

PART - c : QUANTITATIVE APTITUDE

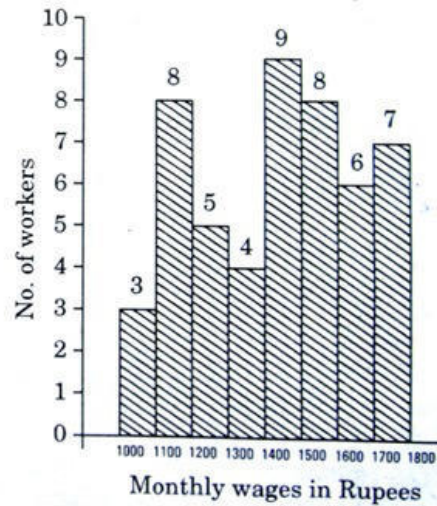
101. A dealer marks his goods 20% above cost price. He then allows some discount on it and marks a profit of 12%. The rate of discount is
 (A) $33\frac{1}{3}\%$ (B) $16\frac{2}{3}\%$
 (C) $6\frac{2}{3}\%$ (D) $6\frac{1}{4}\%$
102. A box filled with paper bundles weighs 36 kg. If the weight of the box and paper bundles respectively are in the ratio of 3 : 22, then the weight of the papers in grams is
 (A) 31500 (B) 31680
 (C) 30680 (D) 30710
103. Two numbers are such that the square of one is 224 less than 8 times the square of the other. If the numbers are in the ratio of 3 : 4, then their values are
 (A) 9, 12 (B) 12, 9
 (C) 12, 16 (D) 6, 8
104. In an exam, the average marks obtained by the students was found to be 60. After omission of computational errors, the average marks of some 100 candidates had to be changed from 60 to 30 and the average with respect to all the examinees came down to 45 marks. The total number of candidates who took the exam, was
 (A) 240 (B) 180
 (C) 200 (D) 210
105. The average pocket money of 3 friends A, B, C is ₹ 80 in a particular month. If B spends double and C spends triple of what A spends during that month and if the average of their unspent pocket money is ₹ 60, then A spends (in ₹)
 (A) 30 (B) 40
 (C) 10 (D) 20
106. An item when sold for ₹ 1,690 earned 30% profit on the cost price. Then the cost price is
 (A) ₹ 1,300 (B) ₹ 130
 (C) ₹ 507 (D) ₹ 630
107. If $\frac{51.84}{4.32} = 12$, then the value of $\frac{0.005184}{0.432}$ is
 (A) 0.0012 (B) 1.2
 (C) 0.12 (D) 0.012
108. The value of $\sqrt[3]{0.000125}$ is
 (A) 0.5 (B) 0.0005
 (C) 0.005 (D) 0.05
109. The number of odd composite divisors of 1848 is
 (A) 2 (B) 1
 (C) 4 (D) 3
110. If $64^{x+1} = \frac{64}{4^x}$, then the value of x is
 (A) $\frac{1}{2}$ (B) 2
 (C) 1 (D) 0
111. I read $\frac{3}{8}$ of a book on one day and $\frac{4}{5}$ of the remainder on another day. If there were 30 pages unread now, how many pages did the book contain?
 (A) 240 (B) 65
 (C) 200 (D) 60
112. The work done by $(x - 1)$ men in $(x + 1)$ days and the work done by $(x + 1)$ men in $(x + 2)$ days are in the ratio 5 : 6. x is
 (A) 8 (B) 6
 (C) 16 (D) 10
113. A contractor undertook to build a road in 100 days. He employed 90 men. After 40 days, he found that $\frac{1}{3}$ could be built. In order to complete the work in time, the number of more men to be employed is
 (A) 120 (B) 54
 (C) 30 (D) 60
114. A dealer purchased a washing machine for ₹ 7,660. After allowing a discount of 12% on its marked price, he still gains 10%. Find the marked price of the washing machine.
 (A) ₹ 8,246 (B) ₹ 9,755
 (C) ₹ 9,575 (D) ₹ 8,426

