Time: 11.30 a.m. to 1.30 p.m.

CENTRE CODE:				

DATE:	1	3	1	2	2	0	2	0

EXAM SEAT NO.:	3	6	2	1	0	0					

EXAM SEAT NO. (in words)	three	six	two	one	zero	zero					

NATIONAL TALENT SEARCH EXAMINATION 2020-21 (STD. X)

Scholastic Aptitude Test (SAT)

Instructions to the Candidates:

2) PART II Scholastic Aptitude Test Time 120 Minutes Maximum Marks 100

2) Write your Seat No. both in figures and in words on this Question Booklet (above) as Well as on the Answer Sheet (OMR Sheet) supplied to you.

3) Each question carries one Mark.

4) All questions are compulsory.

5) You have to mark your answers on Answer sheet provided with the Question Booklet. Each question is provided with four alternatives. Answer to each question is to be indicated by **making a dark circle on** the number of the correct alternative in the Answer sheet from amongst those given against the corresponding question in the Question Booklet.

6) Rough work can be done any where in the question booklet.

7) Extra time of 30 minutes will be allotted to the Physically Handicapped candidate with Defects of vision only.

Please Note the Centre Codes:

1. Bicholim	0001
2. Bardez	0002
3. Pernem	0003
4. Sattari	0004
5. Tiswadi	0005
6. Ponda	0006
7. Salcete	0007
8. Sanguem	0008
9. Canacona	0009
10. Quepem	0010
11. Dharbandora	0011
12. Mormugao	0012

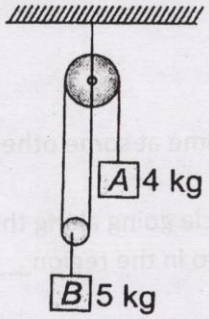
Scholastic Aptitude Test

Part II **Std X** **Time:11.30 am to 1.30 pm**

Q. 1. When an electric bulb is connected to 250V power supply the bulb glows. If current of 0.4A passes through it then the power of a bulb in CGS unit is_____

1) 10^9 ergs/s 2) 10^8 ergs/s 3) 10^{10} ergs/s 4) 10^7 ergs/s

Q. 2. The acceleration of the block B in the figure shown is _____



1) $\frac{g}{7}$ upward 2) $\frac{g}{7}$ downward 3) $\frac{2g}{7}$ upward 4) $\frac{2g}{7}$ downward

Q. 3. A monkey is sitting on a tree limb. The tree limb exerts a normal force of 48N and frictional force of 20N. The magnitude of the total force exerted by the tree limb on the monkey is _____

1) 52N 2) 28N 3) 68N 4) 42N

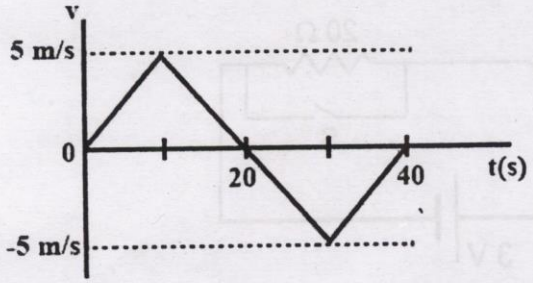
Q. 4. A positively charged particle projected towards east deflects towards North by a magnetic field. The field may be acting _____

1) towards east 2) towards south 3) upward 4) downward

Q.5. A rod of length 10 cm lies along the principal axis of a concave mirror of focal length 10 cm in such a way that the end closer to the pole is 20cm away from it. Then the length of the image is _____

1) 10.0cm 2) 5.0 cm 3) 15.0 cm 4) 7.0 cm

Q. 6. From the velocity-time graph shown in the figure, the average velocity during first 40 seconds is _____



1) 0 m/s 2) 2.5 m/s 3) 5 m/s 4) -10 m/s

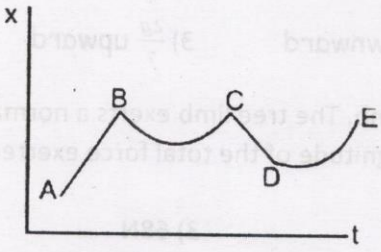
Q. 7. Three bulbs each having resistance of 180Ω are connected in parallel to an ideal battery of emf 60V.Then the current delivered by the battery when all the bulbs are ON is _____

