TAMILNADU NTSE STAGE 1 (2015-16)
(SAT)

101. The median of 29, 32, 48, 50, x, x + 2, 72, 78, 84, 95 is 63 then the value of x is _____
(A) 124 (B) 29.5 (C) 62 (D) 64

102. $F_1 = F_2 = 1$ and $F_n = F_{n-1} + F_{n-2}$ then the value of F_5 is _____
(A) 3 (B) 2 (C) 8 (D) 5

103. The lengths of the diagonals of a rhombus are 24 cm and 10 cm, then the side of the rhombus is_____ cm
(A) 26 (B) 13 (C) 169 (D) 240

104. If a polynomial p(x) is divided by $(mx + n)$, then the remainder is _____
(A) $P\left(\frac{m}{n}\right)$ (B) $P\left(\frac{-m}{n}\right)$ (C) $P\left(\frac{n}{m}\right)$ (D) $P\left(\frac{-n}{m}\right)$

105. If $\frac{32}{500} = \frac{2^3}{5}$, then the value of m is _____.
(A) 2 (B) 3 (C) 4 (D) 0

106. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial $g(x)$, the quotient and remainder were $(x - 2)$ and $(-2x + 4)$ respectively, then $g(x)$ is _____
(A) $x^2 + x - 1$ (B) $x^2 - x + 1$ (C) $x^2 - x - 1$ (D) $x^2 + x + 1$

107. If $\cot\theta = \frac{7}{8}$ then the value of $\frac{(1+\sin\theta)(1-\sin\theta)}{(1+\cos\theta)(1-\cos\theta)}$ is _____.
(A) $\frac{64}{49}$ (B) $\frac{8}{7}$ (C) $\frac{7}{8}$ (D) $\frac{49}{64}$

108. If $9y + 4x = 12\sqrt{xy}$ where x > 0, y > 0 then $3\sqrt{x} - 2\sqrt{y} =$ _____.
(A) 5 (B) 1 (C) 2 (D) 0

109. In ΔABC, if DE || BC, AD = 2cm, DB = 3cm, DE = 4 cm, then the value of BC is _____
(A) 9 (B) 25 (C) 10 (D) 6

110. If $x^2 + \frac{1}{x^2} = 23$, $x > 0$ then $x + \frac{1}{x}$ is _____
(A) 2 (B) 3 (C) 4 (D) 5

111. The probability that a leap year will have 53 Fridays or 53 Saturday is _____
(A) $\frac{2}{7}$ (B) $\frac{1}{7}$ (C) $\frac{4}{7}$ (D) $\frac{3}{7}$

112. The rational form of $0.\overline{24}$ is _____
(A) $\frac{24}{100}$ (B) $\frac{8}{33}$ (C) $\frac{24}{1000}$ (D) $\frac{0.24}{100}$

113. A fraction becomes $3\frac{1}{4}$ when one is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to the denominator, then the fraction is _____
(A) $\frac{5}{12}$ (B) $\frac{2}{11}$ (C) $\frac{9}{11}$ (D) $\frac{1}{7}$

114.If $P = \frac{x}{x+y}$ $Q = \frac{y}{x+y}$ then the value of $\frac{1}{P-Q} - \frac{2Q}{P^2-Q^2}$ is _____

(A) $\frac{x+y}{x-y}$ (B) 0 (C) 1 (D) $\frac{x-y}{x+y}$

115. A die is thrown 200 times and the following outcomes are noted, with their frequencies:

Outcome	1	2	3	4	5	6
Frequency	56	22	30	42	32	18

(A) 0.28 (B) 0.22 (C) 0.15 (D) 0.21

116.If $\sin\theta = \cos\theta$, then θ is

(A) 30^0 (B) 45^0 (C) 60^0 (D) 90^0

117. If one of the zeros of polynomial $a^2x^2 + x + b^2$ is -1 then:

(A) $a^2 + b^2 = 0$ (B) $a^2 + b^2 - 1 = 0$ (C) $a^2 - b^2 + 1 = 0$ (D) $a^2 + b^2 = -1$

