



NSAT-2025

CLASS – IX (Mental Ability, Mathematics, Physics, Chemistry & Biology)
(Class IX Moving to X)

NARAYANA SCHOLASTIC APTITUDE TEST (NSAT)

SAMPLE PAPER

Time: 2:00 Hr.

Maximum marks: 300

IMPORTANT INSTRUCTIONS:

1. The test Booklet consists of 75 questions. The maximum marks are 300.
2. There are five parts in the question paper of MAT (Q. No. 1 to 15) Mathematics (Q. No. 16 to 30), Physics (Q. No. 31 to 45), Chemistry (Q. No. 46 to 60) & Biology (Q. No. 61 to 75) having 75 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 : _____

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



EDUCATION IS INTEGRAL FOR GROWTH AND DEVELOPMENT

Education is integral for the growth and development of an individual. The expectation from an educational institute is always about making the society better for all and to bring out one's true Potential in the service of mankind.

At Narayana, we believe that a student's education is complete only when we are able to contribute towards his/her overall development besides imparting knowledge based and career oriented training.

With an aim to provide top of the league training to students to excel in every sphere of their lives, Narayana Group has been focusing on result oriented inputs.

Narayana's courses have been designed to cater to all the needs of the aspirants to help them excel in various competitive as well as Board examinations. Innovative strategies and techniques adopted in our centres keep our students abreast of the ever-changing pattern of top level Engineering/Medical Entrance Exams. As a result, Narayana's time-tested learning formulae are percolating to far-flung corners of India to benefit students from all backgrounds.

"Footprints on the sands of time are not made by sitting down". Today we rededicate the last 4 decades of our success to your dreams. I wish all our students a very successful academic year ahead.

Dr. P. NARAYANA
Founder, Narayana Group

MENTAL ABILITY

1. In the question, various terms of an alphabet series are given with one or more terms missing as shown by (?) Choose the missing terms out of the given alternatives.

AYD, BVF, DRH, ?, KGL

(1) FMI (2) GMJ (3) GLJ (4) HLK

2. In the question, there is a certain relationship between two given numbers on one side of :: and one number is given on another side of :: while another number is to be found from the given alternatives, having the same relationship with this number as the numbers of the given pair bear.

Choose the best alternative.

21 : 3 :: 574 : ?

(1) 23 (2) 82 (3) 97 (4) 113

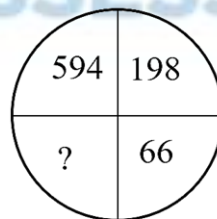
3. In the question, certain pairs of words are given, out of which the words in all pairs except one, bear a certain common relationship. Choose the pair in which the words are differently related.

(1) Car : Road (2) Ship : Sea (3) Rocket : space (4) Aeroplane : Pilot

4. If 'white' is called 'blue', 'blue' is called 'red', 'red' is called 'yellow', 'yellow' is called 'green', 'green' is called 'black', 'black' is called 'violet' and 'violet' is called 'orange', what would be the colour of human blood?

(1) Red (2) Green (3) Yellow (4) Violet

5. Find the missing character in the following question



(1) 11 (2) 12 (3) 22 (4) 33

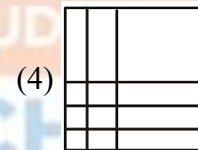
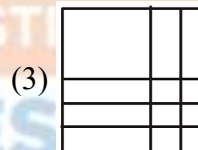
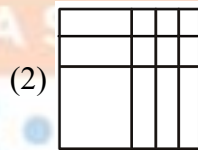
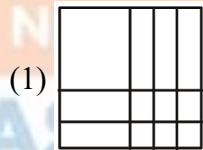
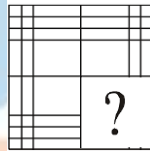
6. In the question, one term in the number series is wrong. Find out the wrong term.

2, 5, 10, 17, 26, 37, 50, 64

(1) 17 (2) 26 (3) 37 (4) 64

Space for rough work

7. In a row, Akash is 18th from the left end. If Rakesh is 7th from the left end, then how many persons are there between them?
 (1) 10 (2) 11 (3) 12 (4) 13
8. In the question, certain pairs of words are given, out of which the words in all pairs except one, bear a certain common relationship. Choose the pair in which the words are differently related.
 (1) Beautician : Parlour (2) Chemist : Medicine
 (3) Lawyer : Court (4) Engineer : Site
9. In the question, various terms of an alphabet series are given with one or more terms missing as shown by (?) Choose the missing terms out of the given alternatives.
 AZ, GT, MN, ?, YB
 (1) JH (2) SH (3) SK (4) TS
10. In the question, certain pairs of words are given, out of which the words in all pairs except one, bear a certain common relationship. Choose the pair in which the words are differently related.
 (1) Saw : Wood (2) Pen : Paper (3) Author : Book (4) Chalk : Blackboard
11. Find the missing(?) Image.



