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## **Download SSC CGL Tier – II 2013 Exam Paper (Numerical Aptitude)**

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**Exam Name: SSC CGL Tier – 2**

**Subject: Numerical Aptitude**

**Year: 2013**

- The compound interest on a certain sum of money for 2 years at 5% is ₹ 328, then the sum is  
(A) ₹ 3000 (B) ₹ 3600  
(C) ₹ 3200 (D) ₹ 3400
- The height of a cone is 30 cm. A small cone is cut off at the top by a plane parallel to the base. If its volume be  $\frac{1}{27}$ th of the volume of the given cone, at what height above the base is the section made?  
(A) 19 cm (B) 20 cm  
(C) 12 cm (D) 15 cm
- $ABCD$  is a trapezium with  $AD$  and  $BC$  parallel sides.  $E$  is a point on  $BC$ . The ratio of the area of  $ABCD$  to that of  $AED$  is  
(A)  $\frac{AD}{BC}$  (B)  $\frac{BE}{EC}$   
(C)  $\frac{AD+BE}{AD+CE}$  (D)  $\frac{AD+BC}{AD}$
- If the surface area of a sphere is  $346.5 \text{ cm}^2$ , then its radius [taking  $\pi = \frac{22}{7}$ ] is  
(A) 7 cm (B) 3.25 cm  
(C) 5.25 cm (D) 9 cm
- An interior angle of a regular polygon is 5 times its exterior angle. Then the number of sides of the polygon is  
(A) 14 (B) 16 (C) 12 (D) 18
- The height of the right pyramid whose area of the base is  $30 \text{ m}^2$  and volume is  $500 \text{ m}^3$ , is  
(A) 50 m (B) 60 m  
(C) 40 m (D) 20 m
- The base of a prism is a right angled triangle with two sides 5 cm and 12 cm. The height of the prism is 10 cm. The total surface area of the prism is  
(A) 360 sq cm (B) 300 sq cm  
(C) 330 sq cm (D) 325 sq cm
- In an equilateral triangle of side 24 cm, a circle is inscribed touching its sides. The area of the remaining portion of the triangle is ( $\sqrt{3} = 1.732$ )  
(A) 98.55 sq cm (B) 100 sq cm  
(C) 101 sq cm (D) 95 sq cm
- The base of a right prism is an equilateral triangle. If the lateral surface area and volume is  $120 \text{ cm}^2$ ,  $40\sqrt{3} \text{ cm}^3$  respectively then the side of base of the prism is  
(A) 4 cm (B) 5 cm  
(C) 7 cm (D) 40 cm
- Perimeter of a rhombus is  $2p$  unit and sum of length of diagonals is  $m$  unit, then area of the rhombus is  
(A)  $\frac{1}{4} m^2 p$  sq unit  
(B)  $\frac{1}{4} mp^2$  sq unit  
(C)  $\frac{1}{4} (m^2 - p^2)$  sq unit  
(D)  $\frac{1}{4} (p^2 - m^2)$  sq unit
- A ball of lead 4 cm in diameter is covered with gold. If the volume of the gold and lead are equal, then the thickness of gold [given  $\sqrt[3]{2} = 1.259$ ] is approximately  
(A) 5.038 cm (B) 5.190 cm  
(C) 1.038 cm (D) 0.518 cm

