RRB ALP CBT-I 2024 Official Paper (Held On: 27 Nov, 2024 Shift 2) (Previous Year Paper)

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

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STAGE I (CBT I)

Q1. Which of the following statements is correct about the gravitational force between the earth and the moon?

(a) Gravitational force is repulsive when the moon is far from the earth.
(b) Gravitational force is repulsive and minimum when the moon is far from the earth.
(c) Gravitational force is attractive and maximum when the moon is close to the earth.
(d) Gravitational force is attractive and maximum when the moon is far from the earth.

Q2. In a certain code language,A + B means ‘A is the mother of B’,
A - B means ‘A is the brother of B’,
A × B means ‘A is the wife of B’,
A ÷ B means ‘A is the father of B’,
A # B means ‘A is the daughter of B’.
How is P related to F if ‘F - E # L × Q - P # N’

(a) Brother's daughter
(b) Mother's sister
(c) Brother's son
(d) Father's sister

Q3. 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 kings are servants.
Some servants are fighters.
Conclusions:
(I) Some fighters are kings.
(II) All servants are kings.

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

Q4. If a light ray is travelling from medium of refractive index 'n1' to the medium of refractive index 'n2' such that angle of incidence is 'i' and angle of refraction 'r' (assuming n1/n2 is equal to _____.

(a) (sin i)/(sin r)
(b) sin r - sin i
(c) (sin r)/(sin i)
(d) sin i - sin r

Q5. The equivalent resistance of the combination of resistors, when 1 ohm and 2 ohm are connected in parallel, is _____.

(a) 2/3 ohm
(b) 2 ohm
(c) 3 ohm
(d) 3/2 ohm

Q6. The square of 42 is:

(a) 1504
(b) 1564
(c) 1764
(d) 1664

Q7. Which of the following compounds is used in soda-acid fire extinguishers?

(a) Bleaching powder
(b) Calcium chloride
(c) Sodium bicarbonate
(d) Sodium carbonate

Q8. Average velocity of a body can be given by the arithmetic mean of initial velocity and final velocity for a given period of time when the body is:

(a) moving with uniform acceleration
(b) moving with non-uniform acceleration
(c) moving with uniform speed
(d) moving with uniform velocity

Q9. 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 one person sits to the right of D. G sits second to the left of D. B sits to the immediate right of C. F does not sit to the right of A. How many people sit between F and E?

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

Q10. Select the option that shows all biodegradable substances.

(a) Eggshells, Tea leaves, Potato peelings
(b) Bubble packs, Vegetable peelings, Stale bread
(c) Glass bottle, Milk packets, Egg shells, Banana peel
(d) Medicine bottle, Old shoe, Stale biscuits

Q11. If x : y = 7: 3, then (x - y) : (x + y) = ?

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

Q12. In a row of 37 persons, Aneesha is 12^(th) from the left end. What is her position from the right end?

(a) 16
(b) 26
(c) 27
(d) 24

Q13. The Indian Air Force (IAF) contingent returned to India on 10 August 2024 after participating in Exercise _____ in Malaysia.

(a) Garuda
(b) Cope India

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(c) Udara Shakti
(d) Red Flag

Q14. Which off the following is the roadmap to achieve development and child protection priorities aligned with the Sustainable Development Goals (SDGs)?
(a) Mission Surksha
(b) Mission Vardan
(c) Mission Vatsalya
(d) Mission Arpan

Q15. Who among the following won the Gold medal at Paralympics in the Women's 10m air rifle standing SH1 Shooting category?
(a) Amulya Choudhary
(b) Manisha Agarwal
(c) Avani Lekhara
(d) Preeti Pal

Q16. After a decrease of 24%, the price of an article is Rs. 988. The actual cost of the article is:
(a) Rs. 1,400
(b) Rs. 1,100
(c) Rs. 1,300
(d) Rs. 1,200

Q17. The arithmetic mean of the observations 3, 6, 8, 10, 12, 14, 18, 24 and 31 is:
(a) 17
(b) 16
(c) 14
(d) 15

Q18. If $x + 1/x = 4$, then $x^2 + 1/(x^2) = ?$
(a) 12
(b) 18
(c) 14
(d) 16

Q19. The area of the base of a rectangular tank is 6500 cm^2 and the volume of water contained in it is 2.6 cubic meters. The depth of water in the tank is:
(a) 3.5m
(b) 4m
(c) 5m
(d) 6m

Q20. In June 2024, the Indian Army opened the Khalubar War Memorial to tourists, which is located in _____, India.
(a) New Delhi
(b) Ladakh
(c) Bengaluru
(d) Chandigarh

Q21. Which of the following is the longest cell in our body?
(a) Nerve cell
(b) Ovum
(c) Blood cell
(d) Fat cell

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Q22. Select the number from among the given options that can replace the question mark (?) in the following series.