12. In the question, there is a certain relationship between two given numbers on one side of :: and one number is given on another side of :: while another number is to be found from the given alternatives, having the same relationship with this number as the numbers of the given pair bear. Choose the best alternative.
 20 : 11 :: 102 : ?
 (1) 49 (2) 52 (3) 61 (4) 98
13. In the question, certain pairs of words are given, out of which the words in all pairs except one, bear a certain common relationship. Choose the pair in which the words are differently related.
 (1) Apple : Jam (2) Lemon : Citrus (3) Orange : Smash (4) Tomato : Pury

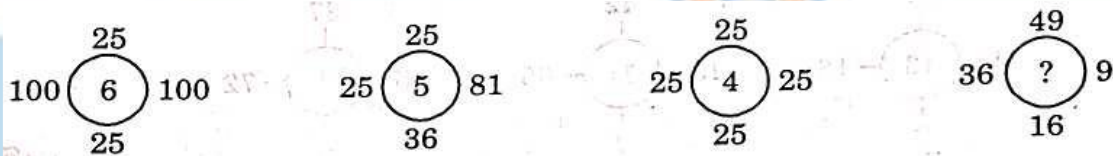
Space for rough work

14. Find the missing character in the following question



- (1) 10 (2) 12 (3) 13 (4) 15

15. In the question, a set of figures carrying certain characters, is given. Assuming that the characters in each set follow a similar pattern, find the missing character in each case.



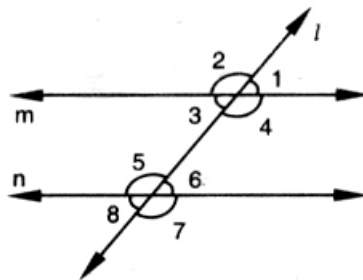
- (1) 2 (2) 3 (3) 4 (4) 5

MATHEMATICS

16. A is a point on y-axis at a distance of 4 units from x-axis lying below x-axis. The co-ordinates of A are:

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

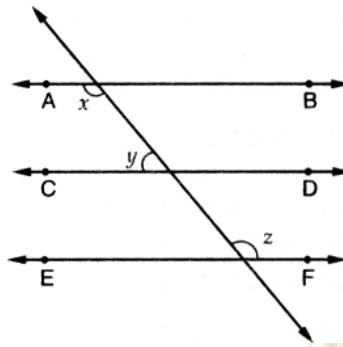
17. In given figure $m \parallel n$ and $\angle 1 = 65^\circ$, then the value of $\angle 5$ and $\angle 8$ are respectively



- (1) $110^\circ, 70^\circ$ (2) $115^\circ, 65^\circ$ (3) $120^\circ, 60^\circ$ (4) $115^\circ, 75^\circ$

Space for rough work

18. In given figure, if $AB \parallel CD, CD \parallel EF$ and $y : z = 3 : 7$, then the value of x is



- (1) 126° (2) 120° (3) 130° (4) 140°
19. If 'a' and 'b' are rational numbers such that $\frac{\sqrt{2}-1}{\sqrt{2}+1} = a + b\sqrt{2}$, then the values of 'a' and 'b' are
 (1) $a = -2, b = 3$ (2) $a = 3, b = -2$ (3) $a = -1, b = 2$ (4) $a = 3, b = 2$
20. In a ΔABC , $30A = 6B = 5C$, then the value of $\angle A, \angle B$ and $\angle C$ are respectively
 (1) $30^\circ, 60^\circ, 90^\circ$ (2) $45^\circ, 45^\circ, 90^\circ$ (3) $35^\circ, 55^\circ, 90^\circ$ (4) $15^\circ, 75^\circ, 90^\circ$
21. The polynomial $11a^2 - 12\sqrt{2}a + 2$ on factorization gives
 (1) $(11a + \sqrt{2})(a - \sqrt{2})$ (2) $(a - \sqrt{2})(11a - \sqrt{2})$
 (3) $(a + 11)(a + \sqrt{2})$ (4) $(11a - \sqrt{2})(a + \sqrt{2})$
22. If the square root of a number is between 6 to 7, then the cube root of the number will be between
 (1) 1 & 2 (2) 2 & 3 (3) 3 & 4 (4) 4 & 5
23. Every point on the number line represents
 (1) A natural no. (2) A real number (3) A rational no. (4) An irrational number
24. Which of the following expressions represents the number one million in scientific notation?
 (1) 1000000 (2) 1.0×10^2 (3) 10×10^5 (4) 100×10^4
25. Factorise:
 $8 - 4l - 4m - 2lm - 4n + 2ln + 2mn - lmn$
 (1) $(2 - l)(2 + m)(2 + n)$ (2) $(2 - l)(2 - m)(2 - n)$
 (3) $(2 + m)(2 + n)(2 + l)$ (4) $(2 - l)(4 - m)(l - n)$