SPACE FOR ROUGH WORK



12. A large solid sphere is melted and moulded to form identical right circular cones with base radius and height same as the radius of the sphere. One of these cones is melted and moulded to form a smaller solid sphere. Then the ratio of the surface area of the smaller to the surface area of the larger sphere is  
 (A)  $1:3^{4/3}$  (B)  $1:2^{3/2}$   
 (C)  $1:3^{2/3}$  (D)  $1:2^{4/3}$
13. Two sides of a plot measuring 32 m and 24 m and the angle between them is a perfect right angle. The other two sides measure 25 m each and the other three angles are not right angles. The area of the plot in  $\text{m}^2$  is  
 (A) 768 (B) 534  
 (C) 696.5 (D) 684
14.  $a$  and  $b$  are two sides adjacent to the right angle of a right-angled triangle and  $p$  is the perpendicular drawn to the hypotenuse from the opposite vertex. Then  $p^2$  is equal to  
 (A)  $a^2 + b^2$  (B)  $\frac{1}{a^2} + \frac{1}{b^2}$   
 (C)  $\frac{a^2 b^2}{a^2 + b^2}$  (D)  $a^2 - b^2$
15. A conical cup is filled with ice-cream. The ice-cream forms a hemispherical shape on its open top. The height of the hemispherical part is 7 cm. The radius of the hemispherical part equals the height of the cone. Then the volume of the ice-cream is  $\left[\pi = \frac{22}{7}\right]$   
 (A) 1078 cubic cm (B) 1708 cubic cm  
 (C) 7108 cubic cm (D) 7180 cubic cm
16.  $A$  is the centre of circle whose radius is 8 and  $B$  is the centre of a circle whose diameter is 8. If these two circles touch externally, then the area of the circle with diameter  $AB$  is  
 (A)  $36\pi$  (B)  $64\pi$   
 (C)  $144\pi$  (D)  $256\pi$
17. If  $a^2 + b^2 + c^2 = ab + bc + ac$  then the value of  $\frac{a+c}{b}$  is  
 (A) 0 (B) 2 (C) 1 (D) -1
18. If  $ab + bc + ca = 0$  then the value of  $\left(\frac{1}{a^2 - bc} + \frac{1}{b^2 - ca} + \frac{1}{c^2 - ab}\right)$  is  
 (A) 0 (B) 1  
 (C) 3 (D)  $a + b + c$
19. If  $(2 + \sqrt{3})a = (2 - \sqrt{3})b = 1$  then the value of  $\frac{1}{a} + \frac{1}{b}$  is  
 (A) 1 (B) 2 (C)  $2\sqrt{3}$  (D) 4
20. If  $3x + \frac{3}{x} = 1$  then  $x^3 + \frac{1}{x^3} + 1$  is  
 (A) 0 (B)  $\frac{1}{27}$  (C)  $\frac{5}{27}$  (D)  $\frac{28}{27}$
21. The factors of  $(a^2 + 4b^2 + 4b - 4ab - 2a - 8)$  are  
 (A)  $(a - 2b - 4)(a - 2b + 2)$   
 (B)  $(a - b + 2)(a - 4b - 4)$   
 (C)  $(a + 2b - 4)(a + 2b + 2)$   
 (D)  $(a + 2b - 1)(a - 2b + 1)$

SPACE FOR ROUGH WORK



22. Area of the triangle formed by the graph of the straight lines  $x - y = 0$ ,  $x + y = 2$  and the  $x$ -axis is

- (A) 1 sq unit (B) 2 sq units  
(C) 4 sq units (D) None of these

23. The value of

$$\frac{1}{a^2 + ax + x^2} - \frac{1}{a^2 - ax + x^2} + \frac{2ax}{a^4 + a^2x^2 + x^4}$$

is

- (A) 2 (B) 1 (C) -1 (D) 0

24. If  $4x + 5y = 83$  and  $3x : 2y = 21 : 22$  then  $y - x$  equals

- (A) 3 (B) 4 (C) 7 (D) 11

25. If  $x = 11$ , then the value of  $x^5 - 12x^4 + 12x^3 - 12x^2 + 12x - 1$  is

- (A) 5 (B) 10 (C) 15 (D) 20

26. If  $p = 99$  then the value of  $p(p^2 + 3p + 3)$  is

- (A) 10000000 (B) 999000  
(C) 999999 (D) 990000

27. Two chords of lengths  $a$  metre and  $b$  metre subtend angles  $60^\circ$  and  $90^\circ$  at the centre of the circle respectively. Which of the following is true?

- (A)  $b = \sqrt{2}a$  (B)  $a = \sqrt{2}b$   
(C)  $a = 2b$  (D)  $b = 2a$

28. In a triangle  $ABC$ ,  $\angle A + \frac{1}{2}\angle B + \angle C = 140^\circ$  then  $\angle B$  is

- (A)  $50^\circ$  (B)  $80^\circ$   
(C)  $40^\circ$  (D)  $60^\circ$

29. The radius of a circle is 6 cm. The distance of a point lying outside the circle from the centre is 10 cm. The length of the tangent drawn from the outside point to the circle is

