None of these

21. If $v = 0.8\frac{r}{t}$, find t in terms of v and r. Find the value of t, when $v = 1.6$ and $r = 20$.

(1) 20 (2) 30

(3) 10 (4) None of these

22. $\frac{\sin 9^\circ}{\cos 81^\circ}$ is equal to

(1) 1 (2) 2

(3) 3 (4) None of these

23. Determine the area of a triangle whose sides are 5 cm, 13 cm, and 12 cm.

(1) 20 cm sq (2) 15 cm sq

(3) 30 cm sq (4) None of these

24. Find what sum of money invested at $3\frac{1}{2}\%$ simple interest amounts in 4 years to ₹ 7,296.

(1) ₹ 6400 (2) ₹ 6500

(3) ₹ 3200 (4) None of these

25. Solve : $\left(x^{b-c}\right)^a \times \left(x^{c-a}\right)^b \times \left(x^{a-b}\right)^c$

(1) 2 (2) 6

(3) 1 (4) None of these

26. Find the area of a rhombus whose diagonals are 6 cm and 8 cm.

(1) 24 cm sq (2) 30 cm sq

(3) 54 cm sq (4) None of these

27. The width of a room is $\frac{3}{8}$ of its length. If the perimeter is 110 m, find its length.

(1) 40 m (2) 3 m

(3) 50 m (4) None of these

28. If $t = \frac{1}{1-\sqrt[4]{2}}$, then t is equal to

(1) $(1-\sqrt[4]{2})(2-\sqrt{2})$ (2) $(1-\sqrt[4]{2})(2+\sqrt{2})$

(3) $-(1+\sqrt[4]{2})(1+\sqrt{2})$ (4) None of these

29. If p and q are the roots of the equation $x^2 + px + q = 0$, then

(1) $p = 1, q = 0$ (2) $p = 0, q = 1$

(3) $p = -2, q = 0$ (4) None of these

30. If the mean of 10, 12, 18, 13, p and 17 is 15, find the value of p.

(1) 19 (2) 24

(3) 20 (4) None of these

31. Multiply $\sqrt[3]{a^5}, a^{\frac{2}{3}}, \sqrt{a^5}$, and $\frac{1}{a^{-4}}$.

(1) $a^{\frac{52}{6}}$ (2) $a^{\frac{23}{7}}$

(3) $a^{\frac{53}{6}}$ (4) None of these

32. If $(8x + 38^\circ)$ and $(3x - 58^\circ)$ are supplementary angles, find x.

(1) $\frac{213}{5}$ (2) $\frac{200}{11}$

(3) $\frac{214}{13}$ (4) None of these

33. Solve $\frac{x+1}{3} - \frac{x+7}{2} = 1$

(1) -25 (2) -23

(3) 34 (4) None of these

34. Simplify $\frac{\sqrt{3}-1}{\sqrt{3}+1}$.

(1) $2-\sqrt{3}$ (2) $2+\sqrt{3}$

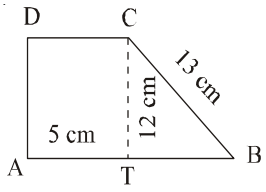
(3) $3-\sqrt{4}$ (4) None of these

35. ₹16000 invested at 10% p.a, compounded semi-annually amounts to ₹18522. Find the time period of investment.

(1) 3 (2) 4

(3) 5 (4) None of these

36. The area of trapezium ABCD is



(1) 70 cm^2 (2) 38 cm^2

(3) 90 cm^2 (4) None of these

37. Find the median of the following data :

15, 35, 18, 26, 19, 25, 29, 20, 27

(1) 34 (2) 25

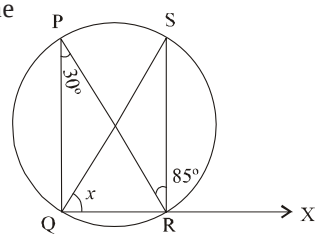
(3) 35 (4) None of these

38. *PQRS* is a cyclic quadrilateral in which PQ || RS, $\angle Q = 65^\circ$, then other angles are

(1) $70^\circ, 80^\circ, 120^\circ$ (2) $115^\circ, 115^\circ, 65^\circ$

(3) $110^\circ, 70^\circ, 80^\circ$ (4) None of these.

