



# NSAT-2023

**CLASS – VIII (MENTAL ABILITY, MATHEMATICS & SCIENCE)**  
(Class VIII Moving to IX)

## SAMPLE PAPER

### NARAYANA SCHOLASTIC APTITUDE TEST (NSAT)

*Time: 1 Hr.*

*Maximum marks: 160*

#### IMPORTANT INSTRUCTIONS:

1. The test Booklet consists of 40 questions. The maximum marks are 160.
2. There are five parts in the question paper of MAT (Q. No. 1 to 8) Mathematics (Q. No. 9 to 19), Physics (Q. No. 20 to 26), Chemistry (Q. No. 27 to 33) & Biology (Q. No. 34 to 40) having 40 questions. Each question is allotted +4 (four) marks for each correct response & -1 for each incorrect answer
3. Mark only one correct answer out of four alternatives.
4. Use Blue/Black Ball Point Pen only for writing particulars/markings.
5. Use of Calculator is not allowed.
6. Dark the circle in the space provided only.
7. Use of white fluid or any other material which damage the answer sheet, is not permissible on the Answer Sheet.

TO BE FILLED IN CAPITAL LETTERS

NAME OF THE STUDENT : \_\_\_\_\_

FATHER'S NAME : \_\_\_\_\_

CONTACT NUMBERS: \_\_\_\_\_ SCHOOL NAME : \_\_\_\_\_

ROLL NO. : \_\_\_\_\_ TEST CENTRE : \_\_\_\_\_

I have read all the instructions and shall abide by them

.....  
Signature of the Candidate

I have verified all the information filled in by the Candidate

.....  
Signature of the Invigilator

**MENTAL ABILITY**

1. Manohar walks 9 km due East and then 12 km due South. How far is he from the starting point ?  
(A) 15 km                      (B) 6 km                      (C) 7 km                      (D) none of these
2. In a certain code, FAVOUR is written as EBUPTS. How is DANGER written in that code?  
(A) CBFADS                      (B) CBMHDS                      (C) EBFHDS                      (D) EBHHFS
3. If the 'cook' is called 'butler', 'butler' is called 'manager', 'manager' is called 'teacher', 'teacher' is called 'clerk' and 'clerk' is called 'principal'; who will teach in the class?  
(A) Cook    (B) Butler  
(C) Manager    (D) Clerk
4. Choose the correct alternative  
Assam : Bihu :: Kerala : ?  
(A) Kathakali                      (B) Kuchipudi                      (C) Kathak                      (D) Bharatnatyam
5. New York : United States :: Lisbon : ?  
(A) Germany    (B) U.K.  
(C) Japan    (D) Portugal
6. P is to the South-West of Q; R is to the East of P and South-East of Q. T is to the North of R in line with PQ. In which direction of Q is T located?  
(A) North    (B) East  
(C) South-East    (D) North-East
7. If in a certain code LUTE is written as MUTE and FATE is written as GATE, then how will BLUE be written in that code?  
(A) CLUE                      (B) GLUE                      (C) FLUE                      (D) SLUE
8. A person travels a distance of 7 km towards East from his house, then travels 7 km towards North and then a distance of 7 km towards East and finally 7 km towards North. What is the vertical distance travelled by him?  
(A) 5 km                      (B) 12 km                      (C) 14 km                      (D) 28 km

*Space for rough work*

**MATHEMATICS**

9. If  $a = \frac{1}{5}$  then the value of  $\left\{-\left(-\frac{a-1}{a}\right)\right\}$  is
- (A)  $\frac{4}{5}$  (B)  $-\frac{4}{5}$   
(C)  $-4$  (D)  $-\frac{1}{4}$
10. The sum of two rational numbers is  $-3$ . If one of them is  $-\frac{6}{7}$ , then the other number is
- (A)  $\frac{15}{7}$  (B)  $-\frac{15}{7}$   
(C)  $\frac{27}{7}$  (D)  $-\frac{27}{7}$
11. Which of the following rational numbers has no reciprocals?
- (A)  $\frac{3}{5}$  (B)  $\frac{7}{9}$   
(C)  $0$  (D)  $\frac{5}{9}$
12. If  $\sqrt{2+\sqrt{x}} = 3$  then the value of  $x$  is
- (A)  $1$  (B)  $\sqrt{7}$   
(C)  $\sqrt{49}$  (D)  $49$

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*Space for rough work*

13. Which of the following is a linear equation in one variable?

(A)  $(2x-2)^2 = 4x^2 + 4x - 4$

(B)  $(3x-4)^2 = 3x + 9x^2 + 3$

(C)  $x^2 - 2x = x^2 + 2x - 2$

(D) all of the above.

14. For what value of  $a$ , the expression  $\frac{a-8}{5}$  is equal to  $\frac{a-6}{3}$ ?

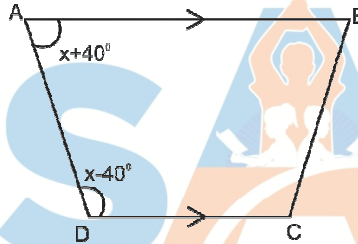
(A) 7

(B) 3

(C) 12

(D) 5

15. In the given trapezium  $AB \parallel DC$  then the value of  $x$  is



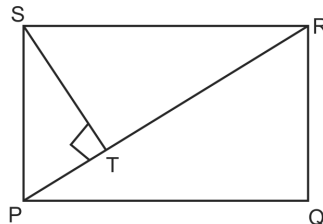
(A)  $80^\circ$

(B)  $120^\circ$

(C)  $60^\circ$

(D)  $90^\circ$

16. PQRS is a rectangle. If the perpendicular ST from S on ST divides  $\angle PST$  and  $\angle TSR$  in the ratio 2 : 3, then the measure of  $\angle TPQ$  is



