Duration : 60 min. **Maximum Marks : 180**
Class : 8th **Subject : MATHEMATICS**

International Talent Search Examination - 2023-24

अंतर्राष्ट्रीय प्रतिभा खोज परीक्षा - २०२३-२४

Organized by

Savitri Skill Development Institute, Training Partner with
Ministry of Micro Small & Medium Enterprises (MSME), Govt. of India.

TEST BOOKLET

Name : .....

Class : ..... School: .....

Father's Name : ..... Father's Occupation : .....

Mother's Name : ..... Mother's Occupation : .....

Categories : Gen ☐ OBC ☐ SC ☐ ST ☐

Correspondence Address :.....

Date of Birth : ☐☐ ☐☐ ☐☐☐☐

Father's Contact No : ☐☐☐☐☐☐☐☐☐☐

Home/Mother's Contact No. : ☐☐☐☐☐☐☐☐☐☐

WhatsApp No. : ☐☐☐☐☐☐☐☐☐☐

Basic Instructions:

i. Ensure that your personal data has been entered correctly.
ii. Immediately after opening the test booklet verify that all the pages are printed properly and are in order. If there is a problem with your test booklet, immediately inform the invigilator. You will provided with the replacement.
iii. All questions in are compulsory.
iv. For every correct answer you will be awarded with 4 marks and for all incorrect answer 1 mark will be deducted.
v. Directions for answering the questions are given. Read those directions carefully and answer the question by circling the bubble in the OMR Sheet Provided to you. Test booklet/OMR Sheet will be submitted at the end of the examination.
vi. Follow the instructions given by the invigilator. Students found violating the instructions will be disqualified.
vii. Rough work can be done separately or on the Question paper.
viii. Please fill the bubbles in OMR sheet with Blue or Black pen only.
ix. Do not tear the question paper or OMR sheet else you will be disqualified in the examination.

CLASS-8 MATHEMATICS

1. What is the quotient when non-zero rational number is divided by its additive inverse?
   (A) 0 (B) -1 (C) 1 (D) none of these

2. Simplify $\frac{2}{3}+\frac{-4}{5}+\frac{7}{15}+\frac{-11}{20}$
   (A) $-\frac{-1}{5}$ (B) $\frac{-13}{60}$ (C) $\frac{-4}{15}$ (D) $\frac{-7}{30}$

3. $\frac{2}{0}$ is ……..
   (A) neither positive nor negative rational number (B) positive rational number
   (C) either positive rational number (D) negative rational number

4. Which of the following numbers are respectively the additive and multiplicative identities.
   (A) 2 & 0 (B) 1 & -1 (C) -1 & 0 (D) 0 & 1

5. $\sqrt{0.0625}\times\sqrt{0.001296}$ =
   (A) 0.09 (B) 0.009 (C) 0.0009 (D) 0.9

6. The least perfect square, which is divisible by 21, 22 and 66 is
   (A) 213444 (B) 214344 (C) 214434 (D) 231444

7. If $3\sqrt{5}+\sqrt{125}=17.88$, then the value of $\sqrt{80}+\sqrt{180}$ is :
   (A) 13.41 (B) 20.46 (C) 21.66 (D) 22.35

8. How many 2-digit numbers are there such that their square ends with unit digit 8?
   (A) 2 (B) 4 (C) 5 (D) none

9. The cube root of $\frac{27}{8}$ is
   (A) $\frac{1}{2}$ (B) $\frac{2}{3}$ (C) $\frac{3}{2}$ (D) $\left(\frac{3}{2}\right)^{\frac{1}{3}}$

10. $\sqrt[3]{0.125}+\sqrt[3]{0.729}$ = …….
    (A) 0.5 (B) 0.14 (C) 1.4 (D) $(14)^{1/3}$

11. Cube root of -10648 is
    (A) -18 (B) -11 (C) -22 (D) -17

12. The cube of the number p is 16 times the number. Then find p where $p\neq 0$ and $p\neq -4$.
    (A) 4 (B) 2 (C) 8 (D) 3

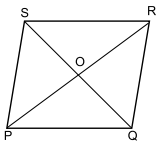
13. Two bicyclists cover the same distance at 15km/hr and 16km/hr respectively. Find the distance traveled by each if one takes 16 min longer than the other.
    (A) 60km (B) 64km (C) 48km (D) 45km

