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) ± 9 (D) ± 3

103. In the given figure, AB is parallel to CD. The angle y is :
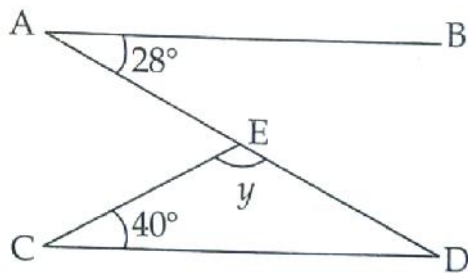
(A) 68° (B) 34° (C) 112° (D) 56°

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

(A) 48° (B) 132° (C) 96° (D) 264°

105. $\dfrac{\sin 35°}{\cos 55°} - \dfrac{\tan 12°}{\cot 78°} - \dfrac{\sin 18°}{\cos 72°} = ?$
(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. $\dfrac{x}{y} + \dfrac{y}{x} = 1$, $(x, y \neq 0)$, then the value of $x^3 - y^3$ is :

(A) 1   (B) -1 (C) 0   (D) $\dfrac{1}{2}$

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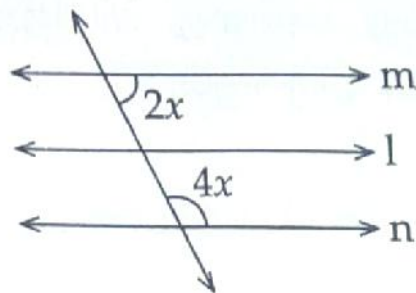

(A) $90°$ (B) $30°$ (C) $45°$ (D) $60°$

111. If the total surface area of a cube is 96 cm^2, then its volume is :
(A) 64 cm^3 (B) 512 cm^3 (C) 8 cm^3 (D) 27 cm^3

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

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

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

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 :
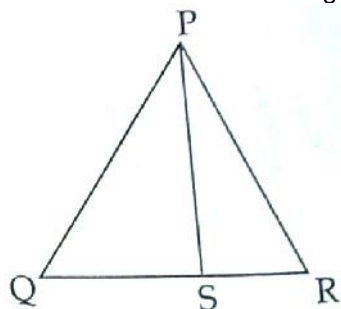
(A) 12 cm   (B) 10 cm   (C) 8 cm   (D) 30 cm

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 $\cos_n \sec_n + \sin_n \cos ec_n$ 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 cm^3 (B) 21,750 cm^3
(C) 26,950 cm^3 (D) 25,400 cm^3

121. $r = \dfrac{R_T - R_0}{R_0(T - T_0)}$ where R_T, R_0 Resistance, T, T_0 – Temperature, then the unit of r is :
(A) $\Omega / °C$ (B) $\Omega°C$ (C) $/°C$ (D) $°C / \Omega$

122. A girl of mass 40 kg stands on her feet of surface area 80 cm^2 (g = 10 m/s^2). The pressure exerted by her feet is :
(A) $5 \times 10^3 Pa$ (B) $5 \times 10^4 Pa$ (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?
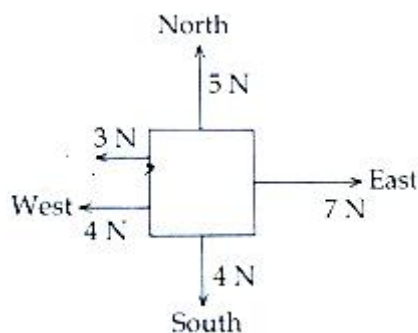
(A) North   (B) South   (C) East   (D) West

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 Naviagtion 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) $\dfrac{-f}{u-f}$ (B) $\dfrac{f}{u+f}$ (C) $\dfrac{-f}{u+f}$ (D) $\dfrac{f}{u-f}$

133. When a lactometer is used in a given sample of milk A, if floats in the milk such that half of the length of its stem is immerse 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 3rd period in the modern periodic table
(b) It has a valency of 7
(c) It belongs to 18th 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 electronegatively 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 secrets 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

154. Match the following

COLUMN – I		COLUMN – II	
a	Carbohydrate	(i)	Made up of amino acids
b	Protein	(ii)	Metabolic function
c	Fat	(iii)	Physiological and biological function
d	Vitamins	(iv)	Provides chief source of energy to the body

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

155. Choose the incorrect pair
(A) Robert Koch   -   Father of Bacteriology
(B) Sir Ronald Rose   -   Founder of Malaria
(C) Stanley B Broiner - Invented Microscope
(D) William Beaumont – Father of Gastric Physiology