(A)  $54^\circ$

(B)  $36^\circ$

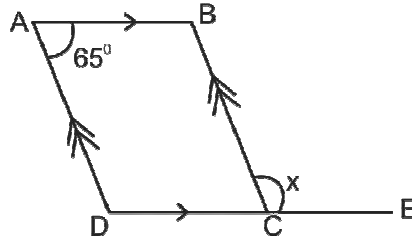
(C)  $90^\circ$

(D)  $18^\circ$

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*Space for rough work*

17. The value of  $x$  in the given figure of a parallelogram is

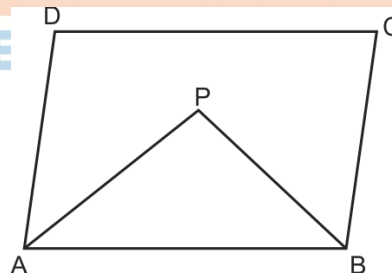


- (A)  $65^\circ$  (B)  $115^\circ$   
 (C)  $135^\circ$  (D)  $25^\circ$

18. The value of  $\sqrt{6+2\sqrt{2}}+2\sqrt{6+2\sqrt{3}}$  is

- (A)  $1+\sqrt{2}+\sqrt{3}$  (B)  $2+\sqrt{2}+\sqrt{3}$   
 (C)  $3+\sqrt{2}+\sqrt{3}$  (D)  $4+\sqrt{2}+\sqrt{3}$

19. In the given diagram ABCD is a parallelogram with AP, BP as the bisectors of  $\angle A$  and  $\angle B$  respectively. Then the  $\angle APB$  is



- (A)  $45^\circ$  (B)  $90^\circ$   
 (C)  $60^\circ$  (D)  $30^\circ$

*Space for rough work*

**PHYSICS**

20. A force of 16N is distributed uniformly on one surface of a cube of edge 8 cm. The pressure on this surface is  
(A) 3500 Pa (B) 2500 Pa  
(C) 4500 Pa (D) 5500 Pa
21. A force produced an acceleration of  $5.0 \text{ cm/s}^2$  when it acts on a body of mass 20g, the force in Newton is  
(A)  $2 \times 10^{-3} \text{ N}$  (B)  $4 \times 10^{-3} \text{ N}$   
(C)  $1.0 \times 10^{-3} \text{ N}$  (D)  $5 \times 10^{-3} \text{ N}$
22. A force of 1.0 N acts on body of mass 10 kg. The body covers 100 cm in 4 seconds moving along a straight line. The initial velocity is  
(A) 2 cm/s (B) 4 cm/s  
(C) 6 cm/s (D) 5 cm/s
23. A sound has frequency of 50 Hz and wavelength of 10m. What is the speed of sound?  
(A) 100 m/s (B) 200 m/s  
(C) 500 m/s (D) 400 m/s
24. Electric current produces.....field  
(A) Chemical (B) Magnetic  
(C) Physical (D) Complex
25. A body of mass 6 kg placed on a rough surface of friction co-efficient 0.6. If an external force is applied on the body, the body is on verge of sliding then, the frictional force acting on the body is ( $g=10 \text{ ms}^{-2}$ )  
(A) 30 N (B) 32 N  
(C) 36 N (D) 34 N
26. Frictional force is directly proportional to the  
(A) External force (B) Normal force  
(C) Gravitational force (D) Acceleration due to gravity

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*Space for rough work*

**CHEMISTRY**

27. When coal burns in air then  
(A) Carbon dioxide is formed (B) Sulphur dioxide is formed  
(C) Carbon monoxide is formed (D) Hydrogen gas is formed
28. Purest form of carbon is  
(A) Coal (B) Charcoal  
(C) Coke (D) All of these
29. Which of the following is obtained from coal tar ?  
(A) Petrol (B) Coke  
(C) Air (D) Naphthalene balls
30. Which of the following is a chemical reaction that produces heat when a substance reacts with oxygen?  
(A) Oxidation (B) Combustion  
(C) Reduction (D) Hydrolysis
31. Ignition temperature is the \_\_\_\_\_ temperature at which the substance catches fire.  
(A) Highest (B) Lowest  
(C) Maximum (D) Room
32. A mixture of antimony trisulphide, potassium chlorate, and white phosphorus, along with glue and starch, was applied to the head of a suitable wood match. Which of the following chemicals ignites when struck against a rough surface?  
(A) Antimony trisulphide (B) White Phosphorous  
(C) Glue (D) Starch
33. Which of the following is not an inflammable substance?  
(A) Sand (B) Liquified Petroleum Gas  
(C) Ethanol (D) Alcohol

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*Space for rough work*

**BIOLOGY**

34. Which of the following is an example of Kharif crop?  
(A) Wheat (B) Gram  
(C) Soybean (D) Peas
35. The process of loosening and turning of the soil is called  
(A) Tilling (B) Ploughing  
(C) Sowing (D) both (A) and (B)
36. The first national park of India is  
(A) Gir National Park (B) Kaziranga National Park  
(C) Jim Corbett National Park (D) Kanha National Park
37. Red Data Book contains list of  
(A) Endangered plants and animals (B) Extinct animals  
(C) Endangered plants only (D) Exotic animals & plants
38. A tadpole develops into an adult by the process of  
(A) Fertilization (B) Metamorphosis  
(C) Embedding (D) Budding
39. Penicillin was discovered by  
(A) Edward Jenner (B) Alexander Fleming  
(C) Louis Pasteur (D) Antonie van Leeuwenhoek
40. Nitrogen in soil is mainly fixed by  
(A) Yeast (B) Bacterium  
(C) Protozoa (D) Fungi

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*Space for rough work*