14. In a hostel mess, 50kg rice is consumed every day. If each student gets 400gm of rice per day, find the number of students who take meals in the hostel mess.
    (A) 120 (B) 130 (C) 125 (D) 135

15. In a rational number, twice the numerator is 2 more than the denominator. If three is added to each of the numerator and the denominator, the new fraction is 2/3. Find the original number.
    (A) $\frac{7}{12}$ (B) $\frac{18}{24}$ (C) $\frac{14}{48}$ (D) $\frac{5}{24}$

16. Vaibhaw inherited Rs 12000.00. He invested a part of it as 10% and the rest at 12%. His annual income from these investments is Rs 1280. How much he invested at rate of 12%?
    (A) Rs 8000 (B) Rs 2000 (C) Rs 6000 (D) Rs 4000

17. In the figure, PQRS is a rhombus; SQ and PR are the diagonals of the rhombus intersecting at O. If $\angle OPQ = 35°$, then find value of $\angle ORS + \angle OQP$
    (A) 90°
    (B) 45°
    (C) 135°
    (D) 125°



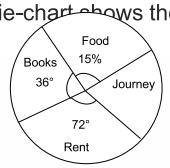
18. If the angles A, B, C, D of the quadrilateral ABCD, taken in order, are in the ratio of 3 : 7 : 6 : 4 the ABCD is a
(A) rhombus (B) parallelogram (C) kite (D) trapezium

19. In a rhombus PQRS, the diagonals intersect at O. Given that $\angle P = 120°$ and OP = 3cm. What is the side of the rhombus?
(A) 4 cm (B) 6 cm (C) $3\sqrt{3}$ cm (D) can not be determined

20. In a rhombus ABCD, the diagonals intersect each other at O. If $\angle DA = 60°$ and OA = 2cm then the side of the rhombus is
(A) 4 cm (C) $4\sqrt{3}$cm (C) $2\sqrt{3}$cm (D) $\frac{4}{3}\sqrt{3}$cm

21. Two dices are rolled. Find the probability of getting a sum of numbers less than 11.
(A) $\frac{5}{6}$ (B) $\frac{11}{12}$ (C) $\frac{1}{6}$ (D) $\frac{1}{12}$

22. Following pie-chart shows the monthly expenditure of a family. If total expenditure is 50,000. Find the expenditure on Journey.



(A) 25000 (B) 28000 (C) 32917 (D) 25500

23. In a box, there are 8 red, 7blue, 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?
(A) $\frac{1}{3}$ (B) $\frac{1}{4}$ (C) $\frac{7}{4}$ (D) $\frac{8}{21}$

24. Two dices are thrown simultaneously. What is the probability of getting two numbers whose product is even?
(A) $\frac{3}{4}$ (B) $\frac{1}{4}$ (C) $\frac{1}{4}$ (D) $\frac{1}{2}$

25. The price of a commodity is reduced to its $\frac{5}{6}$ th, then percentage reduction in the price is
(A) $16\frac{2}{3}$ % (B) $83\frac{1}{3}$ % (C) $16\frac{1}{3}$ % (D) 83%

26. The ratio of Ram's savings to his expenditure is 5 : 2 and that of Manu is 4 : 3. If Ram's expenditure is $\frac{1}{3}$ rd of Manu's expenditure and the sum of their expenditures is Rs 3000, then salaries of Ram and Manu respectively are
(A) Rs 2625, Rs 5250 (B) Rs 5250, Rs 2625 (C) Rs 2652, Rs 5520 (D) Rs 5520, Rs 2652

27. In an exam, there were 50 questions and each question carried 4 marks. Sahil scored 80% marks in the test. Later 5 questions were proved logically incorrect and the score of each student was calculated out of the rest of the questions. Thensahil's new score, if he had not attempted any of the deleted questions is
(A) $88\frac{8}{9}$ % (B) $88\frac{1}{9}$ % (C) $88\frac{2}{9}$ % (D) $88\frac{5}{9}$ %

28. Ramchand took a loan of Rs 12000 from his neighbour and agreed to repay it after 2 years at the rate 8% per annum, simple interest. At the end of 2 year, his neighbour demanded interest at the rate of 12%. The extra amount paid by the borrower is
(A) Rs 860 (B) Rs 960 (C) Rs 806 (D) Rs 906