118. $a^2 - (b-c)^2$ is :

(A) $(a+b-c)(a-b+c)$ (B) $(a-b-c)(a-b-c)$

(C) $(a-b+c)(a+b-c)$ (D) $(a+b+c)(a+b+c)$

119. The GCD of (x^3-1) and (x^4-1) is

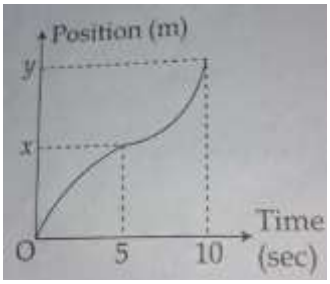
(A) x^3-1 (B) x^2+1 (C) x^2-1 (D) $x-1$

120. The LCM of a^3b^2 ,abc is

(A) c (B) a^4b^3c (C) ab (D) a^3b^2c

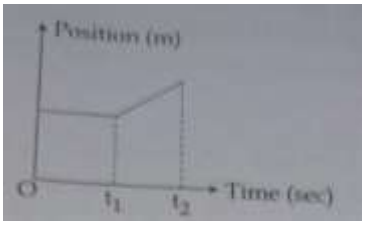
121. A man walks along the footpath of a circular garden. During his motion along the circular path he makes several rounds. His net displacement will be zero whenever his diatance traveled will be in multiples of :
(A) its radius (B) its diameter (C) circumference of circular path (D) area of circle

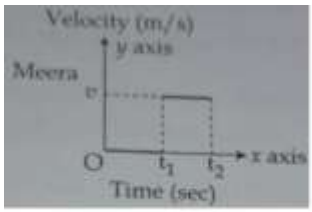
122. The under given position (VS) time graph describes which of the given options:



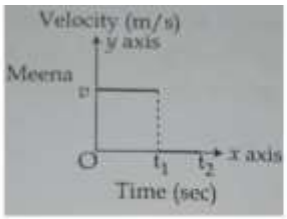
(A) from t = 0 sec to t = 5 sec the object accelerates and then it decelerates.
(B) from t = 0 sec to t = 5 sec the object decelerates and then it accelerates.
(C) from t = 0 sec to t = 5 sec it travels with uniform velocity and then travels with non – uniform velocity.
(D) from t = 0 sec to t = 5 sec it travels with non – uniform velocity and then travels with uniform velocity

123. A teacher assigned a job of coverting position (VS) time graph into velocity (VS) time graph. All the four Meera, Meena, Trisha and Akshaya plotted the graphs as under. The person to give the correct answer is :

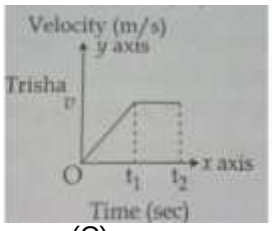




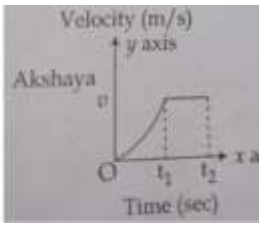
(A)



(b)



(C)



(D)

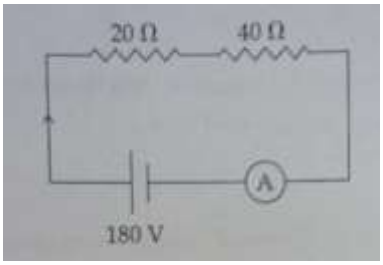
124. A hovering helicopter drops food packets from an altitude of 200 m towards passenger of a stranded boat affected with flood. Each packet is of mass 500 gm. It is packed so well that it can withstand a momentum upto 60 Ns. Find out which of the following is correct:
(A) The packet will break since the momentum of packet on reaching the surface is more than 60 Ns.
(B) The packet will not break since its momentum on reaching the surface is less than 40 Ns.
(C) the packet will break since its momentum on reaching the surface is 50 Ns.
(D) The packet will not break since its momentum on reaching the surface is 50 Ns.

