PREVIOUS YEAR PAPER

SSC CGL 2017 Tier II — Quantitative Abilities — 21 February 2018

SSC CGL · 21 February 2018 · 10:30 AM - 12:30 PM

76 of the paper's 99 questions · marks per question not printed on the response sheet · 120 minutes

Left out of the original paper: 23 (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 21 February 2018, 10:30 AM - 12:30 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-2017-tier-2-quant-21-feb/

Quantitative Abilities

1. If A = 1 – 10 + 3 – 12 + 5 – 14 + 7 + ... upto 60 terms, then what is the value of A?

(a) – 360

(b) – 310

(c) – 240

(d) – 270

Answer: (d)

2. How many natural numbers are there between 1000 2000, which when divided by 341 leaves remainder 5?

(a) 3

(b) 2

(c) 4

(d) 1

Answer: (a)

3. Which of the following statement(s) is/are TRUE? I. √(64) + √(0.0064) + √(0.81) + √(0.0081) = 9.07 II. √(0.010201) + √(98.01) + √(0.25) = 11.51

(a) Only I

(b) Only II

(c) Both I and II

(d) Neither I nor II

Answer: (a)

4. Which of the following statement(s) is/are TRUE? I. (0.7)2 + (0.07)2 + (11.1)2 > 123.8 II. (1.12)2 + (10.3)2 + (1.05)2 > 108.3 II. (1.12) + (10.3) + (1.05) > 108.3

(a) Only I

(b) Only II

(c) Both I and II

(d) Neither I nor II

Answer: (b)

6. Which of the following statement(s) is/are TRUE? I. 3/71 < 5/91 < 7/99 II. 11/135 > 12/157 > 13/181

(a) Only I

(b) Only II

(c) Both I and II

(d) Neither I nor II

Answer: (c)

7. If 1 + (1/2) + (1/3) + ... + (1/20) = k, then what is the value of (1/4) + (1/6) + (1/8) + ... + (1/40)?

(a) k/2

(b) 2k

(c) (k – 1)/2

(d) (k + 1)/2

Answer: (c)

9. If x + y = 10 and xy = 4, then what is the value of x4 + y4? 4

(a) 8464

(b) 8432

(c) 7478

(d) 6218

Answer: (b)

10. M is the largest three digit number which when divided by 6 and 5 leaves remainder 5 and 3 respectively. What will be the remainder when M is divided by 11?

(a) 1

(b) 2

(c) 3

(d) 4

Answer: (d)

11. Which of the following statement(s) is/are TRUE? I. √5 + √5 > √7 + √3 II. √6 + √7 > √8 + √5 III. √3 + √9 > √6 + √6

(a) Only I

(b) Only I and II

(c) Only II and III

(d) Only I and III

Answer: (b)

16. If x2 – 16x – 59 = 0, then what is the value of (x – 6)2 + [1/(x – 6)2]? 2

(a) 14

(b) 18

(c) 16

(d) 20

Answer: (b)

18. If a + b + c = 9, ab + bc + ca = 26, a3 + b3 = 91, b3 + c3 = 72 and c3 + a3 = 35, then what is the value of abc? 3

(a) 48

(b) 24

(c) 36

(d) 42

Answer: (b)

19. If x3 – 4×2 + 19 = 6(x – 1), then what is the value of [x2 + (1/x – 4)]?

(a) 3

(b) 5

(c) 6

(d) 8

Answer: (c)

20. Cost of 8 pencils, 5 pens and 3 erasers is Rs 111. Cost of 9 pencils, 6 pens and 5 erasers is Rs 130. Cost of 16 pencils, 11 pens and 3 erasers is Rs 221. What is the cost (in Rs) of 39 pencils, 26 pens and 13 erasers?

