(SSC) Combined Higher Secondary Level (10+2) Examination

Held ON: 11-12-2011

2ⁿᵈ Sitting

Time Allowed: 2 Hours   Maximum Marks: 200

Part − III
Quantitative Apititude

101. If a + b + c = 0, then the collective value of

$$\frac{1}{(a+b)(b+c)}+\frac{1}{(a+c)(b+a)}+\frac{1}{(c+a)(c+b)}$$

is:

(a) 1   (b) 0

(c) -1   (d) -2

102. The radius of the base of a conical tent is 16 meters. If $427\frac{3}{7}$ sq. meter canvas is required to construct the tent, then the slant height of the tent is: $\left(\text{Take }p=\frac{22}{7}\right)$

(a) 17 meter

(b) 15 meter

(c) 19 meter

(d) 8.5 meter

103. The curved surface area of a cylindrical pillar is 264 sq.m. and its volume is 924 cu.m. The ratio of its diameter to height is:

(a) 3 : 7   (b) 7 : 3

(c) 6 : 7   (d) 7 : 6

104. PR is tangent to a circle, with centre Q and radius 4 cm, at point Q. If $\angle PQR = 90^o$, OR = 5 cm and OP = $\frac{20}{3}$ cm, them, in cm, the length of PR is:

   (a) 3   (b) $\frac{16}{3}$

   (c) $\frac{22}{3}$ (d) $\frac{25}{3}$

105. In one litre of a mixture of alcohol and water, water is 30%. The amount of alcohol that the part of water in the mixture become 15% is:
   (a) 1000 ml   (b) 700 ml
   (c) 300 ml   (d) 900 ml

106. If $3x + \frac{10}{2x} = 5$, then the value of $8x^3 + \frac{1}{27x^3}$ is:

   (a) $118\frac{1}{2}$

   (b) $30\frac{10}{27}$

   (c) 0   (d) 1

107. If the average of x and $\frac{1}{x}$ (x ≠ 0) is M, then the average of x² and $\frac{1}{x^2}$ is:
   (a) $1 - M^2$ (b) $1 - 2M$
   (c) $2M^2 - 1$ (d) $2M^2 + 1$

108. If 20% of (A + B) = 50% of B then value of $\frac{2A - B}{2A + B}$ is:

   (a) $\frac{1}{2}$ (b) $\frac{1}{3}$

   (c) $\frac{1}{4}$ (d) 1

109. The length of a room floor exceeds it breadth by 20m. The area of the floor remains unaltered when the length is decreased by 10 m but the breadth is increased by 5m. The area of the floor (in square metres) is:
   (a) 280   (b) 325
   (c) 300   (d) 420

110. The value of $\frac{\sin 39^o}{\cos 51^o} + 2\tan 11^o$ tan 31º and 45º tan 59º tan 79º − 3(sin²21º + sin²69º) is
   (a) 2   (b) -1
   (c) 1   (d) 0

111. The angles of elevation of the top of a building and the top of the chimney on the roof of the building from a point on the ground are x and 45º respectively. The height of building is h m. Then the height of the chimney, in m, is:
   (a) h cot x + h   (b) h cot x – h
   (c) h tan x – h   (d) h tan x + h

112. A fruit seller makes a profit of 20% by selling mangoes at a certain price. If the charges Rs. 1 more for each mango, he can make a profit of 40%.

Find the selling price of a mango in the first case.

(a) Rs. 6   (b) Rs. 5

(c) Rs. 5.50   (d) Rs. 7

113. The greatest of the numbers $\sqrt[2]{8}, \sqrt[4]{13}, \sqrt[5]{16}, \sqrt[10]{41}$ is:

(a) $\sqrt[4]{13}$ (b) $\sqrt[5]{16}$

(c) $\sqrt[10]{41}$ (d) $\sqrt[2]{8}$

114. A certain number when divided by 175 leaves a remainder 132. When the same number is divided by 25, the remainder is:

(a) 6   (b) 7

(c) 8   (d) 9

115. If a, b, c are real and $a^2 + b^2 + c^2 = 2(a - b - c) - 3$, then the value of $2a - 3b + 4c$ is:

(a) -1   (b) 0

(c) 1   (d) 2

116. From a solid cylinder of height 10 cm and radius of the base 6 cm, a cone of same height and same base is removed. The volume of the remaining solid is:

