

**NATIONAL TALENT SEARCH EXAMINATION  
(NTSE-2016) STAGE -1 GUJARAT**

**SAT**

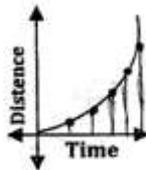
**Mathematics**

1. Which the smallest number that divides 1512 is the complete the cube?  
(a) 5 (b) 6 (c) 7 (d) 9
2. Which number is the inverse of the opposite of  $-\frac{5}{8}$  ?  
(a)  $\frac{5}{8}$  (b)  $1\frac{3}{5}$  (c)  $2\frac{2}{5}$  (d)  $-\frac{8}{5}$
3. What is value of  $(a^{10})^3 \div (a^6)^5$ ?  
(a) a (b)  $a^2$  (c) 1 (d)  $1/a$
4. If  $x = \sqrt[4]{16} + \sqrt[4]{625}$  than what is x = ?  
(a) 7 (b) 29 (c) 12 (d) 5
5. What is the co-efficient of  $(x + y)^2$  in the expansion of  $x^2y^2$  ?  
(a) 3 (b) 4 (c) 5 (d) 6
6. The proportion of the angles a quadratic is 2;5;7;4. What type of quadratic is that?  
(a) Parallelogram (b) Rhombus (c) cyclic quadrilateral (d) Trapezium
7. what is the formula for finding the area of an open cylinder with base ?  
(a)  $2 \pi Rh$  (b)  $\pi r^2h$  (c)  $\pi r (24+r)$  (d)  $2 \pi r (4+r)$
8. The diameter of roller is 1 meter and length is 2.8 meter. If it roles 100 rounds in a same direction. How many square meter does if press?  
(a) 440 sq meter (b) 220 sq meter (c) 880 sq meter (d) 4400 sq meter
9. If universal set  $U=\{3,4,5,6,7\}$  set  $A=\{5,7,8\}$  and  $B= \{4,5,8\}$   $A' \cap B'$  ?  
(a)  $\{4,6\}$  (b)  $\{3,6\}$  (c)  $\{3,7\}$  (d)  $\{3,4\}$
10. The printed prize of a sari is Rs.2000. If after discount of 10% the profit is 20 % Then what is the net price of the sari ?  
(a) Rs.1600 (b) Rs.1200 (c) Rs.1500 (d) Rs. 1800
11. The median of 7, 5, 8, x,12, 17 is 10. Then what is the value of X  
(a) 10 (b) 11 (c) 12 (d) 9
12. 0 of which quadratic polynomial are 4 and 3.  
(a)  $x^2 + 7x + 12$  (b)  $x^2 - 7x+12$  (c)  $x^2 + 7x-12$  (d)  $x^2-7x-12$
13. If  $\frac{x}{3} + 7=15 - \frac{x}{5}$  then find the solution ?  
(a)  $x=20$  (b)  $x=15$  (c)  $x=21$  (d)  $x=18$
14. There are 5 red, 2 yellow and 7 shite roses in a flower vase. Lf a rose is selected randomly. The probability of the selection of white rose ?  
(a)  $\frac{5}{14}$  (b)  $\frac{1}{7}$  (c)  $\frac{1}{2}$  (d) 1

15. If one factor of  $27x^3 + 64y^3$  is  $(3x+4y)$  what is the second factor?  
 (a)  $(3x^2-4y)$  (b)  $(3x^2+12xy+4y^2)$  (c)  $(9x^2+12xy-16y^2)$  (d)  $(9x^2-12xy+16y^2)$
16. The HCF is  $6x^2y^2$  and LCM  $36x^3y^3$  of two terms. If one term is  $12x^3y^2$  what is the second term?  
 (a)  $18x^2y^2$  (b)  $18x^3y^2$  (c)  $36x^2y^3$  (d)  $36x^3y^2$
17. If  $p(x) = 2x^3 - 3x^2 + 5x - 4$  is divided by  $(x-2)$ , what is remainder?  
 (a) 12 (b) 8 (c) 10 (d) -10
18. Two concentric circles are circle (p, s) and circle (p, 13). The tangent of the small circle is the chord of the big circle. What is the length of it?  
 (a) 12 (b) 15 (c) 20 (d) 24
19. Mother was at the age of 30 when the son was born. Now the small circle is the chord of the big circle. What is the age of the son?  
 (a) 5 Years (b) 10 Years (c) 15 Years (d) 20 Years
20. Which is not the identify true for trigonometric ratios  
 (a)  $\sin^2 \theta + \cos^2 \theta = 1$  (b)  $\tan \theta = \cos + (90 - \theta)$   
 (c)  $\sec^2 \theta + \tan^2 \theta$  (d)  $\operatorname{cosec}^2 \theta - \cot^2 = 1$

### Physics

21. How many meters is equal to 1 nano meter?  
 a)  $10^{-9}$  meters (b)  $10^{-10}$  meters (c)  $10^9$  meters (d)  $10^{10}$  meters
22. A light ray enters from denser medium to rarer medium. What is the angle of incidence called that has  $90^\circ$  angle of reflection?  
 a) angle of reflection (b) critical angle  
 c) angle of deviation (d) angle of reflection
23. Which motion does the graph of distance and time shows for accelerated motion?



