JSTSE Guru

Mukhyamantri Vigyan Pratibha Pariksha 2021

Exam Date: 28th March 2021

101. A stone is dropped from the top of a tower 500 m high into a pond of water at the base of the tower. When the splash is heard at the top (given, g = 10 m/s^2 and speed of sound = 340 m/s)
(1) 1.47 s
(2) 10 s
(3) 11.47 s
(4) 11.7 s

102. A sound wave has a frequency of 2 kHz and wavelength 35 cm. How long will it take to travel 1.5 km?
(1) 2.14 s
(2) 2 s
(3) 21.4 s
(4) 214 s

103. When a body like earth is moving in a circular path the work done in that case is zero because:
(1) Centripetal force acts in direction of motion of body.
(2) Centripetal force acts along the radius of circular path.
(3) Gravitational force acts along the radius of circular path.
(4) Centrifugal force acts perpendicular to radius of circular path.

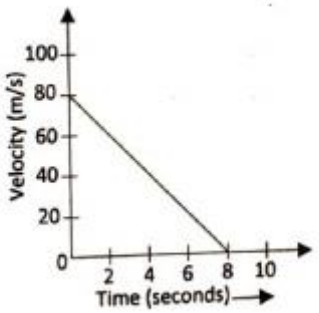
104. The sound can travel in air because
(1) Particles of medium travel from one place to another.
(2) There is no moisture in atmosphere.
(3) Disturbance travel from one place to another.
(4) Both particle as well as disturbance travel from one place to another.

105. An athlete completes one round of circular track of diameter 200 m in 40 s. What will be the distance covered and the displacement at end of 2 minutes 20 seconds?
(1) 2200 m, 200 m
(2) 628 m, 200 m
(3) 2200 m, 2200 m
(4) 2200 m, 0 m

106. On increasing the temperature, the speed of sound in air:
(1) Increases
(2) Decreases
(3) Does not change
(4) First increases then become constant

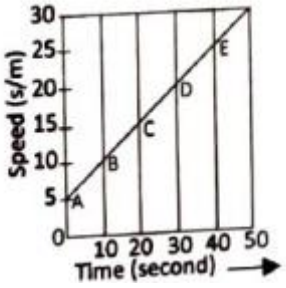
107. An object of mass 2 kg is sliding with a constant velocity of 4 m/s on a friction less horizontal table. The force required to keep the object moving with same velocity is
(1) 32 N
(2) 0 N
(3) 2 N
(4) 8 N

108. Velocity versus time graph of a ball of mass 50 g rolling on a concrete floor is shown in given figure. What will be frictional force of the floor on the ball?



(A) 0.5 N
(B) 50 N
(C) 5 N
(D) 0.05 N

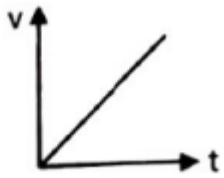
109. The speed-time graph of a moving car is given here. Using the data in the graph, calculate the total distance covered by the car:

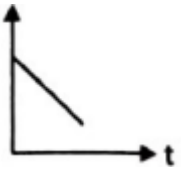


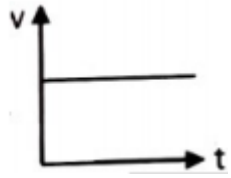
(A) 1250 m
(B) 875 m
(C) 1500 m
(D) 870 m

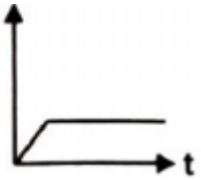
110. If displacement of particle is zero distance covered by it:
(1) May be zero or not may be zero
(2) Must be zero
(3) Must not be zero
(4) All are true

111. A steel ball is dropped into glycerine, the most appropriate plot of velocity and time will:

(1) 

(2) 

(3) 

(4) 

112. When momentum of body increases by 25%. The kinetic energy of body increases by
(1) 56.25%
(2) 50%
(3) 52.5%
(4) 57.5%

113. A bullet which strikes a plank with 100 m/s, penetrates it upto 5 cm. If the speed of bullet be 300 m/s. The distance upto which it penetrates the same plank.
(1) 45 cm
(2) 30 cm
(3) 60 cm
(4) 15 cm

114. Which of the following statements is correct?
(1) Temperature changes during the change of state of a substance
(2) Dry ice gets converted directly into gaseous state under normal atmospheric conditions
(3) Higher boiling point of a liquid indicates weaker intermolecular forces
(4) Latent heat of vaporization is equal to the latent heat of fusion for a substance