115. The length of each edge of a regular tetrahedron is 12 cm. The area (in sq. cm) of the total surface of the tetrahedron is
 (A) $108\sqrt{3}$ (B) $144\sqrt{3}$
 (C) $288\sqrt{3}$ (D) $144\sqrt{2}$
116. The heights of two cones are in the ratio 1 : 3 and the diameters of their bases are in the ratio 3 : 5. The ratio of their volumes is
 (A) 6 : 25 (B) 7 : 25
 (C) 3 : 25 (D) 4 : 25
117. The internal radius and thickness of a hollow metallic pipe are 24 cm and 1 cm respectively. It is melted and recast into a solid cylinder of equal length. The diameter of the solid cylinder will be
 (A) 10 cm (B) 5 cm
 (C) 7 cm (D) 14 cm
118. A circle is inscribed in a square whose length of the diagonal is $12\sqrt{2}$ cm. An equilateral triangle is inscribed in that circle. The length of the side of the triangle is
 (A) $6\sqrt{3}$ cm (B) $11\sqrt{3}$ cm
 (C) $4\sqrt{3}$ cm (D) $8\sqrt{3}$ cm
119. If the perimeter of a square and a rectangle are the same, then the areas P and Q enclosed by them would satisfy the condition
 (A) $P > Q$ (B) $P = Q$
 (C) $P < Q$ (D) $P \leq Q$
120. If $x - \frac{1}{x} = 3$, the value of $x^3 - \frac{1}{x^3}$ is
 (A) 40 (B) 49
 (C) 32 (D) 36
121. The x-intercept of the graph of $5x + 6y = 30$ is
 (A) 6 units (B) 15 units
 (C) 4 units (D) 5 units
122. If $m^4 + \frac{1}{m^4} = 119$, then $m - \frac{1}{m} = ?$
 (A) ± 2 (B) ± 1
 (C) ± 3 (D) 4
123. If $ax + by = 3$, $bx - ay = 4$ and $x^2 + y^2 = 1$, then the value of $a^2 + b^2$ is
 (A) -1 (B) -25
 (C) 1 (D) 25
124. A man purchased an article and sold it to B at a profit of 25% and B sold it to C at a loss of 10% and C paid ₹ 675 for it. For how much did A purchase it (in ₹) ?
 (A) 600 (B) 550
 (C) 625 (D) 575
125. There is a rebate of 15%, if electric bills are paid in due time. A man enjoyed a rebate of ₹ 54 by paying the bill in time. What was his electric bill ?
 (A) ₹ 306 (B) ₹ 630
 (C) ₹ 360 (D) ₹ 240
126. A sold a tape-recorder to B for ₹ 4,860 at a loss of 19%. Again B sold it to C at a price that would give A a profit of 17%. The gain of B is
 (A) $44\frac{4}{9}\%$ (B) $66\frac{2}{3}\%$
 (C) $22\frac{2}{9}\%$ (D) $33\frac{1}{3}\%$
127. Two trains start from a certain place on two parallel tracks in the same direction. The speed of the trains are 45 km/hr and 40 km/hr respectively. The distance between the two trains after 45 minutes will be
 (A) 3 km 750 m (B) 3 km 250 m
 (C) 2 km 500 m (D) 2 km 750 m
128. The compound interest on a certain sum of money for 2 years at 10% per annum is ₹ 420. The simple interest on the same sum at the same rate and for the same time will be
 (A) ₹ 380 (B) ₹ 400
 (C) ₹ 350 (D) ₹ 375
129. The radius of a metallic cylinder is 3 cm and its height is 5 cm. It is melted and moulded into small cones, each of height 1 cm and base radius 1 mm. The number of such cones formed, is
 (A) 8500 (B) 13500
 (C) 450 (D) 1350
130. A solid sphere of 6 cm diameter is melted and recast into 8 solid spheres of equal volume. The radius (in cm) of each small sphere is
 (A) 2 (B) 2.5
 (C) 1.5 (D) 3

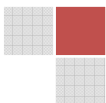
131. In ΔABC , draw $BE \perp AC$ and $CF \perp AB$ and the perpendicular BE and CF intersect at the point O . If $\angle BAC = 70^\circ$, then the value of $\angle BOC$ is
 (A) 150° (B) 110°
 (C) 125° (D) 55°
132. Two circles of radii 9 cm and 2 cm respectively have centres X and Y and $XY = 17$ cm. Circle of radius r cm with centre Z touches two given circles externally. If $\angle XZY = 90^\circ$, find r .
 (A) 12 cm (B) 6 cm
 (C) 18 cm (D) 3 cm
133. Three interior angles of a quadrilateral are 60° , 120° , 90° . The remaining angle in circular measure is given by
 (A) $\frac{\pi^c}{4}$ (B) $\frac{3\pi^c}{4}$
 (C) $\frac{\pi^c}{3}$ (D) $\frac{\pi^c}{2}$
134. A man 6 ft tall casts a shadow 4 ft long at the same time when a flag pole casts a shadow 50 ft long. The height of the flag pole is
 (A) 60 ft (B) 70 ft
 (C) 80 ft (D) 75 ft
135. If the area of a rectangle be $(x^2 + 7x + 10)$ sq. cm, then one of the possible perimeters of it is
 (A) $(x + 14)$ cm (B) $(2x + 7)$ cm
 (C) $(4x + 14)$ cm (D) $(2x + 14)$ cm
136. The area of an equilateral triangle is $4\sqrt{3}$ sq. cm. Its perimeter is
 (A) 8 cm (B) $3\sqrt{3}$ cm
 (C) 12 cm (D) 6 cm
137. I is the incentre of ΔABC . If $\angle ABC = 60^\circ$, $\angle BCA = 80^\circ$, then the $\angle BIC$ is
 (A) 110° (B) 120°
 (C) 90° (D) 100°
138. If two equal circles whose centres are O and O' , intersect each other at the points A and B , $OO' = 12$ cm and $AB = 16$ cm, then the radius of the circles is
 (A) 12 cm (B) 14 cm
 (C) 10 cm (D) 8 cm
139. The value of $(2 \cos^2 \theta - 1) \left(\frac{1 + \tan \theta}{1 - \tan \theta} + \frac{1 - \tan \theta}{1 + \tan \theta} \right)$ is
 (A) 3 (B) 2
 (C) 4 (D) 1
140. If $\angle A$ and $\angle B$ are complementary to each other, then the value of $\sec^2 A + \sec^2 B - \sec^2 A \cdot \sec^2 B$ is
 (A) 2 (B) 0
 (C) 1 (D) -1
141. If $2(\cos^2 \theta - \sin^2 \theta) = 1$, θ is a positive acute angle, then the value of θ is
 (A) 45° (B) $22\frac{1}{2}^\circ$
 (C) 60° (D) 30°