- (A) 5 cm (B) 6 cm  
(C) 7 cm (D) 8 cm

30. If  $ABCD$  be a cyclic quadrilateral in which  $\angle A = 4x^\circ$ ,  $\angle B = 7x^\circ$ ,  $\angle C = 5y^\circ$ ,  $\angle D = y^\circ$  then  $x : y$  is

- (A) 3 : 4 (B) 4 : 3  
(C) 5 : 4 (D) 4 : 5

31.  $G$  is the centroid of the equilateral  $\triangle ABC$ . If  $AB = 10$  cm then length of  $AG$  is

- (A)  $\frac{5\sqrt{3}}{3}$  cm (B)  $\frac{10\sqrt{3}}{3}$  cm  
(C)  $5\sqrt{3}$  cm (D)  $10\sqrt{3}$  cm

32. Two chords  $AB$  and  $CD$  of a circle with centre  $O$ , intersect each other at  $P$ . If  $\angle AOD = 100^\circ$  and  $\angle BOC = 70^\circ$  then the value of  $\angle APC$  is

- (A)  $80^\circ$  (B)  $75^\circ$   
(C)  $85^\circ$  (D)  $95^\circ$

33.  $ABCD$  is a cyclic quadrilateral and  $AD$  is a diameter. If  $\angle DAC = 55^\circ$  then value of  $\angle ABC$  is

- (A)  $55^\circ$  (B)  $35^\circ$   
(C)  $145^\circ$  (D)  $125^\circ$

34. In triangle  $ABC$  a straight line parallel to  $BC$  intersects  $AB$  and  $AC$  at  $D$  and  $E$  respectively. If  $AB = 2AD$  then  $DE : BC$  is

- (A) 2 : 3 (B) 2 : 1  
(C) 1 : 2 (D) 1 : 3

SPACE FOR ROUGH WORK

35.  $ABC$  is an isosceles triangle such that  $AB = AC$  and  $AD$  is the median to the base  $BC$  with  $\angle ABC = 35^\circ$ . Then  $\angle BAD$  is  
 (A)  $35^\circ$  (B)  $55^\circ$   
 (C)  $70^\circ$  (D)  $110^\circ$
36. A man goes 24 m due west and then 10 m due north. Then the distance of him from the starting point is  
 (A) 17 m (B) 26 m  
 (C) 28 m (D) 34 m
37. From the top of a tower of height 180 m the angles of depression of two objects on either sides of the tower are  $30^\circ$  and  $45^\circ$ . Then the distance between the objects are  
 (A)  $180(3 + \sqrt{3})$  m (B)  $180(3 - \sqrt{3})$  m  
 (C)  $180(\sqrt{3} - 1)$  m (D)  $180(\sqrt{3} + 1)$  m
38.  $ABCD$  is a rectangle of which  $AC$  is a diagonal. The value of  $(\tan^2 \angle CAD + 1) \sin^2 \angle BAC$  is  
 (A) 2 (B)  $\frac{1}{4}$  (C) 1 (D) 0
39. If  $\tan x = \sin 45^\circ \cdot \cos 45^\circ + \sin 30^\circ$  then the value of  $x$  is  
 (A)  $30^\circ$  (B)  $45^\circ$   
 (C)  $60^\circ$  (D)  $90^\circ$
40. For any real values of  $\theta$ ,  $\sqrt{\frac{\sec \theta - 1}{\sec \theta + 1}} = ?$   
 (A)  $\cot \theta - \operatorname{cosec} \theta$  (B)  $\sec \theta - \tan \theta$   
 (C)  $\operatorname{cosec} \theta - \cot \theta$  (D)  $\tan \theta - \sec \theta$
41. If the sum and difference of two angles are  $135^\circ$  and  $\frac{\pi}{12}$  respectively, then the value of the angles in degree measure are  
 (A)  $70^\circ, 65^\circ$  (B)  $75^\circ, 60^\circ$   
 (C)  $45^\circ, 90^\circ$  (D)  $80^\circ, 55^\circ$
42. In a  $\triangle ABC$ ,  $\angle B = \frac{\pi}{3}$ ,  $\angle C = \frac{\pi}{4}$  and  $D$  divides  $BC$  internally in the ratio 1 : 3 then  $\frac{\sin \angle BAD}{\sin \angle CAD}$  is equal to  
 (A)  $\frac{1}{\sqrt{2}}$  (B)  $\frac{1}{\sqrt{3}}$   
 (C)  $\frac{1}{\sqrt{6}}$  (D)  $\sqrt{6}$
43. If  $\sin 3A = \cos(A - 26^\circ)$ , where  $3A$  is an acute angle then the value of  $A$  is  
 (A)  $29^\circ$  (B)  $26^\circ$   
 (C)  $23^\circ$  (D)  $28^\circ$
44. Value of  $\sec^2 \theta - \frac{\sin^2 \theta - 2\sin^4 \theta}{2\cos^4 \theta - \cos^2 \theta}$  is  
 (A) 1 (B) 2 (C) -1 (D) 0
45. If  $x = a(\sin \theta + \cos \theta)$ ,  $y = b(\sin \theta - \cos \theta)$  then the value of  $\frac{x^2}{a^2} + \frac{y^2}{b^2}$  is  
 (A) 0 (B) 1 (C) 2 (D) -2
46. If  $\sin 5\theta = \cos 20^\circ$  ( $0^\circ < \theta < 90^\circ$ ) then the value of  $\theta$  is  
 (A)  $4^\circ$  (B)  $22^\circ$   
 (C)  $10^\circ$  (D)  $14^\circ$