115. _____ will show "Tyndall effect".
(1) Salt solution
(2) Blood
(3) $CuSO_4$ solution
(4) Sugar solution

116. Which of the following pairs of gases diffuse into the vaccum at the same speed?
(Given: Atomic mass of H = 1U, C = 12 U, N = 14U, O = 16U and S = 32U)
(1) NH_3 and H_2
(2) CO and SO_2
(3) CO and N_2
(4) NH_3 and N_2

117. 180 g water can be represented as
(a) 5 g of water
(b) 10 moles of water

(c) 6.022×10^{23} molecules of water
(d) 6.022×10^{24} molecules of water

(1) a and b
(2) b and d
(3) b and c
(4) a and d

118. _____ separation technique is used in "Forensic science"
(1) Crystallisation
(2) Distillation
(3) Fractional distillation
(4) Chromatography

119. If the concentration of glucose ($C_6H_{12}O_6$) in blood is 0.9 g/L. What will be the molarity of glucose in blood?
(1) 0.05 M
(2) 50 M
(3) 0.005 M
(4) 0.5 M

120. Choose the incorrect statement from the following:-
(a) Phosphate ion is a positive trivalent ion
(b) Calcium ion is a trivalent positive ion
(c) Phosphorousexist as poly atomic molecule
(d) Oxide ion is a divalent positive ion

(1) a and b
(2) b and c
(3) a, b and d
(4) a, b and c

121. A sample of "Ammonia" gas weighs 4 g. What mass of sulpur dioxide contains the same number of molecules as are in 4 g of "Ammonia" gas?
(1) 64 g
(2) 32 g
(3) 15.0 g
(4) 30 g

122. Which of the following options represents the correct number of moles of each element in 40 g of ferric sulphate?
[Atomic mass: Fe = 56 U, S = 32 U, O = 16 U]

	Fe	S	O
1.	2	3	12
2.	1	1	4
3.	0.2	0.3	1.2

4. 0.1 0.1 0.4

123. If traveling at same speed which of the following particles will have the highest kinetic energy?
(1) Electron
(2) Alpha particles (He^{2+})
(3) Neutron
(4) Proton

124. Vitamin B_{12} is a complex compound of
(1) Co^{3+}
(2) Mg^{2+}
(3) Fe^{2+}
(4) Zn^{2+}

125. Correct formula of "Ammonium sulphate" is
(1) NH_4SO_4
(2) $(NH_4)2SO_4$
(3) $NH_4(SO_4)_2$
(4) $(NH_3)_2SO_4$

126. What will be the mass (in gram) of 100 moles of 'sodium sulphite'?
Molar mass: Na = 23 g/mol
S = 32 g/mol
O = 16 g/mol
(1) 1260 g
(2) 1.260 g
(3) 12.60 g
(4) 12600 g

127. Bacterial cell wall is composed mainly of
(1) Cellulose
(2) Chitin
(3) Peptidoglycan
(4) Pectin

128. What is the shape of bacterial that forms curd?
(1) Rod-like
(2) Spherical
(3) Spiral
(4) Comma shaped

129. Stomata open due to accumulation of following ion in guard cells
(1) Magnesium
(2) Zinc
(3) Potassium

(4) Iron

130. The water conducting tissue generally present in gymnosperm is:
(1) sieve tubes
(2) tracheids
(3) xylem fibres
(4) vessels

131. 'CPCB' is used for:
(1) Compressed Particulate Chemical Benefits
(2) Central Pollution control Board
(3) Chennai Plastic Control Board
(4) Control and Pure Chemical Board

132. Herdmania belongs to:
(1) Protochordata
(2) Echinodermata
(3) Aves
(4) Bryophyta

133. Pick the odd one out.
(1) Snake
(2) Lizard
(3) Rat
(4) Turtle

134. Preventive and control measures adopted for the storage of grains includes.
(1) Fumigation
(2) Proper drying
(3) Strict cleaning
(4) All of the above

135. Skeleton is made entirely of cartilage in:
(1) Rohu
(2) Tune
(3) Shark
(4) None of the above

136. Stomata open in night in _____.
(1) Halophytes
(2) Hydrophytes
(3) Mesophytes
(4) Succulents

137. Which of the following have an open circulatory system?
(a) Arthropoda (b) Mollusca

(c) Annelida (d) Cnidaria

(1) a and c
(2) a and b
(3) b and c
(4) c and d

138. Mustard : Dicot : : Cycas : _____.
(1) Gymnosperms
(2) Monocot
(3) Pteridophytes
(4) Bryophytes

139. Identify a member of porifera.
(1) Spongilla
(2) Euglena
(3) Penicillin
(4) Hydra

140. Sclerenchyma provides _____ to plants
(1) Hardness
(2) Stillness
(3) Both of the above
(4) None of the above

141. If x + y + z = 0 , then the value of $\frac{x^4 + y^4 + z^4}{x^2y^2 + y^2z^2 + z^2x^2}$ is
(1) $\frac{1}{2}$
(2) 2
(3) 3xyz
(4) $3x^2y^2z^2$

