

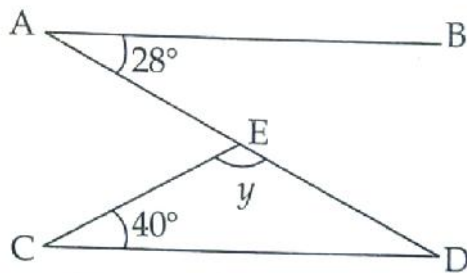
**NTSE STAGE - I – 2020 – 2021 - TAMIL NADU**

**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

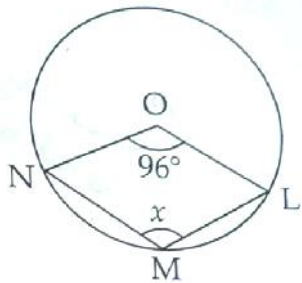
102. If  $x^2 + y^2 + z^2 = 29$  and  $xy + yz + zx = 26$ , then the value of  $x + y + z$  is:  
 (A) 9 (B) 81 (C)  $\pm 9$  (D)  $\pm 3$

103. In the given figure, AB is parallel to CD. The angle y is :



- (A)  $68^\circ$  (B)  $34^\circ$  (C)  $112^\circ$  (D)  $56^\circ$

104. From the given figure, the angle x is :  
 (where O is the centre of the circle)



- (A)  $48^\circ$  (B)  $132^\circ$  (C)  $96^\circ$  (D)  $264^\circ$

105.  $\frac{\sin 35^\circ}{\cos 55^\circ} - \frac{\tan 12^\circ}{\cot 78^\circ} - \frac{\sin 18^\circ}{\cos 72^\circ} = ?$   
 (A) 1 (B) 0 (C) 3 (D) -1

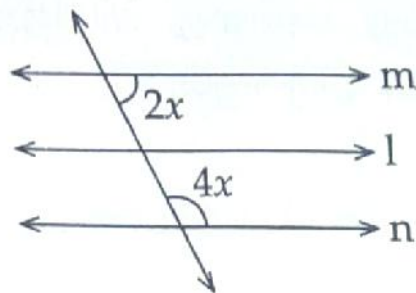
106. Mean of 10 observations is 58 and 5 is subtracted from each observation, then the mean of new observations is :  
 (A) 53 (B) 514 (C) 63 (D) 151

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

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

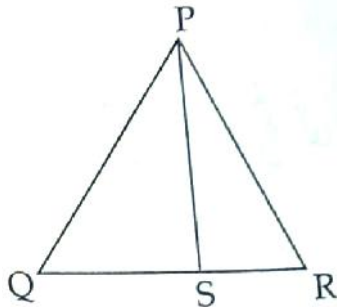
109.  $\frac{x}{y} + \frac{y}{x} = 1$ , ( $x, y \neq 0$ ), then the value of  $x^3 - y^3$  is :  
(A) 1 (B)  $-1$  (C) 0 (D)  $\frac{1}{2}$

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

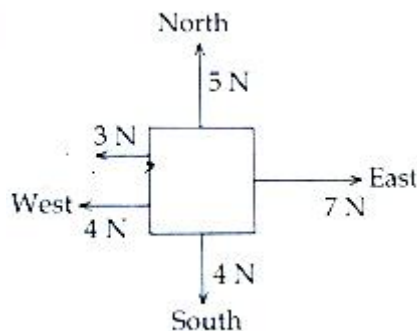


- (A)  $90^\circ$  (B)  $30^\circ$  (C)  $45^\circ$  (D)  $60^\circ$
111. If the total surface area of a cube is  $96 \text{ cm}^2$ , then its volume is :  
(A)  $64 \text{ cm}^3$  (B)  $512 \text{ cm}^3$  (C)  $8 \text{ cm}^3$  (D)  $27 \text{ cm}^3$
112. The probability of choosing a vowel in the word 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  $25\pi \text{ cm}^2$ , then AB is equal to :  
(A) 10 cm (B) 8 cm (C) 5 cm (D) 25 cm
115. A girl of height 100 cm is walking away from the base of a lamp post at a speed of 1.9 m/sec. If the lamp is 5 m above the ground, the length of the shadow after 4 sec, is :  
(A) 160 cm (B) 180 cm (C) 200 cm (D) 190 cm
116. If 'a' and 'b' are any two positive integers and  $a^b \times b^a = 72$ , then the values of a and b are :  
(A) 2, 3 (B) 3, 2 (C) 2, 3 or 3, 2 (D) 3, 3

