NTSE STAGE–I (2015)

CLASS–10th

SCHOLASTIC APPTITUDE TEST (SAT)

Time: 45 Minutes *Maximum Marks: 50*

Please read the instructions carefully.

INSTRUCTIONS

A: General :

1. Immediately fill in the particulars on this page of the Test Booklet with Blue/Black Ball point pen.
2. Use ***Blue/Black Ball Point Pen only*** for writing particulars on ***Side-1*** and ***Side-2*** of the Answer Sheet. ***Use of pencil is strictly prohibited.***
3. Darken the appropriate bubbles with **HB Pencil** only.
4. Blank papers, clipboards, log tables, slide rules, calculators, cellular phones, pagers and electronic gadgets in any form are not allowed.
5. The answer sheet, a machine-gradable Objective Response Sheet (ORS) is provided separately.
6. Do not Tamper/mutilate the **ORS** or this booklet.
7. No additional sheets will be provided for rough work
8. On completion of this test, the candidate must hand over the Answer Sheet to the Invigilator on duty in the Room/Hall. ***However, the candidates are allowed to take away this Test Booklet with them.***

B: Questions paper format and **Marking Scheme :**

1. The question paper consists of *50 questions.*
2. For each question you will be **awarded 1 marks** if you darken the bubble corresponding to the correct answer and zero mark if no bubbles is darkened. No Negative Mark will be awarded.

Enrollment No. : | | | | | | | | | | | | **Batch :** _____

Name : _____

Candidate's Signature _____ **Invigilator's Signature:** _____

1. Prokaryotes are the organisms which are characterized by
(A) Well defined nucleus (B) Absence of cell wall
(C) Absence of chlorophyll (D) Absence of nuclear envelope, nucleus and nucleoplasm

2. Which of the following is not present in an animal cell?
(A) Ribosome (B) Plastids
(C) Mitochondria (D) Endoplasmic reticulum

3. These are heterotrophic, eukaryotic organism having their cell wall made up of a complex sugar called chitin
(A) Algae (B) Fungi
(C) Bryophytes (D) Gymnosperms

4. Development of muscle cramps during sudden activity is due to accumulation of
(A) Lactic acid (B) Lactose
(C) Lactogen (D) Lactulose

5. Thyroxin regulates which of the following metabolisms in the body
(A) Carbohydrate metabolism (B) Protein metabolism
(C) Fat metabolism (D) Carbohydrate, Protein and Fat metabolism

6. The gap between two neurons is called
(A) Axon (B) Internode
(C) Synapse (D) Dendrite

7. Deficiency of Iodine in the body can cause
(A) Kwashiorkar (B) Marasmus
(C) Goitre (D) Rickets

8. Buds produced in the margins along the leaf margins of Bryophyllum, develop into new plants when they fall on soil. This is a mode of:
(A) Sexual reproduction (B) Asexual reproduction
(C) Vegetative reproduction (D) Parthenocarpy

9. In plants, growth of pollen tube towards ovule, is an example of
(A) Chemotropism (B) Thigmotropism
(C) Haptotropism (D) Phototropism

10. Which of the following is not a component of Xylem?
(A) Vessels (B) Tracheids
(C) Fibres (D) Sieve tubes

11. An animal cell shrinks when placed in a concentrated sugar solution. Such a solution is known as
(A) Hypertonic (B) Hypotonic
(C) Isotonic (D) Neurotonic

12. Which of the following cell organelle does not possess a double layered covering?
(A) Chloroplast (B) Nucleus
(C) Mitochondria (D) Vacuole

13. In plants, translocation of food and other substance take place through sieve tubes in
(A) Upward direction (B) Downward direction
(C) Lateral direction (D) Both upward and downward direction

14. Mendel is popular for postulating
(A) Origin of species (B) Cell theory
(C) Linkage theory (D) Laws of inheritance

15. Skin becomes yellow in conc. HNO_3 as
(A) HNO_3 acts as an oxidizing agent (B) HNO_2 acts as a dehydrating agent
(C) Nitro-cellulose is formed (D) The proteins are converted into xantho proteins

