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## National Level Science Talent Search Examination

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### CLASS VIII

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**Questions : 60**

**Time : 60 minutes**

#### INSTRUCTIONS

**Read all instructions carefully before attempting any question.**

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- You must complete the paper within the time allotted.
- Do not open this question paper until you are permitted to.
- You are not allowed to use a calculator.
- Figures herein are not to scale. Hence, you cannot depend on the estimate of size or measurement. Use your knowledge of the subject.
- Rough work shall be carried out only in the space provided for the same throughout this booklet. No separate sheets are allowed for the same.
- Return your answer sheet to the invigilator soon after completion and before leaving the examination hall. Take the question paper with you.
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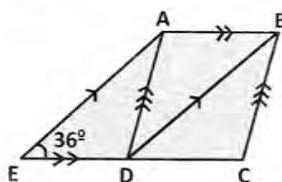
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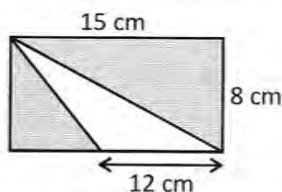
- 01** The sum of two consecutive numbers is 19. find the two numbers.
- (A) 5 and 14                      (B) 7 and 12  
(C) 8 and 11                      (D) 9 and 10
- 02** Find the value of  $\frac{0.04 \times 0.04 \times 0.04 - 0.03 \times 0.03 \times 0.03}{0.04 \times 0.04 + 0.04 \times 0.03 + 0.03 \times 0.03}$ .
- (A) 0.1                                  (B) 0.01  
(C) 0.02                                (D) 0.001
- 03** By which number should 5184 be divided to make it a perfect cube ?
- (A) 2                                      (B) 4  
(C) 3                                      (D) 6
- 04** The sum of the additive inverse and multiplicative inverse of 2 is
- (A)  $\frac{3}{2}$       (B)  $\frac{1}{2}$       (C)  $\frac{-3}{2}$       (D)  $-\frac{1}{2}$
- 05** What are the factors of  $x^4 + 2x^2 + 9$  ?
- (A)  $(x^2 + 2x + 3), (x^2 - 2x + 3)$   
(B)  $(x^2 + 3), (x^2 - 3)$   
(C)  $(x^2 + 2x + 3), (x^2 + 2x + 3)$   
(D)  $(x^2 + 3), (x^2 + 3)$

- 06** In the figure, ABCD is a rhombus and ABDE is a parallelogram.



Given that EDC is a straight line and  $\angle AED = 36^\circ$ , find  $\angle BAD$ .

- (A)  $36^\circ$  (B)  $72^\circ$  (C)  $108^\circ$  (D)  $120^\circ$
- 07** If  $3^n = 729$ , find the value of  $3^{3n+1}$ .
- (A)  $3^{21}$  (B)  $3^{10}$  (C)  $3^{19}$  (D)  $3^{15}$
- 08** Which of the following numbers is exactly divisible by 99 ?
- (A) 114345 (B) 135792  
(C) 3572404 (D) 913464
- 09** A trader marks his goods 30% above the cost price but makes a reduction of  $6\frac{1}{4}\%$  on the marked price for ready money. What is his gain percent ?
- (A) 23.75% (B) 23.25%  
(C) 21.875% (D) 20%
- 10** What is the area of the shaded region ?



- (A)  $48 \text{ cm}^2$  (B)  $72 \text{ cm}^2$  (C)  $120 \text{ cm}^2$  (D)  $24 \text{ cm}^2$

- 11** If  $x^{50} + \frac{1}{x^{50}} = 2$  then  $x^{100} + \frac{1}{x^{100}} = ?$
- (A)  $2^{100}$  (B)  $2^{50}$  (C)  $100^2$  (D) 2
- 12** If 5 is added to  $x$ , the result is 20. Find the value of  $x$ .
- (A) 5 (B) 10 (C) 15 (D) 20
- 13** Which of the following statements is true ?
- (A) There is no difference between a cube and a cuboid.  
(B) A cube has equal length, breadth and height where as a cuboid has different measures for length, breadth and height.  
(C) A cube has different measures for length, breadth and height and a cuboid has equal length, breadth and different height.  
(D) A cube and a cuboid are both 2-dimensional figures.
- 14** Factorise  $x^2 - z^2 - 2xy + 2yz$ .
- (A)  $(x+z)(x-2y+z)$  (B)  $(x-z)(x-2y+z)$   
(C)  $(x+z)(x+2y+z)$  (D)  $(x-z)(x-2y-z)$
- 15** Find the number, which when subtracted from its square results is 12.
- (A) 6 (B) 5 (C) 4 (D) 8
- 16** What is the degree of a constant term ?
- (A) 1 (B) 0  
(C) 2 (D) not defined

17 A certain sum of money amounts to ₹ 1125 in 5 years and to ₹ 1200 in 8 years. Find the sum.

- (A) ₹ 900 (B) ₹ 500  
(C) ₹ 1000 (D) ₹ 800

18 Three numbers are such that the second is twice the first and the third is thrice the first. If their sum is 12, what is the value of the largest number ?