125. Kerosene of mass 100 gm is mixed with 100 gm of water. One of the under given options that well describes the reason for Kerosene to float on water is :
(A) Mass of displaced water is less than the mass of Kerosene of equal volume
(B) Mass of Kerosene is more than the mass of equal volume of water
(C) Mass of Kerosene is less than the mass of displaced water
(D) Mass of Kerosene is equal to mass of displaced water

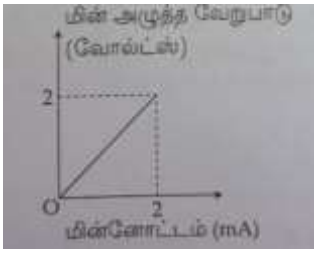
126. A car of mass one metric ton accelerate from rest at the rate of 2 m/ s^2 from t = 0 sec to t = 10 sec. There after it travels with a uniform velocity. The measure of net retarding force acting on the car after 10 sec is :
(A) 4000 N (B) 2000 N (C) 0 N (D) –2000 N

127. For no change in the mass of the earth, if its radius is halved the weight of an object of mass 10 kg will be:
(A) 40 kg wt. (B) 10 kg wt. (C) 80 kg wt. (D) 20 kg wt.

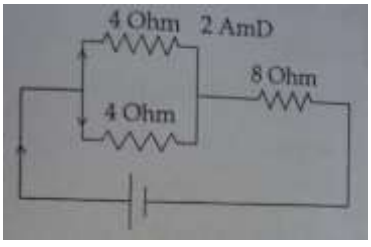
128. The number of electrons that travel through the given resistor 20 Ω in the circuit in one second is : (Given that 1 coulomb = 6.25×10^{18} electron)
(A) 18.75×10^{18} (B) 18.75×10^{19}
(C) 1.875×10^{18} (D) 1.875×10^{19}



129. The resistance of the given resistor that is calculated from the graph is :
(A) 1Ω (B) 10 Ω
(C) 100 Ω (D) 1000 Ω



130. The voltage across 8 Ω resistance is
(A) 42 V (B) 32 V
(C) 22 V (D) 20 V



131. A force acting on an object of mass 500 gm changes its speed from 200 cm/s to 0.2 m/s. The change in momentum is:
(A) increase by 0.90 Ns (B) decrease by 0.90 Ns

(C) increase by 90 g cm/s (D) decrease by 90 g cm/s

132. An object of mass 10 kg is dropped from a Buliding of height 40 m. Givent hebest description of relationship between gravitational Potential energy and kinetic energy, after 2 sec. $\left(g = 10\ m/s^2\right)$

(A) Potential energy > Kinetic energy (B) Potential energy < Kinetic energy
(C) Potential energy $\leq$ Kinetic energy (D) Potential energy = Kinetic energy

133. Best relationship between Momentum and Kinetic energy posseses by an object in terms of mass:

(A) momentum = $\left(2m \times \text{Kinetic energy}\right)^{1/2}$ (B) $\left(\text{momentum}\right)^{1/2} = 2 \times \text{Kinetic energy}$

(C) $\left(\text{Kinetic energy}\right)^{1/2} = 2 \times \text{momentum}$ (D) Kinetic energy = $\left(2 \times \text{momentum}\right)^{1/2}$

134. $2Pb\left(NO_3\right)_2 \xrightarrow{\Delta} 2PbO + 4NO_2 \uparrow + O_2 \uparrow$

In the above reaction:
(A) Reddish brown coloured oxygen gas is evolved
(B) Reddish brown coloured nitrogen dioxide gas is evolved
(C) Reddish brown coloured PbO gas is evolved
(D) No reddish brown gas is evolved

135. In which of the following solutions will platinum dissolve?

(A) Conc HNO_3 and Conc HCl in the ratio 3: 1 (B) Conc H_2SO_4 and Conc HNO_3 in the ratio 3: 4
(C) Conc HCl and Conc H_2SO_4 in the ratio 1: 3 (D) Conc HCl and Conc HNO_3 in the ratio 3: 1