Space for rough work

26. The value of $(2020)^2 - (2019)^2$ is
(1) 4040 (2) 4038 (3) 4000 (4) 4039
27. The one's digit of the cube of 43 is
(1) 9 (2) 7 (3) 3 (4) 1
28. The list price of a frock is Rs. 800. A discount of 35% is announced on sales. What is the amount of discount on it & its sales price respectively?
(1) Rs. 250, Rs. 550 (2) Rs. 200, Rs. 600 (3) Rs. 280, Rs. 520 (4) None of these
29. A car covers 432 km in 36 litres of petrol. How much distance it would cover in 25 litres of petrol
(1) 300 km (2) 250 km (3) 200 km (4) None
30. If $y = -2$, the value of $4y^2 + 2y + 1$ is
(1) 16 (2) 12 (3) -4 (4) 13

PHYSICS

31. The radius and density of two artificial satellites are R_1, R_2 and ρ_1, ρ_2 respectively. The ratio of acceleration due to gravities on them will be
(1) $\frac{R_2\rho_2}{R_1\rho_1}$ (2) $\frac{R_1\rho_2}{R_2\rho_1}$ (3) $\frac{R_1\rho_1}{R_2\rho_2}$ (4) $\frac{R_2\rho_1}{R_1\rho_2}$
32. A body of mass 5 kg is taken into space. Its mass becomes.
(1) 5 kg (2) 10 kg (3) 2 kg (4) 30 kg
33. The value of G depends on
(1) nature of the interacting bodies (2) size of the interacting bodies
(3) mass of the interacting bodies (4) none of these
34. A body is dropped from height 'h' find the time after which body hits the ground
(1) $\sqrt{\frac{2h}{g}}$ (2) $\sqrt{2gh}$ (3) $\sqrt{3gh}$ (4) $\sqrt{\frac{gh}{2}}$
35. A body is thrown up with an initial velocity u and covers a maximum height of h, then h is equal to
(1) $\frac{u^2}{2g}$ (2) $\frac{u}{2g}$ (3) 2ug (4) None of these

Space for rough work

36. Two bodies starts from rest in straight line first body starts accelerating with constant acceleration of 3 m/s^2 and second with constant acceleration of 5 m/s^2 , what is the ratio of displacement of first body to second body after 4 seconds.
- (1) 2 : 1 (2) 9 : 5 (3) 2 : 5 (4) 3 : 5
37. You move forward when your car suddenly comes to a halt and you are thrown backward when your car rapidly accelerates. Which law of Newton's is involved in these?
- (1) Third Law (2) Second Law (3) First Law (4) Law of gravitation
38. Part of the eye which controls light entering the eye is called _____
- (1) iris (2) cornea (3) Lens (4) Retina
39. Two bodies start from rest in straight line first body starts accelerating with constant acceleration of 2 m/s^2 and second with constant acceleration of 3 m/s^2 , what is the ratio of velocities gained by first body to second body after 10 seconds.
- (1) 2 : 3 (2) 3 : 2 (3) 1 : 2 (4) 2 : 1
40. How many time is a ray of light reflected by two plane mirrors placed parallel and facing each other ?
- (1) 2 (2) 1 (3) 4 (4) Infinite
41. Which instrument is used to measure earthquake ?
- (1) Richter scale (2) Seismograph (3) Polygraph (4) None of these
42. Human can hear sound in the range of _____
- (1) 200-2000 Hz (2) 2000-2,00,000 Hz
(3) 20-20,000 Hz (4) 2-20,000 Hz
43. A rock is brought from the moon, to surface of earth
- (1) it's mass will change (2) it's weight will change but not mass
(3) both mass and weight will change (4) it's mass and weight both will remain same
44. A force of 16 N acts on an area of 50 cm^2 . What is the pressure in pascal ?
- (1) 3200 Pa (2) 4200 Pa (3) 5200 Pa (4) 2200 Pa
45. A body starts from rest in straight line and starts accelerating with constant acceleration of 2 m/s^2 what is the displacement covered by the body in 5 seconds ?
- (1) 25 m (2) 30 m (3) 35 m (4) 40 m

