Indian School Talent Search Exam (ISTSE)
Sample Paper (Paper Based Exam) – Class 9
Total Questions: 50, Total Marks: 100

Instructions:

1. Duration of the test is 60 minutes.
2. Total marks are 100.
3. Questions paper contains 50 Questions.
4. The question numbers
   - 1 to 9 belong to "Mental and Logical Ability"
   - 10 to 21 belong to Mathematics
   - 22 to 33 belong to Science
   - 34 to 45 belong to English and
   - 46 to 50 are "Scholars Section"
5. Each question carries negative marking.
6. Please leave the question in case you are not sure about answer.
7. Un- attempted questions do not attract negative marking.
8. Answers are to be given on a separate OMR sheet.
9. Rough work can be done anywhere in the booklet but not on the OMR sheet/loose paper.

Section-1, Mental and Logical Ability
(1 mark for correct answer. 0.25 mark will be deducted for wrong answer)

1. Find the missing term(?).

   1, 5, 14, 30, 55, ?

   a) 140
   b) 95
   c) 91
   d) 88

2. If Riya says - "Devika's father Raj is the only son of my father-in-law Mahesh", then how is Bindu, who is the sister of Devika related to Mahesh?
   a) Grand-daughter
   b) Sister
   c) sister-in-law
   d) None of these

3. If CAFE is coded as 3165 and HIDE is coded as 8945, how will you encode HEAD?

   a) 5816
   b) 9156
   c) 8154
   d) 8514

4. In a queue, Reena is the last person while Amit is 7th from the start. If a person exactly between Reena and Amit is on the 23rd position from the start, how many people are there in the queue?

   a) 36
   b) 39
   c) 38
   d) 37

5. How many triangles are there in the following figure?
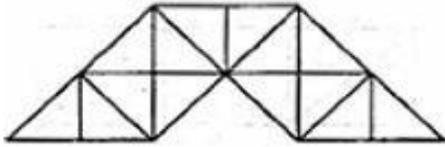
a) 31	b) 25
c) 29	d) 20

6. Rohit ranks seventh from the top and twenty-eighth from the bottom in a class. How many students are there in the class?

a) 58	b) 16
c) 2934	d) 27

7. One evening before sunset Meeta and Rahul were talking to each other face to face. If Rahul's shadow was exactly to the right of Rahul, which direction was Meeta facing?

   a) Data is inadequate
   b) West
   c) South
   d) North

8. Count each 8 in the following sequence of numbers that is immediately followed by 2, if 2 is not immediately followed by 3. How many such 8's are there?

   8 2 8 3 4 5 8 2 3 5 2 8 2 6 8 4 5 8 8 2 4 8 2 3 2 8 7 5 2 8 2 5

a) 7	b) 5
c) 2	d) 4

9. 583 is related to 293 in the same way as 488 is related to_____

   a) 378
   b) 487
   c) 291
   d) 581

Section-2, Mathematics
(2 marks for correct answer. 0.50 mark will be deducted for wrong answer)

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10. Two adjacent sides of a parallelogram are 15 cm and 10 cm. If the distance between 15 cm sides is 8 cm; find the distance between 10 cm sides.

   a) 12 cm
   b) 25 cm
   c) 11 cm
   d) None

11. A park, in the shape of quadrilateral ABCD, has $\angle C = 90^o$, AB = 9m, BC = 12m, CD = 5m and AD = 8m. Find its area

   a) $6\sqrt{40}\,m^2$

   b) $\left(6\sqrt{35} + 30\right)\,m^2$

   c) $\left(30\sqrt{5} + 6\right)\,m^2$

   d) $36\sqrt{35}\,m^2$

12. If AB || CD || EF, PR || ST,
    if $\angle$SRD = 30° and $\angle$AQP = 70°,
    then $\angle$RST is equal to
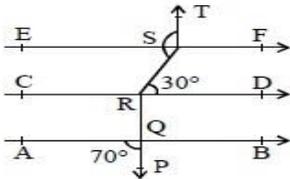
    a) 170 degree
    b) 100 degree
    c) 140 degree
    d) None of these

13. If p + q = 2, then the value of
    $p^3 + q^3 + 6p^2 + 5q^2 + 6pq$ is ___

a) 23	b) 15
c) 18	d) 19

14. Ramesh purchased a second-hand motor
    bike from his close friend Mohan for Rs.
    4000 on credit. If he pays the simple interest
    for the first year at the rate of 5% and for
    the second year at the rate of 15%.
    a) Rs. 4800
    b) Rs. 3930
    c) Rs. 2530
    d) Rs. 6980

15. The ratio between a two-digit number and
    the number obtained on reversing its digits
    is 4:7. If the difference between the digits of
    the number is 3, find the number.
    a) 40
    b) 36
    c) 26
    d) 32