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



- (A) 12 cm                                      (B) 10 cm                                      (C) 8 cm                                      (D) 30 cm
118. The distance between two points (4, 3) and (-2, 1) is :  
(A)  $2\sqrt{10}$                                       (B) 4                                      (C)  $2\sqrt{2}$                                       (D)  $5\sqrt{2}$
119. The simplified value of  $\cos \theta \sec \theta + \sin \theta \csc \theta$  is  
(A) 2                                      (B) 3                                      (C) 0                                      (D) 1
120. If the base circumference of a right circular cone and its height are 220 cm and 21 cm respectively, then the volume of the cone is :  
(A)  $24,630 \text{ cm}^3$                                       (B)  $21,750 \text{ cm}^3$   
(C)  $26,950 \text{ cm}^3$                                       (D)  $25,400 \text{ cm}^3$
121.  $\Gamma = \frac{R_T - R_0}{R_0(T - T_0)}$  where  $R_T, R_0$  Resistance,  $T, T_0$  – Temperature, then the unit of  $\Gamma$  is :  
(A)  $\Omega / ^\circ\text{C}$                                       (B)  $\Omega ^\circ\text{C}$                                       (C)  $/ ^\circ\text{C}$                                       (D)  $^\circ\text{C} / \Omega$
122. A girl of mass 40 kg stands on her feet of surface area  $80 \text{ cm}^2$  ( $g = 10 \text{ m/s}^2$ ). The pressure exerted by her feet is :  
(A)  $5 \times 10^3 \text{ Pa}$                                       (B)  $5 \times 10^4 \text{ Pa}$                                       (C) 0.5 Pa                                      (D) 2 Pa
123. If the EMF of a cell is 1.5 V, then the energy provided by the cell to drive 0.5 C of charge around the circuit :  
(A) 1 J                                      (B) 0.75 J                                      (C) 0.5 J                                      (D) 0.25 J
124. In which direction does the net force act?