- a) non uniformly accelerated (b) constant accelerated  
 c) uniformly accelerated (d) uniformly retarded motion
24. Which law of Newton gives the of force?  
 a) first law (b) second law (c) third law (d) fourth law
25. Due to which motion of light does the Tyndall effect occur?  
 a) incidence (b) refraction (c) scattering (d) dispersion
26. The absolute refractive index of any medium is -----  
 a) 1 (b)  $>1$  (c)  $<2$  (d) 0
27. Which fundamental particles did Chadwick invent in 1932  
 A) electron (B) proton (c) neutron (D) all the three
28. What is gaseous fuel used at home called?  
 a) LPG (b) CNG (c) PNG (d) all
29. What is the measuring equipment called that measure the electric current passing through conductors?  
 a) watt meter (b) ammeter (c) galvanometer (d) voltmeter
30. What are the names of the two Moons of the Mars?  
 a) titan and sheron (b) titan demos  
 c) phobos and demos (d) sheron and phobos

31. Earthquake waves are of which type?  
 a) Infrasonic                      b) Ultrasonic                      c) Supersonic                      d) Intrasonic
32. Which branch of science is associated with the use of X- ray and gamma rays for the diagnosis and treatment?  
 a) urology                      b) radiology                      c) histology                      d) pathology
33. The initial velocity of the free falling object is \_\_\_\_\_?  
 a) more                      b) less                      c) zero                      d) 9.8m/s

### Chemistry

34. During a chemical reaction between acid and base, Salt and water are formed. What is the process called?  
 (A) Neutralization                      (B) Corrosion                      (C) Hydrolysis                      (D) Ionization
35. Which of the following is a strong acid?  
 (A) Acetic Acid                      (B) Citric Acid                      (C) Nitric Acid                      (D) Oxalic Acid
36. Which method is used for concentration of those ores obtained in the Sulphide form?  
 (A) Magnetic separation                      (B) Centrifugation                      (C) Froth Flotation Method                      (D) Calcinations
37. Which of the following pairs is not suitable for organic functional group of the carbonic compound?  
 (A) Carboxylic acid – COOH                      (C) Aldehyde -CHO  
 (B) Ketone - > C=O                      (D) Ester - - OH
38. What is the chemical name of the quick lime ?  
 (A) Calcium Oxide                      (C) Calcium Hydroxide  
 (B) Calcium Carbonate                      (D) Carbon Dioxide
39. Which of the following is a compound?  
 (A) Iron                      (B) Washing Soda                      (C) Air                      (D) Mercury
40. While preparing CO<sub>2</sub> in laboratory on which of the following substances hydrochloric acid is poured?  
 (A) Pieces of Zinc                      (B) The practices of copper Sulphur  
 (C) Pieces of marble                      (D) Ammonium Chloride
41. Which of the following gases is used to show the clouds or artificial smoke in film or drama?  
 (A) Carbon Dioxide                      (B) Oxygen                      (C) Nitrogen                      (D) Hydrogen
42. Which of the following relations between mole and mass correct?  
 (A)  $Mass = \frac{Weight}{Mass}$                       (B)  $Weight = \frac{Mass}{Mole}$   
 (C)  $Mole = \frac{Weight}{Atomic\ weight}$                       (D) All of them

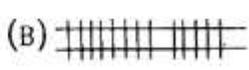
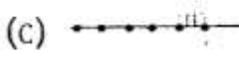
43. From which following relation between mole and mass correct?
- (A) Aluminum (B) Manganese Dioxide  
(C) Zinc Phosphide (D) Potassium Permanganate
44. Which are the components of stainless steel?
- (A) copper, zinc, nickel (B) Iron, Carbon, Tin  
(C) Iron, Chromium, Nickel (D) copper, chromium, Tin
45. What is the electronic configuration of Sulphur?
- (A) 2, 6, 8 (B) 2, 4, 8 (C) 2, 8, 6 (D) 2, 6, 4
46. How many atoms are there in a compound of a mole?
- (A)  $60.22 \times 10^{-23}$  (B)  $602.2 \times 10^{-23}$  (C)  $6.022 \times 10^{23}$  (D)  $6022 \times 10^{23}$