16. If, $\dfrac{a^2 + b^2}{c^2 + d^2} = \dfrac{ab}{cd}$ then
    find the value of $\dfrac{a + b}{a - b}$

    in terms of c and d only.

    a) $\dfrac{cd}{c + d}$

    b) $\dfrac{c + d}{c - d}$

    c) $\dfrac{c + d}{cd}$

    d) $\dfrac{c - d}{c + d}$

17. The rates of simple interest in two banks X
    and Y are in the ratio 5:4. A person wants to
    deposit his total savings in two banks in
    such a way that he received equal half
    yearly interest from both. He should deposit
    the saving in banks X and Y in the ratio

a) 4:5	b) 2:4
c) 3:2	d) 3:4

18. Which of the following is Euclid's third
    postulate?
    a) A circle can be drawn with any center
       and any radius.
    b) All right angles are equal to one
       another.
    c) Any straight-line segment can be
       extended indefinitely in a straight line.
    d) A straight-line segment can be drawn
       joining any two points.

19. 55 goats can graze a field in 16 days. How many goats will graze the same field in 10 days?

a)	88	b)	67
c)	77	d)	None

20. Which point on x-axis is equidistant from (7,6) and (-3, 4)?

a)	(1,0)	b)	(2,0)
c)	(3,0)	d)	(-5,0)

21. If $x = a(b - c)$; $y = b(c - a)$; $z = c(a - b)$, then $\left(\dfrac{x}{a}\right)^3 + \left(\dfrac{y}{b}\right)^3 + \left(\dfrac{z}{c}\right)^3$ is equal to

a) $\dfrac{3(x + y + z)}{(a + b + c)}$

b) $3\dfrac{xyz}{abc}$

c) $\dfrac{1}{3}\dfrac{xyz}{abc}$

d) $\dfrac{xyz}{abc}$

Section-3, Science
(2 marks for correct answer. 0.50 mark will be deducted for wrong answer)

22. Tripling the speed of a motor car multiplies the distance required for stopping it by

a)	3	b)	6
c)	2	d)	9

23. Read the given statements and mark the correct option.

   Statement 1: Smell of burning incense stick spreads all around due to the diffusion of its fumes into the air.
   Statement 2: Ammonium chloride is sublimable in nature.

   a) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
   b) Both statement 1 and 2 are false
   c) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1
   d) Statement 1 is true and statement 2 is false.

24. Which of the following statements is correct? (consider velocity << speed of light)

   a) Kinetic energy of a system cannot be changed without changing its momentum.
   b) A system cannot have energy without having momentum
   c) Momentum of a system cannot be changed without changing its kinetic energy
   d) Kinetic energy of a system can be changed without changing the momentum

25. Which of the following statements is incorrect?
    a) Simple tissue is made up of similar cells whereas complex tissue is made up of two or more than two types of cells.
    b) Phloem is responsible for transporting food produced from photosynthesis.
    c) The matrix of cartilage consists of fibrous tissue
    d) Blood consists of only erythrocytes and leucocytes whereas lymph consists of plasma and platelets.

26. Which of the following is in liquid form at room temperature?

a)	Bromine	b)	Mercury
c)	None of these	d)	Both A and B

27. A stone of mass 1 kg falls to the earth from a height of 10m. The kinetic energy of the stone when it is 4 m above the ground is

a)	588 J	b)	98 J
c)	5.88 J	d)	58.8 J

28. A married pair adopted a male child. A few years later, twin boys were born to them. The blood group of the couple is AB positive and O negative. The blood group of the three sons is A positive, B positive, and O positive. The blood group of the adopted son is
    a) B positive
    b) Cannot be determined from the given information
    c) O positive
    d) A positive

29. Which one of the following is a mixture of gas in liquid?
    a) Aerated water
    b) Air
    c) Alloys
    d) Kerosene oil

30. When linear momentum of a body becomes n times, its kinetic energy becomes
    a) $\frac{1}{n^2}$ times
    b) n^2 times
    c) n^3 times
    d) $\frac{1}{n}$ times

31. Which of the following statements is not correct?

    a) Some metals react with acid to give salt and hydrogen
    b) All metal oxide reacts with water to form salt and acid
    c) All metal carbonates react with acid to give a salt, water and carbon dioxide
    d) Some non-metal oxides react with water to form and acid

32. If specific heat of a substance is infinite, it implies

    a) Heat is taken in
    b) No change in temperature takes place whether heat is given out or taken in.
    c) Heat is given out
    d) Nothing can be decided

33. In which of the following conditions the distance between the molecules of hydrogen gas would increase?
    a) cooling the hydrogen
    b) Increasing the volume of the container of hydrogen gas
    c) Adding more hydrogen gas to the container without increasing the volume of the container
    d) Increasing pressure on hydrogen contained in a closed container