142. If $x^a = y^{2b} = z^{3c}$ and $y^2 = zx$, then the value of $\frac{1}{a} + \frac{1}{3c}$ is
(1) $\frac{b}{2}$
(2) b
(3) $\frac{1}{b}$
(4) $\frac{2}{b}$

143. If $m = 2^{\frac{1}{3}} + 2^{-\frac{1}{3}}$, then the value of $2m^3 - 6m + 1$ is
(1) 6
(2) 2
(3) 3

(4) 4

144. Coefficient of p^2 in $(p^2 + 2p + 3)^2 + (p^2 – 2p + 3)^2$ is
(1) 6
(2)10
(3)18
(4)20

145. Factorise the following: $a^3 + 3a^2b + 3ab^2 + 2b^3$
(1) $(2a+b)(a^2 + ab + b^2)$ (2) $(a+2b)(a^2 + ab + b^2)$
(3) $(2a+b)(a^2 + 3ab + b^2)$ (4) $(a+2b)(a^2 + 3ab + b^2)$

146. If $a = \sqrt[3]{64}$ and $b = \sqrt[3]{65}$, then the value of $a + b - \frac{1}{a^2+ab+b^2}$ is
(1) 2
(2) 4
(3) 8
(4)16

$$\Rightarrow 2\times\left(4^3\right)^{\frac{1}{3}} = 8$$

147. If $9^{k+2} – 240 = 9^k$,then the value of $(18k)^k$ is
(1) 3
(2) 9
(3) $3\sqrt{2}$
(4) $2\sqrt{3}$

148. If $z = 3 + 3^{\frac{1}{3}} + 3^{\frac{2}{3}}$, then the value of $z^3 - 9z^2 + 18z - 7$ is
(1) 12
(2) 10
(3) 5
(4) –5

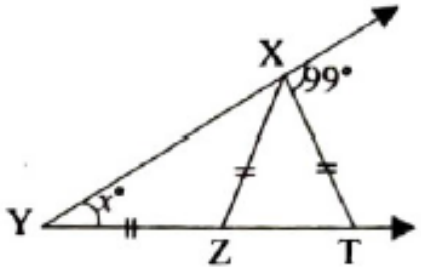
149. If L:M:N = 2 : 3 : 4 and $L^2 + M^2 + N^2 = 11600$, then the value of L + M - N is
(1) 20
(2) 60
(3) 100
(4)180

150. If p + q + r = 2, pq + qr + rp = -1 and pqr = -2 then the value of $p^3 + q^3 + r^3$ is
(1) 8
(2) –8
(3) 16
(4) –16

151. If a = $\sqrt{2}$ - $\sqrt{6}$, b = $\sqrt{6}$ - $\sqrt{3}$ and c = $\sqrt{3} - \sqrt{2}$, then the value of $a^3 + b^3 + c^3 - 2abc$
(1) 0
(2) $\sqrt{2} + \sqrt{3} + \sqrt{6}$
(3) $5\sqrt{3} - \sqrt{6} + 3\sqrt{2}$
(4) $3\sqrt{2} + \sqrt{6} - 4\sqrt{3}$

152. Factorise:
$x^2y + xz^2 + y^2z - x^2z - y^2x - z^2y$
(1) (x + y) (y + z)(z+x)
(2) (x - y) (y + z)(z-x)
(3) (x - y) (y - z)(z-x)
(4) (x - y) (y - z)(x-z)

153. In given figure, XZ = ZY = XT then the value of x is



(1) 30
(2) 33
(3) 49
(4)49.5

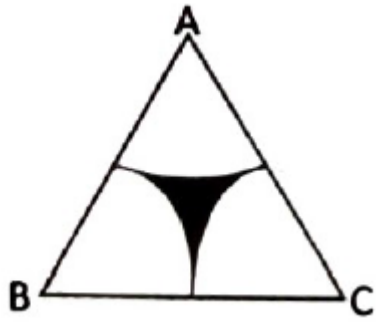
154. If a + b = m and $\frac{1}{a} + \frac{1}{b} = \frac{1}{n}$ then relationship in m, n and a is
(1) $m(a-n) = a^2$ (2) $m(a+n) = a^2$
(3) $a(m-n) = m^2$ (4) $a(m+n) = n^2$