1) 0.5 A 2) 1.0 A 3) 1.5 A 4) 2.0 A

Q. 8. If the earth stops rotating the apparent value of acceleration due to gravity g on its surface will _____

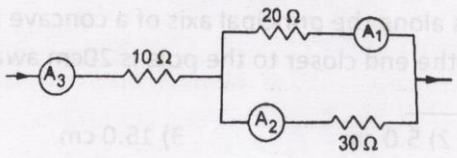
1) increase everywhere
2) decrease everywhere
3) remains the same everywhere
4) increase at some places and remains the same at some other place

Q. 9. The figure shows the displacement of a particle going along the X- axis as a function of time. The force acting on the particle is zero in the region_____



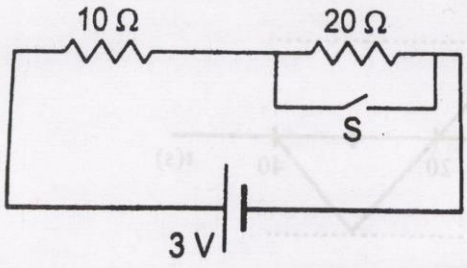
1) AB and BC 2) AB and CD 3) BC and CD 4) BC and DE

Q.10.If the reading shown by ammeter A_1 is 2.4A then ammeter A_3 will read_____



1) 1.6 A 2) 4.0 A 3) 2.4 A 4) 4.8 A

Q.11.Find the current through the 10 Ω resistor in the circuit diagram when the switch S is closed.

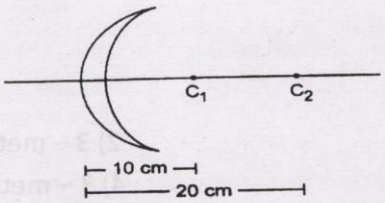


1) 0.3 A 2) 0.5 A 3) 1.0 A 4) 1.5 A

Q.12.A moving charge produces _____

1) electric field only
2) magnetic field only
3) both electric field and magnetic field
4) Neither electric field nor magnetic field

Q.13. What is the focal length of the thin lens as shown in the figure where points C_1 and C_2 denotes the centres of curvatures. (refractive index of the lens is 1.5 with respect to air)



1) 50 cm
2) 30 cm
3) 40 cm
4) 20 cm

Q.14. The number of water molecules present in a drop of water weighing 0.018 g is ----

1) 6.02×10^{26}
2) 6.02×10^{23}
3) 6.02×10^{20}
4) 6.02×10^{19}

Q.15. Which of the following will show Tyndall effect?

1) Salt solution
2) Milk
3) Copper sulphate solution
4) Starch solution

Q.16. Fog is a colloidal solution of

1) Gas in liquid
2) Liquid in gas
3) Gas in solid
4) Solid in Gas

Q.17. The correct order of increasing radii of the following set of elements Na, Rb, K and Mg is

1) Mg, Na, K, Rb
2) Mg, K, Na, Rb
3) Na, K, Rb, Mg
4) Na, Rb, K, Mg

Q.18. Which of the following oxides is most acidic ?

1) BeO
2) MgO
3) CaO
4) BaO

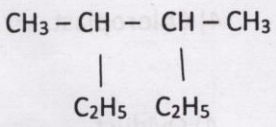
Q.19. The empirical formula of benzene is

1) C_6H_6
2) CH
3) C_6H_{12}
4) CH_2

Q.20. The mass of one molecule of sulphur di oxide is

1) 1.06×10^{-22}g
2) 32 g
3) 2.56×10^{-20}g
4) 64 g

Q.21. The IUPAC name for the structural formula



1) 3,4 – dimethylhexane
2) 2,3 – diethylbutane
3) 2 – ethyl – 3 – methylpentane
4) Heptane

Q.22. Which of the following is the correct IUPAC name ?

