KIN INDIA

Question Papers

SUBJECT : SSC Combined Graduate Level (Main Exam) - Sep 2012

SSC Combined Graduate Level (Main) Examination 2012 Question Paper

1. $\sqrt[3]{\frac{0.000729}{0.085184}} = ?$

(a) $\frac{27}{44}$ (b) $\frac{9}{44}$ (c) $\frac{44}{9}$ (d) $\frac{27}{42}$

2. Complete the series 7, 26, 63, 124, 215, 342,?

(a) 481 (b) 511 (c) 391 (d) 421

3. A woman sells to the first customer half her stock of apples and half an apple, to the second customer half an apple and half of her remaining stock and so also to a third and to a fourth customer. She finds that she has now 15 apples left. How many had she at first?

(a) 250 (b) 155 (c) 125 (d) 255

4. There are 200 questions on a 3 hour examination. Among 200 questions, 50 are from Maths, 100 are in GK and 50 are in Science. He spent twice as much time on each mathematics question as for each other question. How many minutes did he spend on mathematics question?

(a) 36 (b) 72 (c) 100 (D) 60

5. The reminder when $9^{19} + 6$ is divided by 8 is

(a) 2 (b) 3 (c) 5 (d) 7

6. The least five-digit perfect square number which is divided be 3, 4, 5, 6 and 8 is

a) 14400 (b) 32400 (c) 10800 (d) 10201

7. Which of the following numbers does not fit into the series?
14, 19, 29, 40, 44, 51, 59, 73

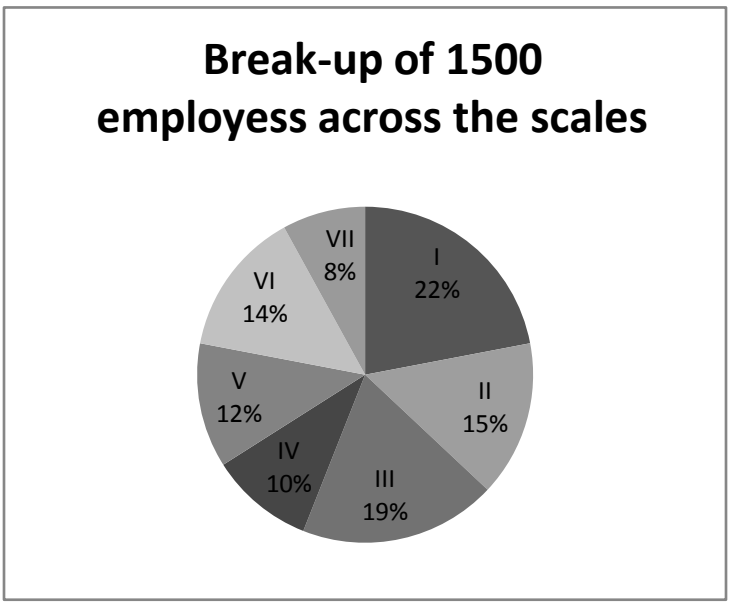
(a) 59 (b) 51 (c) 44 (d) 29

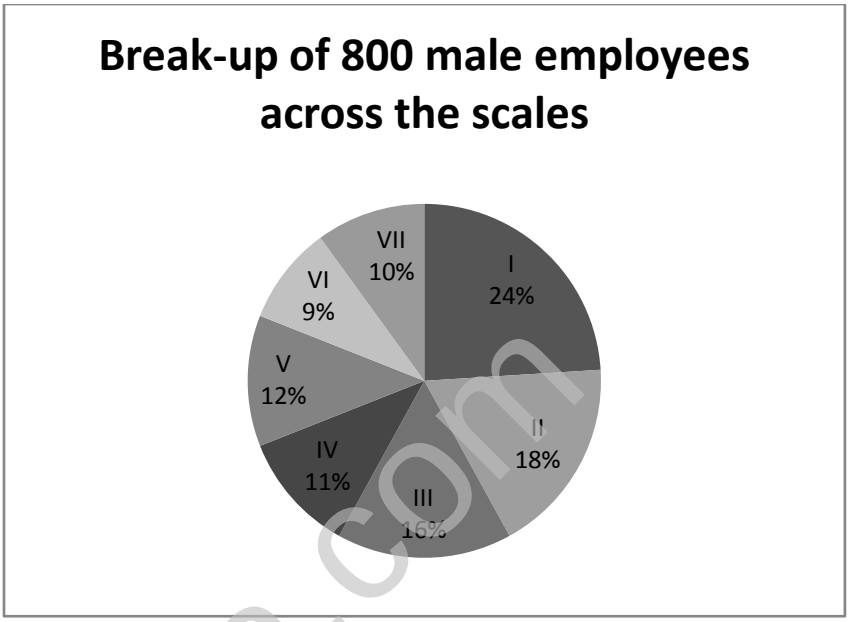
8. What will be the remainder when 19^{100} is divided be 20?

