91. Figure 1 shows the ‘velocity-time’ graph for a car. Is the car:

(1) Speeding up
(2) Slowing down
(3) Moving at constant speed
(4) Not moving

92. Sound will be of higher pitch when:

(1) amplitude of the sound wave increases
(2) amplitude of the sound wave decreases
(3) frequency of the sound wave increases
(4) frequency of the sound wave decreases

93. A Thermos flask has a plastic lid, glass walls with silver lining and a seal. Which part of the flask reduces heat loss by the method of radiation?

(1) Plastic lid
(2) Seal
(3) Silver lining
(4) Glass walls

94. Which of the following waves cannot travel to us from the sun?

(1) Light
(2) Ultraviolet
(3) Infrared
(4) Sound
Ramesh is using a pointed end of a screw-driver to lift the lid of a tin of paint as shown in figure 2. At which point will he need a minimum effort to lift the lid?

- (1) Point A
- (2) Point B
- (3) Point C
- (4) Point D

The time period of a "seconds" pendulum is:
- (1) 1 second
- (2) 2 seconds
- (3) 0.5 second
- (4) None of the above

There is a delay of 0.5 seconds between the gun firing (by Ram) and its echo reaching him. How far has the soundwave travelled in this process?

- The velocity of sound in air = 330 m/s
- (1) 82.5 m
- (2) 165 m
- (3) 330 m
- (4) 247.5 m
98. In the generation of hydro-electricity:
(1) Stored potential energy is finally converted into electrical energy
(2) Electrical energy is converted into chemical energy
(3) Chemical energy is converted into electrical energy
(4) None of the above

99. In the given circuit what happens when bulb C is fused (Figure 4):

![Figure 4](image)

(1) Bulb A will glow and bulb B will not glow
(2) Bulb A will not glow and bulb B will glow
(3) Both bulbs A and B will glow
(4) Neither A will glow nor B will glow

100. Which of the following is an example of a short circuit?

(1) ![Circuit 1](image)
(2) ![Circuit 2](image)
(3) ![Circuit 3](image)
(4) ![Circuit 4](image)
101. A girl of mass 30 kg jumps with a horizontal velocity of 5 m/s on to a stationary cart with frictionless wheels. The mass of the cart is 2 kg. Assuming that there are no external forces acting in the horizontal direction, determine the final momentum of the system after the girl has jumped on the cart:

(1) 50 kg m/s
(2) 150 kg m/s
(3) 200 kg m/s
(4) 250 kg m/s

102. If still images of a moving object are flashed on the eye at the rate of 20 images/s, then the eye perceives this object as:

(1) Stationary
(2) Moving
(3) Sometimes stationary sometimes moving
(4) None of the above

103. A metal is released in the electrolysis of a fused salt. It gets deposited on the:

(1) Anode
(2) Cathode
(3) Half on the anode and half on the cathode
(4) On the sides of the container

104. In ferric sulphate, Fe₂(SO₄)₃, the valence of iron is:

(1) Two
(2) Three
(3) Five
(4) One
105. Which of the following is a physical change?
(1) Rotting of potatoes
(2) Rusting of a nail
(3) Burning of sulphur
(4) Melting of ice

106. Which of the following is not a mixture?
(1) Air
(2) Sea water
(3) Pure water
(4) Soil

107. Which of the following is not a form of coal?
(1) Peat
(2) Bituminous
(3) Anthracite
(4) Asphalt

108. The coating of which metal is applied on bicycle handles and kitchen gas stoves to provide strengthening:
(1) Iron
(2) Copper
(3) Chromium
(4) Zinc

109. Which of the following elements possesses the property of sublimation?
(1) Iron
(2) Mercury
(3) Nickel
(4) Iodine

110. Protium, deuterium and tritium are the isotopes of:
(1) Oxygen
(2) Helium
(3) Titanium
(4) Hydrogen
111. Which one of the following is a non-metal?
   (1) Zinc
   (2) Aluminium
   (3) Iron
   (4) Nitrogen

