## NTSE STAGE - I – 2020 – 2021 - TAMIL NADU

## **PART – I SAT TEST**

- 101. In a party of 100 people, 60 had Vanilla ice-cream and 40 had chocolate ice-cream. 10 People did not have any ice-cream. How many had only chocolate ice-cream? (A) 10 (B) 0 (C) 20 (D) 30 If  $x^2 + y^2 + z^2 = 29$  and xy + yz + zx = 26, then the value of x + y + z is: 102. (B) 81 (A) 9 (C) ±9 (D) ± 3 In the given figure, AB is parallel to CD. The angle y is : 103. -B28° E y 40° D (A) 68 ° (B) 34° (C) 112° (D) 56° 104. From the given figure, the angle x is : (where O is the centre of the circle) 0 96 N x M 48 <sup>°</sup> (A) (B) 132° (C) 96° (D) 264 °  $\frac{\tan 12^\circ}{\cot 78^\circ} - \frac{\sin 18^\circ}{\cos 72^\circ} = ?$ sin 35° 105. cos 55° (A) 1 (D) −1 (B) 0 (C) 3 106. Mean of 10 observations is 58 and 5 is subtracted from each observation, then the mean of new observations is : (A) 53 (B) 514 (C) 63 (D) 151 107. Which of the following is a true statement? (A) any real number is either rational or irrational. (B) 0 is not real number.
  - (C) Any real number is either prime or composite.
  - (D)  $\sqrt{9}$  is an irrational number

The area of a rectangle is  $6x^2 + 5x - 6$ . If its length is 3x - 2, then its breadth is : 108. (A) 2x + 3(B) 2x + 1 (C) x + 3 (D) 3x + 2

109. 
$$\frac{x}{y} + \frac{y}{x} = 1$$
,  $(x, y \neq 0)$ , then the value of  $x^3 - y^3$  is :  
(A) 1 (B) -1 (C) 0 (D)  $\frac{1}{2}$ 

110.

In the given figure, the line I is parallel to the lines m and n. Then the value of x is :



(A) 90 °	(B) 30 °	(C) 45 °	(D) 60 °
			( )

111. If the total surface area of a cube is 96 cm<sup>2</sup>, then its volume is : (A)  $64 \text{ cm}^3$ (B) 512 cm<sup>3</sup> (C)  $8 \text{ cm}^{3}$ (D) 27 cm<sup>3</sup>

112.	The probability of choosing a vowel in the word EDUCATION is :				
	(A) $\frac{3}{9}$	(B) $\frac{4}{5}$	(C) $\frac{5}{9}$	(D) $\frac{7}{9}$	

113.	The L.C.M. of $6x^2y^2$ and $8x^4y^4$ is :				
	(A) $24x^4y^4$	(B) $48x^6y^6$	(C) $24x^6y^6$	(D) $48x^4y^6$	

- 114. Two parallel lines touch the circle at the points A and B respectively. If area of the circle is  $25f \ cm^2$ , then AB is equal to : (A) 10 cm (B) 8 cm (C) 5 cm (D) 25 cm
- A girl of height 100 cm is walking away from the base of a lamp post at a speed of 1.9 m/sec. 115. If the lamp is 5 m above the ground, the length of the shadow after 4 sec, is : (A) 160 cm (B) 180 cm (D) 190 cm (C) 200 cm
- If 'a' and 'b' are any two positive integers and  $a^b \times b^a = 72$ , then the values of a and b are : 116. (B) 3, 2 (C) 2, 3 or 3, 2 (A) 2, 3 (D) 3, 3



If PS is the bisector of angle P and QS = 6 cm, SR = 5 cm, PQ = 12 cm, then PR is :