SPACE FOR ROUGH WORK



47. Find the least number which when divided separately by 15, 20, 36 and 48 leaves 3 as remainder in each case  
(A) 183 (B) 243  
(C) 483 (D) 723
48. Find the sum of all positive multiples of 3 less than 50  
(A) 400 (B) 404  
(C) 408 (D) 412
49. If  $a = 64$  and  $b = 289$ , then the value of  $(\sqrt{\sqrt{a} + \sqrt{b}} - \sqrt{\sqrt{b} - \sqrt{a}})^{1/2}$  is  
(A)  $2^{1/2}$  (B) 2 (C) 4 (D) -2
50. If the L.C.M. and H.C.F. of two expressions are  $(x^2 + 6x + 8)(x + 1)$  and  $(x + 1)$  respectively and one of the expression is  $x^2 + 3x + 2$  find the other.  
(A)  $x^2 + 5x + 4$  (B)  $x^2 - 5x + 4$   
(C)  $x^2 + 4x + 5$  (D)  $x^2 - 4x + 5$
51. If the number of items of a set  $A$   $n(A) = 40$ ,  $n(B) = 26$  and  $n(A \cap B) = 16$  then  $n(A \cup B)$  is equal to  
(A) 30 (B) 40 (C) 50 (D) 60
52.  $\sqrt{64009}$  is equal to  
(A) 352 (B) 523  
(C) 253 (D) 532
53. What is the smallest number by which 625 must be divided so that the quotient is a perfect cube?  
(A) 25 (B) 5 (C) 2 (D) 3
54. If a distance of 50 m is covered in 1 min, that 90 m in 2 min and 130 m in 3 min find the distance covered in 15 min.  
(A) 610 m (B) 750 m  
(C) 1000 m (D) 650 m
55. Three men step off together from the same spot. Their steps measures 63 cm, 70 cm and 77 cm respectively. The minimum distance each should cover so that all can cover the distance in complete steps is  
(A) 9630 cm (B) 9360 cm  
(C) 6930 cm (D) 6950 cm
56. Find the greatest number which will exactly divide 200 and 320.  
(A) 10 (B) 20 (C) 16 (D) 40
57. A, B and C are employed to do a piece of work for ₹ 575. A and C are supposed to finish  $\frac{19}{23}$  of the work together. Amount shall be paid to B is  
(A) ₹ 210 (B) ₹ 100  
(C) ₹ 200 (D) ₹ 475
58. A man is twice as fast as a woman and a woman is twice as fast as a boy in doing a work. If all of them, a man, a woman and a boy can finish the work in 7 days, in how many days a boy will do it alone?  
(A) 49 (B) 7 (C) 6 (D) 42
59. A, B and C can do a job in 6 days, 12 days and 15 days respectively. After  $\frac{1}{8}$  of the work is completed, C leaves the job. Rest of the work is done by A and B together. Time taken to finish the work is  
(A)  $5\frac{5}{6}$  days (B)  $5\frac{1}{4}$  days  
(C)  $3\frac{1}{2}$  days (D)  $3\frac{3}{4}$  days