- (A) 4 (B) 2  
(C) 6 (D) 8

19 Three cubes, each measuring 8 cm, are joined end to end. The volume of the resulting cuboid will be

- (A)  $1536 \text{ cm}^3$  (B)  $1024 \text{ cm}^3$   
(C)  $912 \text{ cm}^3$  (D)  $576 \text{ cm}^3$

20 Mother bought some vegetables for ₹  $x$  and some fruits for ₹ 3. If she gave ₹ 10, to the shopkeeper, how much change did she receive ?

- (A) ₹  $(13 - x)$  (B) ₹  $(7 + x)$   
(C) ₹  $(13 + x)$  (D) ₹  $(7 - x)$

21 If  $x$  and  $y$  are directly proportional, find the respective values of  $x_1$ ,  $x_2$  and  $y_1$  in the table given.

- (A)  $x_1 = 8$ ;  $x_2 = 2$ ;  $y_1 = 100$   
(B)  $x_1 = 5$ ;  $x_2 = 8$ ;  $y_1 = 100$   
(C)  $x_1 = 2$ ;  $x_2 = 8$ ;  $y_1 = 100$   
(D)  $x_1 = 5$ ;  $x_2 = 8$ ;  $y_1 = 120$

$x$	3	$x_1$	$x_2$	10
$y$	30	50	80	$y_1$

22  $\frac{\sqrt{x^3} \times \sqrt[3]{x^5}}{\sqrt[5]{x^3}} \times \sqrt[30]{x^{77}} = \underline{\hspace{2cm}}$

- (A)  $x^{76/15}$  (B)  $x^{78/15}$   
(C)  $x^{79/15}$  (D)  $x^{77/15}$

23 The table shows the number of children in each of the 35 families surveyed.

Number of Childrens	2	3	4	5	6
Tally					

Which of the following calculations used to find the percentage of families with more than 3 children, is correct ?

- (A)  $\frac{10}{35} \times 100\%$  (B)  $\frac{21}{35} \times 100\%$   
(C)  $\frac{14}{35} \times 100\%$  (D)  $\frac{31}{35} \times 100\%$

24 A trader dealing in pressure cookers reduced the price by 20% as a result of which his sale went up by 80%. What was the net effect on his sales income ?

- (A) 44% decrease (B) 44% increase  
(C) 66% increase (D) 66% decrease

25 A rectangular field has its length and breadth in the ratio 5 : 3. Its area is 3.75 hectares. Find the cost of fencing it at ₹ 5 per metre.

- (A) ₹ 400 (B) ₹ 4000  
(C) ₹ 1000 (D) ₹ 500

26 Which of the following is the first artificial aid of vision ?

- (A) A glass piece (B) A piece of ice  
(C) A glass of water (D) A mirror

27 Which of the following statements is NOT true ?

- (A) Lightning and sparks from woollen clothing are essentially the same phenomena.  
(B) When you rub a plastic scale on dry hair, it acquires charge.  
(C) A glass rod when rubbed with silk acquires negative charge.  
(D) Static charges are called so, because they do not move by themselves.

28 Which of the following does not conduct electricity ?

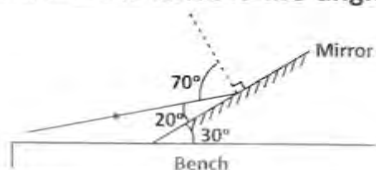
- (A) Copper sulphate solution (B) Graphite  
(C) Acidified water (D) Kerosene

29 Which force prevents us from slipping while walking on the road ?

- (A) Muscular force of our body  
(B) Gravitational pull by the earth  
(C) Frictional force  
(D) Balanced forces of nature

30 A plane mirror is inclined at  $30^\circ$  to the bench. A ray of light is directed so that it hits the mirror at an angle of  $20^\circ$  to the surface of the mirror. What is the angle of reflection ?

- (A)  $20^\circ$  (B)  $40^\circ$   
(C)  $65^\circ$  (D)  $70^\circ$



31 Which of the following belongs to electrostatic force?

- (A) Two planets attract one another.  
(B) Two surfaces rub against each other  
(C) A field pattern is formed when iron fillings are sprinkled around a magnet.  
(D) A plastic ruler attracts tiny pieces of paper after rubbing with a woollen cloth.