→ East 7 N

West

4 N

4 N

125.	<ul> <li>Pick out the correct statements regarding the properties of Magnetic Lines of force.</li> <li>(A) Magnetic Lines of force never intersect.</li> <li>(B) They will be maximum at the equator than at the poles.</li> <li>(C) Magnetic Lines of force start from South pole and end at the North pole.</li> <li>(D) Magnetic Lines of force are closed continuous curves extending to the body of the magnet</li> </ul>			
	(A) a, b and c only (C) a and d only		(B) a, b and d only (D) b and c only	
126.	Pick out the right answer to cor The distance travelled by sound (A) Loudness (C) Velocity	rect the given statement d in one second is called	: I time period of the sound (B) Pitch (D) Frequency	d.
127.	A person wears glasses of pow person without the glasses will (A) Near sightedness, 50 cm (C) Near sightedness, 250 cm	ver -2.0 D. The defect of be :	the eye and of the far po (B) Far sightedness, 5 (D) Astigmatism, 50 cr	int of the 0 cm n
128.	Pick the odd one out. (A) Water recovery system (C) Eye tracking technology		(B) Oxygen generation (D) Sound Naviagtion	system and Range (SONAR)
129.	The monthly bill (30 days), if the of rupees 5 per unit : (A) A heater of 1000 Watt for 2 (B) Ten 60 watt bulbs for 5 hou (A) 550	e following appliances a hours daily. rs daily. (B) 700	re used as indicated belo (C) 750	(D) 500
130.	A DC generator works on the p (A) Lenz's Law (C) Faraday's law of Electroma	rinciple of gnetic Induction	(B) Ohm's law (D) Fleming's Rule	
131.	Match the following : (A) Highest refraction (B) Lowest refraction (C) Headlights of a car (D) Side rear view mirror (A) $a - iii$ , $b - iv$ , $c - ii$ , $d - i$ (C) $a - ii$ , $b - iii$ , $c - iv$ , $d - i$	(i) Convex mirror (ii) Concave mirror (iii) Diamond (iv) Ice	(B) a – iii, b – I, c – iv, (D) a – iv, b – i, c – ii, c	d — ii 1 — iii
132.	The expression for the magnific distance of the object from mirr	cation of a spherical mirr or (u) is :	or in terms of focal lengtl	h f and
	(A) $\frac{-f}{u-f}$	(B) $\frac{f}{u+f}$	(C) $\frac{-f}{u+f}$	(D) $\frac{J}{u-f}$
133.	When a lactometer is used in a length of its stem is immerse in length of the stem immersed in following is /are true? (A) Water content in A is more (B) Density of the sample A is le (A) a is true, but b is false (B) a and b are false	given sample of milk A, the milk. When it is use the milk is one fourth of than that of B. ess than the density of th	if floats in the milk such d in another sample of m the total length. Then wl he sample B.	that half of the ilk B, the hich of the

- (C) a and b are true(D) a is false, but b is true

134. Which of the following does not release $H^{+}$ ion when added in water?				
	(A) HCI <sup>−</sup>	(B) HCOOH	(C) $CH_3OH^-$	(D) $CH_3COOH^+$
135.	Find the odd one out. (A) mesons	(B) positrons	(C) neutrinos	(D) protons
136.	An element 'X' has 8 electron given below are not correct a (a) It belongs to 3 <sup>rd</sup> period in t (b) It has a valency of 7 (c) It belongs to 18 <sup>th</sup> group in (d) its valency is 1 (1) a and b	is in the M shell when it bout the element 'X'? the modern periodic tab the modern periodic tab (B) b and c	gains one electron. V le ble (C) b and d	Vhich statements (D) a and d
137.	Identify the double displacem	ent reactions.		
	(a) $Pb(NO_3)_2 + 2Kl \rightarrow Pbl$	$I_2 + 2KNO_3$	(b) HCl+NaOI	$H \rightarrow NaCl + H_2O$
	(c) $CuO + 2HCl \rightarrow CuCl_2 +$	-H <sub>2</sub> O	(d) $Zn + H_2SO_4$	$\rightarrow$ ZnSO <sub>4</sub> + H <sub>2</sub>
	(A) a and b	(B) b and c	(C) a, b and d	(D) a, b and c
138.	Assertion (A) : The position o Reason (R) : In the periodic to hydrogen is a gas. (A) Both A and R are correct. (B) Both A and R are incorrect (C) A is correct but R does no (D) A is correct and R explain	f hydrogen in the moder able hydrogen is placed ct ot explain A. is A.	rn periodic table is sti at the bottom of the	ll under debate. alkali metals while
139.	The Rule of Eight was propos (A) Kossel and Lewis (C) Dimitri Mendeleev	sed by :	(B) Henry Mosel (D) John Newlan	ey d
	(a) $CH_3 - CH_2 - OH$			
140.	(b) $CH_3 - O - CH_3$ If compounds (a) and (b) hav then compound (b) is an : (A) alcohol	e same molecular formu (B) ether	ula but different kind o (C) aldehyde	of arrangements, (D) acid
141.	Identify the incorrect pair. (A) Group 11 – Halogen fami (C) Group 13 – Boron family	ly	(B) Group 2 – All (D) Group 16 – C	kaline earth metals Chalcogen family
142.	If the difference in electroneg	atively between two ele	ments is 1.7, then the	e bond is
	(A) 60% covalent 40% ionic (C) 40% covalent 60% ionic		(B) 50% covalen (D) 70% covalen	t 50% ionic t 30% ionic
143.	The acid which makes iron pa (A) Conc. HCI HF	assive is (B) Conc. H <sub>2</sub> SO <sub>4</sub>	(C) Conc. HNO <sub>3</sub>	(D) Conc.

