

## QUANTITATIVE APTITUDE

101.  $\left(\frac{1}{10}\right)^{\text{th}}$  of  $\left(\frac{2}{4}\right)^{\text{th}}$  of a number is 240.  
What is the number?  
(A) 12 (B) 1200  
(C) 4800 (D) 48
102. If  $\sqrt{15 - x\sqrt{14}} = \sqrt{8} - \sqrt{7}$ ,  
then the value of  $x$  is  
(A) 2 (B)  $\sqrt{2}$   
(C) 4 (D) 7
103. The next term of the series  
325, 259, 204, 160, 127, 105,..... is  
(A) 95 (B) 94  
(C) 102 (D) 101
104. The simplified form of  $\frac{17 + 12\sqrt{2}}{3 + 2\sqrt{2}}$  is  
(A)  $11\frac{2}{3}$  (B) 19  
(C)  $3 + 2\sqrt{2}$  (D)  $3 - 2\sqrt{2}$
105. The least number which must be  
subtracted from 2361 to make it a  
perfect square is  
(A) 77 (B) 67  
(C) 57 (D) 47
106. A and B can together do a piece of  
work in 6 days. If B can do the work  
by himself in 8 days, how many days  
will A take to do the work  
independently?  
(A) 24 days (B) 14 days  
(C) 2 days (D) 22 days
107. A does half as much work as B, and  
C does half as much work as A and B  
together. If C alone can finish the  
work in 40 days, then all together  
will finish the work in  
(A)  $13\frac{1}{3}$  days (B) 15 days  
(C) 20 days (D) 30 days
108. A dealer buys a table listed at ₹ 1,500  
and gets successive discounts of 20%  
and 10%. He spends ₹ 20 on  
transportation and sells it at a profit of  
20%. The selling price of the table is  
(A) ₹ 1,320 (B) ₹ 1,350  
(C) ₹ 1,360 (D) ₹ 1,380
109. A pair of articles was bought for  
₹ 37.40 at a discount of 15%. What  
must be the marked price of each of  
the articles?  
(A) ₹ 11 (B) ₹ 44  
(C) ₹ 33 (D) ₹ 22
110. In a relief camp of 550 men, the food  
was enough for 28 days. If 150 more  
people joined in the camp, the same  
amount of food will be enough for  
(A) 22 days (B) 35 days  
(C) 25 days (D) 10 days
111. A bag contains ₹ 121 in the form of  
1 rupee, 50 paise and 25 paise coins  
in the ratio 1 : 2 : 3. Find the number  
of each type of coins (1Re, 50P, 25P  
respectively).  
(A) 40, 92, 140 (B) 42, 92, 132  
(C) 45, 90, 132 (D) 44, 88, 132
112. There were 984 mangoes on 12 trees  
of a mango-garden. What will be the  
average number of mangoes per tree  
after taking down 26 mangoes in  
average from 5 trees and 38 mangoes  
in average from 7 trees?  
(A) 53 (B) 49 (C) 45 (D) 39



