PREVIOUS YEAR PAPER

SSC CGL 2016 Tier II — Quantitative Abilities — 30 November 2016

SSC CGL · 30 November 2016 · 10:00 AM - 12:00 PM

81 of the paper's 95 questions · marks per question not printed on the response sheet · 120 minutes

Left out of the original paper: 14 (any question that needs a figure or formatting we cannot show, has no answer in the response sheet, or could not be checked against a second copy of the paper).

Questions from the Staff Selection Commission's paper of 30 November 2016, 10:00 AM - 12:00 PM. Each question is followed by its answer, and the answer key is repeated on the last page.

Take it as a timed practice test: exambharo.com/ssc-cgl/previous-year-papers/ssc-cgl-2016-tier-2-quant-30-nov/

Quantitative Abilities

1. Each member of a club contributes as much rupees and as much paise as the number of members of the club. If the total contribution is Rs. 2525, then the number of members of the club is

(a) 60

(b) 45

(c) 55

(d) 50

Answer: (d)

2. The numerator of a fraction is multiple of two numbers. One of the numbers is greater than the other by 2. The greater number is smaller than the denominator by 4. If the denominator 7+C (C > -7) is a constant, then the minimum value of the fraction is

(a) 5

(b) 1/5

(c) -5

(d) -1/5

Answer: (d)

3. A number when divided by the sum of 555 and 445 gives two times their difference as quotient and 30 as the remainder. The number is

(a) 220030

(b) 22030

(c) 1220

(d) 1250

Answer: (a)

4. When a number x is divided by a divisor it is seen that the divisor = 4 times the quotient = double the remainder. If the remainder is 80 then the value of x is

(a) 6480

(b) 9680

(c) 8460

(d) 4680

Answer: (a)

5. On dividing a certain number by 342 we get 47 as remainder. If the same number is divided by 18, what will be the remainder ?

(a) 15

(b) 11

(c) 17

(d) 13

Answer: (b)

6. The sum of three numbers is 252. If the first number is thrice the second and third number is two-third of the first, then the second number is

(a) 41

(b) 21

(c) 42

(d) 84

Answer: (c)

7. The sum of squares of three positive integers is [illegible]. If the sum of squares of two numbers is twice the third, their product is

(a) 255

(b) 260

(c) 265

(d) 270

Answer: (a)

8. The sum of three numbers is 2, the 1st number is 1/2 times the 2nd number andthe 3rd number is 1/4 times the 2nd number. The 2nd number is

(a) 7/6

(b) 8/7

(c) 9/8

(d) 10/9

Answer: (b)

9. Three numbers are in Arithmetic Progression (AP) whose sum is 30 and the product is 910. Then the greatest number in the AP is

(a) 17

(b) 15

(c) 13

(d) 10

Answer: (c)

11. A canal of a village can be cleaned by 24 villagers in 12 days. The number of days in which 36 villagers can clean the canal is ?

(a) 18

(b) 8

(c) 72

(d) 16

Answer: (b)

12. A and B can do a piece of work in 18 days, B and C in 24 days, A and C in 36 days. Working together they can do the work in

(a) 12 days

(b) 13 days

(c) 16 days

(d) 26 days

Answer: (c)

13. Ramesh and Rahman can do a work in [illegible] and [illegible] days respectively. After doing collectively 10 days of work, they leave the work due to illne[illegible] Suresh completes rest of the work in 3 days. How many days Suresh alone can take to complete the whole work ?

(a) 32 days

(b) 28 days

(c) 29 days

(d) 30 days

Answer: (d)

15. A can do a piece of work in 10 days and B can do it in 12 days. They work together for 3 days. Then B leaves and A alone continues. 2 days after that C joins and the work is completed in 2 days more. In how many days can C do it, if he works alone ?

(a) 30 days

(b) 50 days

(c) 40 days

(d) 60 days

Answer: (c)

16. The ratio of the amount of work done by (x-1) labours in (x+1) days and that done by (x+1) labours in (x+2) days is 5 : 6. Then the value of x is (x-1)

(a) 16

(b) 15

(c) 17

(d) 14

Answer: (a)

18. A dealer is selling an article at a discount of 5% on the Marked price. If the Marked price is 12% above the cost price and the article was sold for Rs. 532 then the cost price is (in Rs.)