45,95,245,695 ?

(a) 2045
(b) 1995
(c) 2125
(d) 2075

Q23. The smallest four-digit number that is exactly divisible by each of 24, 40 and 56 is:

(a) 1080
(b) 1680
(c) 1170
(d) 1260

Q24. 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:

All chairs are tables.

Some tables are beds.

Conclusions:

(I) All beds are chairs.

(II) Some tables are chairs.

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

Q25. If 6 men and 8 boys can do a piece of work in 10 days while 26 men and 48 boys can do the same in 2 days, the time taken by 15 men and 20 boys in doing the same type of work will be:

(a) 5 days
(b) 6 days
(c) 4 days
(d) 7 days

Q26. KGFL is related to OJHM in a certain way based on the English alphabetical order. In the same way, ASNP is related to EVPQ. To which of the following options is MBTS related, following the same logic?

(a) QEVT
(b) QEXS
(c) QFVT
(d) QEVW

Q27. If each vowel in the word GROUPS is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter following it in the English alphabetical order and then arrange the so formed group of letters in English alphabetical order, then which of the following letters will be third from the left in the group of letter thus formed?

(a) P
(b) S
(c) T
(d) Q

Q28. Which institute is responsible for the development of the 'Investor Information and Analytics Platform' in 2024?

(a) IIT Delhi
(b) IIT Kanpur
(c) IIT Madras

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(d) IIT Bombay

Q29. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

YZX, VWU, STR, PQO, MNL,?

(a) KJI
(b) CBA
(c) IJK
(d) JKI

Q30. If each vowel in the word RELATION is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order, and then arranged in reverse order of the English alphabetical order, then which of the following letters will be fourth from the right in the group of letters thus formed?

(a) Q
(b) P
(c) K
(d) M

Q31. The ability of a fully differentiated organism to give rise to new individuals from their body parts is known as:

(a) Fragmentation
(b) fission
(c) budding
(d) regeneration

Q32. Which union territory became the first to achieve full functional literacy under the ULLAS-Nav Bharat Saaksharta Karyakram?

(a) Chandigarh
(b) Ladakh
(c) Puducherry
(d) Lakshadweep

Q33. For certain data, the mode is 24.6 and mean is 20.1. What is the median of that data, using empirical formula?

(a) 22.2
(b) 23.5
(c) 24.1
(d) 21.6

Q34. A man sells an article at a profit of 25%. If he had bought it at 20% less and sold it for Rs. 10.50 less, he would have gained 30%. Find the cost price of the article.

(a) Rs. 25
(b) Rs. 125
(c) Rs. 50
(d) Rs. 100

Q35. In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(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.)

(6, 37)

(8, 65)

(a) (5, 24)
(b) (7, 49)
(c) (3, 27)

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(d) (9, 82)

Q36. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

GHM, IJO, KLQ, MNS, OPU, ?

(a) QSV
(b) QRW
(c) QSW
(d) QRV

Q37. In which of the following phenomena does a solid substance change into a liquid substance?

(a) Fusion
(b) Solidification
(c) Sublimation
(d) Deposition

Q38. Vineet starts from Point Y and drives 10 km towards the North. He then takes a right turn, drives 29 km, turns right and drives 34 km. He then takes a right turn and drives 13 km. He takes a final right turn, drives 24 km and stops 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 the south
(b) 19 km towards the east
(c) 16 km towards the west
(d) 14 km towards the north

Q39. A fraction becomes 1/2 if 2 is added to the numerator and 5 is added to the denominator. It also becomes 1/3 if 2 is subtracted from both the numerator and denominator. The positive difference between the denominator and the numerator of the fraction is:

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

Q40. Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

LG - MH - OP

HC - ID - KL

(a) OJ - PK - RT
(b) KF - LG - NP
(c) JE - KF - MN
(d)

ID-JE-LN

Q41. L, P, R, V, X, Y, and Z are sitting around a circular table facing the centre. R sits to the immediate right of V. Only three people sit between R and Z when counted from the left of R. Only three people sit between V and P. X sits to the immediate right of Y. How many people sit between L and Y, when counted from the left of Y?

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

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Q42. What is the name of Bhim Singh's book launched on August 11, 2024?

(a) 75 Great Revolutionaries of India
(b) Unsung Warriors of India
(c) Legends of Indian Revolution
(d) Heroes of Indian Freedom

Q43. The cost of 12 pens and 7 pencils is Rs. 233. If the cost of a pen decreases by Rs. 1.50 and the cost of a pencil increases by Rs. 1, then the cost of 2 pens and 3 pencils is Rs. 48. What is the original cost of 2 pens and 3 pencils?