SPACE FOR ROUGH WORK



60. 15 men take 20 days to complete a job working 8 hours a day. The number of hours a day should 20 men take to complete the job in 12 days  
(A) 5 hours (B) 10 hours  
(C) 15 hours (D) 18 hours
61. Having the same capacity 9 taps fill up a water tank in 20 minutes. How many taps of the same capacity required to fill up the same water tank in 15 minutes?  
(A) 10 (B) 12 (C) 15 (D) 18
62. Raj and Ram working together do a piece of work in 10 days. Raj alone can do it in 12 days. Ram alone will do the work in  
(A) 20 days (B) 40 days  
(C) 50 days (D) 60 days
63. A shopkeeper sold an item at 10% loss after giving a discount equal to half the marked price. Then the cost price is  
(A)  $\frac{1}{9}$ th of marked price  
(B)  $\frac{4}{9}$ th of marked price  
(C)  $\frac{5}{9}$ th of marked price  
(D)  $\frac{7}{9}$ th of marked price
64. A person purchased a saree for ₹ 7710 after availing a net discount of ₹ 1285. The percentage of discount, the saree shop offers, is  
(A)  $14\frac{1}{7}\%$  (B)  $14\frac{2}{7}\%$   
(C)  $14\frac{3}{7}\%$  (D)  $14\frac{4}{7}\%$
65. A cycle dealer offers a discount of 10% and still makes a profit of 26%. What does he pay for a cycle whose marked price is ₹ 840?  
(A) ₹ 600 (B) ₹ 650  
(C) ₹ 700 (D) ₹ 750
66. If the cost price of an item is two fifth of its marked price and if it is sold at a discount of 10%, then there will be  
(A) 25% profit (B) 40% profit  
(C) 50% profit (D) 125% profit
67. Prakash lends a part of ₹ 20,000 at 8% simple interest and remaining at  $\frac{4}{3}\%$  simple interest. His total income after a year was ₹ 800. Find the sum lent at 8%.  
(A) ₹ 8,000 (B) ₹ 12,000  
(C) ₹ 6,000 (D) ₹ 10,000
68. 20 litres of a mixture contains 20% alcohol and the rest water. If 4 litres of water be mixed in it, the percentage of alcohol in the new mixture will be  
(A)  $33\frac{1}{3}\%$  (B)  $16\frac{2}{3}\%$   
(C) 25% (D)  $12\frac{1}{2}\%$
69. A man divides his property so that his son's share to his wife's and wife's share to his daughter's are both as in the ratio 3 : 1. If the daughter gets ₹ 10,000 less than son, the value (in rupees) of the whole property is  
(A) ₹ 16,250 (B) ₹ 16,000  
(C) ₹ 18,250 (D) ₹ 17,000
70. There are two containers of equal capacity. The ratio of milk to water in the first container is 3 : 1, in the second container 5 : 2. If they are mixed up, the ratio of milk to water in the mixture will be  
(A) 28 : 41 (B) 41 : 28  
(C) 15 : 41 (D) 41 : 15
71. The sum of two numbers is equal to 20 and their difference is 25. The ratio of the two numbers is  
(A) 9 : 7 (B) 7 : 9  
(C) 3 : 5 (D) 2 : 7