16. When two liquids in a mixture differ by their boiling points, which of the following is the best method to separate these liquids?
(A) Evaporation (B) Distillation
(C) chromatography (D) Filtration

17. Which of the following is a chemical change?
(A) Melting of ice
(B) Dissolving salt in water
(C) Rusting of iron
(D) Boiling of water into steam

18. Buckminsterfullerene is an example of……. of carbon
(A) an isomer
(B) an isotope
(C) an allotrope
(D) a functional group

19. The gas used in welding and cutting metal is
(A) Ethyne
(B) Ethene
(C) Ethane
(D) Propene

20. Which gas is released when a metal reacts with an acid?
(A) Cl_2
(B) O_2
(C) H_2
(D) SO_2

21. Hydrolysis of water is which type of following reactions?
(A) Endothermic
(B) Decomposition
(C) Both 1 and 2
(D) Combination

22. When a burning splinter is brought near the gas jar containing hydrogen gas a popping sound is observed. It is due to
(A) exothermic
(B) endothermic
(C) exothermic and endothermic
(D) none of these

23. Silver chloride turns grey when placed in sun because of the formation of which of the following when placed in sun?
(A) Silver metal
(B) Carbon dioxide
(C) Silver oxide
(D) Silver sulphate

24. When copper sulphate solution reacts with iron metal, copper metal is formed. This reaction comes under which of the following category?
(A) Decomposition reaction
(B) Single displacement reaction
(C) Double displacement reaction
(D) Combination reaction

25. When 0.01 kg of $CaCO_3$ is decomposed the CO_2 produced occupies a volume at S.T.P
(A) 2.2414 dm^3
(B) 22.414 dm^3
(C) 22414 dm^3
(D) 224014 dm^3

26. Which of the following method is suitable for preventing an iron frying pan from rusting?
(A) Applying grease
(B) Applying paint
(C) Applying a coating of zinc
(D) All of the above

27. Aromatic compounds are given this name because of
(A) Slippery touch they have
(B) Bitter taste they have
(C) Sour taste they have
(D) Smelly they are

28. Pick the false statement
(A) One can calculate uniform acceleration from velocity-time graph
(B) One can calculate non uniform acceleration from velocity-time graph
(C) One can calculate velocity from distance-time graph
(D) One can calculate speed from distance-time graph

29. Pick the fundamental law of motion
(A) Newton's first law of motion
(B) Newton's second laws of motion
(C) Newton's third law of motion
(D) All laws of motion

30. The mass of an object is 10 Kg on earth. So we can say
(A) Its weight on earth is 10 N
(B) Its weight on Earth is 1.67 N
(C) Its weight on moon is 10 N
(D) Its mass on moon is 10 Kg

31. Pick the correct statement
(A) Energy is a physical quantity and work is a mathematical quantity
(B) Work is a physical quantity and energy is a mathematical quantity
(C) Both energy and work are physical quantities
(D) Both energy and work are mathematical quantities

32. A sound wave has a frequency of 2 kHz and wavelength 35 cm. How much distance it will travel in 2 seconds.
(A) 1.4 m
(B) 14 m
(C) 140 m
(D) 1400 m

33. The vibrations are amplified several times in the middle ear to the bones known as
(A) Anvil (B) Stirrup
(C) Hammer (D) All of the above

34. You are provided with a concave lens having focal length 15 cm. If it diminishes the image by one-third, calculate the distance of image from lens?
(A) 5 cm (B) 10 cm
(C) 5 m (D) 10 m

35. At the traffic signals, red light is used for stop due to the reason that it can be seen from a distance. The phenomenon involved is known as
(A) Reflection (B) Refraction
(C) Dispersion (D) Scattering

36. Alloys are commonly used in electrical heating devices, like electric iron etc. because
(A) Alloys have higher resistivity than that of its constituent metals
(B) Alloys do not burn a higher temperatures
(C) Alloys do not oxidize at higher temperatures
(D) All of above