144.	The value of p <sup>OH</sup> of rain water is : (A) 7 (B)	6	(C) 8	(D) 9.5
145.	The organic compound contains 4 ca (A) Meth- (B)	arbon atoms, the ro Eth-	ot word according to IUF (C) Prop-	AC is : (D) But-
146.	Which one of the following element is (A) Arsenic (B)	s not a Metalloid? Silicon	(C) Boron	(D) Copper
147.	Hydroponics was demonstrated by a (A) Julius Von Sachs (C) Robin Hill	German Botanist _	in 1980. (B) Nehemiah Grew (D) Robert Brown	
148.	Assertion (A) : Rhiobium is a soil bac form root nodules. Reason (R) : They increase the intak (A) A is correct and R is incorrect. (C) A is correct but (R) does not expl	eterium that coloniz te of Phosphorous. ain A.	e the roots of leguminou (B) A is incorrect and F (D) A is correct and R (	s plants to t is correct. explains A
149.	Which is not a component of stele? (A) Pith (C) Cambium		(B) Pericycle (D) Vascular tissue	
150.	Choose the incorrect statement. (A) Epithelium helps in absorption of (B) Epithelium allows the normal mor (C) Epithelium helps in elimination of (D) Epithelium secrets chemical subs	nutrients. vement. waste products. stances.		
151.	Find out the true and false statement (a) A recessive factor is altered by th (b) Dominant factor is expressed in b (c) Recessive factor is expressed on (d) Gregor Mendal conducted his exp (A) (a) false (b) false, (c) true, (d) fal (B) (a) true (b) false, (c) true, (d) true (C) (a) true (b) true, (c) false, (d) fals (D) (a) true (b) false, (c) false, (d) fals	ts e presence of a do both $F_1$ and $F_2$ gene ly in $F_1$ generation beriments on bean se ese lse	minant factor erations of a monohybrid cross plant	
152.	Which is / are wrong about the prope (a) Cells and small (c) Intercellular spaces are present (A) (a) only (C) (c) only	erties of meristemat	tic tissue? (b) Vacuoles are abser (d) Cell grow and divide (B) (b) and (d) only (D) (d) and (c) only	nt e regularly
153.	The cells once dead and that cannot (A) Skin cell (B)	be replaced in lifet Liver cell	ime (C) Red blood cell	(D) Eye lens

