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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 IIT PMT OLYMPIAD

NIP O

7 Class **A1 Paper Code**

LEVEL - 1

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MATHEMATICS

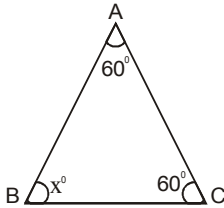
1. Each member of Avinash's family had one pizza for lunch. Each pizza costs ₹135. What else do you need to know to find out how much the family spent on lunch?
 - (1) The price of hamburger ?
 - (2) How many people are there in the family ?
 - (3) Which family member paid for lunch ?
 - (4) How much money Avinash's father had in his wallet ?
2. The LCM of two number is 238 and the numbers are 17 and 14, then their HCF is-
 - (1) 1
 - (2) 17
 - (3) 432
 - (4) 14

3. Which of the following number is divisible by 45 ?
 - (1) 32424
 - (2) 444195
 - (3) 65892
 - (4) None of these
4. Which amongst the following is an acute angle ?
 - (1) Angles measuring more than 90 degree
 - (2) Angles measuring less than 90 degree
 - (3) Angles measuring exact 90 degree
 - (4) None of these
5. Diameter of a circle is $\frac{2}{\pi}$ units. Then its area is (in square units)
 - (1) $\frac{4}{\pi^2}$
 - (2) $\frac{2}{\pi^2}$
 - (3) $\frac{1}{\pi}$
 - (4) 1

6. Which term refers to the end point of two rays forming an angle?

- (1) Bisector (2) Vertex
(3) Degrees (4) None of these

7. In the figure, measure of $\angle x$ is :



- (1) 60° (2) 70°
(3) 80° (4) None of these

8. The missing value in the box, if

$$(24) \div (-2) = 9 + \square \times (-3) \text{ is}$$

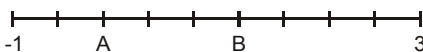
- (1) -12 (2) 4
(3) -6 (4) 7

9. What is the value of the expression

$$[18 - (-7) + (-2) - (+8)] ?$$

- (1) -18 (2) -15
(3) 15 (4) 18

10. A number line from -1 to 3 is divided into nine equal segments. What fraction points A and B?



- (1) $\frac{4}{9}, \frac{16}{9}$ (2) $\frac{8}{9}, \frac{32}{9}$
(3) $\frac{14}{9}, \frac{20}{9}$ (4) $\frac{2}{9}, \frac{5}{9}$

11. In the expression $a + b + bc$, the variables are

- (1) a and b (2) a and bc
(3) a, b and c (4) None of these

12. Which algebraic expression **correctly** represents the statement the square of the product of numbers x and y subtracted from the sum of their squares?

- (1) $x^2 + y^2 - x^2y^2$ (2) $x^2y^2 - (x^2 + y^2)$
(3) $(x + y)^2 - x^2y^2$ (4) $x^2y^2 - (x + y)^2$

13. What is the sum of the expressions $(5x^2 + 7x^2y + 7xyz)$, $(3y^2 - 5yzx + 2yx^2)$ and $(-4y^2 + z^2 + 4zxy - 4x^2y)$?

- (1) $x^2 + 6x^2y - 5xyz + y^2 - z^2$
(2) $x^2 - 4x^2y + 3xyz + y^2 + z^2$
(3) $5x^2 + 5x^2y + 6xyz - y^2 + z^2$
(4) $4x^2 + 3x^2y - 7xyz + y^2 - z^2$

14. If $\left(a - \frac{1}{a}\right) = 5$, then the value $a^2 + \frac{1}{a^2}$ is :

- (1) 20 (2) 27
(3) 21 (4) 23

15. A farmer has a 55 m long rectangular field that has an area of 1650m^2 . To prevent stray animals from entering his field, he wants to fence the field with two rounds of barbed wire, which costs Rs. 5 per metre. How much does the farmer need to spend on the barbed wire in order to fence his field?

- (1) Rs. 1,500 (2) Rs. 1,600
(3) Rs. 1,700 (4) Rs. 1,800

16.

What is the area of the given figure?

- (1) 420 cm^2 (2) 410 cm^2
(3) 400 cm^2 (4) 390 cm^2

17. If $8^{x-1} = 2^{x+3}$, then x is

- (1) 2 (2) 1
(3) 0 (4) 3

18. Cube of $\left(-\frac{1}{27}\right)$ is.....

- (1) $\frac{-1}{19683}$ (2) $\frac{1}{963}$
(3) $\frac{1}{850}$ (4) None of these

19. The value of $\left(\frac{32}{243}\right)^{-3/5}$ is

- (1) $\frac{27}{8}$ (2) $\frac{21}{8}$
 (3) $\frac{27}{11}$ (4) None of these

20. When 8 is added to two fifth of a number, it gives 30.

If x is the number, which equation represents the given situation?