## Biology

47. Which of the following factors does a plant use for the process of photosynthesis?
- (A) Sunlight (B) Chlorophyll (C) CO<sub>2</sub> and H<sub>2</sub>O (D) All of them
48. During chemical reaction between acid and base, Salt and water are formed. What is the process called?
- (A) Neutralization (B) Corrosion (C) Hydrolysis (D) Ionization
49. Which is the longest organ of the digestive system?
- (A) Oesophagus (B) Stomach  
(C) Small Intestine (D) Large Intestine
50. What is the name of the blood vessels that provide nutrition of the heart wall?
- (A) Pulmonary Arteries (B) Coronary arteries (C) Pulmonary Veins (D) Descending
51. Which organelle is considered as a suicide bag?
- (A) Centrosome (B) Mososomes (C) Lysosomes (D) chromosome
52. Which one of the following pairs is not correct?
- (A) The pituitary gland – Adrenalin (B) Pancreas – Insulin  
(C) Ovary – Estrogen (D) Testis – Testosterone
53. Which is the common method of artificial reproduction is plants?
- (A) Cutting (B) Layering (C) Grafting (D) All of them

54. With what are the diseases like Swine Flu, Dengue and Chikungunya Fever spread?  
 (A) Bacteria (B) Virus (C) Parasites (D) Fungi
55. Living mechanical tissue is:  
 (A) Parenchyma (B) collenchymas (C) Sclerenchyma (D) Chlorenchyma
56. Which plant leaves have a parallel venation?  
 (A) Peepal leaves (B) Hibiscus leaves  
 (C) Banana leaves (D) Banyan tree leaves
57. For which of the following diseases vaccine has not been invented yet?  
 (A) Jaundice (B) cholera (C) Typhoid (D) Chikungunya
58. The inner layer of the pharynx of a frog is made of \_\_\_\_\_ Epithelium.  
 (A) Squamous (B) Cuboidal (C) Ciliated (D) columnar
59. Which of the following gases mainly increases global warming?  
 (A) Carbon monoxide (B) Nitrous oxide (C) Carbon dioxide (D) Sulphur dioxide
60. Which of the following is the example of the waste bio-decomposition of living beings?  
 (A) Vegetable (B) Glass (C) Plastic (D) Metal

## Social Science

61. Which method is used to know the time line of the chronological remains?  
 (A) Dropping method (B) Metric Dating Method (C) Carbon dating method (D) All of them
62. With which governor General's efforts did the teaching of English language begin in India?  
 (A) Lord Cornwallis (B) Lord Ripon (C) Lord Macaulay (D) Lord Hastings
63. Who started the 'Dak Choki' Tapal method which means 'Ghodesvar Sathe tapali no halkaro'?  
 (A) Gyasuddin Tugluk (B) Allauddin Khilji (C) Razia Sultana (D) MOhd. Tuglak
64. Which of the following symbols in map indicates Railway?  
 (A)  (B)  (C)  (D) 
65. Where is the headquarters of the United Nation (UN)?  
 (A) rome (B) Paris (C) Washington (D) New York
66. By which pass of the Himalayas can we easily travel for the pilgrimage of the Kailash Mansarovar?  
 (A) The Shitkila Ghat (B) The Nathula Ghat (C) The Jelpala Ghat (D) The Karakoram Ghat

67. Which institution has been formed by justice Mahadev Govind Ranade for social reform?  
(A) The Brahmosamaj (B) The Aryasamaj (C) The Prarthanasamaj (D) The Satyasodhaksamaj
68. Which of the following rivers does not meet the Ganga?  
(A) The Koshi (B) The Chambal (C) The Shon (D) The Gandak
69. Whose statue is there in front of the Vidhan Sabha of Gujarat in sitting posture?  
(A) Vitthalbhai Patel (B) Vallabhbhai patel (C) Mahatma Gandhi (D) Dr. Jivraj Mehta
70. Which of the following rivers meets the river Krishna?  
(A) The Tungbhadra (B) The Koyna (C) The Ghatprabha (C) All of them
71. In which states there is 'Amravrishti' at the end of the summer and just before the setting of the monsoon?  
(A) Tamilnadu and Telangana (B) Kerala and Karnatka  
(C) Andhrapradesh and Tamilnadu (D) Andhrapradesh and Telangana
72. By which name is the Bhagirathi Ganga known as after it originates from the Gangotri?  
(A) Padma (B) Jamuna (C) Meghna (D) All of three
73. Which country has the largest written constitution?  
(A) Britain (B) France (C) India (D) America
74. What was the name of the inspiring guru of Harihar and Bukkaray that had setup the Hindu Maharaja-Vijaynagar on the shore of Tungbhadra?  
(A) Acharya Shibhadra (B) Swami Ramtirtha (C) Vidyaranya Swami (D) Guru Virajanand Swami
75. What is the position of India in the world with reference to area?  
(A) 6<sup>th</sup> (B) 7<sup>th</sup> (C) 8<sup>th</sup> (D) 9<sup>th</sup>
76. Which country is called the land of 'Midnight Summer'?  
(A) Sweden (B) Norway (C) Spain (D) Portugal
77. Where did Vastupal and Tejpai, the ministers of the Rana Vir Dhaval of Dholka, built the Jain temple?  
(A) Delwara (Abu) (B) Palitana (C) Girnar (D) All of them
78. Which Veda of the Aryas is called the 'Gangotri of music'?  
(A) The Rigveda (B) The Yajurveda (C) The Samveda (D) The Atharvaveda
79. In which state of India was the Panchayat Raj was established first?  
(A) Gujarat (B) Rajasthan (C) Maharashtra (D) Madhya Pradesh