(a) 500

(b) 525

(c) 505

(d) 520

Answer: (a)

19. A shopkeeper increases the price of an object by 40% and then sells it at 25% discount on the marked price. If the selling price of such an object be Rs. 2100, its cost price for the shopkeeper was ?

(a) 3000

(b) 1500

(c) 1750

(d) 2000

Answer: (d)

21. Find the fraction which bears the same ra[illegible] 27 that 3/7 does to 5/9 .

(a) 5/9

(b) 1/35

(c) 45/7

(d) 7/45

Answer: (b)

22. The ratio of number of boys to the number of girls in a school of 432 pupils is 5 : 4. When some new boys and girls are admitted, the number of boys increase by 12 and the ratio of the boys to girls changes to 7 : 6. The number of new girls admitted is

(a) 12

(b) 14

(c) 24

(d) 20

Answer: (c)

23. If the three numbers in the ratio 3:2:5 be such that the sum of the squares is equal to 1862 then which number is the middle one.

(a) 16

(b) 14

(c) 13

(d) 15

Answer: (b)

24. Two bottles contain acid and water in the ratio 2 : 3 and 1 : 2 respectively. These are mixed in the ratio 1 : 3. What is the ratio of acid and water in the new mixture ?

(a) 7:13

(b) 11:57

(c) 23:37

(d) 1:3

Answer: (a)

25. The ratio of the number of boys and girls in a school is 3:2. If 20% of the boys and 25% of the girls are scholarship holders, the percentage of the school students who are not scholarship holders is

(a) 56

(b) 78

(c) 70

(d) 80

Answer: (b)

26. In two types of brass, the ratios of Copper to Zinc are 8:3 and 15:7 respectively. If the two types of brass be melted and mixed in the ratio 5:2 a new type of brass is obtained. The ratio of Copper to Zinc in this new type of brass is

(a) 3:2

(b) 2:3

(c) 3:4

(d) 5:2

Answer: (d)

27. An hour-long test has 60 problems. If a student completes 30 problems in 25 minutes, then the required seconds he has taken on average for computing each of the remaining problems is

(a) 70 seconds

(b) 50 seconds

(c) 40 seconds

(d) 30 seconds

Answer: (a)

28. A and B have their annual average income Rs. 80,000. B and C have their annual average income Rs. 75,000. C and A have their annual average income Rs. 78,000. The annual income of A is ?

(a) Rs. 81000 81000

(b) Rs. 82000 82000

(c) Rs. 83000 83000

(d) Rs. 84000 84000

Answer: (c)

29. A car travels from A to B with 40 Km/h and returns from B to A with 60 Km/h. Its average speed during the whole journey is

(a) 48 km/h

(b) 50 km/h

(c) 45 km/h

(d) 60 km/h

Answer: (a)

30. In the first 10 overs of a cricket game, the run rate was only 3.2. The run rate in the remaining 40 overs to reach the target of 282 runs is

(a) 6.4

(b) 6.3

(c) 6.25

(d) 6.5

Answer: (c)

31. The average (arithmetic mean) amount o[illegible]s of ten students is Rs. 600. Three of the students have no savings at all and each of the otners have at least Rs. 250 including Nihar, who has exactly Rs. 1300. The largest amount, in Rs., that any one student could have is

(a) 3250

(b) 3450

(c) 3650

(d) 3850

Answer: (b)

33. By what fraction selling price (S.P.) must be multiplied to get the cost price (C.P.) if the loss is 20% ?

(a) 4/5

(b) 8/5

(c) 5/4

(d) 6/5

Answer: (c)

34. A,B and C together start a business. Three times the investment of A equals four times the Investment of B and the Capital of B is twice that of C. The ratio of share of each in the profit.

