RRB ALP CBT-I 2024 Official Paper (Held On: 28 Nov, 2024 Shift 1) (Previous Year Paper)

RRB Assistant Loco Pilot (ALP) • 2024 • 75 questions • 60 minutes • Answer key

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STAGE I (CBT I)

Q1. The area of the largest triangle that can be inscribed in a semi-circle of radius 6 cm is:

(a) 36 cm²
(b) 72 cm²
(c) 38 cm²
(d) 76 cm²

Q2. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

RJZ, PMW, NPT, LSQ, ?

(a) IVN
(b) JVN
(c) JUN
(d) IVM

Q3. A sum of money, on compound interest, amounts to Rs. 578.40 in 2 years and to Rs. 614.55 in 3 years. The rate of interest per annum, in case of annual compounding, is:

(a) 8 1⁄3%
(b) 6 ¼%
(c) 4%
(d) 5%

Q4. The problem of myopia in human eye can be corrected by using:

(a) a biconvex lens of suitable power
(b) a plain glass plate
(c) a concave lens of suitable power
(d) a convex lens of suitable power

Q5. Anju ranked 18^(th) from the bottom and 15^(th) from the top in his class. How many students are there in his class?

(a) 32
(b) 33
(c) 31
(d) 21

Q6. The distance between the pole and focus of a spherical mirror, in terms of its radius of curvature R, is equal to:

(a) R/2
(b) R/4
(c) 2R
(d) R

Q7. On 26 June 2024, the Defence Research and Development Organisation (DRDO) handed over which of the following to the Indian Navy?

(a) Long Range Surface-to-Air Missile
(b) Advanced Torpedo
(c) Anti-Submarine Warfare Helicopter
(d) Medium Range-Microwave Obscurant Chaff Rocket (MR-MOCR)

Q8. Which of the following solutions is identified by smell?

(a) Sugar in water
(b) Salt in water
(c) Potassium permanganate in water
(d) Dettol in water

Q9. In the following number pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of :: is the same as that on the right side of ::?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such as adding,

subtracting, multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

X : 23 : : 476 : Y

(a) X = 322, Y = 34
(b) X = 368, Y = 27
(c) X = 346, Y = 29
(d) X = 314, Y = 21

Q10. What is the least positive number that can be added to 2488 so that it is completely divisible by 3, 4, 5 and 6?

(a) 34
(b) 28
(c) 32
(d) 42

Q11. Which of the following teams was the winner of the 17^(th) Edition of Indian Premier league in 2024?

(a) Kolkata Knight Riders
(b) Mumbai Indians
(c) Delhi Capitals
(d) Gujarat Titans

Q12. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+', and 'D' stands for '-', what will come in place of the question mark '?' in the following equation?

121 C 21 D 11 A 11 B 121 = ?

(a) 11
(b) 31
(c) 21
(d) 41

Q13. What will come in the place of '?' in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

8 × 2 + 3 − 2 ÷ 6 = ?

(a) 14
(b) 11
(c) 12
(d) 13

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Q14. If the perimeters of two similar triangles ABC and DEF are 75 cm and 40 cm respectively, and if BC is 15 cm, then the length of EF is:

(a) 6 cm
(b) 10 cm
(c) 12 cm
(d) 8 cm

Q15. Which of the following formulas is used to calculate the volume by volume percentage of a solution?

(a) (Mass of solute)/(Volume of solution) × 100
(b) (Mass of solute)/(Mass of solution) × 100
(c) (Volume of solute)/(Volume of solution) × 100
(d) (Volume of solution)/(Mass of solute) × 100

Q16. A ball of mass 0.5 kg is thrown vertically upwards and rises to a height of 20 m. The approximate initial velocity of the ball is:

(a) 20 m/s
(b) 15 m/s
(c) 25 m/s
(d) 10 m/s

Q17. HD Kumaraswamy, who won from Mandya parliamentary seat in Karnataka in 2024 general elections and became Minister of Heavy Industries, belongs to which political party?

(a) Bhartiya Janata Party
(b) Janata Dal (S)
(c) Communist Party of India
(d) BSR Congress

Q18. In an election between two candidates, one got 55% of the total valid votes and 20% of the votes were invalid. If the total number of votes was 7500, then the winner won the election by a majority of _____ votes.

(a) 750
(b) 800
(c) 600
(d) 700

Q19. Which of the following is a cup-shaped part of nephron with which each capillary cluster in the kidney is associated?

(a) Proximal convoluted tubule
(b) Bowman's capsule
(c) Distal convoluted tubule
(d) Glomerulus

Q20. In an election, only two candidates contested. One candidate secured 70% of the valid votes and won by a majority of 172 votes. The total number of valid votes was:

(a) 570
(b) 560
(c) 430
(d) 480

Q21. The ___ moves water and minerals obtained from the soil while ____ transports products of photosynthesis from the leaves where they are synthesised to other parts of the plant.