39. What is the value of x in the given figure ?



(1) 45°

(2) 55°

(3) 65°

(4) None of these

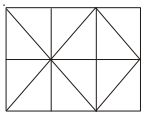
40. The mean of first odd 'n' natural numbers is

(1) n (2) $2n$

(3) $\frac{n+1}{2}$ (4) None of these

INTERACTIVE SECTION

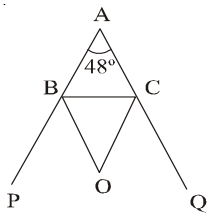
41. How many squares does the figure have ?



(1) 6 (2) 7

(3) 9 (4) None of these

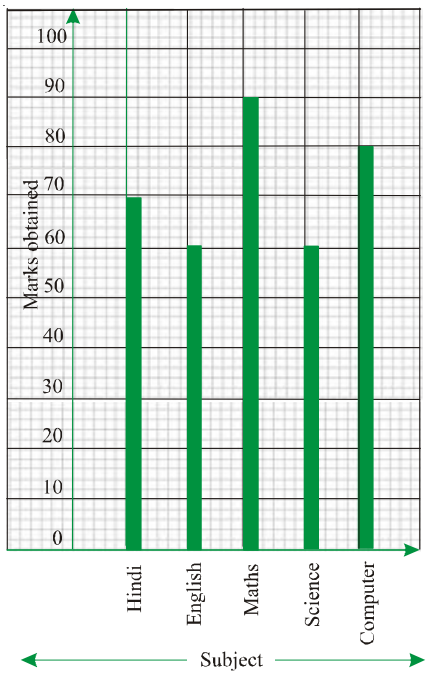
42. In the given figure BO and CO are the bisectors of the exterior angles of B and C. Then $\angle BOC$ is



(1) 46° (2) 56°

(3) 66° (4) None of these

(43 - 45). Read the bar graph in figure and answer the following questions.



43. What is the scale selected ?

(1) 5 small parts = 10 marks, vertical axis

(2) 4 small parts = 9 marks, vertical axis

(3) 3 small parts = 8 marks, vertical axis

(4) None of these

44. In which subject did Nidhi get the highest marks ?

(1) English

(2) Maths

(3) Computer

(4) None of these

45. In which two subjects did Nidhi obtain equal marks?

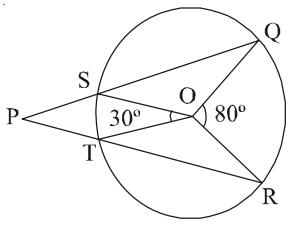
(1) Hindi and Computer

(2) English and Hindi

(3) English and Science

(4) None of these

46. What is the measure of $\angle QPR$?



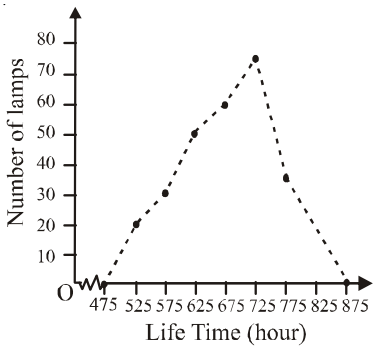
(1) 35°

(2) 25°

(3) 50°

(4) None of these

47. The given frequency polygon shows the lifetime of neon lamps. What is the range of the given data?



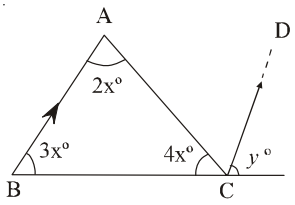
(1) 340

(2) 350

(3) 360

(4) None of these

48. In the figure given below, CD is parallel to AB. Calculate $\angle y$.



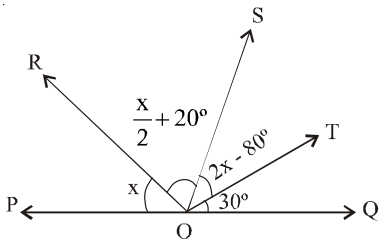
(1) 45°

(2) 60°

(3) 75°

(4) None of these

49. If POQ is a straight line, then what is the value of x?



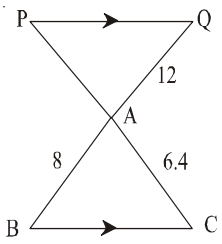
(1) 80°

(2) 70°

(3) 60°

(4) None of these

50. In the given figure, PQ || BC, AB = 8 cm, AC = 6.4 cm, AQ = 12 cm. Find CP.



(1) 15 cm

(2) 9.6 cm

(3) 9 cm

(4) None of these

END OF THE EXAM