(a) 19 (b) 20 (c) 3 (d) 1

9. A toy factory manufactured a batch of electronic toys. If the toys were packed in boxes of 155 each, 13 boxes would not be filled completely. If the toys were packed in boxes of 65 each, 22 such boxes would not be enough to pack all of them. Coincidentally, in the end, the toys were packed in n toys each, without any remainder. The total number of toys was

(a) 1424 (b) 1434 (c) 1444 (d) 1454





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97. The male-female ratio working in scale VII is

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99. The number of scales in which the female workface is less than the average female workface working in any scale is

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(a) 10% decrease (b) 15% increase (c) 20% decrease (d) 20% increase

18. By selling an umbrella for Rs 30, a shopkeeper gains 20%. During a clearance sale, the shopkeeper allows a discount of 10% of the marked price. His gain percentage during the sale season is

(a) 7 (b) 7.5 (c) 8 (d) 9

19.What is maximum percentage discount (approximately) that a merchant can offer on his marked price so that he ends up selling at no profit or loss, id he initially marked his goods up by 40%?

(a) 60% (b) no discount (c) 33.5% (d) 28.5%

20. A shopkeeper marks the prices at 15% higher than the original price. Due to increase in demand, he further increase the price by 10%. How much percentage profit will he get?

(a) 25 (b) 26.5 (c) 20 (d) 24.5

21. From a vessel containing100 litres of wine, 10 litres are drawn out and an equal amount of water is added. From the mixture, 10 litres is again drawn out and same quantity of water is added. What is the final ratio of wine and water?

(a) 80 : 20 (b) 90 : 10 (c) 91 : 9 (d) 81 : 19

22. From each of two given numbers, half the smaller number is subtracted. After such subtraction, the larger number is 4 times as large as the smaller number. What is the ratio of the number?

(a) 5: 2 (b) 1: 4 (c) 4: 1 (d) 4: 5

23. Men, women and children are employed to do a work in the proportion of 3: 2: 1 and their wages as 5: 3: 2. When 90 men are employed, total daily wages of all amounts to Rs 10350. Find the daily wage of a man.

(a) Rs 45 (b) Rs 57.50 (c) Rs 115 (d) Rs 75

24. Brothers A and B had some savings in the ratio 4: 5. They decided to buy a gift for their sister, sharing the cost in the ratio 3: 4. After they bought, A spent two-third of his amount while B is left with Rs 145. Then the value of the gift is

(a) Rs 70 (b) Rs 105 (c) Rs 140 (d) Rs 175

25. The taxi charges in a city contain fixed charges and additional charge/km. The fixed charge is for a distance of upto 5 km and additional charge/km thereafter. The charge for a distance of 10 km is Rs 350 and for 25 km is Rs 800. The charge for a distance of 30 km is

(a) Rs 800 (b) Rs 750 (c) Rs 900 (d) Rs 950

26. The marks of 3 students A, B and C are in the ratio 10: 12: 15. If the maximum marks of the paper are 100, then the marks of B cannot be in the range of

(a) 20 - 30 (b) 40 – 50 (c) 70 – 80 (d) 80 – 90

27. The average of the test scores of a class of 'm' student is 70 and that of 'n' students is 91. When the scores of both the classes are combined, the average is 80. What is n/m?