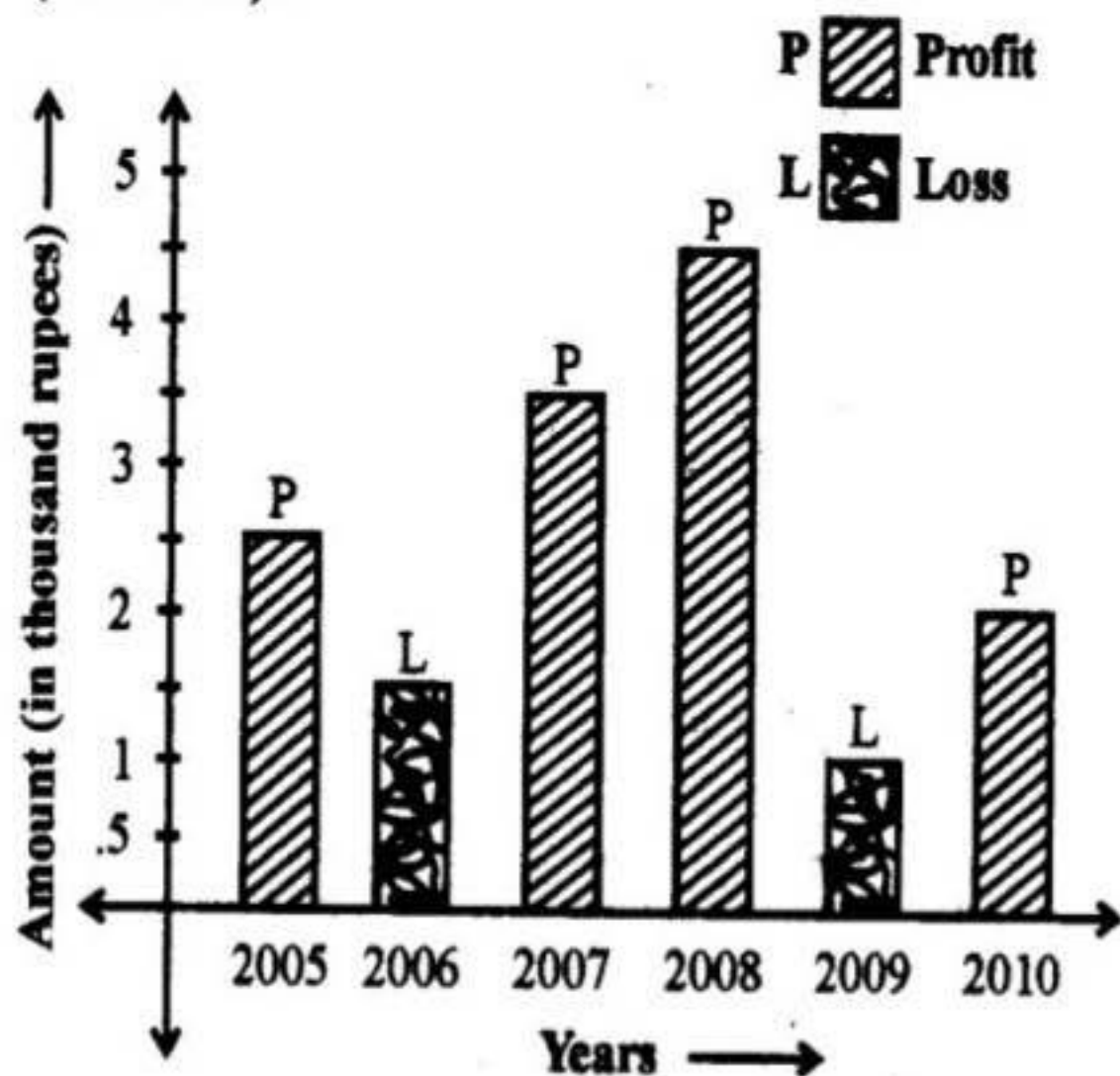
113. The average age of a class is 15.8 years. The average age of the boys in the class is 16.4 years, while that of the girls is 15.4 years. What is the ratio of boys to girls in the class?  
 (A) 1 : 2 (B) 3 : 4  
 (C) 3 : 5 (D) None of these
114. A man sells an article at a profit of 25%. If he had bought it at 20% less and sold it for ₹ 10.50 less, he would have gained 30%. Find the cost price (in rupees) of the article.  
 (A) 50 (B) 20 (C) 25 (D) 35
115. Rahul had 200 mangoes. He sold 30 mangoes at 25% gain, 40 mangoes at 20% gain, 60 mangoes at 10% gain and 70 mangoes at 10% loss. His net gain/loss percentage is  
 (A) 7% gain (B) 7% loss  
 (C)  $7\frac{1}{4}\%$  gain (D)  $7\frac{1}{4}\%$  loss
116. 13% of a number exceeds 5% of the same by 16. The number is  
 (A) 500 (B) 450 (C) 300 (D) 200
117. If A's salary is  $33\frac{1}{3}\%$  less than B's salary, by how much percentage is B's salary more than A's?  
 (A) 20 (B) 25 (C) 50 (D)  $16\frac{2}{3}$
118. An aeroplane covers a certain distance at a speed of 240 km/hr in 5 hours. To cover the same distance in  $1\frac{2}{3}$  hours, it must travel at a speed (in km/hr) of  
 (A) 300 (B) 360 (C) 600 (D) 720
119. ₹ 25,000 is borrowed at compound interest at the rate of 3% for the first year, 4% for the second year and 5% for the third year. The amount to be paid after 3 years is  
 (A) ₹ 28,119 (B) ₹ 29,118  
 (C) ₹ 28,129 (D) ₹ 28,117
120. If the diameter of a circle is increased by 100%, its area is increased by  
 (A) 300% (B) 400%  
 (C) 100% (D) 200%
121. The perimeter of an isosceles triangle is 18 cm. Its lateral side and the base are in the ratio 7 : 4. The area of the triangle is  
 (A)  $8\sqrt{5}$  cm<sup>2</sup> (B)  $6\sqrt{5}$  cm<sup>2</sup>  
 (C)  $4\sqrt{5}$  cm<sup>2</sup> (D)  $10\sqrt{5}$  cm<sup>2</sup>
122. Areas of three adjacent faces of a rectangular parallelepiped are 12 sq.m., 15 sq.m. and 20 sq.m. The volume (in cu.m.) of the parallelepiped is  
 (A) 80 (B) 30 (C) 40 (D) 60
123. If the volumes of two cones are in the ratio 1 : 4 and the diameters of their bases are in the ratio 4 : 5, then the ratio of their heights is  
 (A) 1 : 25 (B) 25 : 16  
 (C) 16 : 125 (D) 25 : 64
124. The length of a hollow thick cylindrical metallic pipe is 6 cm and its total surface area including the surface at the ends is  $98\pi$  sq. cm. If the outer diameter is 8 cm, then the inner diameter in cm is  
 (A) 6.5 (B) 7 (C) 5 (D) 6
125. An open box is made of wood 3 cm thick. Its external dimensions are 1.36 m, 1.06 m and 8.3 dm. The cost of painting the inner surface of the box at 50 paise per 100 sq. cm (in ₹) is  
 (A) 232 (B) 246 (C) 249 (D) 256
126. A spherical ball of lead 3 cm in diameter is melted and recast into three spherical balls. The diameter of two of these are 1.5 cm and 2 cm respectively. The diameter of the third ball is  
 (A) 1.4 cm (B) 1.8 cm  
 (C) 2.1 cm (D) 2.5 cm