(a) 316

(b) 546

(c) 624

(d) 482

Answer: (b)

21. If 2x + 3y – 5z = 18, 3x + 2y + z = 29 ar + y z = 17, then what is the value of xy + yz + zx?

(a) 32

(b) 52

(c) 64

(d) 46

Answer: (b)

22. PQR is an equilateral triangle whose side is 10 cm. What is the value (in cm) of the inradius of triangle PQR?

(a) 5/√3

(b) 10√3

(c) 10/√3

(d) 5√2

Answer: (a)

23. What is the area (in cm) of the circumcircle of a triangle whose sides are 6 cm, 8 cm and 10 cm respectively?

(a) 275/7

(b) 550/7

(c) 2200/7

(d) 1100/7

Answer: (b)

25. ABCD is a trapezium in which AB is parallel to CD and AB = 4(CD). The diagonals of the trapezium intersects at O. What is the ratio of area of triangle DCO to the area of the triangle ABO?

(a) 1 : 4

(b) 1 : 2

(c) 1 : 8

(d) 1 : 16

Answer: (d)

28. PAB and PCD are two secants to a circle. If PA = 10 cm, AB = 12 cm and PC = 11 cm, then what is the value (in cm) of PD?

(a) 18

(b) 9

(c) 20

(d) 12

Answer: (c)

29. Triangle PQR is inscribed in a circle such that P, Q and R lie on the circumference. If PQ is the diameter of the circle and ∠PQR = 40°, then what is the value (in degrees) of ∠QPR?

(a) 40

(b) 45

(c) 50

(d) 55

Answer: (c)

31. What can be the maximum number of common tangent which can be drawn to two non-intersecting circles?

(a) 2

(b) 4

(c) 3

(d) 6

Answer: (b)

32. Triangle PQR is inscribed in the circle whose radius is 14 cm. If PQ is the diameter of the circle and PR = 10 cm, then what is the area of the triangle PQR?

(a) 196

(b) 30√19

(c) 40√17

(d) 35√21

Answer: (b)

33. PQR is a right angled triangle in which PQ = QR. If the hypotenuse of the triangle is 20 cm, then what is the area (in cm2) of the triangle PQR?

(a) 100√2

(b) 100

(c) 50√2

(d) 50

Answer: (b)

34. PQRS is a square whose side is 20 cm. By joining opposite vertices of PQRS are get four triangles. What is the sum of the perimeters of the four triangles?

(a) 40√2

(b) 80√2 + 80

(c) 40√2 + 40

(d) 40√2 + 80

Answer: (b)

35. If ABCDEF is a regular hexagon, then what is the value (in degrees) of ∠ADB?

(a) 15

(b) 30

(c) 45

(d) 60

Answer: (b)

36. ABCD is square and CDE is an equilateral triangle outside the square. What is the value (in degrees) of ∠BEC?

(a) 15

(b) 30

(c) 25

(d) 10

Answer: (a)

40. The height of a cone is 24 cm and the area of the base is 154 cm . What is the curved surface area (in cm) of the cone? 2

(a) 484

(b) 550

(c) 525

(d) 515

Answer: (b)

42. A right circular cylinder is formed. A = sum of total surface area and the area of the two bases. B = the curved surface area of this cylinder. If A : B = 3 : 2 and the volume of cylinder is 4312 cm3, then what is the sum of area (in cm2) of the two bases of this cylinder?

(a) 154

(b) 308

(c) 462

(d) 616

Answer: (b)

47. What is the value of {(sin 4x + sin 4y) [(tan 2x – 2y)]}/(sin 4x – sin 4y)?

(a) tan 2 (2x + 2y)

(b) tan2

(c) cot (x – y)

(d) tan (2x + 2y)

Answer: (d)

48. What is the value of (32 cos6 x – 48 co[illegible] + [illegible]os2 x – 1)/[4 sin x cos x sin (60 – x) cos (60 – x) sin (60 + x) cos (60 + x)]? 6
(32 cos x – 48 cos
4
2

(a) 4 tan 6x

(b) 4 cot 6x

(c) 8 cot 6x

(d) 8 tan 6x

Answer: (c)

49. What is the value of [2 cot × (p – A)/2]/[1 + tan2 × (2p – A)/2]?

(a) 2 sin2 A/2

(b) cos A

(c) sin A

(d) 2 cos2 A/2

Answer: (c)

51. What is the value of (cos 40° – cos 140°)/(sin 80° + sin 20°)?
    (a) 2√3
    (b) 2/√3
    (c) 1/√3
    (d) √3

    Answer: (b)