## 154. Match the following

	COLUMN – I			COLUMN – II		
	а	Carbohydrate	(i)	Made up of amino acids		
	b	Protein	(ii)	Metabolic function		
	С	Fat	(iii)	Physiological and biological function		
	d	Vitamins	(iv)	Provides chief source of energy to th	e body	
$ \begin{array}{ll} (A) & (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i) \\ (B) & (C) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii) \end{array} $			i)	(B) (a) $-$ (iii), (b) $-$ (ii), (c) $-$ (i), ( (D) (a) $-$ (iv), (b) $-$ (iii), (c) $-$ (i),	d) – (iv) (d) – (ii)	
<ul> <li>155. Choose the incorrect pair</li> <li>(A) Robert Koch - Father of Bacteriology</li> <li>(B) Sir Ronald Rose - Founder of Malaria</li> <li>(C) Stanley B Broiner - Invented Microscope</li> <li>(D) William Beaumont – Father of Gastric Physiology</li> </ul>						
15	6.	Find the odd one out (A) eosinophils (C) neutrophils		(B) monocytes (D) myofibrils		
15	57.	Pick the odd one out (A) cuticle (B) di	verticula	(C) botryoidal tissue (D) o	dermis	
15	8.	(A) GH (B) TS	d enlarge SH	ement of all tissues of the body (C) GTH (D) A	ACTH	

159. Match the following

COLUMN – I			COLUMN – II		
а	Analogous organs	(i)	Caudal vertebra		
b	Vestigial organs	(ii)	Bat wing		
с	Atavism	(iii)	Front leg of a cat		
d	Homologous organs	(iv)	Thick hair on the human body		
			(B) (a) $-$ (ii), (b) $-$ (i), (c) $-$ (iv), (d) $-$ (iii) (D) (a) $-$ (ii), (b) $-$ (iv), (c) $-$ (iii), (d) $-$ (i)		

160.	Assertion (A) : RBC plays an import Reason (R) : RBC do not have cell of (A) Both (A) and (R)are true and (R) (B) Both (A) and (R) are true but (R) (C) (A) is true but (R) is false (D) Both (A) and (R) are false	ant role in the transport of respiratory gases organelles and nucleus is correct explanation of (A) is not the correct explanation of (A)
161.	Who among the following was the fill (A) Balaji Vishwanath	st Peshwa of Shahu? (B) Baji Rao

(C) Balaji Baji Rao

(D) Madhava Rao

16	2.	The great military genius of the Mangols (A) Napoleon Bonaparte (C) Alexander			(B) Jan Zizka (D) Genghis Kh	an
16	3.	Who was awarded the title of Nawab after (A) Mir Zafar (C) Bahadur Shah Zafar	the de	efeat of a	Sirajuddaulah? (B) Tipu Sultan (D) Hyder Ali	
16	4.	Before French Revolution the political box (A) Duma (B) Reich	ly of Fi Stag	ance wa	as called as (C) Lok Sabha	(D) Estates General
16	5.	The war between Britain and Frace had c (A) The American war of Independence (C) The Crusades	entred	on the c	control of colonie (B) Seven year (D) Battle of Bu	es in North America s war Inker Hill
16	6.	Find the correct match(A) Corvee-(B) Gabelle-(C) Taille-(D) Tithe-	our Duty			
16	57.	<ul> <li>Choose the correct statement / statements <ul> <li>(i) The Portuguese were the Pioneers of naval expeditions</li> <li>(ii) New Plymouth was named after the Quaker Penn</li> <li>(iii) Quakers have the reputation of encouraging wars</li> <li>(iv) The English changed the name of New Amsterdam to New York</li> <li>(A) (i) and (ii) are correct</li> <li>(B) (iii) only correct</li> <li>(D) (i) and (iv) are correct</li> </ul> </li> </ul>				rect are correct
16	8.	Arrange the following events in the chrono (a) Vietnam Nationalist Party (c) The Union of South Africa (A) (a), (b), (c), (d) (C) (c), (b), (d), (a)	ologica	l order	(b) Fascist Part (d) French Com (B) (a), (d), (c), (D) (c), (b), (a),	y nmunist Party (b) (d)
16	9.	Who called Slater as the "Father of Ameri (A) George Washington (C) Andrew Jackson	can Ind	dustrial I	Revolution"? (B) Thomas Jef (D) Abraham Li	fferson ncoln
17	0.	Emperor Menelik was the ruler of which A (A) Ethiopia (B) Cape	frican Colon	Country y	? (C) Kenya	(D) Uganda
17 ī	'1. M	atch the following				
		COLUMN – I			COLUMN	- 11
	а	Hundred Days of Reform	<i>(</i> i)	1832		