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

125. Pick out the correct statements regarding the properties of Magnetic Lines of force.  
 (A) Magnetic Lines of force never intersect.  
 (B) They will be maximum at the equator than at the poles.  
 (C) Magnetic Lines of force start from South pole and end at the North pole.  
 (D) Magnetic Lines of force are closed continuous curves extending to the body of the magnet.  
 (A) a, b and c only (B) a, b and d only  
 (C) a and d only (D) b and c only
126. Pick out the right answer to correct the given statement.  
 The distance travelled by sound in one second is called time period of the sound.  
 (A) Loudness (B) Pitch  
 (C) Velocity (D) Frequency
127. A person wears glasses of power -2.0 D. The defect of the eye and of the far point of the person without the glasses will be :  
 (A) Near sightedness, 50 cm (B) Far sightedness, 50 cm  
 (C) Near sightedness, 250 cm (D) Astigmatism, 50 cm
128. Pick the odd one out.  
 (A) Water recovery system (B) Oxygen generation system  
 (C) Eye tracking technology (D) Sound Navigation and Range (SONAR)
129. The monthly bill (30 days), if the following appliances are used as indicated below at the rate of rupees 5 per unit :  
 (A) A heater of 1000 Watt for 2 hours daily.  
 (B) Ten 60 watt bulbs for 5 hours daily.  
 (A) 550 (B) 700 (C) 750 (D) 500
130. A DC generator works on the principle of \_\_\_\_\_.  
 (A) Lenz's Law (B) Ohm's law  
 (C) Faraday's law of Electromagnetic Induction (D) Fleming's Rule
131. Match the following :  
 (A) Highest refraction (i) Convex mirror  
 (B) Lowest refraction (ii) Concave mirror  
 (C) Headlights of a car (iii) Diamond  
 (D) Side rear view mirror (iv) Ice  
 (A) a – iii, b – iv, c – ii, d – i (B) a – iii, b – i, c – iv, d – ii  
 (C) a – ii, b – iii, c – iv, d – i (D) a – iv, b – i, c – ii, d – iii
132. The expression for the magnification of a spherical mirror in terms of focal length  $f$  and distance of the object from mirror ( $u$ ) is :  
 (A)  $\frac{-f}{u-f}$  (B)  $\frac{f}{u+f}$  (C)  $\frac{-f}{u+f}$  (D)  $\frac{f}{u-f}$
133. When a lactometer is used in a given sample of milk A, it floats in the milk such that half of the length of its stem is immersed in the milk. When it is used in another sample of milk B, the length of the stem immersed in the milk is one fourth of the total length. Then which of the following is /are true?  
 (A) Water content in A is more than that of B.  
 (B) Density of the sample A is less than the density of the sample B.  
 (A) a is true, but b is false  
 (B) a and b are false  
 (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)  $HCl^-$  (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 electrons in the M shell when it gains one electron. Which statements given below are not correct about the element 'X'?  
 (a) It belongs to 3<sup>rd</sup> period in the modern periodic table  
 (b) It has a valency of 7  
 (c) It belongs to 18<sup>th</sup> group in the modern periodic table  
 (d) its valency is 1  
 (1) a and b (B) b and c (C) b and d (D) a and d
137. Identify the double displacement reactions.  
 (a)  $Pb(NO_3)_2 + 2KI \rightarrow PbI_2 + 2KNO_3$  (b)  $HCl + NaOH \rightarrow NaCl + H_2O$   
 (c)  $CuO + 2HCl \rightarrow CuCl_2 + H_2O$  (d)  $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$   
 (A) a and b (B) b and c (C) a, b and d (D) a, b and c
138. Assertion (A) : The position of hydrogen in the modern periodic table is still under debate.  
 Reason (R) : In the periodic table hydrogen is placed at the bottom of the alkali metals while 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 not explain A.  
 (D) A is correct and R explains A.
139. The Rule of Eight was proposed by :  
 (A) Kossel and Lewis (B) Henry Moseley  
 (C) Dimitri Mendeleev (D) John Newland
140. (a)  $CH_3 - CH_2 - OH$   
 (b)  $CH_3 - O - CH_3$   
 If compounds (a) and (b) have same molecular formula but different kind of arrangements, then compound (b) is an :  
 (A) alcohol (B) ether (C) aldehyde (D) acid
141. Identify the incorrect pair.  
 (A) Group 11 – Halogen family (B) Group 2 – Alkaline earth metals  
 (C) Group 13 – Boron family (D) Group 16 – Chalcogen family
142. If the difference in electronegativity between two elements is 1.7, then the bond is  
 (A) 60% covalent 40% ionic (B) 50% covalent 50% ionic  
 (C) 40% covalent 60% ionic (D) 70% covalent 30% ionic
143. The acid which makes iron passive is \_\_\_\_\_  
 (A) Conc. HCl (B) Conc.  $H_2SO_4$  (C) Conc.  $HNO_3$  (D) Conc. HF

144. The value of  $p^{OH}$  of rain water is :  
(A) 7 (B) 6 (C) 8 (D) 9.5
145. The organic compound contains 4 carbon atoms, the root word according to IUPAC is :  
(A) Meth- (B) Eth- (C) Prop- (D) But-
146. Which one of the following element is not a Metalloid?  
(A) Arsenic (B) Silicon (C) Boron (D) Copper
147. Hydroponics was demonstrated by a German Botanist \_\_\_\_\_ in 1980.  
(A) Julius Von Sachs (B) Nehemiah Grew  
(C) Robin Hill (D) Robert Brown
148. Assertion (A) : Rhiobium is a soil bacterium that colonize the roots of leguminous plants to form root nodules.  
Reason (R) : They increase the intake of Phosphorous.  
(A) A is correct and R is incorrect. (B) A is incorrect and R is correct.  
(C) A is correct but (R) does not explain A. (D) A is correct and R explains A
149. Which is not a component of stele?  
(A) Pith (B) Pericycle  
(C) Cambium (D) Vascular tissue
150. Choose the incorrect statement.  
(A) Epithelium helps in absorption of nutrients.  
(B) Epithelium allows the normal movement.  
(C) Epithelium helps in elimination of waste products.  
(D) Epithelium secretes chemical substances.
151. Find out the true and false statements  
(a) A recessive factor is altered by the presence of a dominant factor  
(b) Dominant factor is expressed in both  $F_1$  and  $F_2$  generations  
(c) Recessive factor is expressed only in  $F_1$  generation of a monohybrid cross  
(d) Gregor Mendal conducted his experiments on bean plant  
(A) (a) false (b) false, (c) true, (d) false  
(B) (a) true (b) false, (c) true, (d) true  
(C) (a) true (b) true, (c) false, (d) false  
(D) (a) true (b) false, (c) false, (d) false
152. Which is / are wrong about the properties of meristematic tissue?  
(a) Cells and small (b) Vacuoles are absent  
(c) Intercellular spaces are present (d) Cell grow and divide regularly  
(A) (a) only (B) (b) and (d) only  
(C) (c) only (D) (d) and (c) only
153. The cells once dead and that cannot be replaced in lifetime  
(A) Skin cell (B) Liver cell (C) Red blood cell (D) Eye lens