(a) 8:3:6

(b) 3:8:6

(c) 3:6:8

(d) 8:6:3

Answer: (d)

35. Ramesh sold a book at a loss of 30%. If he had sold it for Rs. 140 more, he would have made a profit of 40%. The cost price of the book is

(a) Rs. 280 280

(b) Rs. 200
200

(c) Rs. 260 260

(d) Rs. 300 300

Answer: (b)

36. A shopkeeper purchased 510 eggs at the rate of Rs. 20 per dozen. 30 eggs were broken on the way. In order to make a gain of 20%, he must sell the remaining eggs at the rate of

(a) Rs. 22.50 per dozen 22.50

(b) Rs. 25.50 per dozen 25.50

(c) Rs. 26 per dozen 26

(d) Rs. 26.50 per dozen 26.50

Answer: (b)

38. A man buys 3 type-I cakes and 6 type-II c[illegible] or Rs. 900. He sells type-I cakes at a profit of 15% and type-II cakes at a loss of 10%. If his overall profit is Rs.30, the cost price (in Rs.) of a type-I and of a type-II cakes is

(a) 100, 100

(b) 160, 70

(c) 180, 60

(d) 120, 90

Answer: (b)

40. A Village lost 12% of its goats in a flood and 5% of remainder died from diseases. If the number left now is 8360. What was the orignal number before the flood?

(a) 1000

(b) 10000

(c) 1,00,000

(d) 8360

Answer: (b)

41. A scored 72% in a paper with a maximum marks of 900 and 80% in another paper with a maximum marks of 700. If the result is based on the combined percentage of two papers, the combined percentage is

(a) 75.5%

(b) 76%

(c) 76.5%

(d) 77%

Answer: (a)

42. An army lost 10% of its men in war, 10% of the remaining died due to disease and 10% of the rest were declared disabled. Thus the strength of the army was reduced to 7,29,000 active men. The original strength of the army was

(a) 1500000

(b) 1000000

(c) 1200000

(d) 1100000

Answer: (b)

43. A bus travels 150 Km in 3 hours and then travel next 2 hours at 60 Km/hr. Then the average speed of the bus will be

(a) 55 Km/hr

(b) 54 Km/hr

(c) 50 Km/hr

(d) 60 Km/hr

Answer: (b)

44. A man can cover a certain distance in 3 hours 36 minutes if he walks at the rate of 5 Km/hr. If he covers the same distance on cycle at the rate of 24 Km/hr, then the time taken by him in minutes is

(a) 40

(b) 45

(c) 50

(d) 55

Answer: (b)

45. Due to inclement weather, an air plane reduced its speed by 300 Km/ hr, and reached the destination of 1200 km late by 2hrs. Then the schedule duration of the flight was.

(a) 1 hour

(b) 1.5 hour

(c) 2 hour

(d) 2.5 hour

Answer: (c)

46. Three runners A,B and C run a race, with runner A finishing 12 meters ahead of runner B and 18 meters ahead of runner C, while runner B finishes 8 meters ahead of runner C. Each runner travels the entire distance at a constant speed. The length of the race is

(a) 36 Metres

(b) 48 Metres

(c) 60 Metres

(d) 72 Metres

Answer: (b)

47. The compound interest on Rs. 4000 for 4 years at 10% per annum will be 4000

(a) Rs. 1856.40 1856.40

(b) Rs. 1600 1600

(c) Rs. 1856 1856

(d) Rs. 1756.60 1756.60

Answer: (a)

48. A sum of Rs. 4000 is lent out in two parts, one at 8% simple interest and the other at 10% simple interest. If the annual interest is Rs. 352. The sum lent at 8% is 4000

(a) Rs. 2900 2900

(b) Rs. 2200 2200

(c) Rs. 2400 2400

(d) Rs. 3100 3100

Answer: (c)

49. If the difference of the compound inter[illegible] and [illegible] simple interest on a sum of money for 3 years is Rs. 186. Find the sum of money, if the rate [illegible]est in both case be 10%

(a) Rs. 5500 5500

(b) Rs.7200 7200

(c) Rs.6500 6500

(d) Rs.6000 6000

Answer: (d)

50. A sum of money is invested at 20% compound interest (compounded annually). It would fetch Rs. 723 more if interest is compounded half-yearly. The sum
is

(a) Rs.15,000 15,000

(b) Rs.30,000 30,000

(c) Rs.20,000 20,000

(d) Rs.7,500 7,500

Answer: (b)

51. The height of an equilateral triangle is 18 cm. Its area is

(a) $36\sqrt{3}$ sq. m.