SPACE FOR ROUGH WORK



72. A man travelled a distance of 80 km in 7 hrs partly on foot at the rate of 8 km per hour and partly on bicycle at 16 km per hour. The distance travelled on the foot is  
(A) 32 km (B) 48 km  
(C) 36 km (D) 44 km
73. The frequency distribution data is given below. If the average age is 17 years, the value of  $m$  is  
Age (in years) : 8    20    26    29  
Number of people : 3    2     $m$     1  
(A) 1 (B) 2 (C) 3 (D) 4
74. The average monthly expenditure of a family for the first four months is ₹ 2570, for the next three months ₹ 2490 and for the last five months ₹ 3030. If the family saves ₹ 5320 during the whole year, the average monthly income of the family during the year is  
(A) ₹ 3000 (B) ₹ 3185  
(C) ₹ 3200 (D) ₹ 3580
75. After replacing an old member by a new member, it was found that the average age of five members of a club is the same as it was 3 years ago. The difference between the ages of the replaced and the new member is  
(A) 2 years (B) 4 years  
(C) 8 years (D) 15 years
76. A man spends ₹ 1800 monthly on an average for the first four months and ₹ 2000 monthly for the next eight months and saves ₹ 5600 a year. His average monthly income is  
(A) ₹ 2000 (B) ₹ 2200  
(C) ₹ 2400 (D) ₹ 2600
77. The arithmetic mean of the following numbers  
1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5, 6, 6, 6, 6, 6, 6 and 7, 7, 7, 7, 7, 7, 7 is  
(A) 4 (B) 5 (C) 14 (D) 20
78. The average of 6 numbers is 20. If one number is removed, the average becomes 15. What is the number removed?  
(A) 5 (B) 35 (C) 112 (D) 45
79. An item costing ₹ 200 is being sold at 10% loss. If the price is further reduced by 5%, the selling price will be  
(A) ₹ 170 (B) ₹ 171  
(C) ₹ 175 (D) ₹ 179
80. A shopkeeper buys 144 items at 90 paise each. On the way 20 items are broken. He sells the remainder at ₹ 1.20 each. His gain per cent correct to one place of decimal is  
(A) 13.8% (B) 14.6%  
(C) 14.8% (D) 15.8%
81. There is a profit of 20% on the cost price of an article. The % of profit, when calculated on selling price is  
(A)  $16\frac{2}{3}\%$  (B) 20%  
(C)  $33\frac{1}{3}\%$  (D) None of these
82. By selling an article for ₹ 102, there is a loss of 15%, when the article is sold for ₹ 134.40, the net result in the transaction is  
(A) 12% gain (B) 12% loss  
(C) 10% loss (D) 15% gain
83. Two toys are sold at ₹ 504 each. One toy brings the dealer a gain of 12% and the other a loss of 4%. The gain or loss per cent by selling both the toys is  
(A)  $3\frac{5}{13}\%$  profit (B)  $4\frac{5}{13}\%$  profit  
(C)  $5\frac{1}{13}\%$  profit (D)  $2\frac{3}{13}\%$  loss

