

PART C

NUMERICAL APTITUDE

101. If $p = 124$, $\sqrt[3]{p(p^2+3p+3)+1} = ?$
 (A) 5 (B) 7
 (C) 123 (D) 125
102. If $\sqrt{1-\frac{x^3}{100}} = \frac{3}{5}$ then x equals
 (A) 2 (B) 4
 (C) 16 (D) $(136)^{1/3}$
103. If multiplied a natural number by 18 and another by 21 and added the products. Which one of the following could be the sum?
 (A) 2007 (B) 2008
 (C) 2006 (D) 2002
104. The product of two numbers is 45 and their difference is 4. The sum squares of the two numbers is
 (A) 135 (B) 240
 (C) 73 (D) 106
105. $\sqrt{8+\sqrt{57+\sqrt{38+\sqrt{108+\sqrt{160}}}}} = ?$
 (A) 4 (B) 6
 (C) 8 (D) 10
106. The square of $14 + 6\sqrt{5}$ is
 (A) $2\sqrt{5}$ (B) $3\sqrt{5}$
 (C) $6\sqrt{3}$ (D) $3\sqrt{2}$
107. When 2^{31} is divided by 5 the remainder is
 (A) 4 (B) 3
 (C) 2 (D) 1
108. The value of $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}}}}$ is
 (A) $\frac{21}{13}$ (B) $\frac{17}{3}$
 (C) $\frac{34}{21}$ (D) $\frac{8}{5}$
109. The unit digit in the product $(122)^{123}$
 (A) 2 (B) 4
 (C) 6 (D) 8
110. The value of $\frac{2+\sqrt{3}}{2-\sqrt{3}} + \frac{2-\sqrt{3}}{2+\sqrt{3}} + \frac{\sqrt{3}+1}{\sqrt{3}-1}$ is
 (A) $16+\sqrt{3}$
 (B) $4+\sqrt{3}$
 (C) $2-\sqrt{3}$
 (D) $2+\sqrt{3}$
111. If $a + b - 2a + 3b - ab$, then the value of $(3 - 5 + 5 \div 3)$ is
 (A) 10 (B) 6
 (C) 4 (D) 2
112. Simplify $\frac{0.0347 \times 0.0347 \times 0.0347 \times (0.9653)^3}{(0.0347)^2 - (0.347)(0.09653) + (0.9653)^2}$
 (A) 0.9306 (B) 1.0009
 (C) 1.0050 (D) 1

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113. A copper wire is bent in the form of and equilateral triangle and has area $123\sqrt{3}$ cm². If the same wire is bent into the form of a circle, the area (in cm²) enclosed by the wire is (Take $\pi = \frac{22}{7}$)
- (A) 364.5 (B) 693.5
(C) 346.5 (D) 639.5
114. A child reshapes a cone make up of clay of height 24 cm and radius 6 cm into a sphere. The radius (in cm) of the sphere is
- (A) 6 (B) 12
(C) 24 (D) 48
115. Water flows into a trunk which is 200 m long and 150 m wide, through a pipe of cross-section $0.3 \text{ m} \times 0.2 \text{ m}$ at 20 km/hour. Then the time (in hours) for the water level in the tank to reach 8 m is
- (A) 50 (B) 120
(C) 150 (D) 200
116. The product of two numbers is 2028 and their H.C.F. is 13. The number of such pairs is
- (A) 1 (B) 2
(C) 3 (D) 4
117. Two equal vessels are filled with the mixtures of water and milk in the ratio of 3 : 4 and 5 : 3 respectively. If the mixtures are poured into a third vessel, the ratio of water and milk in the third vessel will be
- (A) 15 : 12 (B) 53 : 59
(C) 20 : 9 (D) 59 : 53
118. I am three times as old as my son. 15 years hence, I will be twice as old as my son. The sum of our ages is
- (A) 48 years (B) 60 years
(C) 84 years (D) 72 years
119. Three bells ring simultaneously at 11 a.m. They ring at regular intervals of 20 minute 30 minutes, 40 minutes respectively. The time when all the three ring together next
- (A) 2 p.m. (B) 1 p.m.
(C) 1.15 p.m. (D) 1.30 p.m.
120. A and B together can do a work in 12 days. B and together do it in 15 days. If A efficiency is twice that of C, then the day required for B alone to finish the work is
- (A) 50 (B) 30
(C) 20 (D) 15
121. A and B can do a work in 12 days, B and C can do the same work in 15 days, C and A can do the same work in 20 days. The time taken by A, B and C to do the same work it
- (A) 5 days (B) 10 days
(C) 15 days (D) 20 days
122. A is 60% as efficient as B.C does half of the work done by A and B together. If C alone does the work in 20 days, then A, B and C together can do the work in
- (A) $5\frac{2}{3}$ days (B) $6\frac{2}{3}$ days
(C) 6 days (D) 7 days
123. The ratio of the volumes in water and glycerin in 240 cc of a mixture is 1 : 3. The quantity of water (in cc) that should be added to the mixture so that the new ratio of the volumes of water and glycerin becomes 2 : 3 is
- (A) 55 (B) 60
(C) 62.5 (D) 64
124. At present, the ratio of the ages of Maya and Chaya is 6 : 5 and fifteen years from now, the ratio will get changed to 9 : 8, Maya's present age is
- (A) 21 years (B) 24 years
(C) 30 years (D) 40 years
125. The ratio of the income to the expenditure of a family is 10 : 7. If the family expenses are Rs. 10,500, then the savings of the family is
- (A) Rs. 4,500 (B) Rs. 10,000
(C) Rs. 4,000 (D) Rs. 5,000
126. The average mathematics marks of two Sections A and B of Class IX in the annual