(b) $108\sqrt{3}$ sq. cm.

(c) 108 sq. cm.

(d) $96\sqrt{3}$ sq. m.

Answer: (b)

52. If the sum of radius and height of a solid cylinder is 20 cm and its total surface area is 880 cm2 then its volume is

(a) 1760 cm3

(b) 8800 cm3

(c) 2002 cm3

(d) 4804 cm3

Answer: (c)

53. A solid sphere and a solid hemisphere have the same total surface area. The ratio of their volumes is (Take, π=22/7)

(a) $3\sqrt{3} : 4$

(b) $4 : 3\sqrt{3}$

(c) $3 : 4\sqrt{3}$

(d) $1 : 12\sqrt{3}$

Answer: (a)

54. The sides of a triangle are in the ratio 1/2 : 1/3 : [illegible] and its perimeter is 104 cm. The length of the longest side (in cm) is

(a) 52

(b) 48

(c) 32

(d) 26

Answer: (b)

56. The base of a right prism is a trapezium whose the length of parallel sides are 25 cm and 11 cm and the perpendicular distance between the parallell sides in 16 cm. If the height of the prism is 10 cm, then the volume of the prism is

(a) 1440 cu.cm

(b) 1540 cu.cm

(c) 2880 cu.cm

(d) 960 cu.cm

Answer: (c)

57. The external and the internal radii of a hollow right circular cylinder of height 15 cm are 6.75 cm and 5.25 cm respectively. If it is melted to form a solid cylinder of height half of the orignal cylinder, then the radius of the solid cylinder is

(a) 6 cm

(b) 6.5 cm

(c) 7 cm

(d) 7.25 cm

Answer: (a)

58. The length and breadth of a rectangular piece of a land are in a ratio 5:3. The owner spent Rs. 6000 for surrounding it from all sides at Rs.7.50 per metre. The difference between its length and breadth is

(a) 50 metres

(b) 100 metres

(c) 150 metres

(d) 250 metres

Answer: (b)

59. The ratio between the area of a square and that of a circle, when the length of a side of the square is equal to that of the diameter of the circle, is (take π=22/7)

(a) 14 : 11

(b) 28 : 11

(c) 7 : 22

(d) 22 : 7

Answer: (a)

60. A piece of wire 132 cm long is bent successively in the shape of an equilateral triangle, a square and a circle. Then area will be longest in shape of

(a) Circle

(b) Equilateral triangle

(c) Square

(d) Equal in all the shapes

Answer: (a)

61. If a cone is divided into two parts by drawing a plane through the midpoints of its axis, then the ratio of the volume of the 2 parts of the cone is

(a) 1 : 2

(b) 1 : 4

(c) 1 : 7

(d) 1 : 8

Answer: (c)

62. Two regular polygons are such that the ratio between their number of sides is 1:2 and the ratio of measures of their interior angles is 3:4. Then the number of sides of each polygon are

(a) 10, 20

(b) 4, 8

(c) 3, 6

(d) 5, 10

Answer: (d)

63. In an isosceles triangle, the length of each equal side is twice the length of the third side. The ratio of areas of the isosceles triangle and an equilateral triangle with same perimeter is

(a) 30√5 : 100

(b) 32√5 : 100

(c) 36√5 : 100

(d) 42√5 : 100

Answer: (c)

64. A right circular cylinder is partially filled with water. Two iron spherical balls are completely immersed in the water so that the height of the water in the cylinder rises by 4 cm. If the radius of one ball is half of the other and the diameter of the cylinder is 18 cm, then the radii of the spherical balls are

