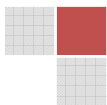


QUANTITATIVE APTITUDE

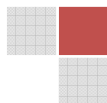
101. The denominator of a fraction is 3 more than its numerator. If the numerator is increased by 7 and the denominator is decreased by 2, we obtain 2. The sum of numerator and denominator of the fraction is
 (A) 5 (B) 13
 (C) 17 (D) 19
102. 47 is added to the product of 71 and an unknown number. The new number is divisible by 7 giving the quotient 98. The unknown number is a multiple of
 (A) 2 (B) 5
 (C) 7 (D) 3
103. The least number which when divided by 16, 18, 20 and 25 leaves 4 as remainder in each case but when divided by 7 leaves no remainder is
 (A) 17004 (B) 18000
 (C) 18002 (D) 18004
104. If the sum of five consecutive integers is S, then the largest of those integers in terms of S is
 (A) $\frac{S-10}{5}$ (B) $\frac{S+4}{4}$
 (C) $\frac{S+5}{4}$ (D) $\frac{S+10}{5}$
105. The greatest among the numbers $3\sqrt{2}$, $3\sqrt{7}$, $6\sqrt{5}$, $2\sqrt{20}$ is
 (A) $3\sqrt{2}$ (B) $3\sqrt{7}$
 (C) $6\sqrt{5}$ (D) $2\sqrt{20}$
106. If a right circular cone is separated into solids of volumes V_1 , V_2 , V_3 by two planes parallel to the base, which also trisect the altitude, then $V_1 : V_2 : V_3$ is
 (A) 1 : 2 : 3 (B) 1 : 4 : 6
 (C) 1 : 6 : 9 (D) 1 : 7 : 19
107. The ratio of the volume of a cube and of a solid sphere is 363 : 49. The ratio of an edge of the cube and the radius of the sphere is (taking $\pi = \frac{22}{7}$)
 (A) 7 : 11 (B) 22 : 7
 (C) 11 : 7 (D) 7 : 22
108. The ratio of the areas of a regular hexagon and an equilateral triangle having same perimeter is
 (A) 2 : 3 (B) 6 : 1
 (C) 3 : 2 (D) 1 : 6
109. If the measure of each interior angle of a regular polygon be 144° , the number of sides of the polygon is
 (A) 10 (B) 20
 (C) 24 (D) 36
110. The base of a right prism is an equilateral triangle of area 173 cm^2 and the volume of the prism is 10380 cm^3 . The area of the lateral surface of the prism is (use $\sqrt{3} = 1.73$)
 (A) 1200 cm^2 (B) 2400 cm^2
 (C) 3600 cm^2 (D) 4380 cm^2



111. If A and B together can finish a piece of work in 20 days, B and C in 10 days and C and A in 12 days, then A, B, C jointly can finish the same work in
 (A) $4\frac{2}{7}$ days (B) 30 days
 (C) $8\frac{4}{7}$ days (D) $\frac{7}{60}$ days ✓
112. A can do a work in 5 days less than the time taken by B to do it. If both of them together take $11\frac{1}{9}$ days, then the time taken by 'B' alone to do the same work (in days) is
 (A) 15 (B) 20
 (C) 25 (D) 30
113. The price of a certain television set is discounted by 10% and the reduced price is then discounted by 10%. This series of successive discounts is equivalent to a single discount of
 (A) 20% (B) 19% ✓
 (C) 18% (D) 11%
114. A hall is 15 m. long and 12 m. broad. If the sum of the areas of the floor and the ceiling is equal to the sum of the areas of the four walls, the volume of the hall, in cu. m. , is
 (A) 720 (B) 900
 (C) 1200 (D) 1800
115. A solid cylinder has total surface area of 462 cm^2 . Its curved surface area is $\frac{1}{3}$ rd of the total surface area. Then the radius of the cylinder is
 (A) 7 cm (B) 3.5 cm
 (C) 9 cm (D) 11 cm
116. Acid and water are mixed in a vessel A in the ratio of 5 : 2 and in the vessel B in the ratio 8 : 5. In what proportion should quantities be taken out from the two vessels so as to form a mixture in which the acid and water will be in the ratio of 9 : 4 ?
 (A) 7 : 2 (B) 2 : 7
 (C) 7 : 4 (D) 2 : 3
117. The average of x numbers is y and average of y numbers is x . Then the average of all the numbers taken together is
 (A) $\frac{x+y}{2xy}$ (B) $\frac{2xy}{x+y}$ ✓
 (C) $\frac{x^2+y^2}{x+y}$ (D) $\frac{xy}{x+y}$
118. A tabulator while calculating the average marks of 100 students of an examination, by mistake enters 68, instead of 86 and obtained the average as 58; the actual average marks of those students is
 (A) 58.18 (B) 57.82
 (C) 58.81 (D) 57.28
119. Rahim bought a T.V. with 20% discount on list price. Had he bought it with 25% discount he would have saved ₹ 500. At what price did he buy the T.V ?
 (A) ₹ 16,000 (B) ₹ 12,000
 (C) ₹ 10,000 (D) ₹ 8,000
120. If $\frac{a}{3} = \frac{b}{2}$, then value of $\frac{2a+3b}{3a-2b}$ is
 (A) $\frac{12}{5}$ (B) $\frac{5}{12}$
 (C) 1 (D) $\frac{12}{7}$