(a) 11/10 (b) 13/10 (c) 10/13 (d) 10/11

28. The average salary per head of all workers of an institution is Rs 60. The average salary per head of 12 officers is Rs 400. The average salary per head of the rest is Rs 56. Then the total number of workers in the institution is

(a) 1030 (b) 1032 (c) 1062 (d) 1060

29. A cricket played 80 innings and scored an average of 99 runs. His score in the last inning is zero run. To have an average of 100 at the end, his score in the last innings should have been

(a) 10 runs (b) 1 run (c) 60 runs (d) 80 runs

30. A man spends an average of Rs 1694.70 per month for the first 7 months and Rs 1810.50 per month for the next 5 months. His monthly salary if he saves Rs 3084.60 during the whole year is

(a) Rs 2400 (b) Rs 3000 (c) Rs 1000 (d) Rs 2000

31. Three years ago, the average age of A, B and C was 27 years, and that of B and C five years ago was 20 years. A's present age is

(a) 30 years (b) 35 years (c) 40 years (d) 48 years

32. The average height of the basketball team A is 5 feet 11 inches and that of B is 6 feet 2 inches. There are 20 players in team A and 18 players in team B. The overall average height is

(a) 72.42 inches (b) 72 inches (c) 70.22 inches (d) 70 inches

33. A shopkeeper sells a transistor at 15% above its cost price. If he had bought it at 5% more than what he paid for it and sold it for Rs 6 more, he would have gained 10%. The cost price of the transistor is

(a) Rs 800 (b) Rs 1000 (c) Rs 1200 (d) Rs 1400

34. A seller user 920 g in place of one kg to sell his articles at 15% gain on cost price, the actual percentage of profit is

(a) 20 (b) 15 (c) 25 (d) 30

35. A man sold two houses for Rs 96000 each. In the sale of the first house, he incurred 20% profit and in the sale of the second, he incurred 20% loss. What is the gain or loss percentage in total?

(a) 6% gain (b) 6% loss (c) 4% gain (d) 4% loss

36. The price of a land passing through three hands, rises on the whole by 65%. If the first and second sellers earned 20% and 25% profit respectively. Find the profit earned by the third seller.

(a) 20% (b) 55% (c) 10% (d) 25%

37. One year payment to the servant is Rs 500 plus one shirt. The servant leaves after 10 months and receives Rs 350 and a shirt of the same value. What is the price of the shirt?

(a) Rs 150 (b) Rs 350 (c) Rs 400 (d) Rs 500

38. A person purchased a certain number of articles at 11 articles for Rs 10 and sold them at 10 articles for Rs 11. Find the gain percentage.

(a) 22 (b) 20 (c) 1 (d) 21

39. Of the adult population in a certain city, 45% of men and 25% of women are married. Assuming that no man marries more than one women, and vice versa, the percentage of total population of adults who are married, is

(a) 33.33 (b) 35.14 (c) 31.1 (d) 30

40. A garrison is provided with ration for 72 soldiers to last for 54 days. Find how long would the same amount of food last for 90 soldiers. If the individual ration is reduced by 10%?

(a) 48 days (b) 72 days (c) 54 days (d) 126 days

41. In an examination paper of five questions, 5% the candidates answered all of them and 5% answered none. Of the rest, 25% candidates answered only one question and 20% answered 4 questions and 20% answered 4 questions. If 396 candidates answered either 2 questions or 3 questions, the number of candidates that appeared for the examination was

(a) 800 (b) 1000 (c) 850 (d) 900

42. In a test, A scored 10% more than B and scored 5% more C. If C scored 300 marks out of 400, then A's marks are

(a) 310 (b) 325 (c) 350 (d) 360

43. A train crosses a bridge of length 150 m in 15 seconds and a man standing on it in 9 sec. The train is travelling at a uniform speed. Length of the train is

(a) 225 m (b) 200 m (c) 135 m (d) 90 m

44. Arun and Bhaskar start from place P at 6 am and 7.30am respectively and run in the same direction. Arun and Bhaskar run at 8 km/h and 12 km/h respectively. Bhaskar overtakes Arun at

(a) 10:30 am (b) 9 am (c) 11:30 am (d) 11 am

45. A man can row at 10 km/h in still water. If it takes a total of 5 hours for him to go to a place 24 km away and return, then the speed of the water current is

(a) 2 km/h (b) 3 km/h (c) $\frac{1}{2}$ km/h (d) 1 km/h

46. A man started 20 min late and travelling at a speed of $1\frac{1}{2}$ times of his usual speed reaches his office in time. The time taken by the man to reach his office at his speed is