(a) 6 cm and 12 cm

(b) 4 cm and 8 cm

(c) 3 cm and 6 cm

(d) 2 cm and 4 cm

Answer: (c)

65. The whole surface area of a pyramid whose base is a regular polygon is 340 cm2 and area of its base is 100 cm2. Area of each lateral face is 30 cm2. Then the number of lateral faces is

(a) 8

(b) 9

(c) 7

(d) 10

Answer: (a)

66. If P = 99, then the value of P(P2 + 3P + 3) is

(a) 9999

(b) 999999

(c) 99999

(d) 9999999

Answer: (b)

68. If the sum of squares of two real numbers is 41 and their sum is 9. Then the sum of cubes of these two numbers is

(a) 169

(b) 209

(c) 189

(d) 198

Answer: (c)

69. A complete factorisation of x4 + 64 is

(a) (x2 + 8)2

(b) (x2 + 8)(x2 - 8)

(c) (x2 - 4x + 8)(x2 -4x - 8)

(d) (x2 + 4x + 8)(x2 - 4x + 8)

Answer: (d)

70. If a + b = 1, then a4 + b4 - a3 - b3-2a2b2+ ab is equal to

(a) 1

(b) 2

(c) 4

(d) 0

Answer: (d)

71. If x2 + y2 + 6x + 5 = 4(x - y) then x - y is

(a) 1

(b) -1

(c) 0

(d) 4

Answer: (a)

72. If a = 299, b = 298, c = 297 then the value of 2a3 + 2b3 + 2c3 - 6abc is

(a) 5154

(b) 5267

(c) 5364

(d) 5456

Answer: (c)

74. If x = 1 + √2 + √3 , then the value of 2×4 - 8×3 - 5×2 + 26x - 28 is

(a) 2√2

(b) 3√3

(c) 5√5

(d) 6√6

Answer: (d)

76. In an equilateral triangle ABC, G is the centroid. Each side of the triangle is 6 cm. The length of AG is

(a) $2\sqrt{2}$ cm

(b) $3\sqrt{2}$ cm

(c) $2\sqrt{3}$ cm

(d) $3\sqrt{3}$ cm

Answer: (c)

77. PQ is a tangent to the circle at T. If TR = TS where R and S are points on the circle and ∠RST = 65°, the ∠PTS =

(a) 65°

(b) 130°

(c) 115°

(d) 55°

Answer: (c)

78. In ΔABC, AC = BC and ∠ABC = 50°, the side BC is produced to D so that BC = CD then the value of ∠BAD is

(a) 80°

(b) 40°

(c) 90°

(d) 50°

Answer: (c)

79. In a circle, a diameter AB and a chord PQ (which is not a diameter) intersect each other at X perpendicularly. If AX : BX = 3 : 2 and the radius of the circle is 5 cm, then the length of chord PQ is

(a) $2\sqrt{13}$ cm

(b) $5\sqrt{3}$ cm

(c) $4\sqrt{6}$ cm

(d) $6\sqrt{5}$ cm

Answer: (c)

80. ABC is a triangle, PQ is line segment intersecting AB in P and AC in Q and PQ II BC. The ratio of AP : BP = 3 : 5 and length of PQ is 18 cm. The length of BC is

(a) 28 cm

(b) 48 cm

(c) 84 cm

(d) 42 cm

Answer: (b)

81. If the parallel sides of a trapezium are 8 cm and 4 cm, M and N are the mid points of the diagonals of the trapezium, then length of MN is

(a) 12 cm

(b) 6 cm

(c) 1 cm

(d) 2 cm

Answer: (d)

82. ΔABC is isosceles having AB = AC and ∠A = 40°. Bisectors PO and OQ of the exterior angles ∠ABD and ∠ACE formed by producing BC on both sides, meet at O. Then the value of ∠BOC is

(a) 70°

(b) 110°

(c) 80°

(d) 55°

Answer: (a)

83. An equilateral triangle of side 6 cm is inscribed in a circle. Then radius of the circle is

(a) 2√3 cm

(b) 3√2 cm

(c) 4√3 cm

(d) √3 cm

Answer: (a)