136. M (2, 8 , 2) combines with N $(2,8,7)$ to form a compound. The formula of the compound so formed is :

(A) MN (B) M_2N (C) M_2N_3 (D) MN_2

137. The formula of phosphate of X is XPO_4. The formula of it's sulphate and chloride would be respectively:

(A) $X_2\left(SO_4\right)_3$, XCl_3 (B) XSO_4 , XCl_2 (C) $X\left(SO_4\right)_2$, X_2Cl (D) X_2SO_4 , XCl

138. 162 g of aluminium contains _____ moles of aluminium. (atomic mass of Al = 27 u)

(A) 6 (B) 3 (C) 12 (D) 24

139. Which of the following is a suitable method to separate two miscible liquids whose difference in boiling point is 36 K?

(A) Evaporation (B) Distillation (C) Fractional distillation (D) Sublimation

140. Gases can be liquefied:
(A) by increasing temperature and pressure
(B) by increasing temperature and decreasing pressure
(C) by decreasing temperature and increasing pressure
(D) by decreasing pressure and temperature

141. Identify the elements which are very less reactive:

(1) X (2) (2) Y (2, 8, 1) (3) Z (2, 6) (4) W (2, 8, 8)
(A) 1 and 2 (B) 2 and 3 (C) 1 and 4 (D) 2 and 4

142. 6.4 g of oxygen will contain _____ number of oxygen molecules.

(A) 6.023×10^{23} (B) 6.023×10^{22} (C) 1.2046×10^{23} (D) 1.2046×10^{22}

143. An element with atomic no.7 will show chemical properties similar to element with atomic numbers:

(A) 10 (B) 9 (C) 15 (D) 17

144. The compound with higher molecular mass is :
[Atomic mass of Ca – 40 u
C – 12 u
O – 16 u
H – 1 u
Cl – 1 u

(A) $CaCO_3$ (B) CaO (C) $Ca(OH)_2$ (D) $CaCl_2$

145. The acid solution with higher pH value is
(A) 0.1 M HCl acid (B) 0.1 M H_2SO_4 acid
(C) 0.05 M HNO_3 acid (D) 0.05 M H_3PO_4 acid

146. Which is correctly matched?

Element		**Electron distribution**
(A) sulphur	-	2,8,8
(C) Phosphorous	-	2,8,6
(C) Aluminimum	-	2,8,3
(D) Silicon	-	2,8,5

147. The cyabobacteria that helps in fixing atmospheric nitrogen:
(A) Azolla (B) Anabaena (C) Rhizobium (D) Eudorina

148. The tissue that is responsible for secondary growth of plants:
(A) Cambium (B) Xylem (C) Phloem (D) Pericycle

149. The Nucleolus helps in the formation of:
(A) Lysosomes (B) Ribosomes (C) Peroxisomes (D) Centrosomes

150. Identify the nucleoside from the following:
(A) sugar + Phosphate (B) Nitrogenous bases + sugar
(C) Nitrogenous bases + Phosphate (D) Nitrogenous bases + sugar + Phosphate

151. One molecule of glucose on complete oxidation yields:
(A) 38 ATP (B) 36 ATP (C) 83 ATP (D) 35 ATP

152. Enzyme which cut the DNA at specific sites:
(A) DNA polymerase (B) DNA ligase
(C) rEstriction endonuclease (D) RNA polymerase

153. A fruit developed from a single ovary with a monocarpellary or multicarpellary, syncarpous gynoecium:
(A) Simple fruit (B) Aggregate fruit (C) Parthenocarpic fruit (D) Multiple fruit.