127. If  $x = 2 + \sqrt{3}$ , then the value of  $x^2 - 4x + 2$  is  
 (A) 1 (B) 2 (C) 3 (D) 4
128. The circumradius of the triangle formed by the straight line  $3x + 4y = 12$  and the coordinate axes is  
 (A)  $5/2$  (B)  $3/2$  (C) 2 (D) 6
129. If  $x \left(3 - \frac{2}{x}\right) = \frac{3}{x}$ , then value of  $x^2 + \frac{1}{x^2}$  is  
 (A)  $1\frac{1}{9}$  (B)  $2\frac{4}{9}$  (C)  $3\frac{5}{9}$  (D)  $4\frac{7}{9}$
130. If  $a^2 + b^2 - c^2 = 0$ , then the value of  $\frac{a^6 + b^6 - c^6}{a^2 b^2 c^2}$  is  
 (A) 0 (B) 3 (C) -3 (D) 1
131. If  $a, b, c, d$  are four non-negative real numbers and  $a + b + c + d = 1$ , then the maximum value of  $ab + bc + cd$  is  
 (A) 3 (B) 1 (C)  $\frac{1}{2}$  (D)  $\frac{1}{4}$
132. If  $P$  and  $Q$  are the middle points of the sides  $AB$  and  $AC$  respectively of a triangle  $ABC$ ,  $X$  is any point on  $BC$  and  $AX$  meets  $PQ$  at  $O$ , then the length  $AO$  is equal to  
 (A)  $\frac{1}{2} AX$  (B)  $\frac{1}{3} AX$   
 (C)  $PQ$  (D)  $AP$
133.  $ABCD$  is a parallelogram with  $AB = 10$  cm,  $AD = 6$  cm. The bisector of  $\angle A$  meets  $DC$  in  $E$ , and is extended to meet  $BC$  produced at  $F$ .  $CF$  is  
 (A) 4 cm (B) 2 cm  
 (C) 6 cm (D) 8 cm
134. The radius of a circle is 13 cm and  $AB$  is a chord which is at a distance of 12 cm from the centre. Then the length of the chord is  
 (A) 16 cm (B) 10 cm  
 (C) 8 cm (D) 15 cm
135. Radius of the incircle of an equilateral  $\triangle ABC$  of sides  $\sqrt{3}$  units is  
 (A)  $\frac{3}{2}$  units (B)  $\frac{1}{2}$  units  
 (C)  $\frac{3}{4}$  units (D)  $\frac{1}{4}$  units
136. Radii of two circles are 7 cm and 3 cm. If one of these lies wholly inside the other, then the distance between their centres is  
 (A) 4 cm (B) more than 5 cm  
 (C) less than 4 cm (D) none of these
137. The sum of two angles is  $135^\circ$  and their difference is  $\frac{\pi}{2}$ . The value of the greater angle in radian is  
 (A)  $5\frac{\pi}{8}$  (B)  $\frac{\pi}{2}$  (C)  $3\frac{\pi}{8}$  (D)  $\frac{\pi}{8}$
138. A guard observes an enemy boat, from an observation tower at a height of 180 metre above sea level, to be at an angle of depression of  $60^\circ$ . The distance of the boat from the foot of the observation tower is  
 (A) 180 metre (B)  $180\sqrt{3}$  metre  
 (C)  $60\sqrt{3}$  metre (D) 60 metre
139. If  $\tan 22\frac{1}{2}^\circ = x$ , then the value of  $\cos 67\frac{1}{2}^\circ$  is  
 (A)  $\frac{x}{\sqrt{x^2 + 1}}$  (B)  $\frac{1}{\sqrt{x^2 + 1}}$   
 (C)  $\frac{x}{\sqrt{x^2 - 1}}$  (D)  $\frac{1}{\sqrt{x^2 - 1}}$
140. If  $\cos x = \sin y$  and  $\cot(x - 40^\circ) = \tan(50^\circ - y)$ , then the values of  $x$  and  $y$  are  
 (A)  $70^\circ, 20^\circ$  (B)  $85^\circ, 5^\circ$   
 (C)  $80^\circ, 10^\circ$  (D)  $60^\circ, 30^\circ$
141. If  $f(x) = \cos^2 x + \sec^2 x$ , then the minimum value of  $f(x)$  is  
 (A) 1 (B) -1 (C) -2 (D) 2