(a) collenchyma, parenchyma
(b) phloem, xylem
(c) parenchyma, collenchyma
(d) xylem, phloem

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Q22. Seven people, A, B, C, D, E, F and G are sitting in a row, facing north. E sits third from the left end. Only three people sit between G and E. B is the immediate neighbour of C and F. D sits second to the left of C.

How many people sit between A and F?

(a) One
(b) Four
(c) Three
(d) Two

Q23. Which of the following carbon compounds is classified as an alcohol?

(a) Propanal
(b) Propanol
(c) Propanoic
(d) Propanone

Q24. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 9 # 1 * £ 2 & % 4 @ 6 8 $ 7 & 3 2 5 (Right)

How many such numbers are there, each of which is immediately preceded by a number and also immediately followed by a symbol?

(a) Two
(b) More than two
(c) Zero
(d) One

Q25. What happens when acid is mixed with water?

(a) It will increase the concentration of hydronium ions per unit volume.
(b) It will increase the concentration of hydroxyl ions per unit volume.
(c) There will be no effect on the concentration of ions.
(d) It will decrease the concentration of hydronium ions per unit volume.

Q26. FKUZ is related to CORD in a certain way based on the English alphabetical order. In the same way, QJKH is related to NNHL. To which of the following options is JIBP related, following the same logic?

(a) HOZS
(b) HMZU
(c) GMYT
(d) FNAT

Q27. What repo rate was declared by the Reserve Bank of India's Monetary Policy Committee (MPC) on 9^(th) October 2024?

(a) 6.25%
(b) 6.10%
(c) 6.75%
(d) 6.50%

Q28. If cos ^4 θ - sin ^4 θ = k, then the value of (1-k)/(1+k) is:

(a) $\tan^2\theta$
(b) $\sin^2\theta$
(c) $\cot^2\theta$
(d) $\operatorname{cosec}^2\theta$

Q29. DIJH is related to KPQO in a certain way based on the English alphabetical order. In the same way, MRSQ is related to TYZX. To which of the following options is BGHF related, following the same logic?

(a) IMQN
(b) INOM
(c) JMON

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(d) JNQM

Q30. In this question, two statements, I and II, have been given. These statements maybe independent causes, or effects of independent causes or a common cause. One of the statements maybe the effect of the other statement. Read both[1] the statements and select the correct answer.

I. Government authorities of city X are finding different solutions to reduce air pollution in the city during winter.

II. City X has seen an acute rise in asthma cases during the last winter.

(a) Both I and II are independent causes.
(b) Both I and II are effects of independent causes.
(c) I is the cause and II is its possible effect.
(d) II is the cause and I is its possible effect.

Q31. The kinetic energy possessed by a body of mass 2 kg is 100 J. The velocity of the body will be:

(a) 10 m/s
(b) 0 m/s
(c) 50 m/s
(d) 20 m/s

Q32. A man sells 320 mangoes at the cost price of 400 mangoes (Cost price of all the articles is same. Selling price of all the articles is same). His gain percentage is:

(a) 10%
(b) 25%
(c) 20%
(d) 15%

Q33. Select the process responsible for stability of populations of species.

(a) Reproduction
(b) Mutation
(c) Evolution
(d) Variation

Q34. The value of (0.04)^(-1.5) is:

(a) 25
(b) 250
(c) 625
(d) 125

Q35. Which of the following conditions is required to have the value of displacement of an object zero?

(a) When the initial and final position of the object is the same.
(b) When distance travelled is equal to the displacement of the object.
(c) When distance travelled is less than the displacement of the object.
(d) When distance travelled is greater than the displacement of the object.

Q36. In 2024, which program organised youth exchange visits across states, focusing on the '5 Ps'; namely Paryatan (Tourism), Parampara (Traditions), Pragati (Development), Paraspar Sampark (People-to-people connect) and Prodyogiki (Technology)?

(a) Bharat Parv
(b) Yuva Sangam
(c) India Unites
(d) National Youth Exchange

Q37. On which date did India and the USA sign their first-ever Cultural Property Agreement (CPA)?

(a) 20 June 2024
(b) 10 August 2024
(c) 26 July 2024

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(d) 15 May 2024

Q38. The sum of five consecutive even numbers is 3720. The sum of the third largest and the largest even numbers among them is:

(a) 1392
(b) 1488
(c) 1492
(d) 1388

Q39. When 0.292929..... is converted into a fraction, then the result is:

(a) 1/5
(b) 29/99
(c) 2/9
(d) 29/100

Q40. The volume of a cylinder is 5500 m^3. Find its diameter of base if the height of the cylinder is 70 m. [Use $\pi = 22/7$]

(a) 12 m
(b) 8 m
(c) 10 m
(d) 5 m

Q41. Which of the following options should come in place of the question mark (?) in the given series?