37. Suppose five resistance, each of 10 ohm, are provided to you. You are free to get the desired value by combining them. The desired value will lie in between
(A) 2 ohm to 50 ohm (B) 20 ohm to 40 ohm
(C) 12 ohm to 50 ohm (D) 10 ohm to 60 ohm

38. Calculate the electricity bill for 30 days of a house in which a bulb 100 W operates for 6 hours/day, a fan rated 80 W operates for 10 hours/day and a refrigerator rated 400 W operates for 24 hours/day. Assume the cost of energy is Rs. 8.00 per kWh.
(A) Rs. 26.40 (B) Rs. 264.00
(C) Rs. 2640.00 (D) Rs. 26400.00

39. The magnetic field inside a current carrying long straight solenoid is
(A) Zero (B) Uniform
(C) Non uniform (D) Cannot say as the data is insufficient

40. Choose the medium most suitable for the core of electromagnets
(A) air (B) wood
(C) soft iron (D) steel

41. Taille was
(A) Unit of currency in France (B) Tax comprising one tenth of the agriculture
(C) Tax on salt and tobacco (D) Tax to be paid directly to the state

42. Who advocated the policy of abolishing Princely states in free India?
(A) Vallabh Bhai Patel (B) Mahatma Gandhi
(C) C. Rajagopalachari (D) Jwahar Lal Nehru

43. Allegory is
(A) Painting of Germania (B) Expressing an abstract idea through a person or thing
(C) To portray nation as female figures (D) Attributes to liberty

44. Who said 'In my state the mother is the most important citizen'?
(A) Mahatma Gandhi (B) Charles Darwin
(C) Herbert Spencer (D) Hitler

45. Which of the following novels is not written by Premchand?
(A) Godan (B) Rangbhoomi
(C) Anandmath (D) Sewasadan

46. Dhangars are an important pastoral community of
(A) Karnatka (B) Maharashtra
(C) Andhra Pradesh (D) Gujrat

47. The great bath of the Indus valley civilization was discovered in
(A) Harappa (B) Lothal
(C) Mohanjodaro (D) Ropar

48. Choose the correct chronological order for the following

(i) Jallianwala massacre (ii) Rowalt Act
(iii) Poona Pact (iv) Lucknow Pact

(A) a, c, b, d (B) b, a, d, c
(C) c, b, a, d (D) d, b, a, c

49. Under the inland Emigration Act of 1859

(A) Plantation workers were not permitted to leave the tea gardens without permission
(B) British government banned the entry of workers in the forests
(C) Workers were brought to work after signing an agreement
(D) Workers left the plantations and headed home

50. New International Economic Order (NIEO) means a system that would give G–77 countries

(A) Real control over their natural resources
(B) Fairer prices for raw materials
(C) Better access for their manufactured goods in developed countries
(D) All of the above

51. Read the following statements and select the correct option thereafter

Statement–1

Among its sporting ancestors hockey can count the Scottish game called shinty, the English and Welsh game called bandy and Irish hurling.

Statement–2

Hockey like many other modern games was invented by the colonial officials in India and soon gained popularity.

(A) Statement-1 is wrong, Statement-2 is true (B) Statement-1 is true, Statement-2 is wrong
(C) Both Statement-1 and Statement-2 are true (D) Both Statement-1 and Statement-2 are wrong

52. In about the 1660's the farmers in many parts of England began growing turnip and clover because

(A) The spread of railways made it easy to transport the crops to the eastern coast for export
(B) These crops had the capacity to increase the nitrogen content of the soil
(C) The farmers earned huge profits by selling these crops
(D) None of the above

53. 'Vande Matram' was written by

(A) Muhammad Iqbal (B) Bankim Chandra Chattopadhyay
(C) Rabindra Nath Tagore (D) Abanindranath Tagore

54. Consider the following statements and choose the correct option, given therarter.
During colonial rule Indian Peasants were unwilling to grow opium because

(i) The crop had to be grown on the best lands
(ii) The cultivation of opium was a difficult process
(iii) The price paid by government to the cultivators for the opium they produced was very low
(iv) The crop had no demand in the market.