The following graph shows the Profits and Losses, (in thousand rupees) in a business for the years 2005-2010.

Study the graph and answer questions (142-145):



142. The amount of maximum profit as seen from the diagram is

- (A) 2 thousand rupees  
 (B) 1.5 thousand rupees  
 (C) 1 thousand rupees  
 (D) 4.5 thousand rupees

143. The amount of total loss incurred during 2005-2010 is

- (A) 3 thousand rupees  
 (B) 2.5 thousand rupees  
 (C) 1.5 thousand rupees  
 (D) 2 thousand rupees

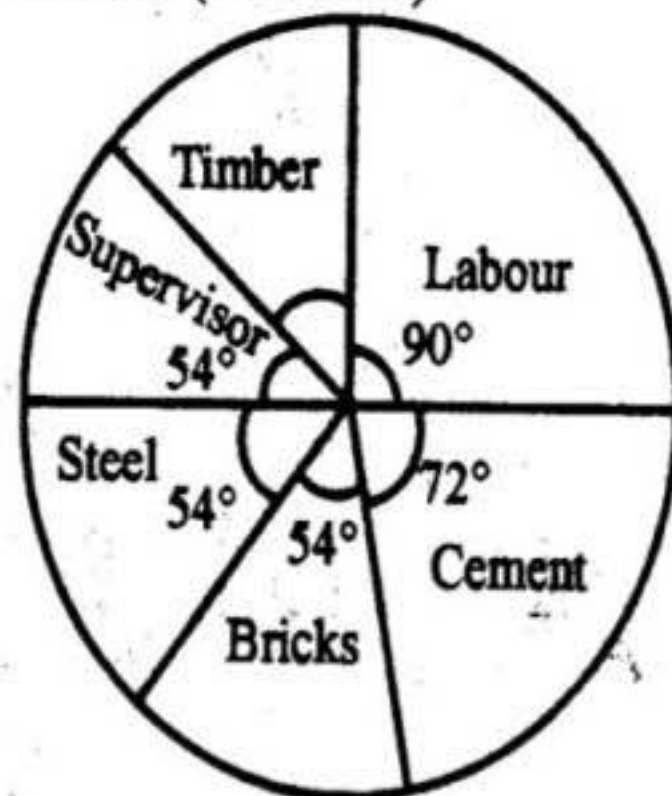
144. The ratio of the maximum profit earned to the minimum loss suffered is