112. Metallic oxides are:
   (1) Acidic
   (2) Neutral
   (3) Basic
   (4) Either acidic or basic

113. In the laboratory, oxygen is prepared from:
   (1) Potassium chlorate
   (2) Water
   (3) Ozone
   (4) Air

114. Acid rain is caused by the oxides of:
   (1) Sulphur, Nitrogen
   (2) Sulphur, Carbon
   (3) Carbon, Nitrogen
   (4) Phosphorous, Carbon

115. Freshly released human egg has:
   (1) One 'x' chromosome
   (2) One 'y' chromosome
   (3) Two 'x' chromosomes
   (4) One 'x' and 'y' chromosome

116. What role(s) does the cytoskeleton play in a living cell:
   (1) Maintaining the cell shape
   (2) Movement
   (3) Contraction
   (4) All of the above
117. Which of the following are able to fix nitrogen from the atmosphere to enrich the soil?

1. Blue green algae
2. Green algae
3. Red algae
4. Brown algae

118. An attenuated vaccine is composed of:

1. Killed organisms
2. Deactivated bacterial toxins
3. Living weakened micro-organisms
4. Purified macromolecules

119. In vitro production of spores of which bacterium can be used as a biological weapon?

1. Bacillus thuringiensis
2. Bacillus anthracis
3. Bacillus subtilis
4. Bacillus cereus

120. The system comprising the population of plant and animal species that live and interact in a given area at a particular time, together with the physical environment, is called the:

1. Socio economic system
2. Environmental microsome
3. Symbiotic world order
4. Ecosystem

121. Which of the following is caused by a virus?

1. Malaria
2. Leprosy
3. Small pox
4. Tuberculosis
122. Earthworms are important in soil fertility because:

(1) They loosen the soil by turning
(2) They aerate and mix the soil
(3) They convert organic matter into rich humus
(4) All of the above

123. Pick the odd—one out:

The eukaryotes differ from the prokaryotes in:

(1) Presence of well defined nucleus
(2) Having a multicelled body
(3) Having membrane bound organelles
(4) Having larger ribosomes

124. In the production of wine by yeast, which of the following is not formed?

(1) Pyruvic acid
(2) Ethanol
(3) Carbondioxide
(4) Acetyl coenzyme A

125. Osmosis is:

(1) The passage of water from an area of low solute concentration to high solute concentration through a semi-permeable membrane
(2) Passage of water from an area of high solute concentration to a low solute concentration through a semi-permeable membrane
(3) Movement of water from an area of high water potential to an area of low water potential
(4) It is the net movement of solvent from more concentrated to less concentrated solution
126. Which of the following is in descending order:

(1) 0.600606, 0.6, 0.6666, 7.9
(2) 0.6, 0.6666, 7.3, 7.9
(3) 0.6, 7.3, 7.9, 0.6, 0.600606
(4) 7.3, 7.9, 0.6, 0.600606

127. The value of \((-18) + (-6) \times 2 - [(-4) \times (-3) - 6 (3 - (7 - 9))]\) is:

(1) 2
(2) -62
(3) -12
(4) -120

128. If \(x^2 + \frac{1}{x^2} = 11\), then which of the following is true:

(1) The values of \(x\) satisfying the above equation are all rational.
(2) Only half the values of \(x\) satisfying the above equation are rational.
(3) No value of \(x\) satisfying the above equation is rational.
(4) Only one value of \(x\) satisfying the above equation is rational.

129. The product: \((1 - y^2)(1 - y + y^2)(1 + y + y^2)\) is equal to:

(1) 1 + y^4 + y^6
(2) 1 + y^6
(3) 1 + y^3 + y^6
(4) 1 - y^6

126. निम्नलिखित में से किसका घटता क्रम हैः

(1) 0.600606, 0.6, 0.6, 7.3, 7.9
(2) 0.6, 6.6666, 7.3, 7.9
(3) 0.6, 7.3, 6.6666, 7.9
(4) 7.3, 6.6666, 7.9, 0.600606

127. \((-18) + (-6) \times 2 - [(-4) \times (-3) - 6 (3 - (7 - 9))]\) का मान होगाः