121. Three persons A, B, C whose salaries together amount to ₹ 72000 spend 80, 85 and 75 percent of their salaries respectively. If their savings are in the ratio 8 : 9 : 20, then A's salary is
 (A) ₹ 20,000 (B) ₹ 16,000
 (C) ₹ 22,000 (D) ₹ 18,000
122. Two solutions of 90% and 97% purity are mixed, resulting in 21 litres of mixture of 94% purity. The quantity of the second solution in the resulting mixture, in litres, is
 (A) 15 (B) 12
 (C) 9 (D) 6
123. A boat travels 24 km upstream in 6 hours and 20 km downstream in 4 hours. Then the speed of boat in still water and the speed of water current are respectively
 (A) 4 kmph and 3 kmph
 (B) 4.5 kmph and 0.5 kmph
 (C) 4 kmph and 2 kmph
 (D) 5 kmph and 2 kmph
124. A shopman bought pens at the rate of 7 for ₹ 10 and sold them at a profit of 40%. How many pens would a customer get for ₹ 10 ?
 (A) 6 (B) 4
 (C) 5 (D) 3
125. If the cost-price of 10 articles is equal to the sale-price of 16 articles, then the gain or loss percent is
 (A) 28% profit (B) $37\frac{1}{2}$ % profit
 (C) 28% loss (D) $37\frac{1}{2}$ % loss
126. If $x = \frac{4ab}{a+b}$, ($a \neq b$), the value of $\frac{x+2a}{x-2a} + \frac{x+2b}{x-2b}$ is
 (A) a (B) b
 (C) 2ab (D) 2
127. If $x = b + c - 2a$, $y = c + a - 2b$, $z = a + b - 2c$, then the value of $x^2 + y^2 - z^2 + 2xy$ is
 (A) 0 (B) $a + b + c$
 (C) $a - b + c$ (D) $a + b - c$
128. If $(a - 1)^2 + (b + 2)^2 + (c + 1)^2 = 0$, then the value of $2a - 3b + 7c$ is
 (A) 12 (B) 3
 (C) -11 (D) 1
129. $(y - z)^3 + (z - x)^3 + (x - y)^3$ is equal to
 (A) $3(y - z)(z + x)(y - x)$
 (B) $(x - y)(y + z)(x - z)$
 (C) $3(y - z)(z - x)(x - y)$
 (D) $(y - z)(z - x)(x - y)$
130. If the difference between simple interest and compound interest on a certain sum of money for 3 years at 10% per annum is ₹ 31, the sum is
 (A) ₹ 500 (B) ₹ 750
 (C) ₹ 1000 (D) ₹ 1250
131. If $x + \frac{1}{4x} = \frac{3}{2}$ find the value of $8x^3 + \frac{1}{8x^3}$
 (A) 18 (B) 36
 (C) 24 (D) 16