80. Of which Indian classical dance is the plaited green coloured petticoat, kumin, silk blouse and belt around the waist the characteristics?
- (A) Manipuri                      (B) Kathak                      (C) Bharatnatyam                      (D) Kathakali
81. Which of the followings is not written by Mahakavi Kalidas in Sanskrit?
- (A) Abhigyan Shakuntalam                      (B) Kadambari  
(C) Rutasamhar                      (D) Kumarsambhavam
82. In which caves is the great piece of the Indian sculpture Kailash temple situated?
- (A) Ajanta                      (B) Ellora                      (C) Elaphanta                      (D) Bagh
83. In which of the following is not our neighbor country?
- (A) Nepal                      (B) Bhutan                      (C) Iran                      (D) Srilanka
84. Which is the highest position in the Indian Army?
- (A) Field Marshall                      (B) Admiral                      (C) Air Chief Marshall                      (D) Lt. General
85. Which is the state of India that has the largest area?
- (A) Uttar Pradesh                      (B) Maharashtra                      (C) Rajasthan                      (D) Madhya Pradesh
86. What amount of the nation income of India is obtained from agriculture?
- (A) 65%                      (B) 26%                      (C) 62%                      (D) 22%
87. Who was the first speaker of the Lok Sabha in India?
- (A) Neelam Sanjeev Reddy                      (B) Mirakumari  
(C) Ganesh Vasudev Mavlankar                      (D) Sumitra Mahajan
88. Of which religion is the 'Tripitika' the Holy Book belongs?
- (A) Jain                      (B) Hindu                      (C) Buddha                      (D) Islam
89. What is the 'Mahabhinishkkramana'?
- (A) The renunciation of Mahavir                      (B) The Shankaracharya became Sanyasi  
(C) The renunciation of Buddha                      (D) The renunciation of Guru Nanak
90. Which Indian state has been given special rights in our constitution?
- (A) kerala                      (B) Assam                      (C) Nagaland                      (D) Jammu & Kashmir
91. Which right is not enlisted in the list of the Fundamental rights?
- (A) Right to Protection against Exploitation                      (B) Right to Property  
(C) Right to Liberty                      (D) Right to Education and Culture

92. What is the duration (Time limit) for the member of the Rajya Sabha?  
(A) 4 Years (B) 5 Years (C) 6 Years (D) 10 Years
93. Who was the first chairman of the Indian Constitution Assembly?  
(A) Jawaharlal Nehru (B) Dr. Rajendraprasad  
(C) Dr. B. R. Ambedkar (D) Dr. Sarvapalli Radhakrishna
94. The river... Tsangop flows through Tibet, in which state does it enter after taking 'U' to from 'Namcha Barva' ?  
(A) Assam (B) Meghalaya (C) Arunchal Pradesh (D) Nagaland
95. The 16<sup>th</sup> October is observed as "Mourning day" which occurrence is the reason of it?  
(A) The Jaliyawala Bag Massacre (B) The Dandi Kuch  
(C) Bhang Bhang (D) All of them
96. How many are the factors of production?  
(A) 3 (B) 4 (C) 2 (D) 5
97. The concept of Human development number was accepted by \_\_\_\_\_.  
(A) WHO (B) UNO (C) UNDP (D) UNICEF
98. Which year was declared 'The International women's Year by the UNO?  
(A) 1975 (B) 2002 (C) 1990 (D) 2001
99. The Indian Standard Time line passes from the city. Which is that?  
(A) Aurangabad (B) Lucknow (C) Allahabad (D) Hyderabad
100. In which state is the Kanchanajangha Park situated?  
(A) Manipur (B) Nagaland (C) Sikkim (D) Arunachal Pradesh