84. In a circle with centre O, AB is a diameter and CD is a chord which is equal to the radius OC. AC and BD are extended in such a way that they intersect each other at a point P, exterior to the circle. The measure of ∠APB is

(a) 30°

(b) 45°

(c) 60°

(d) 90°

Answer: (c)

85. Two chords AB and CD of a circle with centre O intersect at P. If ∠APC = 40°. Then the value of ∠AOC + ∠BOD is

(a) 50°

(b) 60°

(c) 80°

(d) 120°

Answer: (c)

86. If x tan 60° + cos 45° = sec 45° then the value of x2 + 1 is

(a) 6/7

(b) 7/6

(c) 5/6

(d) 6/5

Answer: (b)

87. x, y be two acute angles, x + y < 90° and sin(2x - 20°) = cos(2y + 20°), the value of tan(x + y) is

(a) √3

(b) 1/√3

(c) 1

(d) 2+√2

Answer: (c)

89. (1 + sec 20° + cot 70°)(1 - cosec 20° + tan70°) is equal to

(a) 0

(b) 1

(c) 2

(d) 3

Answer: (c)

90. If tan4θ + tan2θ = 1 then the value of cos4θ + co[illegible] is

(a) 2

(b) 0

(c) 1

(d) -1

Answer: (c)

91. The value of 8(sin6θ + cos6θ) - 12(sin4θ + cos4θ) is equal to

(a) 20

(b) -20

(c) -4

(d) 4

Answer: (c)

92. An aeroplane flying horizontally at a height of 3 Km. above the ground is observed at a certain point on earth to subtend an angle of 60°. After 15 sec flight, its angle of elevation is changed to 30°. The speed of the aeroplane (taking √3 = 1.732) is

(a) 230.63 m/sec

(b) 230.93 m/sec

(c) 235.85 m/sec

(d) 236.25 m/sec

Answer: (b)

93. If the angle of elevation of the sun decreases from 45° to 30°, then the length of the shadow of a pillar increases by 60m. The height of the pillar is

(a) 60(√3+1) m

(b) 30(√3-1) m

(c) 30(√3+1) m

(d) 60(√3-1) m

Answer: (c)

Answer key

Answer key as marked in the Staff Selection Commission's response sheet. "—" means the sheet did not show it clearly.

Quantitative Abilities

1	**(d)**	2	**(d)**	3	**(a)**	4	**(a)**	5	**(b)**	6	**(c)**	7	**(a)**	8	**(b)**
9	**(c)**	11	**(b)**	12	**(c)**	13	**(d)**	15	**(c)**	16	**(a)**	18	**(a)**	19	**(d)**
21	**(b)**	22	**(c)**	23	**(b)**	24	**(a)**	25	**(b)**	26	**(d)**	27	**(a)**	28	**(c)**
29	**(a)**	30	**(c)**	31	**(b)**	33	**(c)**	34	**(d)**	35	**(b)**	36	**(b)**	38	**(b)**
40	**(b)**	41	**(a)**	42	**(b)**	43	**(b)**	44	**(b)**	45	**(c)**	46	**(b)**	47	**(a)**
48	**(c)**	49	**(d)**	50	**(b)**	51	**(b)**	52	**(c)**	53	**(a)**	54	**(b)**	56	**(c)**
57	**(a)**	58	**(b)**	59	**(a)**	60	**(a)**	61	**(c)**	62	**(d)**	63	**(c)**	64	**(c)**
65	**(a)**	66	**(b)**	68	**(c)**	69	**(d)**	70	**(d)**	71	**(a)**	72	**(c)**	74	**(d)**
76	**(c)**	77	**(c)**	78	**(c)**	79	**(c)**	80	**(b)**	81	**(d)**	82	**(a)**	83	**(a)**
84	**(c)**	85	**(c)**	86	**(b)**	87	**(c)**	89	**(c)**	90	**(c)**	91	**(c)**	92	**(b)**
93	**(c)**														