154. Choose the incorrect options:

(1) Amoeba	-	Pseudopodia
(2) Paramecium	-	body setae
(3) Euglena	-	petagium
(4) Star fish	-	tubefeet

(A) 1 and 2 (B) 2 and 3 (C) 3 and 4 (D) 1 and 4

155. The abundant animal protein:
(A) Colagen (B) Fibrinogen (C) Globulin (D) Albumin

156. The blood anticoagulant property that is present in the salivary glands of leeches:
(A) Virudin (B) Hirudin (C) Rubin (D) Trypsin

157. Diabetus insipidus is caused by less production of :
(A) ACTH (B) TSH (C) ADH (D) GH

158. Symptoms of B_{12} deficiency:
(A) Nervous disorder (B) Dementia, dermatitis
(C) Destruction of RBC (D) Bleeding gums

159. Bone cells are known as:
(A) Chondrocytes (B) Osteocytes (C) Lymphocytes (D) Leucocytes

160. The four lobes of Mid Brain :
(A) Cerebral hemisphere (B) Corpora quadrigemina

(C) Cerebellum (D) Medulla oblongata

161. "The social contract: was written by:
(A) Voltaire (B) Roussseau (C) Montesquieu (D) Robespierre

162. Political stability was established after French Revolution by :
(A) Louis XVI (B) Robespierre (C) Voltaire (D) Napoleon Bonaparte

163. The Great Economic Depression took place in :
(A) America (B) Russia (C) France (D) England

164. 'Socialism' was coined by:
(A) John Kay (B) Henry Cort (C) Robert Owen (D) Karl Marx

165. Name the present secretary General of U.N.O
(A) Javier Perez de cuellar (B) Kofi Annan
(C) Kurt Waldheium (D) Banki Moon

166. First World War came to an end in 1919 by the:
(A) Treaty of St. Germaine (B) Paris Peace Conference
(C) Treaty of Trianon (D) Treaty of Versailles

167. The European Union was formed in the year:
(A) 1958 (B) 1959 (C) 1951 (D) 1967

168. Match the following:

	COLUMN – I		COLUMN – II
1	Aristotle	i	Father of Western Medicine
2	Herodotus	ii	Teacher of Alexander
3	Socrates	iii	Father of History
4	Hippocrates	iv	Father of Western Philosphy

	1	2	3	4
(A)	ii	iii	iv	i
(B)	iii	iv	ii	i
(C)	ii	I	iii	iv
(D)	iv	ii	i	iii

169. Find the odd man out:
(A) Machiavelli (B) Dontallo Botticelli
(C) Raphael (D) Robbia

170. Choose the correct statements:
(1) Turkey was defeated in First Balkan War of 1912
(2) In 1856, Queen Victoria brought the administration of India under her direct control
(3) In 1757, The Nawab of Bengal Siraj – Ud Daulah opposed the British attempts to use Duty free Trade in Bengal
(4) German Battle Cruiser was destroyed in the battle of Baltic Sea
(A) 1 and 2 are correct (B) 1 and 3 are correct (C) 3 and 4 are correct (D) 1, 2 and 3 are correct

171. Match the following:

	COLUMN – I		COLUMN – II
1	Empress Dowager	i	Blitzkreig
2	Hitler	ii	The League of Nations

3	Mussolini	iii	Old Buddha
4	Woodrow Wilson	iv	Charter of Labour

	1	2	3	4
(A)	ii	iv	i	iii
(B)	iv	iii	ii	i
(C)	iii	i	iv	ii
(D)	iv	ii	iii	i

172. Apartheid came to a close in South Africa in the year:
(A) 1947 (B) 1950 (C) 1984 (D) 1990

173. The Democrats and Republicans are the two political parties in:
(A) India (B) England (C) Argentina (D) America

174. UNESCO declared the title 'The Literary Society of India' to:
(A) Chennai (B) Mumbai (C) Kolkata (D) Bengaluru

175. The bills, which can be introduced only in the Lok Sabha :
(A) Social (B) Women (C) Education (D) Money

176. The President of India is entitled to nominate 12 members, distinguished in the field of:
(A) Literature, Sports, Arts
(B) Literature, Science, Arts of Social Service
(C) Literature, Sports, Social Service
(D) Literature, Mathematics, Arts or Social Service

177. According to _____.'Democracy is a government in which everyone has a shar'.
(A) Prof. Mukund (B) Prof. Thomas Harley
(C) Prof. Seeley (D) Prof. Lincoln