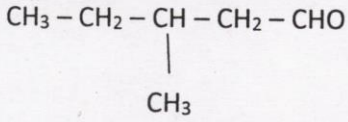
1) 3 – ethyl – 4, 4 – dimethylheptane
2) 4, 4 – Dimethyl – 3 – ethylheptane
3)5 – ethyl – 4, 4 – dimethylheptane
4) 3,3 – diethyl – 4 – methylheptane

Q.23. The functional groups present in the following compound are

$CH_3 - CH\ (OH)\ CH_2 - COOH$

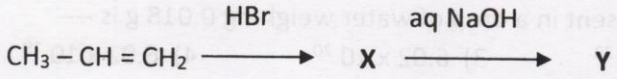
1) Alcohol and aldehyde
2) Aldehyde and ketone
3)Alcohol and ketone
4) Alcohol and carboxylic acid

Q.24. The IUPAC name of the compound



1) 2 – methylpentanal
2) 3 – methylpentanal
2) 3) 3 – methylpentan – 1 – ol
4) 3 – methylpentanone

Q.25. Identify **X** and **Y** in the following equation



1) X = $CH_3CH_2CH_2Br$; Y = $CH_3CH_2CH_2OH$
2) X = $CH_3\ CH_2CH_2Br$ Y = $CH_3CH = CH_2$
3) X = $CH_3CH(Br)\ CH_3$ Y = $CH_3\ CH_{(OH)}CH_2$
4) X = $CH_3CH(Br)\ CH_3$ Y = $CH_3CH = CH_2$

Q.26. Alcohols and carboxylic acids can be distinguished by

1) $NaHCO_3$
2) Na metal
3) $FeCl_3$
4) Esterification

Q.27. Spindle shaped cells with a single nucleus are present in the body except.

1) Iris of the eye
2) Ureters of the kidney
3) Bronchi of lungs
4) Muscles of the heart.

Q.28. Leech belongs to the phylum

1) Platyhelminthes
2) Arthropoda
3) Annelida
4) Mollusca.

Q.29. Material synthesized by the endoplasmic reticulum is dispatched to targets inside and outside the cell by

1) Ribosomes
2) Nuclear pore
3) lysosomes
4) Golgi apparatus

Q.30. Droplet nuclei produced by an infected person are responsible for causing infection of

1) Respiratory tract
2) Urinary tract
3) Digestive tract
4) Reproductive tract

Q.31. The breakdown of pyruvate using oxygen takes place in the following cell organelle

1) Ribosome
2) Mitochondria
3) Nucleus
4) Chloroplast.

Q.32. The egg is carried from the ovary to the womb by

1) Ureters
2) Urethra
3) Fimbriae
4) Oviduct

Q.33. The following is true with regard to determination of sex of the child who inherits X chromosome from the father .

1) 100% Boy.
2) 100 % Girl
3) 50% Boy
4) 50 % girl

Q.34. Disorder of the eye in which a person can see near by objects but cannot see distant objects clearly.

1) Hypermetropia
2) Myopia
3) Astigmatism
4) Glaucoma.

Q.35. Tracheids are present in following tissue of the plants
1) Xylem 2) Trichomes 3) Phloem 4) Plasmodesmata

Q.36. Which of the following cell is formed by meiosis
1) Neuron 2) Osteocyte 3) Ootid 4) Blood corpuscle.

Q.37. Chamber A containing dilute sugar solution is separated from chamber B with concentrated sugar solution by a semipermeable membrane, in which direction will water move .
1) A to B by diffusion
2) B to A by osmosis
3) A to B by active transport
4) B to A by passive transport .

Q.38. In the Knee region the Femur is connected to the Fibula by
1) Tendon 2) Cartilage 3) Capillaries 4) Ligament.