(a) 40 min (b) 1 h 20 min (c) 1 h (d) 30 min

47. Divided Rs 15494 between A and B so that A's share at the end of years may be equal to B's share at the end of 11 years, compound interest being 20% per annum. Then A's share is

(a) Rs 8000 (b) Rs 9140 (c) Rs 9144 (d) Rs 9414

48. The principal amount which yields a compound interest of Rs 208 in the second year at 4% is

(a) Rs 5000 (b) Rs 10000 (c) Rs 13000 (d) Rs 6500

49. An amount is invested in a blank at compound rate of interest. The total amount, including interest, after first and third years is Rs 1200 and Rs 1587 respectively. What is the rate of interest?

(a) 10% (b) 3.9% (c) 12% (d) 15%

50. The difference between compound and simple rates of interest on Rs 10000 for 3 years at 5% per annum is

(a) Rs 76.25 (b) Rs 76.75 (c) Rs 76.50 (d) Rs 76

51. A solid consist of circular cylinder with exact fitting right circular cone placed on the top. The height of the cone is h. If total volume of the solid is three times the volume of the cone, then the height of the circular cylinder is

(a) 2 h (b) $\frac{2h}{3}$ (c) 4 h (d) $\frac{3h}{2}$

52. Water flows at a rate of 10 meters per in diameter. How long will it take to fill up a conical vessel whose diameter at the base is 40 cm and depth is 24 cm?

(a) 51 min 12 sec (b) 52 min 1 sec (c) 48 min 15 sec (d) 55 min

53. The three perpendicular distances of three sides of an equilateral triangle from a point which lies inside that triangle are 6 cm, 9 cm and 12 cm respectively. The perimeter of the triangle is

(a) $42\sqrt{2}$ cm (b) $45\sqrt{3}$ cm (c) $52\sqrt{2}$ cm (d) $54\sqrt{3}$ cm

54. The area of a right-angled triangle is 24 cm^2 and one of the sides containing the right angle is 6 cm. The altitude on the hypotenuse is

(a) 3.6 cm (b) 4.8 cm (c) 5.2 cm (d) 12 cm

55. A cost of cultivating a square field at a rate of Rs 135 per hectare is Rs 1215. The cost of putting a fence around it at the rate of 75 paise per metre would be

(a) Rs 360 (b) Rs 810 (c) Rs 900 (d) Rs 1800

56. The area of a trapezium is 384 cm^2. If its parallel sides are in ratio 3: 5 and the perpendicular distance between them is 12 cm, the smaller of the parallel sides is

(a) 20 cm (b) 24 cm (c) 30 cm (d) 36 cm

57. The perimeter of the triangular base of a right prism is 60 cm and the sides of the base are in the ratio 5: 12: 13. Then its volume will be (height of the prism being 50 cm)

(a) 6000 cm^3 (b) 6600 cm^3 (c) 5400 cm^3 (d) 9600 cm^3

58. If the length of a rectangular parallelepiped is 3 times of its breadth and 5 times of its height and its volume is 14400 cu cm, then area of the total surface will be

(a) 2420 sq cm (b) 3320 sq cm (c) 4320 sq cm (d) 5320 sq cm

59. The capacities of two hemispherical bowls are 6.4 litres and 21.6 litres respectively. Then the ratio of their internal curved surface areas will be

(a) 4 : 9 (b)2 : 3 (c) $\sqrt{2} : \sqrt{3}$ (d) 16 : 81

60. Let A and B be two solid spheres such that the surface area of B is 300% higher than the surface area of A. The volume of A is found to be k% lower than the volume of B. The value of k must be

(a) 85.5 (b) 92.5 (c) 90.5 (d) 87.5

61. The ratio of the areas of the circum circle and the incircle of a square is

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

62. From a circular sheet of paper of radius 10 cm, a sector of area 40% is removed. If the remaining part is used to make a conical surface, then the ratio of the radius and the height of the cone is

(a) 1 : 2 (b) 1 : 1 (c) 3 : 4 (d) 4 : 3

63. If the area of the circular shell having inner and outer radii of 8 cm and 12 cm respectively is equal to the total surface area of cylinder of radius R_1 and height h, then h, in terms of R_1 will be