75 65 56 48 41 ?

(a) 34
(b) 31
(c) 35
(d) 33

Q42. The shopkeeper offers two successive discounts on a machine that is marked at Rs. 18,000 so that its selling price gets reduced to Rs. 12,960. If 10% and x % are the respective discounts, the value of x is:

(a) 20
(b) 10
(c) 15
(d) 12

Q43. Subtract the sum of 2x - 3y + 7z and 4z - 5x from 13x - z.

(a) 3x + 3y - 3z
(b) x + 12y - 12z
(c) 4x + 7y
(d) 16x + 3y - 12z

Q44. If a : b = 3 : 4 and b : c = 2 : 3, then a : b : c = ?

(a) 4 : 2 : 3
(b) 4 : 3 : 6
(c) 3 : 4 : 6
(d) 3 : 4 : 3

Q45. When did the Department for Promotion of Industry and Internal Trade (DPIIT) organise the Startup India Innovation Week 2024?

(a) 12 January 2024 to 20 January 2024
(b) 11 January 2024 to 19 January 2024
(c) 13 January 2024 to 21 January 2024
(d) 10 January 2024 to 18 January 2024

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Q46. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which pair does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) XR - CW
(b) ZT - PG
(c) TN - YS
(d) BV - GA

Q47. The ages of Anita and Sunita differ by 30 years. If 5 years ago, Anita was 3 times as old as Sunita, then the present age of Sunita is:

(a) 30 years
(b) 25 years
(c) 20 years
(d) 35 years

Q48. Pradhan Mantri Janjatiya Unnat Gram Abhiyan will improve the socio-economic condition of tribal communities, covering around _____ villages as per Union Budget 2024-25.

(a) 76,000
(b) 63,000
(c) 56,000
(d) 53,000

Q49. In a certain code language,

'A + B' means 'A is the mother of B',

'A - B' means 'A is the brother of B',

'A x B' means 'A is the wife of B' and

'A ÷ B' means 'A is the father of B'.

How is M related to T if 'M - N + P ÷ S x T'?

(a) Wife's father's brother
(b) Wife's father's father's brother
(c) Wife's father's mother's father
(d) Wife's father's mother's brother

Q50. If the length of a conductor is tripled, keeping other factors same, the resistance of the conductor will be:

(a) one-sixth
(b) tripled
(c) one third
(d) same

Q51. Venu starts from Point Y and drives 7 km towards south. He then takes a left turn, drives 15 km, turns right and drives 38 km. He then takes a left turn and drives 13 km. He takes a left turn, drives 31 km. He then turns left, drives 28 km, turns left and drives 13 km to stop at Point Z. How far (shortest distance) and towards which direction should he drive in order to reach Point Y again? (All turns are 90 degrees turns only unless specified)

(a) 24 km towards south
(b) 28 km towards east
(c) 20 km towards south
(d) 27 km towards north

Q52. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts and decide which conclusion(s) logically follow(s) from the given statements.

Statements:

Some ribbons are balloons.

Some balloons are eagles.

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Conclusions:

(I) All eagles are ribbons.

(II) No ribbons are eagles.

(a) Neither conclusion (I) nor (II) follows
(b) Both conclusions (I) and (II) follow
(c) Only conclusion (I) follows
(d) Only conclusion (II) follows

Q53. Study the following table and answer the question.

The table depicts the number of cars and bikes manufactured by a company in the year 2012 and 2013.

Years	Number of cars (In Thousand)	Number of bikes (In Thousand)
2012	45	50
2013	40	60

How many cars (In Thousand) were manufactured in the year 2012 and 2013 together?

(a) 75
(b) 85
(c) 105
(d) 95

Q54. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts and decide which conclusion(s) logically follow(s) from the given statements.

Statements:

Some trees are flowers.

All flowers are leaves.

Conclusions:

(I) All leaves are trees.

(II) All flowers are trees.

(a) Neither conclusion (I) nor (II) follows.
(b) Only conclusion (II) follows.
(c) Only conclusion (I) follows.
(d) Both conclusions (I) and (II) follow.

Q55. The atomic radius of a hydrogen atom is:

(a) 10^-¹^0 m
(b) 10^-^7 m
(c) 10^-^8 m
(d) 10^-^9 m

Q56. What type of reaction occurs when limestone gets converted into quicklime on heating?

(a) Decomposition
(b) Combination
(c) Displacement
(d) Double displacement

Q57. The sum of the first 8 prime numbers divided by 7 is equal to _____.