	а	Hundred Days of Reform	(i)	1832
	b	Russian Revolution	(ii)	1898
	с	First Opium War	(iii)	1911
	d	The Chinese Revolution	(iv)	1917
$ \begin{array}{ll} (A) & (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i) \\ (C) & (a) - (ii), (b) - (iv), (c) - (i), (d) - (iii) \\ \end{array}                                $				(B) (a) $-$ (iv), (b) $-$ (i), (c) $-$ (ii), (d) $-$ (iii) (D) (a) $-$ (ii), (b) $-$ (iii), (c) $-$ (i), (d) $-$ (iv)

17	2.	<ul> <li>Which statement is "False" with regard to Volcanoes?</li> <li>(A) Volcanic materials enrich the soil fertility</li> <li>(B) Hot volcanic region helps in generating tidal energy</li> <li>(C) Volcanoes are the most attractive tourist spots of the world</li> <li>(D) Volcanic eruption causes earthquakes</li> </ul>					
17	<ul> <li>Which wind is referred as "roaring forties" at 40°, 'furious fifties' at 50° and 'screamir at 60° latitudes?</li> <li>(A) Trade winds</li> <li>(B) Easterlies</li> <li>(C) Westerlies</li> <li>(D) Cyclones</li> </ul>				eaming sixties'		
174 is the National Geo – portal developed and hosted by ISRO, it enables v				s visualization			
		of satellite imaginary and maps (A) GPS	ps (B) Agni		(C) Bhuvan	(D) Kalpana	
17	5.	Pulicat lake lies in the (A) Kanchipuram	district (B) Chen	nai	(C) Tiruvalluvar	(D) Vellore	
17	'6. Ma	atch the following					
		COLUMN – I			COLUMN – II		
	а	Tehri Dam		(i)	Sutlej		
	b	Hirakud Dam		(ii)	Bhagirathi		
	С	Nagarjuna Sagar Dam		(iii)	Mahanadi		
	d	d Indira Gandhi Canal (iv			Krishna		
(	$ \begin{array}{ll} (A) & (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i) \\ (C) & (a) - (ii), (b) - (iv), (c) - (iii), (d) - (i) \\ \end{array} \\ \begin{array}{ll} (B) & (a) - (iii), (b) - (iv), (c) - (i), (d) - (ii) \\ (D) & (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i) \\ \end{array} \\ \end{array} $						
1	177 is not a part of the world network biosphere reserves of UNESCO						

	(A) Nilgiri	(B) Agasthiyam	(C) Great Nicobar	(D) Kachch
178.	The Indian Council of Agricultur (A) 1935	re Research was set up i (B) 1954	n (C) 1951	(D) 1963
179.	Pick the odd one out (A) Assam (C) Tripura		(B) Maghalaya (D) Nagaland	
180.	(A) Internet (C) Print Media	t powerful means of com	nmunication (B) Social Media (D) Television	
181.	The name Gaja (Cyclone) was (A) Bangladesh	named by (B) Sri Lanka	(C) Packistan	(D) Oman