162. The great military genius of the Mangols  
(A) Napoleon Bonaparte (B) Jan Zizka  
(C) Alexander (D) Genghis Khan
163. Who was awarded the title of Nawab after the defeat of Sirajuddaulah?  
(A) Mir Zafar (B) Tipu Sultan  
(C) Bahadur Shah Zafar (D) Hyder Ali
164. Before French Revolution the political body of France was called as \_\_\_\_\_  
(A) Duma (B) Reich Stag (C) Lok Sabha (D) Estates General
165. The war between Britain and Frace had centred on the control of colonies in North America  
(A) The American war of Independence (B) Seven years war  
(C) The Crusades (D) Battle of Bunker Hill
166. Find the correct match  
(A) Corvee - Free Labour  
(B) Gabelle - Land tax  
(C) Taille - Salt tax  
(D) Tithe - Customs Duty
167. Choose the correct statement / statements  
(i) The Portuguese were the Pioneers of naval expeditions  
(ii) New Plymouth was named after the Quaker Penn  
(iii) Quakers have the reputation of encouraging wars  
(iv) The English changed the name of New Amsterdam to New York  
(A) (i) and (ii) are correct (B) (iii) only correct  
(C) (iv) only correct (D) (i) and (iv) are correct
168. Arrange the following events in the chronological order  
(a) Vietnam Nationalist Party (b) Fascist Party  
(c) The Union of South Africa (d) French Communist Party  
(A) (a), (b), (c), (d) (B) (a), (d), (c), (b)  
(C) (c), (b), (d), (a) (D) (c), (b), (a), (d)
169. Who called Slater as the "Father of American Industrial Revolution"?  
(A) George Washington (B) Thomas Jefferson  
(C) Andrew Jackson (D) Abraham Lincoln
170. Emperor Menelik was the ruler of which African Country?  
(A) Ethiopia (B) Cape Colony (C) Kenya (D) Uganda
171. Match the following

COLUMN – I		COLUMN – II	
a	Hundred Days of Reform	(i)	1832
b	Russian Revolution	(ii)	1898
c	First Opium War	(iii)	1911
d	The Chinese Revolution	(iv)	1917

- (A) (a) – (iv), (b) – (iii), (c) – (ii), (d) – (i) (B) (a) – (iv), (b) – (i), (c) – (ii), (d) – (iii)  
(C) (a) – (ii), (b) – (iv), (c) – (i), (d) – (iii) (D) (a) – (ii), (b) – (iii), (c) – (i), (d) – (iv)



172. Which statement is “False” with regard to Volcanoes?  
 (A) Volcanic materials enrich the soil fertility  
 (B) Hot volcanic region helps in generating tidal energy  
 (C) Volcanoes are the most attractive tourist spots of the world  
 (D) Volcanic eruption causes earthquakes
173. Which wind is referred as “roaring forties” at  $40^{\circ}$ , ‘furious fifties’ at  $50^{\circ}$  and ‘screaming sixties’ at  $60^{\circ}$  latitudes?  
 (A) Trade winds (B) Easterlies  
 (C) Westerlies (D) Cyclones
174. \_\_\_\_\_ is the National Geo – portal developed and hosted by ISRO, it enables visualization of satellite imagery and maps  
 (A) GPS (B) Agni (C) Bhuvan (D) Kalpana
175. Pulicat lake lies in the \_\_\_\_\_ district  
 (A) Kanchipuram (B) Chennai (C) Tiruvalluvar (D) Vellore
176. Match the following

COLUMN – I		COLUMN – II	
a	Tehri Dam	(i)	Sutlej
b	Hirakud Dam	(ii)	Bhagirathi
c	Nagarjuna Sagar Dam	(iii)	Mahanadi
d	Indira Gandhi Canal	(iv)	Krishna

- (A) (a) – (ii), (b) – (iii), (c) – (iv), (d) – (i) (B) (a) – (iii), (b) – (iv), (c) – (i), (d) – (ii)  
 (C) (a) – (ii), (b) – (iv), (c) – (iii), (d) – (i) (D) (a) – (iv), (b) – (iii), (c) – (ii), (d) – (i)