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Section-4, English
(1.5 marks for correct answer. 0.25 mark will be deducted for wrong answer)

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34. _____ we are working we are happy and healthy.
    a) As far as
    b) In case
    c) Nevertheless
    d) As long as

35. What does the phrase "Utopian Scheme' mean?
    a) High Thinking
    b) Great plan
    c) Impracticable Plan
    d) none of these

36. Point out the nouns in the following sentence.

    It was Edison who invented the phonograph.
    a) Edison, phonograph
    b) Edison, invented
    c) It, was
    d) None of these

37. Question: I've lost one of my gloves. I _____ it somewhere.

    a) must be dropping
    b) must have dropped
    c) must have been dropping
    d) must drop

38. Identify the type of pronoun for the word underlined below.

    The moment <u>which</u> is lost is lost forever.

    a) Demonstrative pronoun
    b) Relative pronoun
    c) Distributive pronoun
    d) Indefinite pronoun

39. Choose the most appropriate indirect narrations of the given sentences:

    Amit said, "What a fascinating toy it is!"

    a) Amit said what a fascinating toy it was.
    b) None of the above
    c) Amit exclaimed that it was a very fascinating toy.
    d) Amit said that it was a fascinating toy.

40. My grandmother walks extremely slowly. The adverb "extremely" modifies

    a) Verb
    b) Noun
    c) Adverb
    d) None of these

41. Identify the mood of the verbs underlined in the given sentence.

    <u>Have</u> you <u>found</u> your book?

    a) Objective mood
    b) Imperative mood
    c) Indicative mood
    d) Subjunctive mood

42. Identify the sentence with the correct order of adjectives.

    a) I like that old black big really antique scooter which is always parked at the end of the street
    b) I like that black old big really antique scooter which is always parked at the end of the street
    c) I like that big black old really antique scooter which is always parked at the end of the street
    d) I like that really old big black antique scooter which is always parked at the end of the street

43. Choose the correct meaning of the following proverb.

    "A broken clock is right twice a day."

    a) A new god will appear
    b) The new era will start
    c) even a person who's not very smart can sometimes be correct by accident.
    d) None of these

44. Fill in the blank with verb forms by choosing one of the given options:

    I would fly if I _____ wings.

    a) had
    b) am having
    c) were having
    d) have

45. Identify the parts of speech for the underlined word of the given sentence.

    I have something **else** for you.

    a) Noun
    b) Pronoun
    c) Adjective
    d) Adverb

Section-5, Scholars Section
(5 marks for correct answer. 2 marks will be deducted for wrong answer)

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46. The length of a rectangle is decreased by 50% and its width is increased by 50%. What impact does this have on the area of the rectangle?

    a) The area does not change.
    b) The area decreases by 25%.
    c) The area increases by 3/4
    d) The area decreases by 75%.

47. Chords AB and CD of a circle are parallel to each other and lie on opposite sides of the centre of the circle. If AB = 36 cm, CD = 48 cm and the distance between the chords is 42 cm; find the radius of the circle.

    a) 40 cm
    b) 30 cm
    c) 24 cm
    d) 44 cm

48. The expression
    $(a + b + c)^2 + (a + b - c)2 + (a - b + c)^2 + (b + c - a)^2$ equals ____.
    a) $(a^2 + b^2 + c^2)$
    b) $4(ab + ac + bc)$
    c) $4(a^2 + b^2 + c^2)$
    d) $2(a^2 + b^2 + c^2 + ab + bc + ac)$

49. Some of the Microorganisms are useful for us while some of them are harmful. From the given list sort out useful and harmful actions of microorganisms.
    a) Useful: Citrus canker, vaccine production, curd preparation.
       Harmful: Food spoiling, production of antibiotics
    b) Useful: Curd preparation, citrus canker, production of antibiotics
       Harmful: Food spoiling, vaccine production.
    c) Useful: Vaccine production, curd preparation.
       Harmful: Food spoiling, citrus canker, production of antibiotics.
    d) Useful: Production of antibiotics, curd preparation, vaccine production.
       Harmful: Food spoiling, citrus canker.

50. Basement membrane is made up of:

    | Production of antibiotics, food spoiling, curd preparation, vaccine production, citrus canker |

    a) Endodermal cell
    b) Cell product of epithelial cell
    c) Epidermal cell only
    d) None of these

Answer Key

1-C	2-A	3-D	4-B	5-C	6-C	7-C	8-D	9-A	10-A
11-B	12-C	13-D	14-A	15-B	16-B	17-A	18-A	19-A	20-C
21-B	22-D	23-A	24-A	25-D	26-D	27-D	28-C	29-A	30-B
31-B	32-B	33-B	34-D	35-C	36-A	37-B	38-B	39-C	40-C
41-C	42-D	43-C	44-A	45-C	46-B	47-B	48-C	49-D	50-B