182. Match the following

	COLUMN – I			COLUMN – II			
	а	Mount Helens	(i)	Japan			
	b	Mount Fuji	(ii)	Tanzania			
	С	Mount Kilimanjaro	(iii)	Hawaii Island			
	d	Mauna Loa	(iv)	United States of America			
(	(A) (C) (a	(a) - (ii), (b) - (i), (c) - (iii), (d) - (iv)(B) $(a) - (iii), (b) - (iv), (c) - (i), (d) - (ii)$ $- (iv), (b) - (i), (c) - (ii), (d) - (iii)$ (D) $(a) - (iv), (b) - (i), (c) - (ii), (d) - (ii)$					
183. A communication issued by an appropriate authority stating the known as			ority stating the policy of the Gov	ernment is			
		<ul><li>(A) Office Memorandum</li><li>(C) Government Order</li></ul>		(B) Legislative Procedu (D) Circular	re		
18	34.	Which party always won elections in Mexico since its independence in 1930 until 2000?(A) Revolutionary Party(B) Mexican Revolutionary Party(C) Institutional Revolutionary Party(D) Institutional Party					
18	35.	The Government of India Act came into function in the year(A) 1930(B) 1932(C) 1935(D) 1938					
18	36.	<ul> <li>Assertion (A) : The Constitution of a country is a set of written rules that are accepted by all people living together in a country</li> <li>Reason (R) : Our Leaders gained confidence to learn from other countries, but on our own terms</li> <li>(A) Both (A) and (R)are true and (R) is right explanation of (A)</li> <li>(B) Both (A) and (R) are true but (R) is not the correct explanation of (A)</li> <li>(C) (A) is false but (R) is true</li> <li>(D) (A) is false but (R) is true</li> </ul>					
18	37.	The State in which assembly election hel (A) Odisha (B) Mah	d in 20 arashtr	20 a (C) Karnataka	(D) Bihar		
18	38.	<ul> <li>Which of the following sentences is not true of Decentralization ACT of 1992?</li> <li>(A) 33% Reservation for women</li> <li>(B) Regular election every 5 years</li> <li>(C) Election commission of India to conduct Panchayat Elections</li> <li>(D) Reservation for SC, ST and OBC</li> </ul>					
1	189.	Chanakya, in his book, Arthashastra, supports a powerful ki basic unit of administration (A) Nayaks (B (C) Samitis (D		a powerful king but believed in (B) Gram Sabha (D) Janapada	as the		
1	190.	Liberty, Equality and Fraternity were the important slog (A) American Revolution (C) Russian Revolution		ant slogans during the (B) French Revolution (D) Chinese Revolution	I		
1	191.	(A) Council of Ministers (C) Ministers of State	nisters	(B) Cabinet Ministers (D) Cabinet			

192.	The Legislative Council still in ex (A) Maharashtra	xistence in (B) Tamilnadu	(C) Odisha	(D) Kerala	
193.	The Elected Representatives in (A) District (C) National Level	turn elect their represent	ative is known as (B) Indirect (D) State Level	election	
194.	<ul> <li>Assertion (A) : Informal financial institutions are easily approachable to the customers with flexible procedures</li> <li>Reason (R) : Safety of the pledged items and low rates of interest are the special features of informal financial institutions</li> <li>(A) Both (A) and (R) are true and (R) is correct explanation of (A)</li> <li>(B) Both (A) and (R) are true but (R) is not the correct explanation of (A)</li> <li>(C) (A) is true but (R) is false</li> <li>(D) (A) is false but (R) is true</li> </ul>				
195.	The full form of HCR (A) Head Count Ratio (C) Head Calculating Rate		(B) Human Center Rati (D) Head Continue Rat	o io	
196.	Development of a country is de (A) Its Per capita income (C) Average Literacy level	termined by the World B	ank by (B) Its health status (D) All of the above		
197.	Identify the basic services from this list of occupations in the tertiary sector Banks, Mass Media, Legal Services, Telephones, Real Estate, Transportation, Gambling, Postal, Education. (A) Banks, Real Estate, Legal Services, Telephones (B) Banks, Transportation, Postal, Education (C) Transportation, Gambling, Real Estate, Legal Services (D) Real Estate, Transportation, Telephones, Mass Media				
198.	Look at the following statements about globalization. Choose the one that is incorrect (A) Globalisation has be enabled due to development in Information Technology (B) Globalisation has increased trade between countries (C) Globalisation has made countries more connected (D) Globalisation has reduced foreign				
199.	(A) Entrepreneur (C) Business people	<i>r</i> ideas and business pro	cesses (B) Professionals (D) Organizer		
200.	Paper Money Spread to Europe (A) Marcopolo	through the travels of (B) Columbus	(C) Magellan	(D) Stanley	