52. What is the value of [1 – tan (90 – θ) + sec (90 – θ)]/[tan (90 – θ) + sec (90 – θ) + 1]?
    (a) cot (θ/2)
    (b) tan (θ/2)
    (c) sin θ
    (d) cos θ

    Answer: (b)

53. What is the value of [sin (90 – A) + cos (180 – 2A)]/[cos (90 – 2A) + sin (180 – A)]?
    (a) sin (A/2) cos A
    (b) cot (A/2)
    (c) tan (A/2)
    (d) sin A cos (A/2)

    Answer: (c)

54. The distance between the tops of two building 38 etres and 58 metres high is 52 metres. What will be the distance (in metres) between two building
    (a) 46
    (b) 42
    (c) 44
    (d) 48

    Answer: (d)

55. The angles of elevation of the top of a tree 220 meters high from two points lie on the same plane are 30° and 45°. What is the distance (in metres) between the two points?
    (a) 193.22
    (b) 144.04
    (c) 176.12
    (d) 161.05

    Answer: (d)

56. The angles of elevation of the top of a tower 72 metre high from the top and bottom of a building are 30° and 60° respectively. What is the height (in metres) of building?
    (a) 42
    (b) 20√3
    (c) 24√3
    (d) 48

    Answer: (d)

57. What is the difference between the number of students who were present in Physics and Biology examination from school N?

(a) 21150

(b) 14352

(c) 22594

(d) 24250

Answer: (c)

61. If the number of students who were present in the Physics examination from school A is 250% of the difference of the number of the students who were present in Physics and Biology examination, from school K, then what is the ratio of the number of students who were present from school L to number of students who were present in Physics examination from school A?

(a) 5079 : 4631

(b) 1692 : 1547

(c) 1547 : 4631

(d) 1692 : 2345

Answer: (b)

62. A jar contains a blend of a fruit juice and water in the ratio 5 : x. When 1 litre of water is added to 4 litres of the blend the ratio of fruit juice to water becomes 1 : 1. What is the value of x?

(a) 3

(b) 1

(c) 2

(d) 4

Answer: (a)

63. An alloy contains copper and tin in the ratio 3 : 2. If 250 gm of copper is added to this alloy then the copper in it becomes double the quantity of tin in it. What is the amount (in gm) of tin in the alloy?

(a) 250

(b) 750

(c) 1000

(d) 500

Answer: (d)

64. A starts a cement trading business by investing Rs 5 lakhs. After 2 months, B joins the business by investing Rs 10 lakhs and then 4 months after B joined C too joins them by investing Rs 20 lakhs. 1 year after A started the business they make Rs 3,50,000 in profit. What is B's share of the profit (in Rs)?

(a) 75000

(b) 1,25,000

(c) 1,50,000

(d) 1,00,000

Answer: (b)

65. A, B and C invest in a business in the ratio 3 : 6 : 5. A and C are working partners. Only B is a sleeping partner hence his share will be 3/4th of what it would have been if he were a working partner. If they make Rs 50,000 profit, half of which is reinvested in the business and the other half is distributed between the partners, then how much does C get (in Rs)?

(a) 20000

(b) 6000

(c) 10000

(d) 9000

Answer: (c)

66. A can do a work in 21 days and B in 42 days. If they work on it together for 7 days, then what fraction of work is left?

(a) 1/3

(b) 1/4

(c) 2/3

(d) 1/2

Answer: (d)

67. A can paint a house in 55 days and B can do it in 66 days. Along with C, they did the job in 12 days only. Then, C alone can do the job in how many days?

(a) 24

(b) 44

(c) 33

(d) 20

Answer: (d)

68. A, B and C together can finish a task in 12 days. A is twice as productive as B and C alone can do the task in 36 days. In how many days can A and B do the task if C goes on leave?

(a) 10

(b) 20

(c) 15

(d) 18

Answer: (d)

69. A, B and C can together do a job in 9 days. C alone can do the job in 36 days. In how many days can A and B do 50% of the job working together?

(a) 6

(b) 12

(c) 9

(d) 15

Answer: (a)

70. Giving two successive discounts of 25% is equal to giving one discount of _____%.

(a) 43.75

(b) 56.25

(c) 50

(d) 45

Answer: (a)

71. If a watch is being sold at Rs 7,225 which is marked at Rs 8,500, then what is the discount (in %) at which the watch is being sold?