(a) $\frac{3R_1^2-30}{7R_1}$ (b) $\frac{R_1^2-40}{R_1^2}$ (c) $\frac{30-R_1}{R_1^2}$ (d) $\frac{40-R_1^2}{R_1}$

64. A well of radius 3.5 m is dug 16 m deep. The earth removed is spread over an area of 400 m^2 to form a platform. Height of the platform is

(a) 1.54 m (b) 154 m (c) 7.7 m (d) 77 m

65. The ratio of the number of sides of two regular polygons is 1: 2. If each interior angle of the first polygon is 120^o, then the measure of each interior angle of the second polygon is

(a) 140^o (b) 135^o (c) 150^o (d) 160^o

66. If $x = \sqrt{\frac{\sqrt{5}+1}{\sqrt{5}-1}}$, then $x^2 - x - 1$ is equal to

(a) 0 (b) 1 (c) 2 (d) 5

67. If $x = \frac{\sqrt{3}}{2}$, then the value of $\frac{1+x}{1+\sqrt{1+x}} + \frac{1-x}{1-\sqrt{1-x}}$ is equal to

(a) 0 (b) 1 (c) $\frac{\sqrt{3}}{2}$ (d) $\sqrt{3}$

68. The area of the region bounded by y = IxI - 5 with the co-ordinate axes is

(a) 25 sq units (b) 52 sq units (c) 50 sq units (d) 20 sq units

69. The real value of x, that satisfies the equation $\sqrt{4x-9} + \sqrt{4x+9} = 5 + \sqrt{7}$ is

(a) $\sqrt{5}$ (b) $2\sqrt{3}$ (c) $\frac{3}{\sqrt{7}}$ (d) 4

70. Find the value of $a^3 + b3 + c^3 - 3abc$ when a = 225, b = 227.

(a) 2304 (b) 2430 (c) 2034 (d) 2340

71. Number of solution of the equation $\sqrt{x^2 - x + 1} + \frac{1}{\sqrt{x^2-x+1}} = 2 - x^2$ is

(a) 0 (b) 1 (c) 2 (d) 4

72. If $x + \frac{a}{x} = 1$, then the value of $\frac{x^2+x+a}{x^3-x^2}$ is

(a) –2 (b) $-\frac{a}{2}$ (c) $\frac{2}{a}$ (d) $-\frac{2}{a}$

73. If $\sqrt{28 - 6\sqrt{3}} = \sqrt{3}a + b$, (where a, b are rationals), value of (a + b) is×××××

(a) –2 (b) 2 (c) 1 (d) –1

74. $2^{32} - (2 + 1)(2^2 + 1)(2^4 + 1)(2^8 + 1)(2^{16} + 1))$ is equal to

(a) 0 (b) 1 (c) 2 (d) 2^{16}

75. If the expression x + 809436 × 809438 be a perfect square, then the value of x is

(a) 0 (b) 1 (c) 809436 (d) 809438

76. If O is the orthocenter of the Δ ABC and ∠ BAC =80^o, then measure of ∠ BOC is

(a) 80o (b) 100^o (c) 120^o (d) 90^o

77. Two chords of a circle, of length 2a and 2b are mutually perpendicular. If the distance of the point, at which the chords intersect, from the centre of the circle is c (c< radius of the circle), then the radius of the circle is

(a) a + b – c (b) $\frac{\sqrt{a^2+b^2-c^2}}{2}$ (c) $\frac{\sqrt{a^2+b^2-c^2}}{2}$ (d) $\frac{\sqrt{ab}}{2}$

78. Two concentric circles having common centre 'O' and chord AB of the outer circle intersect

the inner circle at points C and D. If distance of chord from the centre is 3 cm, outer radius is 13 cm and inner radius is 7 cm, then length of AC in cm is

(a) $8\sqrt{10}$ (b) $6\sqrt{10}$ (c) $4\sqrt{10}$ (d) $2\sqrt{10}$

79. If PT is a tangent and AB is a chord of a circle and they intersect at the point P externally and PT = 2AP and AB = 18 units, then PT =?