(A) a, b, d (B) b, c, d
(C) a, b, c (D) a, c, d

55. Napalm refers to

(A) A defoliant, a plant killer
(B) An organic compound used to thicken gasoline for firebombs
(C) Phosphorous bomb
(D) None of the above

56. The layer of atmosphere that provided ideal condition for flying of jet aeroplane is

(A) Troposphere (B) Stratosphere
(C) Ionosphere (D) Exosphere

57. Maldives islands are situated to the…… of Lakashdweep Islands.

(A) South (B) North
(C) East (D) West

58. Tropical Evergreen Forests appear green all the year round because
(A) It has luxuriant vegetation of all kinds trees, shrubs and creepers
(B) The trees in these forests do not shed their leaves
(C) The forests receive heavy rainfall
(D) There is no definite time for trees to shed their leaves

59. Which of the following rivers is not a tributary of Ganga?
(A) The Ghaghra (B) The kosi
(C) The Chambal (D) The Penganga

60. Match List–I with List –II and select the correct option.

List–I	List–II
A. Mawsynram	1. Tropical Cyclones
B. Assam	2. Houses on stilts
C. Andhra Pradesh	3. Stalagmite and stalactite caves
D. West Bengal	4. Kaal Baisakhi

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

61. If a person wants to visit the national parks in Sariska, Corbet and Sunderban, to which one of the following states he need go in this connection?
(A) Rajasthan (B) Kerala
(C) West Bengal (D) Uttaranchal

62. Which of the following statements is incorrect?
Factors responsible for location of jute mills in the Hugli basin are
(A) Proximity of the jute producing areas (B) Port facilities for the export of jute goods
(C) Heavy demand of jute goods (D) Good network of railways, roadways and waterways

63. The red soils develop a reddish colur due to
(A) Deforestation and overgrazing
(B) The presence of Potash and magnesium
(C) Diffusion of iron in crystalline and metamorphic rocks
(D) Formation fro the lave flows

64. Which one of the following pairs is incorrect?
(A) Black Buck-Endangered species (B) Blue Sheep-Vulnerable species
(C) Himalayan Yew-Endangered specied (D) Mahua-Endangered species

65. The river that makes Sivasamudram waterfall
(A) The Kaveri (B) The Krishna
(C) The Narmada (D) The Godavari

66. Particulate matter in the air can be reduced by
(A) Fitting smoke stacks to factories with electrostatic precipitators
(B) Fabric filters, scrubbers and inertial scrubbers
(C) Using oil or gas instead of coal
(D) All of the above

67. Identify the right pairs from the following and choose the right option, given thereafter.

Place	Source of energy
1. Nagarcoil	1. Nuclear
2. Tarapur	2. Hydro electricity
3. Damodar Vally	3. Wind
4. Madhapur	4. Solar

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

68. Which of the following Himalayan Peaks are not in India?
(A) Nanda Devi (B) Kamet
(C) Namcha Barwa (D) Gurla Mandhata

69. Which of the following statement about Indian railways is not correct?
(A) The Indian Railways is the largest public sector undertaking in the country
(B) The Indian railways is reorganized into 14 zones
(C) The Indian railways network runs on multiple gauge operations
(D) The Indian Railways have been a great integrating force for more than 150 years

70. Assertion (A): Indian farmers should diversity their cropping pattern from cereals to high value crops.
Reason (R): This will increase incomes and reduce environmental degradation simultaneously.
(A) A is true and R is false
(B) Both A and R are true
(C) Both A and R are true but R is not the correct explanation of A
(D) Both A and R are true and R is the correct explanation of A

71. Five permanent members of United Nations Security Council are
(A) United States, Russia, U.K., Germany, China
(B) United States, Russia, U.K., France, China
(C) United States, China, U.K., Japan, Russia
(D) United States, China, India, France, Russia

72. Right to equality implies
(A) Equal opportunities in matters relating to employment
(B) Equal opportunities to achieve whatever one is capable of
(C) Abolition of social discrimination
(D) All of the above

73. Which language is spoken next to Hindi terms of number of people in India?
(A) Bengali
(B) Marathi
(C) Tamil
(D) Telgu