(a) 24

(b) 15

(c) 25

(d) 20

Answer: (b)

72. On a machine there is 10% trade discount on the marked price of Rs 2,50,000. But the machine is sold at Rs 2,16,000 after giving a cash discount. How much is this cash discount (in %)?

(a) 5

(b) 4

(c) 6

(d) 7

Answer: (b)

73. A trader marks up his goods by 120% and offers [illegible]0% discount. What will be the selling price (in Rs) if the cost price is Rs 750?

(a) 1225

(b) 1080

(c) 1280

(d) 1155

Answer: (d)

74. Sanjay's test marks in two subjects, English and Hindi are in the ratio 7 : 11. If he got 20 marks more in Hindi than in English, what are his marks in English?

(a) 35

(b) 55

(c) 45

(d) 65

Answer: (a)

75. The ratio of present ages of Simi and Seema is 5 : 4. After 9 years the ratio of their ages will be 8 : 7. What is Simi's present age (in years)?

(a) 12

(b) 15

(c) 24

(d) 21

Answer: (b)

76. Find the third proportional to 6 and 12.

(a) 18

(b) 9

(c) 24

(d) 15

Answer: (c)

77. According to the will the wealth of Rs 21,25,000 was to be divided between the son and the daughter in the ratio 7/6 : 5/3. How much did the son get (in Rs)?

(a) 875000

(b) 12,50,000

(c) 10,00,000

(d) 11,25,000

Answer: (a)

78. If Rs 25,000 is to be divided between A, B and C the ratio 1/10 : 1/6 : 1/15, then how much will C get (in Rs)?

(a) 5000

(b) 7500

(c) 10000

(d) 12500

Answer: (a)

79. Rizwan has a box in which he kept red and blue marbles. The red marbles and blue marbles were in the ratio 5 : 4. After he lost 5 red marbles the ratio became 10 : 9. How many marbles does he have now?

(a) 81

(b) 86

(c) 76

(d) 91

Answer: (c)

80. The average weight of L, M and N is 93 kg. If the average weight of L and M be 89 kg and that of M and N be 96.5 kg, then the weight (in kg) of M is _____.

(a) 92

(b) 86

(c) 101

(d) 95

Answer: (a)

81. Mahesh buys 3 shirts at an average price of Rs 1250. If he buys 2 more shirts at an average price of Rs 1450 what will be the average price (in Rs) of all the 5 shirts he buys?

(a) 1370

(b) 1330

(c) 1310

(d) 1390

Answer: (b)

82. In a one day match of 50 overs in an innings the Team A had a run rate of 6.1 runs per over. Team B is playing and 10 overs are left and the required run rate to tie the match is 6.5 per over. What is Team B's score now?

(a) 235

(b) 230

(c) 240

(d) 225

Answer: (c)

83. Average of all even numbers between 222 and 250 is _____.

(a) 234

(b) 232

(c) 236

(d) 230

Answer: (c)

84. A vendor buys bananas at 7 for Rs 6 and sells at 6 for Rs 7. What will be the result?

(a) 36.1% loss

(b) 26.5% profit

(c) 36.1% profit

(d) 26.5% loss

Answer: (c)

85. A miner sells a diamond to a trader at a profit of 40% and the trader sells it to a customer at a profit of 25%. If the customer pays Rs 56 lakhs to buy the diamond, what had it cost the miner (in Rs lakhs)?

(a) 30

(b) 28

(c) 25

(d) 32

Answer: (d)

86. A grocer had 1600 kgs of wheat. He sold a part of it at 20% profit and the rest at 12% profit, so that he made a total profit of 17%. How much wheat (in kg) did he sell at 20% profit?

(a) 600

(b) 1000

(c) 800

(d) 1200

Answer: (b)

87. A used two-wheeler dealer sells a scooter for Rs 46,000 and makes some loss. If he had sold it for Rs 58,000 his profit would have been double his loss. What was the cost price (in Rs) of the scooter?

(a) 52000

(b) 54000

(c) 48000

(d) 50000

Answer: (d)

88. 0.08% of 120% of 50,000 is equal to _____.