SPACE FOR ROUGH WORK

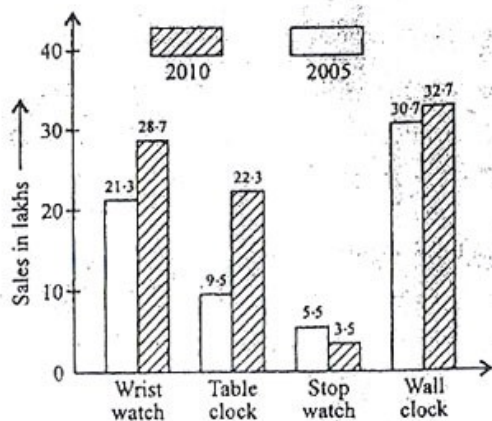


84. A sold a horse to B for ₹ 4800 by losing 20%. B sells it to C at a price which would have given A a profit of 15%. B's gain is  
(A) ₹ 1800 (B) ₹ 1900  
(C) ₹ 2000 (D) ₹ 2100
85. If each side of a cube is increased by 10% the volume of the cube will increase by  
(A) 30% (B) 10%  
(C) 33.1% (D) 25%
86. A reduction of 21% in the price of an item enables a person to buy 3 kg more for ₹ 100. The reduced price of item per kg is  
(A) ₹ 5.50 (B) ₹ 7.50  
(C) ₹ 10.50 (D) ₹ 7.00
87. The number that is to be added to 10% of 320 to have the sum as 30% of 230 is  
(A) 37 (B) 32 (C) 23 (D) 73
88. The strength of a school increases and decreases in every alternate year by 10%. It started with increase in 2000. Then the strength of the school in 2003 as compared to that in 2000 was  
(A) increased by 8.9%  
(B) decreased by 8.9%  
(C) increased by 9.8%  
(D) decreased by 9.8%
89. Two trains of equal length are running on parallel lines in the same direction at the rate of 46 km/hr and 36 km/hr. The faster train passes the slower train in 36 seconds. The length of each train is  
(A) 50 m (B) 72 m  
(C) 80 m (D) 82 m
90. A car driver leaves Bangalore at 8:30 A.M. and expects to reach a place 300 km from Bangalore at 12:30 P.M. At 10:30 he finds that he has covered only 40% of the distance. By how much he has to increase the speed of the car in order to keep up his schedule?  
(A) 45 km/hr (B) 40 km/hr  
(C) 35 km/hr (D) 30 km/hr
91. A train 300 m long is running with a speed of 54 km/hr. In what time will it cross a telephone pole?  
(A) 20 sec (B) 15 sec  
(C) 17 sec (D) 18 sec
92. A man is walking at a speed of 10 kmph. After every km, he takes a rest for 5 min. How much time will he take to cover a distance of 5 km?  
(A) 60 min (B) 50 min  
(C) 40 min (D) 70 min
93. A man borrows money at 3% per annum interest payable yearly and lend it immediately at 5% interest (compound) payable half-yearly and thereby gains ₹ 330 at the end of the year. The sum borrowed is  
(A) ₹ 17000 (B) ₹ 16500  
(C) ₹ 15000 (D) ₹ 16000
94. Two years ago, the value of my motorbike was ₹ 62500. If the value depreciates by 4% every year, now its value is  
(A) ₹ 56700 (B) ₹ 57600  
(C) ₹ 57500 (D) ₹ 55700
95. If the compound interest on a sum for 2 years at  $12\frac{1}{2}\%$  p.a. is ₹ 510, the simple interest on the same sum at the same rate for the same period of time is  
(A) ₹ 400 (B) ₹ 450  
(C) ₹ 460 (D) ₹ 480

SPACE FOR ROUGH WORK



A watch company produces four different products. The sale of these products in lakhs during 2005 and 2010 are shown in the following bar diagram. Study the graph and answer the question Nos. 96 to 100.



96. The sales in percentage of wrist watch in 2010 more than the sales of table clock in 2010 was nearly by  
 (A) 26.7% (B) 27.7%  
 (C) 28.7% (D) 21.7%
97. The ratio of sales of stop watch in 2010 to the sale of table clock in 2005 is  
 (A) 6 : 19 (B) 7 : 6  
 (C) 19 : 6 (D) 7 : 19
98. The sales of table clock in 2005 was less than the sales of wall clock in 2005 is nearly by  
 (A) 70.05% (B) 69.05%  
 (C) 68.05% (D) 62.05%
99. During the period 2005–2010 the minimum rate of increase in sales is in the product of  
 (A) Wrist watch (B) Table clock  
 (C) Stop watch (D) Wall clock
100. The sales have increased by nearly 135% from 2005 to 2010 in the product of  
 (A) Table clock (B) Wrist watch  
 (C) Stop watch (D) Wall clock
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96. The area of the largest triangle inscribed in a semi-circular region of radius  $r$  cm is  
 (A)  $2r^2$  square cm (B)  $r^2$  square cm  
 (C)  $\frac{r^2}{2}$  square cm (D)  $\frac{3r^2}{2}$  square cm
97. The length of the tangent from an external point which is at a distance of 13 cm from the centre of the circle of radius 5 cm is  
 (A) 8 cm (B) 12 cm  
 (C) 10 cm (D) 14 cm
98. If  $x = \frac{1}{2 - \sqrt{3}}$  then  $x^2 - 3(x - 1)(x + 2) =$   
 (A) 6 (B) 4 (C) 5 (D) 3
99. If  $2\cos^2\theta = 3\sin\theta$ ,  $0 < \theta < 90^\circ$  then the value of  $\sin\theta$  is  
 (A)  $\frac{\sqrt{3}}{2}$  (B)  $\frac{\sqrt{5} - 1}{\sqrt{5} + 1}$   
 (C)  $\frac{1}{2}$  (D)  $\frac{1}{\sqrt{3}}$
100. A sum of money was invested for 3 years at  $r\%$  compound interest. An equal sum was invested for 1 year at  $r\%$  simple interest. It was observed that the amount in the 1st investment is twice that in the 2nd. Taking  $\sqrt{2} = 1.41$ ,  $r\%$  is equal to  
 (A) 11% (B) 21%  
 (C) 31% (D) 41%

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