Q.39. A food chain consists of Frog, Snake, Wheat plant, Grasshopper and Eagle. Identify the primary consumer
1] Frog 2) Wheat plant 3) Snake 4) Grasshopper.

Q.40. Global warming is caused by following gases.
1) Carbon monoxide 2) Ozone 3) Carbon dioxide 4) Nitrogen

Q.41. Which of the following is the book of Gandhiji ?
1) Discovery of India
2) My Experiment with Truth
3) Main Kampf
4) Hind Swaraj

Q.42. Dhangars were an important pastoral community in_____.
1) Himachal Pradesh 2) Uttar Pradesh 3) Maharashtra 4) Kerala

Q.43. Who among these offered Chancellorship to Hitler in Germany ?
1) Churchill 2) Goebbels 3) Helmuth 4) Hindenburg

Q.44. Across India, from Mizoram to Kerala many forest thrived because_____.
1) Government restricted cutting of trees.
2) Villages protected forest as sacred groves.
3) Local residents restricted cutting of forests.
4) Forest with dangerous animals survived as no one dared to enter these forests.

Q.45. In which state of India are the Gujjar Bakarwals found ?
1) Rajasthan 2) Jammu and Kashmir 3) Maharashtra 4) Gujarat

Q.46. It issued a warning to the miners when the levels of Carbon dioxide in the mines would increase and there was a danger to their lives.
1) Mule 2) Steam Locomotive Rocket 3) Safety lamp 4) Power Loom

Q.47. 'Young Italy' was founded by _____.
1) Giuseppe Garibaldi
2) Pope Pius IX
3) Count Camillo Cavour
4) Joseph Mazzini

Q.48. In 1848, which community founded the first Indian Cricket club in Bombay?
1) The Parsis 2) The Hindus 3) The Christians 4) The Muslims

Q.49. The Southern tip of Africa was called the 'Cape of Storm' by _____.
1) Bartholomew Dias 2) Prince Henry 3) Vasco da Gama 4) Christopher Columbus

Q.50. Who was the "Father of Goa's Freedom Movement"?
1) Dr. T.B. Cunha 2) P.P.Shirodkar 3) Purushottam Kakodkar 4) Luis de Menezes Braganca

Q.51. Which European country became famous as the 'Workshop of the World'?
1) France 2) England 3) Spain 4) Italy

Q.52. The great Lady freedom fighter unfurl Indian flag at Stuttagart in Germany for the first time is ___.
1) Madam Bhikaj Cama 2) Kalpana Dutta 3) Pritilata Wadedar 4) Suniti Chaudhari

Q.53.The tropic of cancer passes through
1) Bihar 2) Chattisgarh 3) Orissa 4) Uttar pradesh

Q.54. The lake formed due to tectonuc activity is
1) Lohtak 2) Wular Lake 3) Dal Lake 4) Bhimtal

Q.55. The biomes are identified on the basis of
1) Cities 2) Plants 3) States 4) Rocks

Q.56. In how many states of India does almost half of India's population live?
1) Two 2) One 3) Five 4) Seven

Q.57. Black soil is also known as
1) Black cotton soil 3) Yellow cotton soil
3) Red cotton mill 4) Green cotton oil

Q.58. Hydroelectric power contributes approximately how much percent of the total electricity produced in India?
1) 35 2) 22 3) 40 4) 10

Q.59. Which state is the largest producer of mica?
1) Uttar Pradesh 2) Bihar 3) Jharkhand 4) Rajasthan

Q.60. Light industries use
1) Light raw material 2) Materials which produce light
3) Light investment 4) All of these.

Q.61. What does BOT Stand for?
1) Bureau of Transport 2) Build, operate and transfer
3) Bureau of atrans communication 4) Bureau of. Transmission

Q.62. The monazite sands of Kerala is rich in
1) Thorium 2) Iron 3) Barium 4) Calcium

Q.63. The area drained by a single river system is called
1) Water divide 2) Drainage basin 3) River system 4) Perennial river

Q.78. Amar Saxena want to buy a toothpaste but the shop keeper insists he buys a toothbrush along with it. Which right is being violated here.