(a) 480

(b) 48

(c) 4800

(d) 4.8

Answer: (b)

89. When a number is increased by 24, it becomes 115% of itself. What is the number?

(a) 160

(b) 250

(c) 100

(d) 200

Answer: (a)

90. Two numbers are 40% and 80% lesser than a third number. By how much percent is the second number to be enhanced to make it equal to the first number?

(a) 100

(b) 33.3

(c) 66.6

(d) 200

Answer: (d)

91. Price of diesel increased from Rs 45/litre to Rs 50/litre. How much should the consumption of diesel be reduced (in %) so as to increase expenditure by only 5%?

(a) 5.5

(b) 5

(c) 4

(d) 4.5

Answer: (a)

92. A plane flies a distance of 1800 km in 5 hours. What is its average speed in meters/second?

(a) 200

(b) 10

(c) 20

(d) 100

Answer: (d)

93. If a boat goes upstream at a speed of 24 km/hr and comes back the same distance at 40 km/hr. What is the average speed (in km/hr) for the total journey.

(a) 32

(b) 30

(c) 31

(d) 33

Answer: (b)

94. Two bikers A and B start and ride at 75 km/hr and 60 km/hr respectively towards each other. They meet after 20 minutes. How far (in km) were they from each other when they started?

(a) 60

(b) 45

(c) 30

(d) 15

Answer: (b)

95. Excluding stoppages, the speed of a bus is 80 kmph and including stoppages, it is 60 kmph. For how many minutes does the bus stop per hour?

(a) 12

(b) 15

(c) 18

(d) 20

Answer: (b)

96. In 2 years at simple interest the principal increases by 8%. What will be the compound interest earned (in Rs) on Rs 10 lakhs in 2 years at the same rate?

(a) 86000

(b) 81600

(c) 90000

(d) 94000

Answer: (b)

97. If the compound interest for the 3rd and 4th year on a certain principal is Rs 125 and Rs 135 respectively, what is the rate of interest (in %)?

(a) 9

(b) 10

(c) 8

(d) 12

Answer: (c)

98. A certain bank offers 8% rate of interest on the first year and 9% on the 2nd year in a certain fixed deposit scheme. If Rs 17,658 are received on investing for 2 years in this scheme, then what was the amount (in Rs) invested?

(a) 16000

(b) 15000

(c) 15500

(d) 16500

Answer: (b)

99. What is the difference (in Rs) in Compound interest earned in 1 year on a sum of Rs 25,000 at 20% per annum compounded semi-annually and annually?

(a) 125

(b) 250

(c) 500

(d) 375

Answer: (b)

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	**(a)**	3	**(a)**	4	**(b)**	6	**(c)**	7	**(c)**	9	**(b)**	10	**(d)**
11	**(b)**	16	**(b)**	18	**(b)**	19	**(c)**	20	**(b)**	21	**(b)**	22	**(a)**	23	**(b)**
25	**(d)**	28	**(c)**	29	**(c)**	31	**(b)**	32	**(b)**	33	**(b)**	34	**(b)**	35	**(b)**
36	**(a)**	40	**(b)**	42	**(b)**	47	**(d)**	48	**(c)**	49	**(c)**	51	**(b)**	52	**(b)**
53	**(c)**	54	**(d)**	55	**(d)**	56	**(d)**	57	**(c)**	61	**(b)**	62	**(a)**	63	**(d)**
64	**(b)**	65	**(c)**	66	**(d)**	67	**(d)**	68	**(d)**	69	**(a)**	70	**(a)**	71	**(b)**
72	**(b)**	73	**(d)**	74	**(a)**	75	**(b)**	76	**(c)**	77	**(a)**	78	**(a)**	79	**(c)**
80	**(a)**	81	**(b)**	82	**(c)**	83	**(c)**	84	**(c)**	85	**(d)**	86	**(b)**	87	**(d)**
88	**(b)**	89	**(a)**	90	**(d)**	91	**(a)**	92	**(d)**	93	**(b)**	94	**(b)**	95	**(b)**
96	**(b)**	97	**(c)**	98	**(b)**	99	**(b)**								