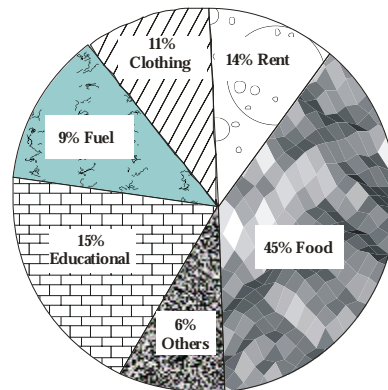
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- examination is 74. The average marks of Section A is 77.5 and that of Section B is 70. The ratio of the number of students of Sections A and B is
- (A) 7 : 8 (B) 7 : 5
(C) 8 : 7 (D) 8 : 5
127. The average weight of a group of 20 boys was calculated to be 89.4 kg and it was later discovered that one weight was misread as 78 kg instead of 87 kg. The correct average weight is
- (A) 88.95 kg (B) 89.25 kg
(C) 89.55 kg (D) 89.85 kg
128. The diameter of a wheel is 98 cm dominor of revolutions in which it will to cover a distance of 1540 m is
- (A) 500 (B) 600
(C) 700 (D) 800
129. In an equilateral triangle ABC of side to the side BC is trisected at D. Then length (in cm) of AD is
- (A) $3\sqrt{7}$ (B) $7\sqrt{3}$
(C) $\frac{10\sqrt{7}}{3}$ (D) $\frac{7\sqrt{10}}{3}$
130. The cost price of an article of Rs. 800. At allowing a discount of 10%, a gain of 12 was made. Them the market price of article is
- (A) Rs. 1,000 (B) Rs. 1,100
(C) Rs. 1,200 (D) Rs. 1,300
131. A man bought an article listed at Rs. 1500 with a discount of 20% offered on the listed price. What additional discount must offered to the man to bring the net price Rs. 1,104?
- (A) 8% (B) 10%
(C) 12% (D) 15%
132. If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = 3$, then $\frac{2a^2+3c^2+4e^2}{2b^2+3d^2+4f^2}$
- (A) 2 (B) 3
(C) 4 (D) 9
133. The part of a room is of size 4 m × 3 m and its height is 3 m. The walls and ceiling of the room require painting. The area to be painted is
- (A) 66 m² (B) 54 m²
(C) 43 m² (D) 33 m²
134. When the price of an article was reduced by 20% its sale increased by 80%. What was the net effect on the sale?
- (A) 44% increase (B) 44% decrease
(C) 66% increase (D) 75% increase
135. The price of sugar goes up by 20%. If a housewife wants the expenses on sugar to remain the same, she should reduce the consumption by
- (A) $15\frac{1}{5}\%$ (B) $16\frac{2}{3}\%$
(C) 20% (D) 25%
136. In a factory 60% of the workers are above 30 years and of these 75% are males and the rest are females. If there are 1350 male workers above 30 years, the total number of workers is the factory is
- (A) 3000 (B) 2000
(C) 1800 (D) 1500
137. Walking as $\frac{3}{4}$ of his usual speed, a man is $4\frac{1}{2}$ hours late. His usual time to cover the same distance in hours, is
- (A) $4\frac{1}{2}$ (B) 4
(C) $5\frac{1}{2}$ (D) 5
138. The selling price of 10 oranges in the price of 13 oranges. Then the price percentage is
- (A) 30% (B) 10%
(C) 13% (D) 3%
139. The marked price of a radio is Rs. 480, shopkeeper allows a discount of 10% gains