(1) 2
(2) -62
(3) -12
(4) -120

128. यदि \(x^2 + \frac{1}{x^2} = 11\) है, तो निम्नलिखित में से किस सत्य हैः

(1) 'x' के सभी मान जो उपरोक्त समीकरण से संबंधित हैं, परिमित संख्याएँ हैं।
(2) 'x' के केवल आधे मान, जो उपरोक्त समीकरण से संबंधित हैं, परिमित संख्याएँ हैं।
(3) 'x' के कोई भी मान, जो उपरोक्त समीकरण से संबंधित हैं, परिमित संख्या नहीं हैं।
(4) 'x' का केवल एक मान, जो कि उपरोक्त समीकरण से संबंधित हैं, परिमित संख्या है।

129. गुणा : \((1 - y^2)(1 - y + y^2)(1 + y + y^2)\) बराबर हैः

(1) 1 + y^4 + y^6
(2) 1 + y^6
(3) 1 + y^3 + y^6
(4) 1 - y^6
130. 25% of 50% of 4% of 11% of x is 0.011. Then x is:
(1) 11
(2) 25
(3) 20
(4) 5

130. यदि ‘x’ के 11% का 4% का 50% का 25%, 0.011 है, तो ‘x’ का मान है:
(1) 11
(2) 25
(3) 20
(4) 5

131. In a dance class of 12 students, one of them who is 15 years old leaves the class and a new student is admitted. This change increases the average age of the class by 3 months. Then age of the new student is:
(1) 16 years
(2) 17 years
(3) 18 years
(4) 20 years

131. एक नृत्य कक्षा जिसमें 12 विद्यार्थी हैं, एक 15 वर्षीय विद्यार्थी कक्षा में आने का छोड़ देता है और एक नया विद्यार्थी प्रवेश लेता है। इस परिवर्तन के कारण कक्षा की औसत आयु तीन महीने हो जाती है। तो नये विद्यार्थी की आयु है:
(1) 16 वर्ष
(2) 17 वर्ष
(3) 18 वर्ष
(4) 20 वर्ष

132. Which of the terms $2^{\frac{1}{2}}, 3^{\frac{1}{2}}, 6^{\frac{1}{2}}, 10^{\frac{1}{2}}$ is the largest?
(1) $2^{\frac{1}{2}}$
(2) $3^{\frac{1}{2}}$
(3) $6^{\frac{1}{2}}$
(4) $10^{\frac{1}{2}}$

132. संख्याओं $2^{\frac{1}{2}}, 3^{\frac{1}{2}}, 6^{\frac{1}{2}}, 10^{\frac{1}{2}}$ में से सबसे बड़ी संख्या कौन सी है?
(1) $2^{\frac{1}{2}}$
(2) $3^{\frac{1}{2}}$
(3) $6^{\frac{1}{2}}$
(4) $10^{\frac{1}{2}}$

133. The milk and water ratio in 16 litre mixture is 5 : 3. The amount of milk to be added to make the ratio 2 : 1 is:
(1) 2 litre
(2) 3 litre
(3) 4 litre
(4) 5 litre

133. 16 लीटर मिश्रण में दृष्टि और पानी का अनुपात 5 : 3 है। इसमें दृष्टि को कितनी मात्रा मिलाई जानी चाहिये जिससे यह अनुपात 2 : 1 हो जाये:
(1) 2 लीटर
(2) 3 लीटर
(3) 4 लीटर
(4) 5 लीटर
134. A man sold two almirahs for Rs. 1980 each. On one he gained 10% while on the other he lost 10%. In the bargain, he:

(1) gained 2%
(2) lost 1%
(3) lost 2%
(4) there was no loss or gain

135. A dealer allows 15% discount on his goods and still gains $6\frac{1}{4}$%. If cost price of a pen is Rs. 80, its marked price is:

(1) Rs. 100
(2) Rs. 92
(3) Rs. 85
(4) Rs. 97

136. If p persons working p hours a day for each of the p days produce p units of work, then the units of work produced by q persons working q hours a day for each of the q days is:

(1) \(\frac{q^3}{p^2}\)
(2) \(\frac{q^2}{p^3}\)
(3) \(\frac{p^2}{q^3}\)
(4) \(\frac{p^3}{q^2}\)