(a) 240 p cu.cm   (b) 5280 cu.cm

(c) 620 p cu.cm   (d) 360 p cu.cm

117. If the work done by (x − 1), men in (x + 1) days is to the work done by (x + 2) men in (x − 1) days are in the ratio 9 : 10, then the value of x is equal to:

(a) 5   (b) 6

(c) 7   (d) 8

118. If 1 is added to both the numerator and denominator of a fraction, it becomes $\frac{1}{4}$. If 2 is added to both the numerator and the denominator of that fraction, it becomes $\frac{1}{3}$. The sum of numerator and denominator of the fraction is:

(a) 8   (b) 13

(c) 22   (d) 27

119. If $(a - 3)^2 + (b - 4)^2 + (c - 9)^2 = 0$, then the value of $\sqrt{a+b+c}$ is:

(a) −4   (b) 4

(c) ±4   (d) ±2

120. ABC is an equilateral triangle. P and Q are two points on $\overline{AB}$ and $\overline{AC}$ respectively such that $\overline{PQ} \parallel \overline{BC}$. If $\overline{PQ}$ = 5 cm the area of $\triangle APQ$ is:

(a) $\frac{25}{4}$ sq.cm   (b) $\frac{25}{\sqrt{3}}$ sq.cm

(c) $\frac{25\sqrt{3}}{4}$ sq.cm   (d) $25\sqrt{3}$ sq.cm

121. If x + y = z, then the expression $x^3 + y^3 - z^3 + 3xyz$ will be equal to:

(a) 0   (b) 3xyz

(c) -3xyz   (d) z^3

122. 5 men and 2 women working together can do four times as much work per hour as a man and a woman together. The work done by a man and a woman should be in the ratio:

(a) 1 : 2 (b) 2 : 1

(c) 1 : 3 (d) 4 : 1

123. The mean value of 20 observations was found to 75, but later on it was detected that 97 was misread at 79. Find the correct mean.

(a) 75.7 (b) 75.8

(c) 75.9 (d) 75.6

124. If the post price of 15 tables be equal to the selling price of 20 tables, the loss percent is:

(a) 30 (b) 37.5

(c) 25 (d) 20

125. If $\dfrac{\cos^2\theta}{\cot^2\theta - \cos^2\theta} = 3$ and $0^o < \theta < 90^o$, then the value of θ is:

(a) 30° (b) 45°

(c) 60° (d) None of these

126. A number whose one-fifth part increased by 4 is equal to its one-fourth part diminished by 10, is:

(a) 260 (b) 280

(c) 240 (d) 270

127. Measure of each interior angle of a regular polygon can never be:

(a) 150° (b) 105°

(c) 108° (d) 144°

128. The ratio of the areas of the circumcircle and the incircle of a square is:

(a) 2 : 1 (b) $\sqrt{2} : 1$

(c) $\sqrt{2} : \sqrt{3}$ (d) $\sqrt{3} : 1$

129. The base of right pyramid is a square of side 16 cm long. If its height be 15 cm, then the area of the lateral surface in square centimeter is:

(a) 136 (b) 544

(c) 800 (d) 1280

130. In a rectangle ABC, incentre is O and $\angle BOC = 110^o$, then the measure of $\angle BAC$ is:

(a) 20° (b) 40°

(c) 55° (d) 110°

131. Alcohol and water in two vessels A and B are in the ratio 5 : 3 and 5 : 4 respectively. In what ratio, the liquids in both the vessels be mixed to obtain a new mixture in vessel C in the ratio 7 : 5?

(a) 2 : 3 (b) 3 : 2

(c) 3 : 5 (d) 2 : 5

132. If an exterior angle of a cyclic quadrilateral be 50°, then the interior opposite angle is:

(a) 130° (b) 40°

(c) 50° (d) 90°

133. A shopkeeper gains Rs. 56 on a toy after allowing 23% discount on its marked price. If his gain is 10%, then the marked price of the toy is:

(a) Rs. 810 (b) Rs. 800

(c) Rs. 560 (d) Rs. 740

134. Neha's weight is 140% of Tina's weight. Mina's weight is 90% of Lina's weight. Lina weighs twice and much as Tina. If Neha's weight x% of Mina's weight, then x is equal to:

(a) $64\dfrac{2}{9}$ (b) $77\dfrac{7}{9}$

(c) 90   (d) $128\dfrac{4}{7}$

135. The difference between the compound interest and simple interest on a certain sum for 2 years at 6% per annum is Rs. 27. The sum is:
(a) Rs. 5000   (b) Rs. 5500
(c) Rs. 7000   (d) Rs. 7500