155. If $x=0.4\overline{73}$, then the value of $x + 1.\overline{6}$ is
(1) $2.\overline{140}$ (2) $0.21\overline{40}$
(3) $21.\overline{40}$ (4) $2.1\overline{40}$

156. Area of the quadrilateral REST, in which <R=90°, RE = 30cm, ES = 42cm, ST = 20cm and TR = 16cm is
(1) 192 sq. cm
(2) 240 sq. cm
(3) 336 sq. cm
(4) 576 sq. cm

157. A train of length 240 m, crosses a platform in 20 seconds. If the speed of the train is 72 km/hr., then the length of platform is
(1) 160 m
(2) 180 m
(3) 240 m
(4) 260 m

158. In given figure, ABC is an equilateral triangle of side 8 cm. Area of shaded region is



(1) $32 - \frac{16\pi}{3}$ sq.cm
(2) $32 - \frac{8\pi}{3}$ sq.cm
(3) $16\sqrt{3} - 8\pi$ sq.cm
(4) $32\sqrt{3} - 16\pi$ sq.cm

159. Mean of 9 observation was found to be 35. Later on, it was detected that an observation 80 was missed as 8. The correct mean is
(1) 45
(2) 44
(3) 43
(4) 42

160. If $\frac{3\sqrt{2}+2\sqrt{3}}{4\sqrt{2}+3\sqrt{3}} = p + q\sqrt{6}$, then the value of p and q are

(1) $p = \frac{1}{5}$, $q = \frac{6}{5}$
(2) $p = \frac{6}{5}$, $q = \frac{1}{5}$
(3) $p = \frac{6}{5}$, $q = -\frac{1}{5}$
(4) $p = -\frac{6}{5}$, $q = \frac{1}{5}$

161. Why did members of the third estate of 5 May, 1789 walked out of the assembly of the estates general?
(1) The king decided to follow the old voting rule.
(2) The king decided to follow the democratic principle of voting given in the social contract.
(3) Both (1) and (2).
(4) None of the above

162. What was not the provision of the National Assembly decree passed on 4th August 1789
(1) Abolition of Feudal system and Tilthes
(2) Confiscation of church land
(3) Increase in religious tax
(4) None of the above

163. What is not true about the radicals
(1) Advocated Nation based on majority population
(2) Strongly opposed women suffragette movement
(3) Oppose the privileges of great landowners and wealthy factory owners.
(4) Oppose concentration of property in hands of a few

164. What was the participation of women in the factory about force by 1914 in percentage terms
(1) 14%
(2) 28%
(3) 31%
(4) 40%

165. Which of the following is not related to the bloody Sunday
(1) Procession reached the winter palace
(2) Procession was led by Father Gapon
(3) Over 100 workers were killed and 300 wounded
(4) Bloody Sunday resulted in complete stoppage of revolution.

166. What was Russian steam roller
(1) Labour organization
(2) Officials of the church
(3) The Imperial Russian army
(4) None of the above

167. USA withdraw short term loans to Germany after which events:
(1) The wall street exchange crash in 1929
(2) The start of great economic depression.
(3) Both (1) and (2)
(4) None of the above

168. Which of the following was the characteristic of Hitler's political style
(a) Significance of rituals & spectacles
(b) Massive rallies and public meetings

(c) Ritualised rounds of applause
(d) Red Banners with swastika, the Nazi solute

Choose the correct combinations.
(1) a, c and d
(2) b, c and d
(3) a and d
(4) a, b, c and d

169. What do you mean by holocaust
(1) The Nazi killing of Jews
(2) Attack of Germany on Poland
(3) The emergence of Hitler on Political arena
(4) The Principal of Nazi supremacy

170. Which of the following right was suspended through the fire decree of 28 February 1933.
(1) Freedom of speech, press and assembly
(2) Right of vote
(3) Ban on all political parties
(4) None of the above

171. Who was the Tsar of Russia in 1914
(1) Tsar Nicholas I
(2) Tsar Nicholas III
(3) Tsar Nicholas II
(4) None of the above

172. Which body in Indian Political system is an Example of direct democracy?
(1) Municipal corporation
(2) Panchayat Samiti
(3) Gram Sabha
(4) Legislative Assembly