1) Right to safety
2) Right to be informed
3) Right to choose
4) Right to redress

Q.79. What portion of the deposit is kept by the bank for day to day transaction

1) 10%
2) 15%
3) 20%
4) 25%

Q.80. Multinational corporations have succeeded in entering global markets through_____.

1) WTO
2) UNESCO
3) IMF
4) UNO

Q. 81. The value of $\sqrt{1 + 106 \times 107 \times 108 \times 109}$ is_____

1) 11555
2) 12625
3) 13525
4) 10125

Q. 82. If $\tan\theta = \sqrt{2} - 1$ where θ is an acute angle then the value of $\frac{\sin 2\theta}{2}$ is _____

1) $\sqrt{2}$
2) $2\sqrt{2}$
3) $1\sqrt{2}$
4) $1/2\sqrt{2}$

Q. 83. A die is thrown once. If the probability of getting a perfect square is "**a**" and probability of getting composite number except 4 is "**b**" then $\sqrt{b^4 + a^4 - 2a^2b^2}$ is ____

1) 1/36
2) 2/9
3) 1/12
4) 5/6

Q.84. A line passes through (2,2) and is perpendicular to the line $3x + y = 3$. Its y-intercept is_____

1) 1/3
2) 2/3
3) 1
4) 4/3

Q. 85. The centroid of a triangle is (1,4) and the coordinates of its two vertices are (4,-3) and (-9,7). Then the area of the triangle is _____

1) 91.5 sq.unit
2) 183 sq.unit
3) 366 sq.unit
4) 45.75 sq.unit

Q. 86. The number of ways in which 5 prizes can be distributed among 4 boys when every 2 boy can take one or more prizes is _____

1) 3125
2) 1024
3) 240
4) 600

Q. 87. The sum of two numbers is 528 and their HCF is 33. How many pairs of such numbers can be formed ?

1) 4
2) 8
3) 12
4) 6

Q. 88. If the equation $x^2 + 2(a+1)x + 9a - 5 = 0$ has only negative roots then

1) $a \leq 6$
2) $a \geq 6$
3) $a \leq 0$
4) $a \geq 0$

Q. 89. A cistern is to be filled by three pipes whose diameters are 1cm, $1\frac{1}{3}$ cm and 2cm running together. If the largest pipe alone fill it in 61 minutes, the amount of water flowing in by each pipe being proportional to the square of its diameter then time taken by three pipes to fill a cistern is _____

1) 46 min
2) 36 min
3) 26 min
4) 56 min

Q.64. which of the following is a rabi crop ?

1) Rice 2) Gram 3) Millets 4) Cotton

Q.65. Who is the chief administrative officer of the United Nations ?

1) The Director General 2) The senior General

3) The chief executive officer 4) The secretary General Induad

Q.66. Name the President of the constituent Assembly of India.

1) Vallabhai Patel 2) Dr Rajendra prasad

3) Motilal Nehru 4) Abdul kalam Azad

Q.67. Which state has the largest Vidhan Sabha in India ?

1) Madhya Pradesh 2) Bihar 3) Kerala 4) Uttar Pradesh

Q.68. Which one of the following institutions can make changes to the existing law of the country ?

1) Supreme Court 2) The President 3) High court 4) The Parliament

Q.69. The right to freedom is a cluster of how many freedoms ?

1) Seven 2) Six 3) Five 4) Eight

Q.70. In India the power sharing mechanism does not involve

1) Judiciary 2) Legislature 3) Executive 4) Industry

Q.71. Participation of women is relatively low in countries like

1) Norway 2) Sweden 3) Finland 4) Bangladesh

Q.72. Democratic Government is

1) an accountable Government 2) A responsible Government

3) A legitimate Government 4) All the above

Q.73. Mr Anil Kumar works as a fisherman in the morning and during the day he works as a car Mechanic for Maruti company. Choose the most appropriate sector he is working in.