74. Which of the following is not a function of the Election Commission in India?
(A) Implementing Code of Conduct
(B) Reservation of seats
(C) Free and fair elections
(D) Appointing chief Electoral Officers

75. Consider the following statements-on the meaning of communal politics, identify the correct statements from the options given thereafter.
Communal politics is based on the belief that

(i) One religion is superior to that of others
(ii) People belongings to different religions can not live together happily as equal citizens
(iii) Followers of a particular religion constitute one community
(iv) State power can not be used to establish the domination of one religious group over others
(A) a, b, c
(B) a, b, d
(C) a, c, d
(D) b, c, d

76. In recent years Infant Mortality rate has reduced because of
(A) Protection of children from infection
(B) Better mother and child care
(C) Increase in the health care facilities
(D) All of the above

77. 'Antyodaya Anna Yojna' scheme was launched for the upliftment of
(A) Industrial workers
(B) Farmers
(C) Labourers
(D) Rural poor

78. Consider the following statements and identify the correct response from the options given thereafter.

Statement–1

The most serious economic problems of India are poverty and unemployment.

Statement–2

There is a strong link between economic growth and poverty reduction.
(A) Statement–1 is false, Statement–2 is true
(B) Statement–1 is true, Statement–2 is false
(C) Both Statement–1 and Statement–2 are true but Statement–2 is not the correct explanation of Statement–1
(D) Both Statement–1 and Statement–2 are true and Statement–2 is the correct explanation of Statement–1

79. The quality of education in a country does not depend upon
(A) Growth rate
(B) Literacy rate
(C) Health status
(D) Acquisition of skill by people

80. Globalisation has led to improvement in living conditions
(A) of all the people
(B) of people in the developed countries
(C) of workers in the developing countries
(D) none of the above

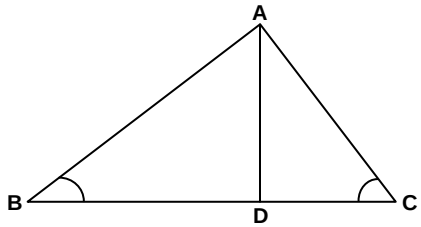
81. The factorization of
2p(a-b) + 3q(5a-5b) + 4r(2b-2a) yields
(A) (b-a) (2p + 15q-8r)
(B) (a-b) (2p-15q-8r)
(C) (b-a) (2p – 15q + 8r)
(D) (a-b) (2p-15q + 8r)

82. The sides of a triangle are 11 m, 60 m, and 61 m. The altitude of the smallest side is
(A) 11 m
(B) 66 m
(C) 60 m
(D) 50 m

83. If $x = \frac{\left(\sqrt{3}+1\right)}{2}$ then the value of $4x^3 + 2x^2 - 8x + 7$ is
(A) 8
(B) 10
(C) 15
(D) 14

84. The volume (in cm^3) of the largest right circular cone that can be cut off from a cube of edge 4.2 cm is
(A) 9.7
(B) 77.6
(C) 58.2
(D) 19.4

85. In a given figure, if AD = 7 $\angle$3; $\angle B = 30^o$, $\angle ADC = 90^o$, and $\angle C = 60^o$, then BC equals to



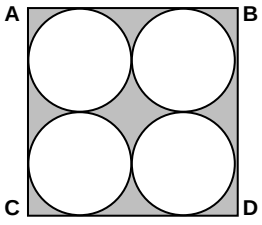
(A) 14 m
(B) 27 m
(C) 29 m
(D) 28 m

86. From an aeroplane vertically above a straight horizontal road, the angles of depression of two consecutive stones on opposite sides of the aeroplane are observed to be α and β. Then the height in metres of the aeroplane above the road is
(A) $\frac{\tan\alpha.\tan\beta}{\tan\beta+\tan\alpha}$
(B) $\frac{\cot\alpha.\tan\beta}{\cot\beta+\cot\alpha}$
(C) $\frac{\tan\alpha.\tan\beta}{\tan\beta-\tan\alpha}$
(D) $\frac{\cot\alpha.\tan\beta}{\cot\beta-\cot\alpha}$