173. For how long can the Rajya Sabha delay a money bill
(1) 7 days
(2) 14 days
(3) 15 days
(4) One month

174. 'Save Democracy' slogan was given by which of the following political party 1977 in Lok Sabha election
(1) Lok Dal
(2) Janta Party
(3) Left front
(4) Left fronta

175. What is Public Interest Litigation?
(1) Filling a case in the court in the interest o the public
(2) Procedure of remove of president
(3) Reviewing of Supreme
(4) None of the above

176. When was the second SC and Backward classes commission appointed?
(1) 1969
(2) 1976
(3) 1979
(4) 1989

177. When did South Africa became a Democratic country
(1) 26 May 1995
(2) 26 April 1994
(3) 26 May 1994
(4) 26 April 1996

178. In which country women do not have the right to vote?
(1) Soudi Arabia
(2) Fizi
(3) Estonia
(4) None of the above

179. Match the following:

i. Sardar Vallabh Bhai Patel	a) Captain of first National Hockey Team
ii. Dr. Rajendra Prasad	b) First President of India
iii. Jaipal Singh	c) Member of all India Christian council
iv. H. C. Mukherjee	d) Layer and Leader of Bardoli Satyagraha

(1) i – c, ii –b, iii – a, iv – d
(2) i – d, ii –b, iii – a, iv – c
(3) i – b, ii –a, iii – d, iv – c
(4) i – a, ii –b, iii – c, iv – d

180. Which of the following statement is true?
(1) Election commission works under the Indian Government.
(2) In India citizen who is 21 years old or more than 21 year has right to vote.
(3) Every vote has same value.
(4) India has single party system.

181. Who was the founder of Andhra Mahila Sabha?
(1) Durgabai Deshmukh
(2) Sarojini Naidu
(3) Indira Gandhi

(4) Sonia Gandhi

182. How many members are elected to National Party congress all over china?
(1) 3000
(2) 3100
(3) 3200
(4) 4000

183. Majuli is the world's largest river island on which river?
(1) Ganga
(2) Yamuna
(3) Brahmaputra
(4) Kaveri

184. Most part of India receives rainfall during which of the following months?
(1) June to September
(2) May to June
(3) September to March
(4) None of these

185. Ebony, Mahogany and rosewood trees are grown trees are grown in which type of the forests?
(1) Coniferous forest
(2) Tropical rain forests
(3) Tropical thorn forest
(4) None of these

186. When was the Animal Protection Act enacted in India?
(1) 1973
(2) 1983
(3) 1972
(4) 1982

187. Which of the following states has largest coastlines?
(1) Gujarat
(2) Maharasthra
(3) Kerala
(4) Tamilnadu

188. Which line divides India into approximately two equal parts?
(1) Equator
(2) Tropic of Capricorn
(3) Tropic of cancer
(4) None of these

189. On which island is India's only active Volcano located?

(1) Barren Island
(2) Lakshadweep Island
(3) Maldives
(4) Daman and Div

190. By what name is Brahamputra known in Tibet?
(1) Dibang
(2) Lohit
(3) Tsang po
(4) Dihang

191. Natural vegetation that has been left undisturbed by humans for a long time is called –
(1) Indigenous
(2) Exotic
(3) Virgin vegetation
(4) Tropical vegetation

192. When was the first complete census held?
(1) 1872
(2) 1881
(3) 1882
(4) 1871

193. Which of the following is not a tropical evergreen tree?
(1) Mulberry
(2) Rubber
(3) Cinchona
(4) Rosewood

194. "Closed Economy" means
(1) No provision for public sector
(2) No provision for private sector
(3) Economy policy not well defined
(4) A country having no imports and exports

195. Disguised unemployment is mainly found in which sector?
(1) Manufacturing
(2) Trade
(3) Agriculture
(4) Hotel Industry

196. Under MNREGA-2005, how many days of wage employment is guaranteed to rural households in a year?
(1) 100 days
(2) 120 days
(3) 150 days

(4) 200 days

197. The scheme for the establishment of residential schools to impart education to talented children from rural areas is,
(1) Kendriya Vidyalayas
(2) Navodya Vidyalayas
(3) Pratibha Vikas Vidyalayas
(4) Sarvodya Vidyalayas

198. The minimum support price is declared by India Government every.
(1) One year
(2) Two years
(3) Four years
(4) Five years

199. What is the full form of GST?
(1) Good Solid Trust
(2) Goods and Services Tax
(3) Goods and Services Truck
(4) Good and Safe Tax

200. Globalisation means-
(1) Integration of economy
(2) Integration of financial markets
(3) Integration of the domestic economy with the world economy
(4) Integration of the various sectors of economy