137. Which of the following does not divide $5^3 - 3^4$:

(1) 317
(2) 13
(3) 11
(4) 7

134. एक व्यक्ति ने दो अलमारी 1980 रुपये प्रति अलमारी की दर से बेची। उसे एक अलमारी पर 10% का लाभ हुआ और दूसरी पर 10% की हानि हुई। उसे पूरे सिद्दे में:

(1) 2% का लाभ हुआ
(2) 1% की हानि हुई
(3) 2% की हानि हुई
(4) न कोई लाभ हुआ न कोई हानि हुई

135. एक द्वारकादास अपने सामान पर 15% का घटक देता है और फिर भी वह $6\frac{1}{4}$% का लाभ पाता है। यदि एक पेन का क्रय मूल्य 80 रुपये है, तो उस पर लिखित मूल्य होगा:

(1) 100 रुपये
(2) 92 रुपये
(3) 85 रुपये
(4) 97 रुपये

136. यदि p आदमी p घंटे प्रतिदिन काम करके, p दिनों में p इकाई काम पूरा करते हैं, तो q आदमी प्रतिदिन q घंटे काम करके q दिनों में कितने इकाई काम पूरा करेंगे?

(1) \(\frac{q^3}{p^2}\)
(2) \(\frac{q^2}{p^3}\)
(3) \(\frac{p^2}{q^3}\)
(4) \(\frac{p^3}{q^2}\)

137. निम्न में से कौन-सी राशि $5^3 - 3^4$ को विभाजित नहीं करती?

(1) 317
(2) 13
(3) 11
(4) 7
138. The value of \( \frac{1}{1+\frac{1}{1+\frac{1}{1+\ldots}}} \) is:

(1) \( \frac{\sqrt{5} - 1}{2} \)

(2) \( \frac{\sqrt{5} + 1}{2} \)

(3) \( \frac{\sqrt{3} - 1}{2} \)

(4) \( \frac{\sqrt{2} + 1}{2} \)

139. The speed of the boat in still water is 10 km/hr. It can travel 26 km downstream and 14 km upstream in the same time. The speed of the stream is:

(1) 4 km/hr

(2) 4.5 km/hr

(3) 5 km/hr

(4) 3 km/hr

140. The difference between the obtuse angle and one of the acute angles of a triangle is 20°. The difference between the two acute angles of the triangle is 56°. Which of the following is one of the two acute angles:

(1) 12°

(2) 16°

(3) 22°

(4) 18°

141. Which of the following statements is true?

(1) orthocentre of obtuse angle triangle lies inside the triangle.

(2) orthocentre of obtuse angle triangle lies outside the triangle.

(3) orthocentre of a right angle triangle lies on its hypotenuse.

(4) orthocentre of an acute angle triangle lies outside the triangle.
142. Two concentric circles have radii 5 cm and 13 cm. Through a point A of the larger circle, a tangent is drawn to the smaller circle to touch it at B meeting the larger circle again at C. Length of AC is:

(1) 10 cm  
(2) 26 cm  
(3) 18 cm  
(4) 24 cm

143. In the following figure CB = CA = AD and $\angle DAE = 75^\circ$. The value of $y$ is:

(1) 45°  
(2) 50°  
(3) 60°  
(4) 37.5°

142. दो संकेन्द्रीय वृत्तों की त्रिज्या 5 से.मी. और 13 से.मी. हैं। बड़े वृत्त पर स्थित बिन्दु A से एक रेखा छोटे वृत्त को B पर स्पर्श करती है तथा बड़े वृत्त को फिर C पर मिलती है। रेखा AC की लम्बाई होगी:

(1) 10 से.मी.  
(2) 26 से.मी.  
(3) 18 से.मी.  
(4) 24 से.मी.

143. निम्न आकृति में CB = CA = AD और $\angle DAE = 75^\circ$. $y$ का मान होगा:

(1) 45°  
(2) 50°  
(3) 60°  
(4) 37.5°
144. In the following figure, ABCD is a square of side 5 cm each. The sides AB and BC are produced to P and Q respectively such that BP = 1 cm = CQ. Which of the following is true?