Directions : Study the bar-graph and answer questions no. 142 - 145.

Bar-graph showing the wages of workers in a factory



142. The ratio of the number of workers placed in the lowest wage group to that of the workers in the highest wage group is
 (A) 3 : 4 (B) 2 : 3
 (C) 3 : 7 (D) 8 : 9
143. The total number of workers in the factory is
 (A) 50 (B) 46
 (C) 42 (D) 48



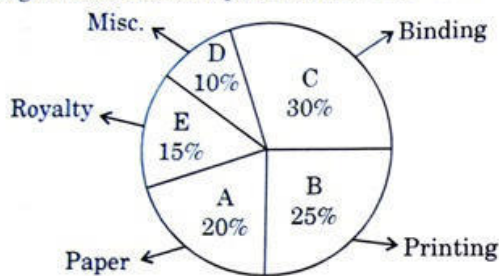
144. In which wage group, is the amount of money needed to pay the monthly wages the highest?

- (A) 1500 – 1600 (B) 1700 – 1800
(C) 1400 – 1500 (D) None of these

145. The total amount of money (approximately) needed to pay the monthly wages of all the workers is

- (A) ₹ 70,500 (B) ₹ 69,500
(C) ₹ 69,100 (D) ₹ 71,600

Directions : The following pie-diagram shows the expenditure incurred on the preparation of a book by a publisher, under different heads. Study the pie-diagram and answer questions no. 146 – 150.



146. The number of heads on which the expenditure of printing a book is more than the average is

- (A) 2 (B) 4
(C) 3 (D) None of these

147. Angle of the pie-chart representing expenditure incurred on paying royalty is

- (A) 15° (B) 54°
(C) 27° (D) 36°

148. If the expenditure on printing and binding of one book is ₹ 110, then the cost of production of the book is (in ₹)

- (A) 110 (B) 550
(C) 250 (D) 200

149. If cost of publishing a book is ₹ 200, then printing cost is (in ₹)

- (A) 20 (B) 50
(C) 40 (D) 60

150. Which two expenditures together will form an angle of 108° at the centre of the pie-diagram?

- (A) A and B (B) A and E
(C) A and D (D) A and C

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142. 12 men or 18 women can reap a field in 14 days. The number of days that 8 men and 16 women will take to reap it is

- (A) 8 days (B) 9 days
(C) 5 days (D) 7 days

143. If ₹ 10,000 amounts to ₹ 11,664 in 2 years, the rate of compound interest per annum is

- (A) 6% (B) 8%
(C) 11% (D) 9%

144. If $\operatorname{cosec} \theta + \cot \theta = x$, then the value of $\operatorname{cosec} \theta - \cot \theta$ is

- (A) $-1/x$ (B) 0
(C) $1/x$ (D) x

145. A train 100 metres long running at the speed of 50 km/hr crosses a 120 metre long train coming from the opposite direction in 6 seconds. The speed of the other train in km/hr is

- (A) 65 (B) 75
(C) 70 (D) 82

146. The radii of two concentric circles are 6 cm and 10 cm. The chord of the greater circle is a tangent of the smaller circle. The length of the chord is

- (A) 16 cm (B) 18 cm
(C) 8 cm (D) 12 cm

147. The 17th term of an arithmetic progression exceeds its 10th term by 7. The common difference is

- (A) 2 (B) 1
(C) 10 (D) 7

148. A, B and C invest ₹ 90,000, ₹ 80,000 and ₹ 70,000 respectively in a business. A takes ₹ 6,000 per month as salary as Manager and B takes ₹ 5,000 per month as Assistant Manager, out of their profit. Share of C in a profit of ₹ 1,92,000 is

- (A) ₹ 52,500 (B) ₹ 18,000
(C) ₹ 17,500 (D) ₹ 56,000

149. A dealer sells a mixture of 2 varieties of tea A and B at ₹ 30/kg making 25% profit. A costs ₹ 22/kg. If they were mixed in the ratio 1 : 1, then the cost of variety B (in ₹/kg) is

- (A) 30 (B) 22
(C) 24 (D) 26

150. If two-fifth of a number is 20 more than 20% of the same number, then the number is

- (A) 150 (B) 200
(C) 50 (D) 100