29. How much time will a 200m long train running at 15 m/s take to cross a bridge of length 355m?
(A) 36 sec (B) 35 sec (C) 37 sec (D) 40 sec

30. The expansion of $(x^2+4)(x^2-4)(x^4+16)$ is
(A) x^8-128 (B) x^4-16^2 (C) x^6-256 (D) x^8-256

31. Which of the following is the factor of $4a^2+b^2-4ab+2b-4a+1$
(A) $(a-b)$ (B) $(a+b-2)$ (C) $(a-b+2)$ (D) $(2a-b-1)$

32. Factorize of the polynomial $(11x^2-10x-3)$ is
(A) $(x+\sqrt{3})(11x-\sqrt{3})$ (B) $(x+3\sqrt{3})(11x-\sqrt{3})$ (C) $(x-\sqrt{3})(11x+\sqrt{3})$ (D) $(x+\sqrt{3})(11x+\sqrt{3})$

33. If $x^2 = y^2 + xy = 1$ and $x + y = 2$, then find xy $\frac{-3}{2}$

(A) -3 (B) 3 (C) (D) does not exist

34. The factors of the expression $a+b+c+2\sqrt{ab}-2\sqrt{bc}-2\sqrt{ca}$ are

(A) $\sqrt{a}-\sqrt{b}+\sqrt{c},\sqrt{a}-\sqrt{b}+\sqrt{c}$ (B) $\sqrt{a}+\sqrt{b}-\sqrt{c},\sqrt{a}-\sqrt{b}+\sqrt{c}$

(C) $\sqrt{a}+\sqrt{b}-\sqrt{c},\sqrt{a}+\sqrt{b}-\sqrt{c}$ (D) $\sqrt{a}+\sqrt{b}-\sqrt{c},\sqrt{a}+b-c$

35. Simplify $\dfrac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3}$

(A) 0 (B) 1 (C) 3abc (D) $(a+b)(b+c)(c+a)$

36. If $p=2-a$, value of $a^3+6ap+p^3-8$ is

(A) 1 (B) 3 (C) 8 (D) 0

37. Value of $30^3+20^3-50^3+90000$

(A) 0 (B) -90000 (C) 1 (D) 2

38. The factors of $x^2+4y^2+4y-4xy-2x-8$ are

(A) $(x-2y-4)(x-2y+2)$ (B) $(x-y+2)(x-4y-4)$ (C) $(x+2y-4)(x+2y+2)$ (D) none of these

39. Factors of $x^3-6x^2+11x-6$ is

(A) $(x-1)(x+2)(x-3)$ (B) $(x-1)(x-2)(x-3)$ (C) $(x+1)(x+2)(x+3)$ (D) $(x+1)(x+2)(x-3)$

40. Which is greatest among following 2^{156}, 4^{79}, 128^{23} and 8^{54}?

(A) 4^{79} (B) 128^{23} (C) 2^{156} (D) 8^{54}

41. Find the value of $\left[\left(\dfrac{a}{b}\right)^{\sqrt{99}-\sqrt{97}}\right]^{\sqrt{99}+\sqrt{97}}$

(A) $\dfrac{b^2}{a^2}$ (B) $\sqrt{\dfrac{b}{a}}$

(C) $\sqrt{\dfrac{b}{a}}$ (D) $\dfrac{a^2}{b^2}$

42. Find the value of $(61^2-11^2)^{\frac{3}{2}}$

(A) 50^3 (B) 216000 (C) 3600 (D) 60

43. Find the value of $(0.000064)^{5/6}\div(0.00032)^{6/5}$

(A) 0.2 (B) 0.4 (C) 5 (D) 2.5

44. $\left(\sqrt{3}\right)^{x+y}=9$ and $\left(\sqrt{2}\right)^{x-y}=32$, then $2x+y$

(A) 1 (B) 0 (C) 17 (D) 11

45. If $a=(2^{-2}-2^{-3})$, $b=(2^{-3}-2^{-4})$ and $c=(2^{-4}-2^{-2})$, then $a^3+b^3+c^3$

(A) $\dfrac{-9}{1024}$ (B) $\dfrac{-9}{2048}$ (C) 0 (D) 1