Space for rough work

CHEMISTRY

46. The valency of gold in AuCl is :
(1) 1 (2) 2 (3) 3 (4) 4
47. One of the component in amalgam is
(1) mercury (2) aluminium (3) manganese (4) gold
48. The correct order which describes the true solution, colloidal solution and suspension in the order of their increasing stability is
(1) Suspension < colloidal solution < true solution
(2) Colloidal solution < true solution < suspension
(3) True solution < colloidal solution < suspension
(4) Colloidal solution < suspension < true solution
49. Which of the following are vital constituents of petroleum ?
(1) Diesel (2) Liquefied petroleum gas
(3) Jet fuel (4) All of the above
50. The symbol of a metal element which is used in making thermometers is :
(1) Ag (2) Hg (3) Mg (4) Sg
51. Which has maximum number of oxygen atoms?
(1) 1 gm of O (2) 1 gm of O₂
(3) 1 gm of O₃ (4) all have same no. of O-atoms
52. A boy drinks 500 mL of 9% glucose solution. The number of glucose molecules he has consumed are [mol. Wt of glucose = 180]
(1) 0.5×10^{23} (2) 1.0×10^{23} (3) 1.5×10^{23} (4) 2.0×10^{23}
53. When sufficient oxygen is not available, combustion of methane produces _____ gas and water.
(1) nitrogen (2) carbon monoxide (3) hydrogen (4) carbon dioxide
54. Which of the following are examples of exhaustible natural resources ?
(1) Water and Sunlight (2) Coal and Sunlight
(3) Wildlife and Minerals (4) All of the above

Space for rough work

55. Select the correct order of evaporation for water, alcohol, petrol and kerosene oil
(1) water > alcohol > kerosene oil > petrol (2) alcohol > petrol > water > kerosene oil
(3) petrol > alcohol > water > kerosene oil (4) petrol > alcohol > kerosene oil > water
56. The no. of moles of KCl in 1000 ml of 3M solution is:
(1) 1 (2) 2 (3) 3 (4) 1.5
57. Rate of diffusion depends upon
(1) temperature (2) surface area
(3) both temperature and surface area (4) none of these
58. At higher altitudes the boiling points of liquids
(1) Increases (2) Decreases
(3) Remains the same (4) Increases then decreases
59. Tincture of iodine (I₂) is
(1) I₂ in acetone (2) I₂ in alcohol (3) I₂ in water (4) I₂ in tin
60. Among the following substances, which one is not an example of a mixture ?
(1) Diamond (2) Brass (3) Soil (4) Bronze

BIOLOGY

61. Planaria produces lost part of the body through
(1) Sporulation (2) Fission (3) Budding (4) Regeneration
62. The rough ER is so named because it has an abundance of
(1) Mitochondria (2) Lysosomes (3) Golgi bodies (4) Ribosomes
63. Which of the following is not done to increase fertility of soil?
(1) Adding manure and fertilizer (2) Crop – rotation
(3) Leaving the field uncultivated (4) Levelling off before irrigation
64. Select the incorrect match
(1) Insulin- maintains salt balance in blood (2) Adrenaline - Emergency hormone
(3) Thyroxine - Growth and metabolism (4) Testosterone - Secondary sexual characters

Space for rough work

65. Which of the following is known as 'powerhouse' of the cell?
(1) Nucleus (2) Ribosome (3) Cytoplasm (4) Mitochondria
66. What causes pollution
(1) Human activities (2) Trees (3) Irrigation (4) None of these
67. What is the vaccine for Tuberculosis?
(1) BCG vaccine (2) HPV vaccine
(3) MMR combined vaccine (4) OPV
68. Which of these crop is cultivated during winter?
(1) cotton (2) linseed (3) groundnut (4) paddy
69. Gametes are formed during
(1) Budding (2) Regeneration (3) sexual reproduction (4) fragmentation
70. What are the important steps in the preparation of soil?
(1) Loosening and levelling (2) Loosening and weeding
(3) Turning and harvesting (4) Turning and winnowing
71. Which tissue is called packing tissue in plants ?
(1) Collenchyma (2) parenchyma (3) sclerenchyma (4) both 1 and 2
72. Nucleus is absent in _____.
(1) Companion cell (2) Sieve tubes
(3) xylem parenchyma (4) phloem parenchyma
73. Major component of plant's cell wall is
(1) Starch (2) Cellulose (3) Murein (4) Proteins
74. Which gland regulates blood sugar level ?
(1) Liver (2) Pancreas (3) Gordas (4) Pituitary gland
75. Most common method of reproduction amoeba is _____.
(1) Binary fission (2) Multiple fission (3) Budding (4) Fragmentation

Space for rough work