156. Find the odd one out
(A) eosinophils   (B) monocytes
(C) neutrophils   (D) myofibrils

157. Pick the odd one out
(A) cuticle   (B) diverticula   (C) botryoidal tissue   (D) dermis

158. _____ promotes the development and enlargement of all tissues of the body
(A) GH   (B) TSH   (C) GTH   (D) ACTH

159. Match the following

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

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

160. Assertion (A) : RBC plays an important role in the transport of respiratory gases
Reason (R) : RBC do not have cell organelles and nucleus
(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) Both (A) and (R) are false

161. Who among the following was the first Peshwa of Shahu?
(A) Balaji Vishwanath   (B) Baji Rao
(C) Balaji Baji Rao   (D) Madhava Rao

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 40^0, 'furious fifties' at 50^0 and 'screaming sixties' at 60^0 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 imaginary 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) Packistan   (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 (B) Legislative Procedure
(C) Government Order (D) Circular

184. 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

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
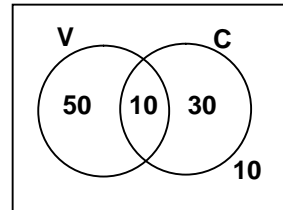
101. (4)

$n(U) = 100$

$n(V) = 60$

$n(C) = 40$

$n(VUC) = 100 - 10 = 90$

$\therefore n(V \cap C) = n(V) + n(C) - n(VUC)$

$= 60 + 40 - 90$

$= 10 \therefore$ only chocolate $= 30$

102. (3)

$x^2 + y^2 + z^2 = 29$

$xy + yz + zx = 26$

$x^2 + y^2 + z^2 = 2xy + 2yz + 2zx$

$= 29 + 2 \times 26$

$= 81$

$\therefore (x + y + z)^2 = 81$

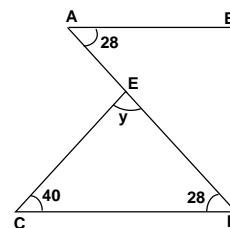$x + y + z = \pm 9$

103. (3)

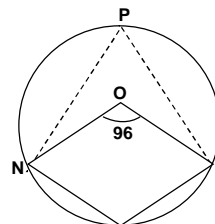$\angle D = 28°(AIA)$

$40 + 28 + y = 180$ (ASP)

$y = 112$

104. (2)

$\angle NPL = \dfrac{1}{2} \times 96$

$= 48$

$\angle M = 180 - P$

$= 132$

105. (4)

$$\frac{\sin 35}{\cos 55} - \frac{\tan 12}{\cot 78} - \frac{\sin 18}{\cos 72}$$

= 1 - 1 − 1 = -1

106. (1)

$$\overline{x} = 58 - 5 = 53$$

107. (1)

All real number are either rational or irrational

108. (1)

$$\frac{6x^2 + 5x - 6}{3x - 2}$$

= 2x + 3

109. (3)

$$x^3 - y^3 = (x - y)\left(x^2 + xy + y^2\right)$$

Given $\dfrac{x}{y} + \dfrac{y}{x} = -1$

$$\Rightarrow x^2 + y^2 = -xy$$

$$\Rightarrow x^2 + xy + y^2 = 0$$

Multiple (x - y) on both side,

$$(x - y)\left(x^2 + xy + y^2\right) = (x - y)0$$

$$\Rightarrow x^3 - y^3 = 0$$

110. (2)

6x = 180

x = 30°

111. (1)

$$6a^2 = 96$$

$$\therefore a^2 = 16 \Rightarrow a = 4$$

$$a^3 = 64$$

112. (3)

No. of vowels = 5

Total   = 9

$$\therefore P = \frac{5}{9}$$

113. (1)

$6x^2y^2$ and $8x^4y^4$

LCM = $24x^4y^4$

114. (1)

Parallel tangent $\therefore$ end points of diameter

$\therefore$ AB = diameter

$\pi r^2 = 25\pi$

$\therefore r = 5$

$\therefore$ AB = 10
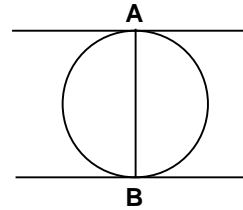
115. (4)

In 4 sec, distance = 7.6 m

$\dfrac{5}{1} = \dfrac{7.6 + x}{x}$

5x = 7.6 + x

4x = 7.6

x = 190 cm
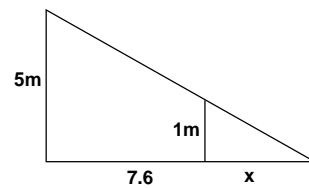
116. (3)

$72 = 2^3 \times 3^2$

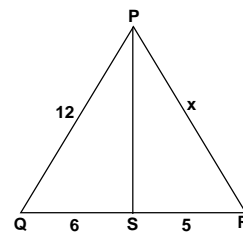$\therefore (a, b), (2, 3) \, or \, (3, 2)$