- (1) $8 + \frac{2}{5}x = 30$ (2) $8x + \frac{2}{5} = 30$
 (3) $5 + \frac{2x}{8} = 30$ (4) None of these

21. Rohan and Sohan are two friends. Rohan has ₹12 less than twice the amount of money that Sohan has. If Sohan has ₹ p and Rohan has ₹21, then which equation represents the given situation?

- (1) $p + 21 = 2 \times 12$
 (2) $2p + 12 = 21$
 (3) $p - 21 = 2 \times 12$
 (4) $2p - 12 = 21$

22. $0.71 \times 0.005 \times 0.04$ is equal to

- (1) 1.42×10^{-4} (2) 1.53×10^{-9}
 (3) 14.2×10^{-7} (4) 0.14×10^{-4}

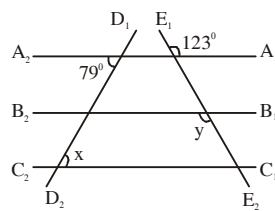
23. If $+$ means \times , $-$ means $+$, and \div means $-$, then the value of $7 + 4 - 3 \div 17 + (\div 1)$

- (1) -17 (2) 57
 (3) 23 (4) 48

24. The two consecutive prime numbers with difference 2 are called

- (1) Co-primes (2) Twin primes
 (3) Composites (4) Evens

25. In the given figure, $A_1A_2 \parallel B_1B_2$ and $B_1B_2 \parallel C_1C_2$.



What is the measure of the given angle x and y ?

- (1) 79° and 123° (2) 101° and 57°
 (3) 79° and 57° (4) 101° and 123°

SCIENCE

26. Which is a protein deficiency disease ?

- (1) Osteomalacia (2) Kwashiorkor
 (3) Night Blindness (4) None of these

27. Jute is obtained from which part of the jute plant ?

- (1) Leaves (2) Root
 (3) Stem (4) None of these

28. A mixture formed by dissolving a material in some other substance is known as

- (1) Solvent (2) Solute
 (3) Solution (4) None of these

29. Which of the following methods is used to separate small number of stone from rice ?

- (1) Handpicking (2) Winnowing
 (3) Threshing (4) None of these

30. Which is a homogeneous mixture ?

- (1) Pond water (2) Oil and water
 (3) Air (4) None of these

31. On a hot summer day, ice-cream melts faster than in winters. This process of melting is a

- (1) Chemical change (2) Physical change
 (3) Periodic change (4) None of these

32. A plant which does not have distinct roots and stem is called

- (1) Algae (2) Moss
 (3) Both 1 and 2 (4) None of these

33. Muscles are attached to the bones with the help of

- (1) Tendons (2) Ligaments
 (3) Pivotal joints (4) None of these

34. Which gas is used by plants for photosynthesis?
 (1) Oxygen (2) Carbondioxide
 (3) Nitrogen (4) None of these
35. The movement of a player in a football ground is an example of
 (1) Random motion. (2) Periodic motion.
 (3) Oscillatory motion (4) None of these
36. Which animal product is used in Ayurvedic medicines?
 (1) Egg (2) Butter
 (3) Honey (4) None of these
37. 70% of our blood consists of
 (1) Proteins (2) Water
 (3) Fats (4) None of these
38. Changes in our surroundings that makes us respond to them are called
 (1) Evolution (2) Acclimatization
 (3) Stimuli (4) None of these
39. Which gas dissolves in rain water to form acid rain?
 (1) Sulphur dioxide (2) Carbon monoxide
 (3) Carbon dioxide (4) None of these
40. Undesirable and unused materials are
 (1) Garbage (2) Sewage
 (3) Chemical (4) None of these
41. Which of the following plant has a fibrous root system?
 (1) Banyan tree (2) Wheat plant
 (3) Water melon (4) None of these
42. A substance which cannot be recycled by micro organisms is
 (1) Wood (2) Clothes
 (3) Plastic (4) None of these
43. Which gas is used for making fertilizers?
 (1) Oxygen (2) Nitrogen
 (3) Carbon dioxide (4) None of these
44. Oral Rehydration Salt solution is beneficial for anybody who has
 (1) Fever (2) Malaria
 (3) Diarrhoea (4) None of these
45. Image is formed on which part of the eye?
 (1) Iris (2) Retina
 (3) Cornea (4) None of these
46. Most of the pure drinkable water of the earth is in the form of
 (1) Icebergs (2) Springs
 (3) Ocean water (4) None of these
47. A process that converts carbon dioxide into organic compounds using sunlight is called
 (1) Carbonation (2) Burning
 (3) Combustion (4) None of these
48. Which of the following countries is closest to the equator?
 (1) Greenland (2) Australia
 (3) Sri Lanka (4) China
49. Anaerobic respiration induced by micro-organisms. Name the process.
 (1) Fermentation (2) Combustion
 (3) Fragmentation (4) Nutrition
50. The thinnest layer of the earth is
 (1) Crust (2) Landmass
 (3) Core (4) Mantle



END OF THE EXAM