87. The value of $(1 + \cot\theta - \text{cosec}\,\theta).(1 + \tan\theta + \sec\theta)$ is
(A) –2
(B) 3
(C) 2
(D) 1

88. If the p^{th} term of an AP is q and the q^{th} term is p, then the n^{th} term is
(A) p + q - n
(B) p + q + n
(C) p - q - n
(D) q - p - n

89. The area of the shaded portion where ABCD is a square of side 14 cm is



(A) 21 cm^2
(B) 154 cm^2
(C) 42 cm^2
(D) 84 cm^2

90. If the distance between the points (4, p) and (1, 0) is 5, then the value of p is
(A) 4 (B) ± 4
(C) -4 (D) 0

91. The probability of guessing the correct answer to a certain test question is x/12. If the probability of not guessing the correct answer is 2/3, then x is equal to
(A) 2 (B) 3
(C) 4 (D) 6

92. Students of a class are made to stand in rows. If one student is extra in a row, there would be two rows less. If one student is less in a row there would be three rows more. The number of students in the class are
(A) 70 (B) 50
(C) 60 (D) 80

93. In a flight of 600 km an aeroplane was slowed down due to a bad weather. If the average speed for the trip was reduced by 200 Km/h and the time of flight increased by 30 minutes, then the duration of flight is
(A) 1 hr (B) 2 hrs
(C) 3 hrs (D) 4 hrs

94. A bag contains five red balls and some blue balls. If the probability of drawing the blue ball is double that of red ball, then the number of blue balls in the bag is
(A) 19 (B) 20
(C) 15 (D) 25

95. If $x = 2 + 2^{1/3} + 2^{2/3}$ then $x^3 - 6x^2 + 6x =$ …….
(A) 2 (B) 1
(C) 4 (D) 3

96. In a triangle ABC; OB and OC are the bisectors of $\angle ABC$ and $\angle ACB$ respectively. Then $\angle BOC$ is equal to:
(A) $90^o - \angle A/2$ (B) $90^o - \angle A$
(C) $90^o + \angle A/2$ (D) $180^o - \angle A/2$

97. If $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ is the arithmetic mean between a and b, then the value of n is
(A) 0 (B) 1
(C) -1 (D) 2

98. ABC is a right angled triangle, having the right angle at B, such that BC = 6 cm and AB = 8 cm. Then the radius of incircle is equal to
(A) 4 cm (B) 3 cm
(C) 2 cm (D) 1 cm

99. If the altitude of an equilateral triangle is x cm, then the area is equal to
(A) x^2 cm^2 (B) $(\sqrt{3}x^2/2)$ cm^2
(C) $(x^2/\sqrt{3})$ cm^2 (D) $(x^2/2)$ cm^2

100. If (x-4) is a factor of $5x^3 - 7x^2 - ax - 28$ then the value of a is
(A) 35 (B) 45
(C) 55 (D) 25

SPACE FOR ROUGH WORK

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NTSE STAGE–I (2015)

CLASS–10th

SCHOLASTIC APPTITUDE TEST (SAT)

ANSWERS

ANSWERS

1. D	2. B	3. B	4. A	5. D
6. C	7. C	8. C	9. A	10. D
11. A	12. D	13. D	14. D	15. D
16. B	17. C	18. C	19. A	20. C
21. C	22. A	23. A	24. B	25. A
26. C	27. D	28. C	29. B	30. D
31. A	32. D	33. D	34. A	35. D
36. D	37. A	38. C	39. B	40. C
41. D	42. A	43. B	44. D	45. C
46. B	47. C	48. B	49. A	50. D
51. B	52. B	53. B	54. C	55. B
56. B	57. A	58. D	59. D	60. C
61. B	62. C	63. C	64. D	65. A
66. D	67. B	68. D	69. B	70. D
71. B	72. D	73. A	74. B	75. A
76. D	77. D	78. D	79. A	80. B
81. Grace	82. C	83. B	84. D	85. D
86. A	87. C	88. A	89. C	90. B
91. C	92. C	93. A	94. Grace	95. C
96. C	97. A	98. C	99. C	100. B