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 Agriculture Research was set up in \_\_\_\_\_  
 (A) 1935 (B) 1954 (C) 1951 (D) 1963
179. Pick the odd one out  
 (A) Assam (B) Maghalaya  
 (C) Tripura (D) Nagaland
180. \_\_\_\_\_ is the most common but powerful means of communication  
 (A) Internet (B) Social Media  
 (C) Print Media (D) Television
181. The name Gaja (Cyclone) was named by \_\_\_\_\_  
 (A) Bangladesh (B) Sri Lanka (C) Pakistan (D) Oman

182. Match the following

COLUMN – I		COLUMN – II	
a	Mount Helens	(i)	Japan
b	Mount Fuji	(ii)	Tanzania
c	Mount Kilimanjaro	(iii)	Hawaii Island
d	Mauna Loa	(iv)	United States of America

(A) (a) – (ii), (b) – (i), (c) – (iii), (d) – (iv)

(B) (a) – (iii), (b) – (iv), (c) – (i), (d) – (ii)

(C) (a) – (iv), (b) – (i), (c) – (ii), (d) – (iii)

(D) (a) – (iv), (b) – (i), (c) – (iii), (d) – (ii)

183. A communication issued by an appropriate authority stating the policy of the Government is known as

- (A) Office Memorandum  
(C) Government Order

- (B) Legislative Procedure  
(D) Circular

184. Which party always won elections in Mexico since its independence in 1930 until 2000?

- (A) Revolutionary Party  
(C) Institutional Revolutionary Party

- (B) Mexican Revolutionary Party  
(D) Institutional Party

185. The Government of India Act came into function in the year

- (A) 1930 (B) 1932 (C) 1935 (D) 1938

186. Assertion (A) : The Constitution of a country is a set of written rules that are accepted by all people living together in a country

Reason (R) : Our Leaders gained confidence to learn from other countries, but on our own terms

- (A) Both (A) and (R) are true and (R) is right explanation of (A)  
(B) Both (A) and (R) are true but (R) is not the correct explanation of (A)  
(C) (A) is false but (R) is true  
(D) (A) is false but (R) is true

187. The State in which assembly election held in 2020

- (A) Odisha (B) Maharashtra (C) Karnataka (D) Bihar

188. Which of the following sentences is not true of Decentralization ACT of 1992?

- (A) 33% Reservation for women  
(B) Regular election every 5 years  
(C) Election commission of India to conduct Panchayat Elections  
(D) Reservation for SC, ST and OBC

189. Chanakya, in his book, Arthashastra, supports a powerful king but believed in \_\_\_\_\_ as the basic unit of administration

- (A) Nayaks (B) Gram Sabha  
(C) Samitis (D) Janapada

190. Liberty, Equality and Fraternity were the important slogans during the \_\_\_\_\_

- (A) American Revolution (B) French Revolution  
(C) Russian Revolution (D) Chinese Revolution

191. \_\_\_\_\_ is an informal body of Senior Ministers

- (A) Council of Ministers (B) Cabinet Ministers  
(C) Ministers of State (D) Cabinet

192. The Legislative Council still in existence in \_\_\_\_\_  
(A) Maharashtra (B) Tamilnadu (C) Odisha (D) Kerala
193. The Elected Representatives in turn elect their representative is known as \_\_\_\_\_ election  
(A) District (B) Indirect  
(C) National Level (D) State Level
194. Assertion (A) : Informal financial institutions are easily approachable to the customers with flexible procedures  
Reason (R) : Safety of the pledged items and low rates of interest are the special features of informal financial institutions  
(A) Both (A) and (R) are true and (R) is correct explanation of (A)  
(B) Both (A) and (R) are true but (R) is not the correct explanation of (A)  
(C) (A) is true but (R) is false  
(D) (A) is false but (R) is true
195. The full form of HCR  
(A) Head Count Ratio (B) Human Center Ratio  
(C) Head Calculating Rate (D) Head Continue Ratio
196. Development of a country is determined by the World Bank by  
(A) Its Per capita income (B) Its health status  
(C) Average Literacy level (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. \_\_\_\_\_ is an innovator of new ideas and business processes  
(A) Entrepreneur (B) Professionals  
(C) Business people (D) Organizer
200. Paper Money Spread to Europe through the travels of \_\_\_\_\_  
(A) Marcopolo (B) Columbus (C) Magellan (D) Stanley