(a) 6 units (b) 9 units (c) 12 units (d) 15 units

80. In Δ ABC, DE ‖ BC where DE intersects AB and AC at the points D and E respectively. If AD = 6 cm, DB = 12x – 6 cm, and AE = 2x cm and CE = 16 – 2x cm, then the value of x is

(a) 6 (b) 4 (c) 2 (d) 8

81. If the sides of a quadrilateral ABCD touch a circle and AB = 6 cm, CD = 5 cm, BC = 7 cm, then the length of AD in cm is

(a) 4 (b) 6 (c) 8 (d) 9

82. AB is the diameter of a circle with centre O and P is a point on it. If ∠POA = 120°, then the value of ∠PBO is

(a) 30° (b) 50° (c) 60° (d) 40°

83. From the circumcentre I of the triangle ABC, perpendicular ID is drawn on BC, if ∠BAC = 60°, then the value ∠BID is

(a) 75° (b) 60° (c) 45° (d) 80°

84. PQ is a chord of length 6 cm of a circle of radius 5 cm. tangents to the circle at P and Q meet at T. length of TP is

(a) 4.75 cm (b) 2.75 cm (c) 3.75 cm (d) 4.25 cm

85. O is the centre of a circle. AC and BD are two chords of the circle intersecting each other at P. If ∠AOB = 15° and ∠APB = 30°, then tan2 ∠APB + cot² ∠COD is equal to

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{4}{3}$ (d) $\frac{10}{3}$

86. Δ ABC is a right- angled triangle, where ∠ABC = 90°. If AC $2\sqrt{5}$ and AB – AC 2, then the value of cos² A – cos² C is

(a) $\frac{1}{\sqrt{5}}$ (b) $\sqrt{5}$ (c) $\frac{1}{2}$ (d) $\frac{3}{5}$

87. At the foot of a mountain, the elevation of its summit is 45°. After ascending 2 km towards the mountain upon an incline of 30°, the elevation charges to 60°. The height of the mountain is

(a) $(\sqrt{3} - 1)$ km (b) $(\sqrt{3} + 1)$ km (c) $(\sqrt{3} - 2)$ km (d) $(\sqrt{3} + 2)$ km

88. The maximum value of $\sin^8\theta + \cos^{14}\theta$, for all real values of θ is

(a) 1 (b) $\sqrt{2}$ (c) $\frac{1}{\sqrt{2}}$ (d) 0

89. If $l\cos^2\theta + m\sin^2\theta = \frac{\cos^2\theta\ (\operatorname{cosec}^2\theta+1)}{\operatorname{cosec}^2\theta-1}$, $0^o < \theta < 90^o$, then $\tan\theta =$

(a) $\sqrt{\frac{l-2}{1-m}}$ (b) $\sqrt{\frac{2-l}{1-m}}$ (c) $\sqrt{\frac{l-2}{m-1}}$ (d) $\sqrt{\frac{l-1}{2-m}}$

90. If $\sin(10^o\ 6'\ 32'') = a$, then the value of $\cos(79^o\ 53'\ 28'') + \tan(10^o\ 6'\ 32'')$ is

(a) $\frac{a(1+\sqrt{1-a^2})}{\sqrt{1-a^2}}$ (b) $\frac{1-\sqrt{1-a^2}}{\sqrt{1-a^2}}$ (c) $\frac{\sqrt{1-a^2}+a}{\sqrt{1-a^2}}$ (d) $\frac{a\sqrt{1-a^2}+1}{\sqrt{1-a^2}}$

91. If $\sin\theta + \operatorname{cosec}\theta = 2$, then the value of $\sin^7\theta + \operatorname{cosec}^7\theta$ is

(a) 1 (b)1/2 (c) 2 (d) 0

92. $\tan\frac{\pi}{8}\tan\frac{\pi}{12}\tan\frac{3\pi}{8}\tan\frac{5\pi}{12} - \sin^2\frac{\pi}{6} =$

(a) $\frac{1}{2}$ (b) $\frac{2-\sqrt{3}}{2}$ (c) $\frac{1}{4}$ (d) $\frac{3}{4}$

93. $x\sin^3\alpha + y\cos^3\alpha = \sin\alpha\cos\alpha \neq 0$ and $x\sin\alpha - y\cos\alpha = 0$, then the value