(1) AP = AQ
(2) DP = BQ
(3) DP = AP
(4) ΔDAP ≅ ΔABQ

145. The surface area of the sphere is 400 sq. m. The sphere is cut into two halves. The total surface area of one of the halves is:

(1) 200 sq. m.
(2) 300 sq. m.
(3) 400 sq. m.
(4) 350 sq. m.

146. A Neolithic site in Kashmir with pit dwellings:

(1) Mehrgarh
(2) Burzahom
(3) Chirand
(4) Koldihwa

147. An important Chalukyan Capital & Trading Centre:

(1) Aihale
(2) Kanchipuram
(3) Kanauj
(4) Thanesar

144. नीचे दिए गए आकृति में ABCD एक वर्ग है, जिसकी पृष्ठ 5 सेमी. है। भुजाएँ, AB और BC क्रमशः: P और Q तक बढ़ाई गई हैं ताकि BP = 1 सेमी. = CQ। तब निम्नलिखित में से सबसे ज्यादा उचित होगा:

(1) AP = AQ
(2) DP = BQ
(3) DP = AP
(4) ΔDAP ≅ ΔABQ

145. एक वृत्त का पृष्ठीय क्षेत्रफल 400 वर्ग मी. है। उसको दो भागों में काट कियो जाते हैं। प्रत्येक भाग का कुल पृष्ठीय क्षेत्रफल होगा:

(1) 200 वर्ग मी.
(2) 300 वर्ग मी.
(3) 400 वर्ग मी.
(4) 350 वर्ग मी.

146. कर्नाटक शासन नवाबपाणि स्थल जहाँ गढ़े के निवास स्थल हैं:

(1) मेहराबाद
(2) बुरजाहोम
(3) चिरांद
(4) कोल्लदहावा

147. चालुक्यों की राजधानी व महत्वपूर्ण व्यापारिक केंद्र:

(1) आहोल
(2) कोंकणपूरम्
(3) कन्नौज
(4) धानंदर
148. Land of non-Brahman Peasants were known as:
(1) Devdana
(2) Brahmadeya
(3) Vellanvagai
(4) Shala bhoga

149. A lake near Ajmer that attracted pilgrims since ancient times:
(1) Didwana
(2) Pushkara
(3) Sukhana
(4) Nakki

150. Which of the ideas below is not the teaching of Guru Nanak?
(1) Namjapna
(2) Warship of one lord
(3) Social commitment
(4) Holy Law of Shariat

151. Which of the following was a garrison town constructed by Sultan Alaudin Khilji:
(1) Delhi-i-Kunha
(2) Siri
(3) Jahanpanah
(4) Kilokhari

152. Vasco da Gama was:
(1) Portuguese sailor
(2) Dutch sailor
(3) French sailor
(4) English sailor

153. Who was the Revenue Minister of Akbar?
(1) Bharmal
(2) Todor Mal
(3) Man Singh
(4) Raja Jai Singh
154. What did the Gonds [tribe] practice?
(1) Hunting-gathering
(2) Trading
(3) Shifting cultivation
(4) Weaving

155. The sixteenth century religious ferment in Europe?
(1) Reformation
(2) Renaissance
(3) Counter-Reformation
(4) Absolutism

156. Who persuaded Mahatma Gandhi to allow women in 'Salt Satyagraha'?
(1) Ambabai
(2) Mira Behn
(3) Sarojini Naidu
(4) Kasturba Gandhi

157. "Behind The five year plan lies the conception of India's Unity", was said by:
(1) Jawahar Lal Nehru
(2) Vallabhbhai Patel
(3) Dr. B.R. Ambedkar
(4) Mahatma Gandhi

158. Which of the following two gases form the bulk of atmosphere?
(1) Carbondioxide and Oxygen
(2) Nitrogen and Oxygen
(3) Ozone and Nitrogen
(4) Carbondioxide & Nitrogen

159. Sal, Teak, Neem and Sheesham are hardwood trees found in:
(1) Tropical Deciduous forests
(2) Tropical Evergreen forests
(3) Temperate Deciduous forests
(4) Temperate Evergreen forests
160. Which one of the following gas causes Acid Rain?