178. Our National Song is taken from the book:
(A) Anand Math (B) Gulamgiri (C) Geetanjali (D) The Discovery of India

179. The tenure of Chief Election Commissioner is:
(A) 6 years (B) 4 years (C) 5 years (D) 2 years

180. State the article of the Indian Constitution under which the president promulgates Financial Emergency:
(A) 352 (B) 356 (C) 360 (D) 351

181. Match the following:

COLUMN – I			COLUMN – II
1	Suez canal	i	Hamid Karzi, Afghan President
2	Congo	ii	Timmania, Indian Commander in Chief
3	Cyprus	iii	Naser, the President of Egypt
4	SAARC Summit 2007	iv	K.A.S. Raja, the Brigadier

	1	2	3	4
(A)	ii	iii	i	iv
(B)	iii	iv	ii	i
(C)	iv	iii	ii	i
(D)	ii	i	iv	iii

182. Article 14 – 18 of the Part – III of the Indian Constitution enshrines:
(A) Right against exploitation (B) Right to freedom
(C) Right to equality (D) Right to freedom of religion

183. Name the plain which is made up of deposits of fine silts in the South of Siwaliks:

(A) Terai (B) Gangetic (C) Punjab (D) Brahmaputra

184. The mountains along the eatern boundary of India is called :
(A) Uttranchal (B) Purvanchal (C) Pir Panjal (D) Khangra

185. The strong and hot dry winds that blow during day time over Northern and North – Western part of India is known as:
(A) Tropical cyclone (B) Loo winds
(C) Western disturbance (D) Retreating monsoon winds

186. Petroleum is mined from the layers of:
(A) Sedimentary rocks (B) Igneous rocks (C) Metamorphic rocks (D) Primary rocks

187. The range which lies between the Narmada and Tapti rivers is:
(A) Vindhya range (B) Satpura range (C) Aravalli range (D) Shivalik range

188. Zaid season crops are :
(A) paddy and maize (B) Wheat and mustard (C) Jute and cotton (D) Fruits and vegetables

189. Retreating monsoon winds blow from:
(A) Land to Sea (B Sea to Lnad (D) Mountian to Land (D) Coastal Areas

190. Kundah Hydro – Power plant generates its power from the river:
(A) Kaveri (B) Vaigai (C) Bhavani (D) Aliyar

191. World Earth Day is celebrated on:
(A) June 5th (B) April 22nd (C) September 16th (D) October 24th

192. Match the following:

	COLUMN – I		COLUMN – II
1	Vaippar	i	Tirunelveli
2	Chittar	ii	Kanniyakumari
3	Kothiyar	iii	Tuticorin
4	Kundar	iv	Virudhunagar

	1	2	3	4
(A)	iv	i	ii	iii
(B)	iii	ii	iv	i
(C)	ii	iii	i	iv
(D)	iv	iii	ii	i

193. 'Golden Revolution' is associated with the production of :
(A) Poultry (B) Oil seeds (C) Marine (D) Horticulture

194. The measurement of the total value of goods and services produced by an economy over a period of time, normally a year is :
(A) Per Capita Income (B) National Income (C) Consumptin (D) Distrbution

195. First five year plan was introduced in the year:
(A) 1949 (B) 1950 (C) 1951 (D) 1952

196. Human Development Report was published by:
(A) UNESCO (B) UNDP (C) UNICEF (D) WHO

197. Land, Landour and capital are the:
(A) Factors of Production (B) Facotrs of Distribution
(C) Facotrs of Income (D) Factors of Expenditure

198. The state with highest consumption of chemical fertilizers in India:
(A) Uttar Pradesh (B) Punjab (C) Haryana (D) Andhra Pradesh

199. Right to Information act was passed by the parliament on:
(A) 11th October 2005 (B) 12th October 2005 (C) 13th October 2005 (D) 14h October 2005

200. The headquarters of International Organisation for standardization is located at:
(A) Prague (B) Hague (C) Sweden (D) Geneva