136. Successive discounts of p% and q% on the catalogue price of an article is equivalent to a single discount of:
(a) (p + q)%

(b) $\left(x - y - \dfrac{xy}{100}\right)\%$

(c) $\left(p + q - \dfrac{pq}{100}\right)\%$

(d) $\left(p + q + \dfrac{pq}{100}\right)\%$

137. If A = tan 11º tan 29º, B = 2 cot 61º cot 79º, then:
(a) A = 2B   (b) A = - 2B
(c) 2A = B   (d) 2A = - B

138. If $\cos^2\alpha + \cos^2\beta = 2$, then the value of $\tan^3\alpha + \sin^5\beta$ is:
(a) -1   (b) 0
(c) 1   (d) $\frac{1}{\sqrt{3}}$

139. If $P = 2^3.3^{10}.5$; $Q = 2^5.3.7$, then HCF of P and Q is:

(a) 2.3.5.7   (b) 3.2^3
(c) $2^2.3^7$ (d) $2^5.3^{10}.5.7$

140. ABCD is a rhombus whose side AB = 4cm and $\angle ABC = 120º$, then the length of diagonal BD is equal to:
(a) 1 cm   (b) 2 cm
(c) 3 cm   (d) 4 cm

141. A person can row $7\dfrac{1}{2}$ km an hour in still water and he finds that it takes him twice as long to row up as to row down the river. The speed of the stream is:
(a) 2 km/hr   (b) 3 km/hr

(c) $2\dfrac{1}{2}$ km/hr   (d) $3\dfrac{1}{2}$ km/hr

Study the graph and answer the questions 142 to 146.

Demand and Production of Colour T.V. sets of five companies A, B, C, D, E for October 2006
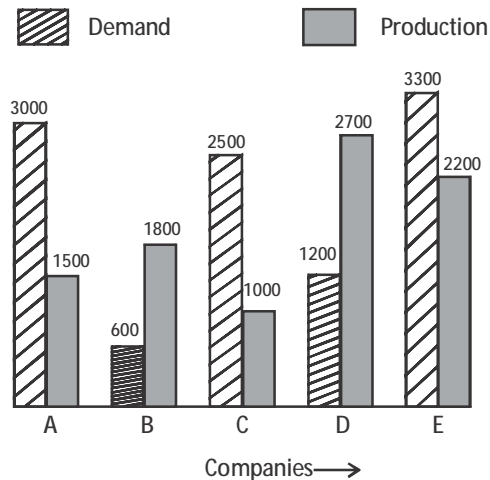
142. What percent of the demand of company C is that of the company B?
    (a) 14% (b) 20%
    (c) 24% (d) 26%

143. What is the difference between average demand and average production of the five companies taken together?
    (a) 1400 (b) 400
    (c) 280 (d) 138

144. The average production of the companies A, B, C and that of the companies D, E are in the ratio.

    (a) 85 : 147 (b) 86 : 147
    (c) 86 : 149 (d) 87 : 149

145. What is the ratio of companies having more demand than production to those having more production that demand?
    (a) 2 : 3 (b) 4 : 1
    (c) 1 : 4 (d) 3 : 2

146. How many times of the production of company A is that of the company D?
    (a) 1.4 (b) 1.5
    (c) 1.8 (d) 2.5

The following table shows the production of food grain (in million tonnes) in a State for the period to 1988 to 1992. Read the table and answer the question 147 to 150.

| Year | Production in million tonnes | | | | total |
	Wheat	Rice	Maize	Other Cereals	
1988	580	170	150	350	1250
1989	600	220	234	400	1454
1990	560	240	228	420	1448
1991	680	300	380	460	1820
1992	860	260	340	500	1960
Total	3280	1190	1332	2130	7932

147. During 1990, the percentage of decrease in production of maize as against the previous year was.
    (a) 2.63% (b) 2.56%
    (c) 2.71% (d) 2.47%

148. In 1991, in increase in production over the previous year was maximum for:

    (a) Wheat (b) Rice
    (c) Maize (d) Other Cereals

149. The increase in the production of other cereals (over the previous year) was minimum during the year:
    (a) 1989 (b) 1990
    (c) 1991 (d) 1992

150. During 1992, the percentage of increase in the production of wheat, over the previous year was:
     (a) 26.47%   (b) 20.92%
     (c) 23.67%   (d) 18.74%