- (A) 4 : 3                      (B) 3 : 4  
 (C) 9 : 2                      (D) 2 : 9

145. If the loss is  $x\%$  of the profit for the years under study, then  $x$  is

- (A) 15                      (B) 25  
 (C) 20                      (D) 19

The pie-graph given below shows the break-up of the cost of construction of a house. Assuming that the total cost of construction is ₹ 6,00,000, answer the Question Nos. (146-150)



146. The amount spent on cement is

- (A) ₹ 2,00,000      (B) ₹ 1,60,000  
 (C) ₹ 1,20,000      (D) ₹ 1,00,000

147. The amount spent on labour exceeds the amount spent on steel by

- (A) 5% of the total cost  
 (B) 10% of the total cost  
 (C) 12% of the total cost  
 (D) 15% of the total cost

148. The amount spent on cement, steel and supervision is what percent of the total cost of construction?

- (A) 40%                      (B) 45%  
 (C) 50%                      (D) 55%

149. The amount spent on labour exceeds the amount spent on supervision by

- (A) ₹ 2,00,000      (B) ₹ 16,000  
 (C) ₹ 1,20,000      (D) ₹ 60,000

150. The amount spent on Timber is

- (A) ₹ 60,000              (B) ₹ 90,000  
 (C) ₹ 1,20,000          (D) ₹ 36,000



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142. A, B and C started a business with ₹ 3 lacs, ₹ 5 lacs and ₹ 6 lacs respectively. A remained in the business throughout the year. After 6 months, B invested ₹ 4 lacs more and C left the business 2 months before the end of the year. If the total profit was ₹ 3 lacs, then how much more profit did B get than C? (in ₹)
- (A) ₹ 40,000 (B) ₹ 80,000  
(C) ₹ 20,000 (D) ₹ 1,60,000
143. 22 big lemons bought at the rate of ₹ 10 for 11 and 33 small lemons bought at the rate of ₹ 5 for 11 are mixed and sold at ₹ 12 for 10. The total loss or gain in this transaction is
- (A) Profit of ₹ 31 (B) Loss of ₹ 11  
(C) Profit of ₹ 21 (D) Loss of ₹ 21
144. In an examination, 72% of the students passed in Mathematics and 78% passed in Bengali. If none failed in both the subjects, then what percent of the students passed in both the subjects?
- (A) 55% (B) 60%  
(C) 45% (D) 50%
145. A and B can do a piece of work in 18 days; B and C in 24 days; A and C in 36 days. In what time can they do it all working together?
- (A) 12 days (B) 13 days  
(C) 16 days (D) 26 days

146. Find the difference between the simple and compound interest on ₹ 10,000 for 2 years at 4% per annum.
- (A) ₹ 16 (B) ₹ 18  
(C) ₹ 19 (D) ₹ 31
147. If  $\tan \theta = \cos 30^\circ + \sin 60^\circ$ , then the value of  $\theta$  is
- (A)  $45^\circ$  (B)  $60^\circ$   
(C)  $30^\circ$  (D)  $15^\circ$
148. Manoj covers two-third of a certain distance at 4 km/hr and the remaining at 5 km/hr. If he takes 42 minutes in all to cover the total journey, the distance in km is
- (A) 4 (B) 4.6  
(C) 2.5 (D) 3
149. ABCD is a cyclic trapezium and  $AD \parallel BC$ ,  $\angle ABC = 80^\circ$ , the measure of  $\angle BCD$  is
- (A)  $80^\circ$  (B)  $100^\circ$   
(C)  $60^\circ$  (D)  $110^\circ$
150. A shopkeeper is giving 6 kg of tomatoes at the rate of price ₹ 5 per kg. What should be the mark up on cost price if he wants to make a profit of 20%?
- (A) 25% (B) 50%  
(C) 44% (D) 20%