1) Primary sector 2) Primary and tertiary sector

3) Secondary and Primary sector 4) Tertiary and secondary sector

Q.74. Which age group of children does the Sarva Sikhsha Abhiyaan aim to promote.

1) 6 – 10 years 2) 5 – 13 years 3) 6 – 14 years 4) 7 – 18 years

Q.75. Decrease in Infant Mortality Rate signifies

1) Increase in Population 2) Increase in GDP

3) Economic development of the country 4) Increase in life expectancy

Q.76. Mr. Kapil Das has employed 7 workers in his textile dept. If he takes out 3 persons the production continues to remain the same. Are these 3 persons

1) Seasonally unemployed 2) Disguisedly unemployed

3) Under employed 4) Cyclically unemployed

Q.77. How many days does NREGA provide assured work to the unemployed

1) 200 days 2) 100days 3) 50 days 4) 150 days

Q.90.The diagonals of a parallelogram ABCD are along the lines $x + 3y = 4$ and $6x - 2y = 7$. Then ABCD must be a

1) rectangle 2) square 3) rhombus 4) trapezium

Q.91. The two adjacent sides of a cyclic quadrilateral are 2cm and 5cm and angle between 3 them is 60° .If the area of the quadrilateral is $4\sqrt{3}$ sq.cm then the sum of the remaining two sides is _____

1) 7 cm 2) 6 cm 3) 5 cm 4) 8 cm

Q.92.In a higher secondary school, 60 students like mathematics,40 like physics, 30 like biology, 15 like mathematics and physics,10 like physics and biology, 5 like biology and mathematics. No one like all the three subjects. Find how many students like at least one of the subjects.

1) 100 2) 130 3) 80 4) 120

Q.93.What sum of money at compound interest will amount to ₹ 5623.80 in 3 years, if the rate of interest is 3% for the first year,4% for the second year and 5% for the third year ?

1) ₹4560 2) ₹5800 3) ₹5000 4) ₹4840

Q.94.If one root of the equation $4x^2 + 4px + 48 = 0$ is 4 while equation $x^2 + px + q = 0$ has equal roots then the value of $4q - 4p$ is_____

1) 49/4 2) -64 3) -7 4) 77

Q.95.A four digit number of distinct digits is formed by using the digits except 0,1 and 9. The number of such numbers which are divisible by 25 is _____

1) 60 2) 40 3) 20 4) 50

Q.96.A train overtakes two persons who are walking in the same directions as the train is moving, at the rate of 2km/hr and 4km/hr and passes them completely in 9 and 10 4 seconds respectively. Then the length of the train is _____

1) 100m 2) 50m 3) 65m 4) 45m

Q.97.An open box is to be made out of a piece of a rectangular card board of dimensions 8cm X 5cm by cutting off equal squares from the corners and turning up the sides. The maximum volume of the box is _____

1) 24 cubic cm 2) 20 cubic cm 3) 18 cubic cm 4) 40 cubic cm

Q.98.Two circles each of radii 9 cm touch each other internally a circle whose diameter is 36 cm. Then the circumference of a circle which touches all the three circles is _____

1) 9π cm 2) 4.5π cm 3) 6π cm 4) 12π cm

Q.99.Two bags contain 3 white,2 black and 2 white ,4 black balls respectively. A ball is chosen at random then the probability of its being black is _____

1) 8/15 2) 2/15 3) 4/15 4) 1/15

Q.100.Akash and Aman solve an equation. In solving Akash commits a mistake in constant term and finds the roots as 8 and 2. Aman commits mistake in the coefficient of x and find the roots as -9 and -1.Then the correct roots are _____

1) -8,2 2) 9,1 3) 9,-1 4) -8,-2

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NATIONAL TALENT SEARCH EXAM (NTSE) 2020-21

SCHOLASTIC APTITUDE TEST (SAT) Std. X

Corrected ANSWER KEY

D.O.E. 13/12/2020

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

STATE COUNCIL OF EDUCATIONAL RESEARCH & TRAINING ★ GOVT. OF GOA ★