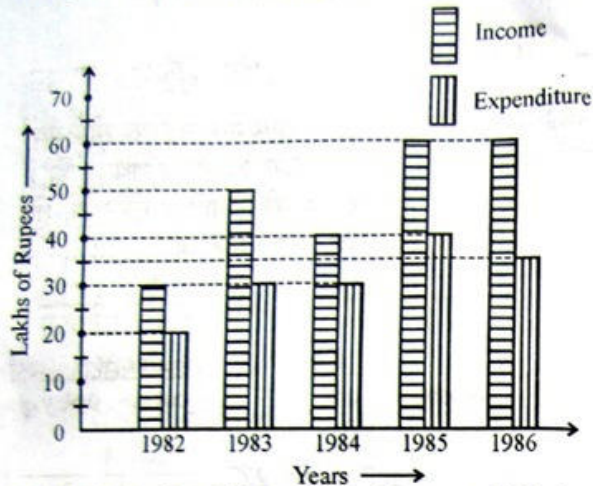


132. O is the incentre of $\triangle ABC$ and $\angle A = 30^\circ$, then $\angle BOC$ is
 (A) 100° (B) 105°
 (C) 110° (D) 90°
133. The length of two chords AB and AC of a circle are 8 cm and 6 cm and $\angle BAC = 90^\circ$, then the radius of circle is
 (A) 25 cm (B) 20 cm
 (C) 4 cm (D) 5 cm
134. The point D and E are taken on the sides AB and AC of $\triangle ABC$ such that $AD = \frac{1}{3} AB$, $AE = \frac{1}{3} AC$. If the length of BC is 15 cm, then the length of DE is:
 (A) 10 cm (B) 8 cm
 (C) 6 cm (D) 5 cm
135. The side AB of a parallelogram ABCD is produced to E in such way that $BE = AB$. DE intersects BC at Q. The point Q divides BC in the ratio
 (A) 1 : 2 (B) 1 : 1
 (C) 2 : 3 (D) 2 : 1
136. If a chord of a circle of radius 5 cm is a tangent to a circle of radius 3 cm, both the circles being concentric, then the length of the chord is
 (A) 10 cm (B) 12.5 cm
 (C) 8 cm (D) 7 cm
137. The value of $\sin^2 1^\circ + \sin^2 5^\circ + \sin^2 9^\circ + \dots + \sin^2 89^\circ$ is
 (A) $11\frac{1}{2}$ (B) $11\sqrt{2}$
 (C) 11 (D) $\frac{11}{\sqrt{2}}$
138. The angles of elevation of the top of a building from the top and bottom of a tree are x and y respectively. If the height of the tree is h m, then, in m, the height of the building is
 (A) $\frac{h \cot x}{\cot x + \cot y}$ (B) $\frac{h \cot y}{\cot x + \cot y}$
 (C) $\frac{h \cot x}{\cot x - \cot y}$ (D) $\frac{h \cot y}{\cot x - \cot y}$
139. The numerical value of $\cot 18^\circ \left(\cot 72^\circ \cos^2 22^\circ + \frac{1}{\tan 72^\circ \sec^2 68^\circ} \right)$ is
 (A) 1 (B) $\sqrt{2}$
 (C) 3 (D) $\frac{1}{\sqrt{3}}$
140. The simplified value of $(\sec A - \cos A)^2 + (\operatorname{cosec} A - \sin A)^2 - (\cot A - \tan A)^2$ is
 (A) 0 (B) $\frac{1}{2}$
 (C) 1 (D) 2
141. If θ be an acute angle and $7 \sin^2 \theta + 3 \cos^2 \theta = 4$, then the value of $\tan \theta$ is
 (A) $\sqrt{3}$ (B) $\frac{1}{\sqrt{3}}$
 (C) 1 (D) 0



Read the graph and answer questions (142 to 146).

Income and Expenditure of a company over the years (in lakhs of rupees)



142. The ratio of the average income of all the years to the average profit is
 (A) 24 : 13 (B) 48 : 17
 (C) 12 : 7 (D) 6 : 5
143. Percentage increase in profit in 1986 over 1982 is
 (A) 150% (B) 120%
 (C) 100% (D) 80%
144. The total income exceeds the total expenditure over the years 1982 to 1986 by
 (A) 85 lakhs (B) 105 lakhs
 (C) 115 lakhs (D) 120 lakhs
145. What is the difference in profit between 1983 and 1984 (in lakhs of rupees)?
 (A) No profit (B) 5
 (C) 10 (D) 15
146. The number of years in which the income is more than the average income of the given years is
 (A) One (B) Two
 (C) Three (D) Four

Study the following table showing marks obtained by 6 candidates (A, B, C, D, E, and F) in 6 tests conducted in one academic year and answer questions 147 to 150 :

Candidates \ Test	Test-1	Test-2	Test-3	Test-4	Test-5	Test-6	Total
A	60	64	62	66	63	68	383
B	70	62	68	60	58	68	386
C	66	68	70	72	70	74	420
D	59	60	62	63	65	67	376
E	56	58	60	68	62	64	368
F	62	66	68	58	59	65	378

147. Which candidate has shown maximum percentage improvement in Test 6 compared to Test 1?
 (A) A (B) E
 (C) B (D) C
148. In which test have all candidates performed better than in the previous test?
 (A) Test-6 (B) Test-5
 (C) Test-4 (D) Test-2
149. The total marks obtained by the candidates B and F together was the least in the test
 (A) 2 (B) 3
 (C) 4 (D) 5
150. Which of the candidates has shown a steady improvement throughout the academic year?
 (A) A (B) B
 (C) C (D) D