(1) Carbon dioxide
(2) Sulphur dioxide
(3) Oxygen
(4) Argon

161. EL Nino is:

(1) An Ocean current
(2) A Tropical Cyclone
(3) A periodic increase in the temperature of Eastern Pacific Ocean
(4) None of the above

162. In which state of India is Majuli, the largest river island of the world located?

(1) West Bengal
(2) Assam
(3) Bihar
(4) Orissa

163. The Transform boundary is formed:

(1) When plates move towards each others
(2) When plates move away from each others
(3) When plates move horizontally past each others
(4) When one plate slides under the other

164. Which of the following characteristics represent the age-sex pyramid of India:

(1) Broad base and rapidly narrow at the top
(2) Broad in younger age groups and narrow at the top
(3) Narrow at base, broad in the middle and narrow at the top
(4) Narrow at base and broad at the top
165. Information technology, wellness, hospitality and knowledge fall under which category of Industries:

(1) Heavy Industries
(2) Private Sector Industries
(3) Joint Sector Industries
(4) Sunrise Industries

166. What is the cultivation of Grapes known as:

(1) Pisciculture
(2) Sericulture
(3) Horticulture
(4) Viticulture

167. ‘Golden Fibre’ refers to:

(1) Tea
(2) Jute
(3) Cotton
(4) Coffee

168. Mulching, contains barriers, Inter cropping and terrace farming are methods of:

(1) Land conservation
(2) Water conservation
(3) Soil conservation
(4) Forest Conservation

169. The continents of North America and South America are linked by:

(1) An Isthmus
(2) A Strait
(3) A Canal
(4) A Peninsula

170. Untouchability has been abolished under the following article of the Constitution:

(1) Art. 14
(2) Art. 15
(3) Art. 16
(4) Art. 17
171. Which of the following is not a Fundamental Right:

(1) Right to Equality
(2) Right to Freedom
(3) Right to Work
(4) Right to Education

172. Which of the following can make laws on subjects mentioned in Concurrent List of Indian Constitution:

(1) State Assembly
(2) Panchayat
(3) Parliament of India
(4) State Assembly and Parliament of India

173. Who succeeded Dr. Rajendra Prasad as President of India:

(1) Dr. Zakir Hussain
(2) Dr. S. Radhakrishnan
(3) Dr. N. Sanjeeva Reddy
(4) Dr. V. V. Giri

174. Which of the following National Political Parties was formed before Independence:

(1) Jansangh
(2) Swatantra Party
(3) Communist Party of India
(4) All of the above

175. Chipko Movement is related to:

(1) Wildlife Protection of India
(2) Stopping of cutting of trees
(3) Narmada Dam
(4) Tehri Dam
176. The Indian Constitution is based on the following features:

(a) Federalism
(b) Self Government
(c) Distribution of Powers
(d) Blend of rigidity and flexibility

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

177. Which of the following Fundamental Rights will get violated:

<table>
<thead>
<tr>
<th>LIST I</th>
<th>LIST II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) If a 10 years old child is working in a Tea Stall</td>
<td>A. Right to Equality</td>
</tr>
<tr>
<td>(2) If a leader of one State does not allow labourer from other States to work in his State</td>
<td>B. Right to Freedom</td>
</tr>
<tr>
<td>(3) If a group are not given permission to open Telugu Medium School in Gujarat</td>
<td>C. Right against Exploitation</td>
</tr>
<tr>
<td>(4) If the Government decides not to promote an officer in force because she is a woman</td>
<td>D. Cultural and Educational Rights</td>
</tr>
</tbody>
</table>

A B C D
(a) 1 2 3 4
(b) 4 1 2 3
(c) 4 2 1 3
(d) 2 3 4 1
178. By the 71st Amendment Act, 1992 which of the following language was not included in the Constitution of India:

(1) Konkani
(2) Sindhi
(3) Manipuri
(4) Nepali

179. The number of nominated members in both the Houses of Parliament is:

(1) 10
(2) 12
(3) 14
(4) 20

180. In the Constitution Right to Education has been put under:

(1) Art. 14
(2) Art. 20
(3) Art. 21
(4) Art. 21A