117. (2)

Angle bisector theorem

$\dfrac{PQ}{PR} = \dfrac{QS}{RS}$

$\dfrac{12}{x} = \dfrac{6}{5} \Rightarrow x = 10$

118. (1)

Dist = $\sqrt{(4-2)^2 + (3-1)^2}$

$= \sqrt{6^2 + 2^2}$

$= \sqrt{40} = 2\sqrt{10}$

119. (1)

$\cos\theta \times \sec\theta + \sin\theta \times \cos ec\theta$

= 1 + 1 = 2

120. (3)

$2\pi r = 220 \quad \therefore r = 35$

$Vol = \dfrac{1}{3}\pi r^2 h = 26950$

121. (3)

$\alpha = \dfrac{R_T - R_O}{R_O(T - T_O)} = \dfrac{\cancel{\varnothing}}{\cancel{\varnothing}\ °C.}$

$= /°C.$

122. (2)

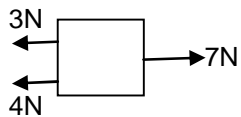$P = \dfrac{F_\perp}{A} = \dfrac{400}{80 \times 10^{-4}}$
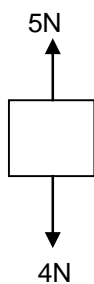
$= 5 \times 10^4 Pa$

123. (2) Energy = work done (w) = vq

$w = 1.5 \times 0.5$

$= 0.75J$

124. (1)

Horizontally forces are balanced

$F_{net} = 5 - 4 = 1N \text{ along North}$

The net force in the north direction

125. (3)

a) Magnetic lines of force never intersect

d) Magnetic lines of force are closed continuous carries extending to the body of magnet.

a, d statements are correct

126.   (3)

The distance travelled by sound in the second is called velocity of sound.

127.   (1)

P = - 2.0D

$$F = \frac{1}{P} = \frac{1}{-2} = -0.5m$$

$$= -50cm$$

So, near sightedness,. 50cm

128.   (4)

Sound Navigation and Range (SONAR)

Works on the reflection of sound.

129.   (3)

$$1 \times 1000watt \times 2hrs \times 30 = 60000whr$$

$$5 \times 60watts \times 10hr \times 30 = 90000whr$$

Total energy = 150 kw hr

Total price = $150 \times 5 = 750Rs$

130.   (3)

DC generator works on the principle of Faradays laws of electromegneitc induction.

131.   (1)

A) Highest refraction   Diamond

B) Lowest refraction   Ice

C) Head lights of a car   Concave mirror

D) Side near view mirror   convex mirror

132.   (1)

$$\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$$

$$\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$$

$$v = \frac{uf}{u-f}$$

$$m = \frac{-v}{u}\left[\frac{\frac{-uf}{u-f}}{u}\right]$$
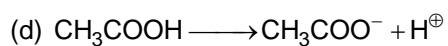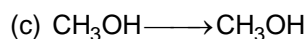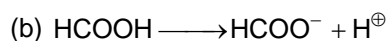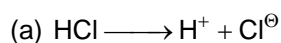
$$m = \frac{-f}{u-f}$$

133. (3)

The lactometer stem is more sinking in milk A compared to sample milk B.

So,

Water content in A is less than B

Density of sample A is less than density of the sample B.

134. (3)

(a) $HCl \longrightarrow H^+ + Cl^{\ominus}$

(b) $HCOOH \longrightarrow HCOO^- + H^{\oplus}$

(c) $CH_3OH \longrightarrow CH_3OH$

(d) $CH_3COOH \longrightarrow CH_3COO^- + H^{\oplus}$

Here alcohol is soluble in water but will not dissociate.

135. (4)

Particles like proton, electron and Neutron are fundamental while few more includes (meson, Neutrino, Positron etc.)

Answer is proton

136. (2)

The element 'X' has 7 electron is 'M' shell.

K = 2

L = 8
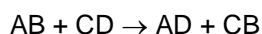
M = 7

Atomic number = 17

Here (a) period – 3 element

(b) Valency = 1

Valency = 8 = valence electron

(c) belong's to 17th group

(B & C) are wrong

137. (4)

$AB + CD \rightarrow AD + CB$

138. (3)

Yes hydrogen is under debate

shows similarity with group 1 & group 17 element

(B) Wrong. Hydrogen is in top

139. (1)

The tendency of atom to have eight electrons in the valence shell is known as 'octet rule or 'Rule of eight" by Kossel and Lewis

140. (2)

Molecular formula

$$C_2H_6O$$

Alcohol   Ether

141. (1)

group 11 $\Rightarrow$ are Transition element.