32 Which of the following is a natural phenomena ?

- (A) The ripening of a fruit  
(B) The formation of clouds  
(C) The germination of a seed  
(D) All the three

33 Two identical light conducting balls suspended freely and placed close to one another are moved away. What are the charges in the conducting balls ?

- (A) Both are positively charged  
(B) Both are negatively charged.  
(C) One is positively charged and the other is negatively charged.  
(D) Both (A) and (B)

34 Which planet's density is less than that of water ?

- (A) Jupiter (B) Mars (C) Venus (D) Saturn

35 Which of the following activities will not be possible in the absence of friction ?

- (A) Holding a glass (B) Writing on a paper  
(C) Sitting on a chair (D) All of the above

- 36** Which of the following has the lowest percentage of carbon ?
- (A) Lignite (B) Bituminous  
(C) Anthracite (D) Peat
- 37** Identify an incorrect statement.
- (A) CNG and LPG are clean fuels.  
(B) Petroleum is refined in a petroleum refinery.  
(C) Petroleum products are called petrochemicals.  
(D) Coal does not cause any pollution when burnt.
- 38** A material bursts into flames without the application of heat is known as combustion that is
- (A) rapid. (B) spontaneous.  
(C) slow. (D) explosion.
- 39** Metal P reacts with water and dilute hydrochloric acid. Metal Q does not react with water but reacts with dilute hydrochloric acid. Metal R does not react with water and dilute hydrochloric acid. Which one shows their reactivity in a decreasing order ?
- (A) P, Q, R (B) P, R, Q  
(C) R, Q, P (D) Q, R, P
- 40** Which of the given metals burns in the air on heating with a very bright white light ?
- (A) Copper (B) Magnesium  
(C) Iron (D) Zinc

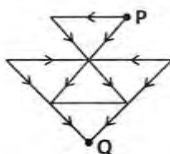
- 41** Which product is made from thermosetting plastics ?
- (A) Electrical switches (B) Floor tiles  
(C) Fire proof fabrics (D) All the three
- 42** Which of the following statements is true about petroleum ?
- (A) Lighter than water and soluble in it.  
(B) Heavier than water and insoluble in it.  
(C) Lighter than water and insoluble in it.  
(D) Heavier than water and soluble in it.
- 43** Carbon, chlorine, phosphorus and oxygen are
- (A) gases. (B) compounds.  
(C) non-metals. (D) solids.
- 44** Which of given statements is true ?
- (A) Carbon dioxide is used to extinguish fires involving oil and petrol.  
(B) Water is not suitable for fires involving electrical equipments.  
(C) Water is the best extinguisher for fires involving inflammable materials.  
(D) Both (A) and (B).
- 45** Coal has carbon, along with some other elements like
- (A) oxygen, hydrogen, nitrogen and sulphur.  
(B) chlorine, nitrogen, sulphur and helium.  
(C) sulphur, phosphorus, iodine and oxygen.  
(D) bromine, nitrogen, phosphorus and hydrogen.

- 56 A situation/statement is given below followed by four options. Choose the best reason.

If your father differs with you

- (A) you should hold back your ideas and obey him.  
 (B) you should leave the place.  
 (C) you should put forward your point of view and discuss with him the pros and cons of the case.  
 (D) you should ask your mother to favour you.

- 57 Following the arrows given in the diagram, how many different routes are there from P to Q ?



- (A) 4      (B) 6  
 (C) 8      (D) 9

- 58 Four spectators were commenting on the outcome of a 100 m race.

Kiran: P came in second and Q came in third.

Kumar: R was the fourth place & Q was in second place.

Kishore: S finished second and C finished third.

Kranthi: S was in the first place & Q was in third place.

Only one remark in each comment is true. In what position was R ?

- (A) P      (B) Q      (C) R      (D) S

- 59 Arrange the following words in a logical sequence.

1. Gold   2. Iron   3. Sand   4. Platinum   5. Diamond

- (A) 2, 4, 3, 5, 1      (B) 3, 2, 1, 5, 4  
 (C) 4, 5, 1, 3, 2      (D) 5, 4, 3, 2, 1

- 60 Read the given statements.

Mahesh runs faster than Maneesh.

Mallesh runs faster than Mahesh.

Maneesh runs faster than Mallesh.

If the first two statements are true, the third statement is

- (A) True    (B) False    (C) Uncertain    (D) Insufficient data

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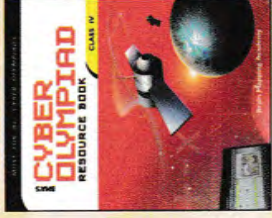
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