(a) 14
(b) 13
(c) 11
(d) 10

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Q58. In the following number pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of :: is the same as that on the right side of ::?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

X : 58 : : 430 : Y

(a) X = 355, Y = 85
(b) X = 295, Y = 85
(c) X = 310, Y = 70
(d) X = 260, Y = 90

Q59. According to the Economic Survey 2023-24, India's cumulative installed solar power capacity reached ____ on 30 April 2024, after adding 15.03 GW in 2023-24.

(a) 89.64 GW
(b) 86.64 GW
(c) 80.64 GW
(d) 82.64 GW

Q60. Rama walks to her office 5 km away from home. In the morning, she covers the distance in 1 hour whereas, while returning home in the evening, she takes 15 more minutes to cover the same distance. Find her average speed (in km/h) during the two-way journey.

(a) 3 3/5
(b) 4 4/9
(c) 3 1/8
(d) 4 2/3

Q61. In a certain code language, ‘MEANS’ is coded as ‘75821’, ‘RANGE’ is coded as ‘84592’, and ‘PRIME’ is coded as ‘64237’. What is the code for ‘G’ in the given code language?

(a) 5
(b) 4
(c) 9
(d) 8

Q62. For current carrying circular loop, the field strength is:

(a) maximum at the centre
(b) maximum at the periphery
(c) undetermined at the periphery
(d) minimum at the centre

Q63. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

ORN, PSO, QTP, RUQ, ?

(a) VSR
(b) SUR
(c) USR
(d) SVR

Q64. Who among the following were the co-flag bearers for India in the closing ceremony of Paris Olympics 2024?

(a) Manu Bhaker and Neeraj Chopra
(b) Swapnil Kusale and Aman Sehrawat
(c) Neeraj Chopra and PR Sreejesh
(d) Manu Bhaker and PR Sreejesh

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Q65. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which pair does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) KM-PJ
(b) OQ-TN
(c) IK-NH
(d) GI-LE

Q66. A can complete a piece of work in 20 days and B can do the same work in 15 days. B worked alone for 6 days and left. In how many days can A complete the remaining work alone?

(a) 10
(b) 12
(c) 10/2
(d) 16

Q67. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 1 $ 7 & 3 4 6 @ 8 Ω % 9 # * £ 2 & 5 (Right)

How many such numbers are there, each of which is immediately preceded by a symbol and also immediately followed by a symbol?

(a) Two
(b) One
(c) Zero
(d) Four

Q68. A, B, C, D, E and F are sitting around a circular table facing the centre. D sits to the immediate left of F. B is the immediate neighbour of C and F. A is the immediate neighbour of E and C.

What is the position of D with respect to E?

(a) Third to the left
(b) Third to the right
(c) Second to the left
(d) Immediate right

Q69. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) * 9 # 1 £ 2 4 & 3 Ω 6 @ 8 $ 7 5 & % (Right)

How many such symbols are there, each of which is immediately preceded by a symbol and also immediately followed by a number?

(a) One
(b) Two
(c) More than two
(d) Zero

Q70. In the food vacuole of which organism, complex substances are broken down into simpler ones which then diffuse into the cytoplasm?

(a) Amoeba
(b) Lichen
(c) Plasmodium
(d) Spirogyra

Q71. In a certain code language, ‘PING’ is coded as ‘7953’ and ‘NOSE’ is coded as ‘4638’. What is the code for ‘N’ in the given code language?

(a) 5
(b) 6
(c) 3

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(d) 4

Q72. In which organism does cell division or fission lead to the creation of new individuals?

(a) Mammals
(b) Plants
(c) Unicellular organisms
(d) Reptiles

Q73. Which of following compounds is used as an ingredient in antacids?

(a) Nitric acid
(b) Sodium chloride
(c) Copper sulphate
(d) Sodium hydrogen carbonate

Q74. The value of K, satisfying the equation 0.009/K = 0.01 is:

(a) 0.0009
(b) 0.09
(c) 0.9
(d) 9

Q75. Which of the following is the specialised cell that conducts information via electrical impulses from one part of the body to another?

(a) Nucleus
(b) Neuron
(c) Dendrite
(d) Axon

ANSWER KEY

1	a	2	a	3	a	4	a	5	a	6	a	7	a	8	a	9	a	10	a
11	a	12	a	13	a	14	a	15	a	16	a	17	a	18	a	19	a	20	a
21	a	22	a	23	a	24	a	25	a	26	a	27	a	28	a	29	a	30	a
31	a	32	a	33	a	34	a	35	a	36	a	37	a	38	a	39	a	40	a
41	a	42	a	43	a	44	a	45	a	46	a	47	a	48	a	49	a	50	a
51	a	52	a	53	a	54	a	55	a	56	a	57	a	58	a	59	a	60	a
61	a	62	a	63	a	64	a	65	a	66	a	67	a	68	a	69	a	70	a
71	a	72	a	73	a	74	a	75	a										

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