Halogen family is 17th group

142. (2)

Ionic bond if electro negativity different is greater than 1.7

Covalent bond if electronegative different is less than 1.7

Hence 50% - 50% Ionic & Covalent

143. (3)

Here HNO_3 is most stronger oxidizing agent.

HNO_3 reacts on the surface of iron and passiveness the surface.

144. (1)

The P^H of rain water is approximately 7

145. (4)

Root word for 4 carbon is

146. (4)

Metalloids in periodic table are Arsenic, Silicon, Boron

147. (1)

Fact

148. (1)

Rhizobium increases uptake of Nitrogen not Phosphorous.

149. (3)

Cambium is the component of ground tissue.

150. (2)

Epithelium is involved in exchange of gases, excretion and absorption and secretion of chemicals but doesn't allow   free movement.

151. (3)

Recessive factors never appear in F1 generation since they are masked by Dominant factors and Gregor Mendel worked on Pea plant.

152. (3)

Meristematic cells are tightly packed and do not have intercellular spaces.

153. (4)

Skin, liver cells have regenerative capacity and RBC are replaced for every 120 days. Eye lens cells do not regenerate.

154. (3)

Fact

155. (3)

Microscope was invented by Zacharias Janssen.

156. (4)

Eosinophil, Monocyte and Neutrophil are WBCs and Myofibril is muscle fibre.

157. (2)

Diverticula belongs to digestive system and remaining are body wall tissues.

158. (1)

Fact.

159. (2)

Fact

160. (2)

RBCs doesn't have nucleus and cell organelles.

161. (1)

Balaji Vishwanath was first peshwa appointed by Shahu in 1713.

162. (4)

Genghis Khan was the one who united all tribles and farmed a military

163. (1)

After the Battle of Plassey British awarded Mir Zafar as Nawab

164. (4)

estate general was a political body consist of 3 tiers in France.

165. (2)

Seven years war was fought between France and England in 1756 ended with treaty of Paris – in 1763.

166. (1)

Corvee $\rightarrow$ was a free labour system it was imposed by a state for the purposes of Public works.

167. (4)

Portuges were the one who started Navigation school to find New sea routes to Asia

Early name ? New York was New Armster-dom changed by British

168. (3)

Vietnam National Party – 1939

Fascist – 1979

The union of South Africa – 1910

French communist party – 1920

169. (3)

Andrew Jackson said Salter as father of American industrial revolution

170. (1)

Ethiopia was ruled by Menelik

171. (3)

Hundred days of reform – 1898

Russian Revolution – 1917

First opioum war – 1832

Cines revolution – 1911

172. (2)

Volcanic region does not help in generating tidal energy.

173. (3)

The extreme wind which blows in Southern himosphere known as westerly

174. (3)

Bhuvan – Geo-portal by is sRO comprising of Geo Capital Data

175. (3)

Pulicat lake is in Tamilnadu North cost Border district Tiruvallur

176. (1)

Tehri – Bhagirathi

Hirakud – Mahanadi

Nagarjun Sagar – Krishna

Indira Gandhi – canal – Sutlej

177. (4)

Kachch is not recognized by UNESCO

178. (4)

ICAR – founded in 1953.

179. (4)

Nagaland is not sharing Border with Bangladesh. Assam Tripura Meghalaya Do share border.

180. (3)

Print media which is cheap and easy Accessible and powerful

181. (2)

Gaja was named by Sri lanka its originated their – in 2018.

182. (3)

mt. Helens – USA @mt.kilimanjaro - Tanzania

@ mt.Fuji – Japan

@ mauna Loa – Hawaii

183. (1)

office memorandam is a special order of government issued for day to day administration

184. (3)

Institutional revolutionary party won until 1930.

185. (3)

Govt of India Act issued in 1935 by British

186. (2)

Both statements induvidualy correct but R does not explains

187. (4)

Bihar elections held in 2020.

188. (3)

Panchayat elections are conducted by state election commission

189. (4)

According Chanakya Janapada was the basic unit of administration in 3rd century

190. (2)

Liberty equality Fraternity are & three powerful words given by French revolution to the World.

191. (4)

Cabinet is a unofficial body of senior misters

192. (1)

Maharashtra is the one among seven states with Dual house

193. (2)

Indirect election $\rightarrow$ people will not cost vote directly

194. (3)

A is true but R is false interest rates are high in informal sector

195. (1)

Head count Ratio

196. (1)

Per capita income

197. (2)

Bank postal education transport

198. (4)

Globalisation increased foreign investment

199. (1)

Entrepreneur

200. (1)

Marco Polo who carry the paper currency to Europe by China and Japan.