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- 8%. If no discount is allowed, his percent would be
 (A) 18% (B) 18.5%
 (C) 20.5% (D) 20%
140. A man sold 20 apples for Rs. 100 gained 20%. How many apples did he buy Rs. 100?
 (A) 20 (B) 22
 (C) 24 (D) 25
141. A rectangular sheet of metal is 40 cm, 15 cm. Equal squares of side 4 cm are cut at the corners and the remainder is fold up to form an open rectangular box. The volume of the box is
 (A) 896 cm^3 (B) 986 cm^3
 (C) 600 cm^3 (D) 916 cm^3
142. If 78 is divided into three parts which are the ratio $1 : \frac{1}{3} : \frac{1}{6}$, the middle part is
 (A) $9\frac{1}{3}$ (B) 13
 (C) $17\frac{1}{3}$ (D) $18\frac{1}{3}$
143. The simple interest on a sum of money is $\frac{1}{9}$ of the principal and the number of years is equal to rate percent are annum. The rate per annum is
 (A) 3% (B) $\frac{1}{3}\%$
 (C) $3\frac{1}{3}\%$ (D) $\frac{3}{10}\%$
144. The difference between simple interest and compound interest of a certain sum of money at 20% per annum for 2 years is Rs. 48. Then the sum is
 (A) Rs. 1,000 (B) Rs. 1,200
 (C) Rs. 1,500 (D) Rs. 2,000
145. Shri X goes to his office by scoter at a speed of 30 km/h and reaches 6 minutes earlier. If he goes at a speed of 24 km/h, he reaches 5 minutes late. The distance to his office is
 (A) 20 km (B) 21 km
 (C) 22 km (D) 24 km
146. A sum of money becomes eight times in 3 years, if the rate is compounded annually. In low much time will the same amount at the same compound rate become sixteen times?
 (A) 6 years (B) 4 years
 (C) 8 years (D) 5 years

Directions: (Questions No. 147 to 150). The pie chart given below shows the spending of a family on various heads during a month. Study the graph and answer questions 147to 150.



147. If the total income of the family is Rs. 25,000, then the amount spent of Rent and Food together is
 (A) Rs. 17,250 (B) Rs. 14,750
 (C) Rs. 11,250 (D) Rs. 8,500
148. What is the ratio of the expenses of Education to the expenses on Food?
 (A) 1 : 3 (B) 3 : 1
 (C) 3 : 5 (D) 5 : 3
149. Expenditure of Rent is what percent of expenditure of Fuel?
 (A) 135% (B) 156%
 (C) 167% (D) 172%

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150. Which three expenditures together have a central angle of 108° ?
- (A) Fuel, Clothing and Others
(B) Fuel, Education and Others
(C) Clothing, Rent and Others
(D) Education, Rent and Others
148. The L.C.M. of two numbers is 4284 and the H.C.F. is 34. If one of the number is 20 the other number is
- (A) 714 (B) 814
(C) 914 (D) 614

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147. A train covers 50% of the journey 30 km/h, 25% of the journey at 25 km/h at the remaining at 20 km/h. The average speed (in km/h) of the train during the journey is
- (A) $25\frac{25}{17}$ (B) $25\frac{47}{25}$
(C) $25\frac{52}{74}$ (D) $25\frac{27}{74}$
149. The volumes of two cylinders are in the ratio 5 : 8 and their heights are in the ratio 2 : 8. Then the ratio of their diameters is
- (A) 3 : 8 (B) 4 : 3
(C) 3 : 4 (D) 2 : 3
150. A and B are partners in a business sharing profits in the ratio 4 : 5. They admit C into their business and they decide to share the profits in the ratio 2 : 3 : 1. To accommodate C, by what ratio to A and B have to give their share of point?
- (A) 3 : 1 (B) 2 : 1
(C) 1 : 2 (D) 1 : 3

ANSWER SHEET

101. (d) 102. (b) 103. (a) 104. (d) 105. (a) 106. (b) 107. (b) 108. (c) 109. (a) 110. (a)
111. (a) 112. (d) 113. (c) 114. (a) 115. (d) 116. (d) 117. (d) 118. (b) 119. (b) 120. (c)
121. (b) 122. (b) 123. (b) 124. (c) 125. (a) 126. (c) 127. (d) 128. (a) 129. (c) 130. (a)
131. (a) 132. (d) 133. (b) 134. (a) 135. (b) 136. (a) 137. (a) 138. (a) 139. (d) 140. (c)
141. (a) 142. (c) 143. (c) 144. (b) 145. (c) 146. (b) 147. (b) 148. (a) 149. (b) 150. (b)



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