(a) 1 (b) 2 (c) 4 (d) 9

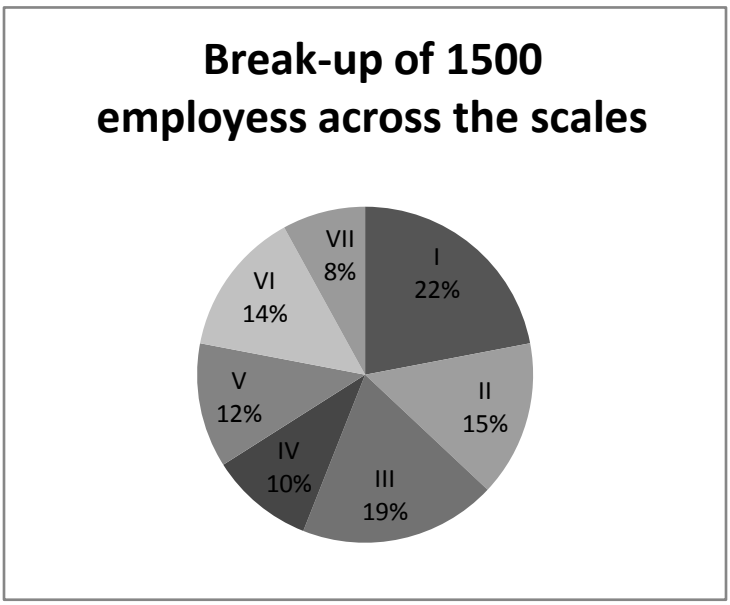
94. Number of integral values of x for which $\sin\theta = \frac{4x-3}{9}$, where $0^o \leq \theta\ 90^o$, is

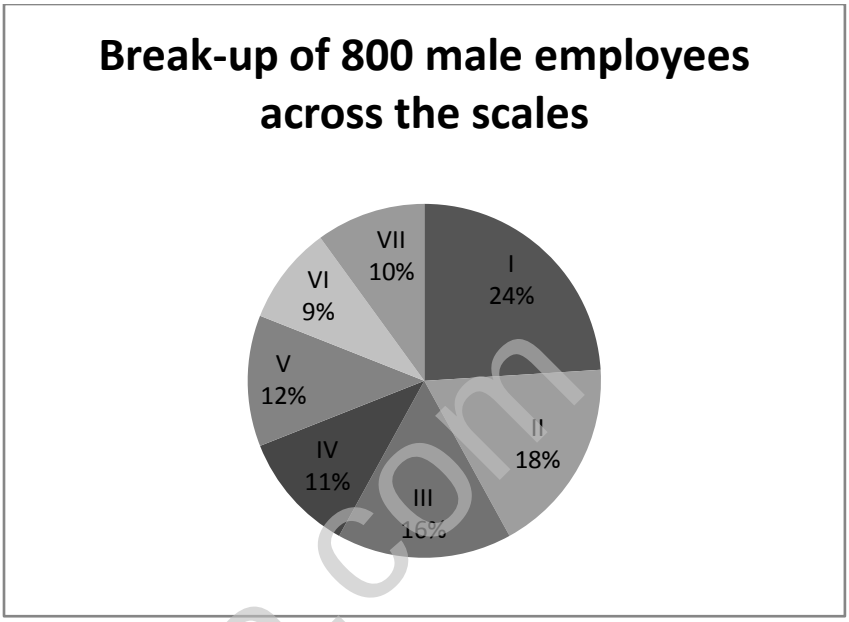
(a) 5 (b) 4 (c) 3 (d) 2

95. If $x = \sin\theta + \cos\theta$ and $y = \sec\theta + \operatorname{cosec}\theta$, find y in terms of x.

(a) $\frac{x}{x^2+1}$ **(b)** $\frac{x}{x^2-1}$ **(c)** $\frac{2x}{x^2-1}$ **(d)** $\frac{2x}{x^2+1}$

Directions (Q. Nos. 96-100) *The following pie chart show the details of 1500 employees working in a company in various scales and also the break-up of 800 male employees across the scales. Study the graphs and answer the question.*





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99. The number of scales in which the female workface is less than the average female workface working in any scale is

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100. Had the total number of employees working in the company been 1600 (800 male, 800 female) and pie charts of break-up across the scales the same, the percentage increase or decrease of female workforce in scale VII is

(a) 10% decrease (b) 15% increase (c) 20% decrease (d) 20% increase