(a) Rs. 46
(b) Rs. 54
(c) Rs. 41
(d) Rs. 48

Q44. The expenditure of Swarna is 125% more than her savings. If her expenditure decreases by 6% and savings increases by 26.5%, then by what percentage does her income increase?

(a) 20.5%
(b) 18.5%
(c) 8%
(d) 4%

Q45. If 'I' stands for '+', 'J' stands for '×', 'K' stands for '÷', and 'L' stands for '-', what will come in place of question mark '?' in the following equation?

(24 J 3) K 6 I (14 J 2) L 19 =?

(a) 19
(b) 21
(c) 34
(d) 15

Q46. A dealer allows a 30% discount on the marked price of an item. What is the marked price of the item if its sale price is Rs. 12,460?

(a) Rs. 17,800
(b) Rs. 16,760
(c) Rs. 16,800
(d) Rs. 17,860

Q47. In this question, a statement is followed by two courses of action, numbered I and II. You must assume everything in the statement to be true and on the basis of the information given in the statement, decide which of the courses of action logically follow(s) for pursuing.

Statement:

The special task force set up by the government has found that toxic waste is being mixed with dry waste by many apartment complexes before collection by the municipality, causing severe danger to the waste processing personnel and the environment.

Courses of Action:

(I) Apartment complexes should be heavily penalised in instances where toxic and dry waste is not properly segregated before collection.

(II) Apartment complexes should issue clear guidelines on waste segregation to the apartment residents.

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

Q48. Select the set, from the given options, in which the numbers are related in the same way as are the numbers of the following sets.

(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.

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Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(2, 24, 6)

(4, 32, 2)

(a) (3, 48, 4)
(b) (6, 108, 3)
(c) (9, 80, 1)
(d) (5, 70, 3)

Q49. As of 2024, how many members are there in the steering committee of the GlobE Network, in which India has been elected as a member, as announced by the Central Bureau of Investigation (CBI)?

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

Q50. Which two numbers should be interchanged to make the given equation correct?|

(27 + 15) × 2 - (95 ÷ 5) + 25 × 4 - 135 = 62

(Note: Interchange should be done of entire number and not individual digits of a given number.)

(a) 2 and 4
(b) 25 and 27
(c) 95 and 135
(d) 5 and 15

Q51. Ramesh and Suresh's mud buildings have heights of 8 cm and 15 cm respectively. They are 24 cm apart. How far are the tops of their mud buildings from each other?

(a) 24 cm
(b) 30 cm
(c) 25cm
(d) 31 cm

Q52. Cells of the meristematic tissue are very active, but they lack:

(a) dense cytoplasm
(b) vacuoles
(c) thin cellulose walls
(d) prominent nuclei

Q53. Which of the following products are formed when sodium sulphate reacts with barium chloride?

(a) White precipitate of $BaSO_4$ and 2NaCl (aq)
(b) Yellow precipitate of $BaSO_4$ and 2NaCl (aq)
(c) Brown precipitate of $BaSO_4$ and 2NaCl (aq)
(d) Black precipitate of $BaSO_4$ and 2NaCl (aq)

Q54. Carbon has the unique ability to form bonds with other atoms of carbon. This property is known as _____.

(a) allotropes
(b) homologus
(c) catenation
(d) Cyclisation

Q55. How many sports personalities have received Major Dhyan Chand Khel Ratna Awards in National Sports Awards 2023?

(a) 5
(b) 3
(c) 6
(d) 2

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Q56. Which instrument can be used to give the direction of magnetic field lines at any given point?

(a) Solenoid
(b) Generator
(c) Magnetic Compass
(d) Electric motor

Q57. Which of the following is the SI unit of work done?

(a) Erg
(b) Metre
(c) Newton
(d) Joule

Q58. In a certain code language, ‘big small average’ is coded as ‘22 33 55’, ‘small treat party’ is coded as ‘55 44 77’, and ‘party average people’ is coded as ‘77 22 99’. What is the code for ‘people’ in the given code language?

(a) 99
(b) 22
(c) 55
(d) 77

Q59. 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) JH - FI
(b) QO - MP
(c) NL - JL
(d) TR - PS

Q60. In a certain code language, ‘know me better’ is coded as ‘jf bu pd’ and ‘better know something’ is coded as ‘bu jf ls’.

What is the code for ‘something’ in the given code language?

(a) ls
(b) pd
(c) bu
(d) jf

Q61. If each consonant in the word VERIFY is changed to the letter immediately succeeding it in the English alphabetical order and each vowel is changed to the letter immediately preceding it in the English alphabetical order, then how many consonants are present in the new group of letters thus formed?

(a) Four
(b) Six
(c) Five
(d) Three

Q62. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster does not belong to that group?

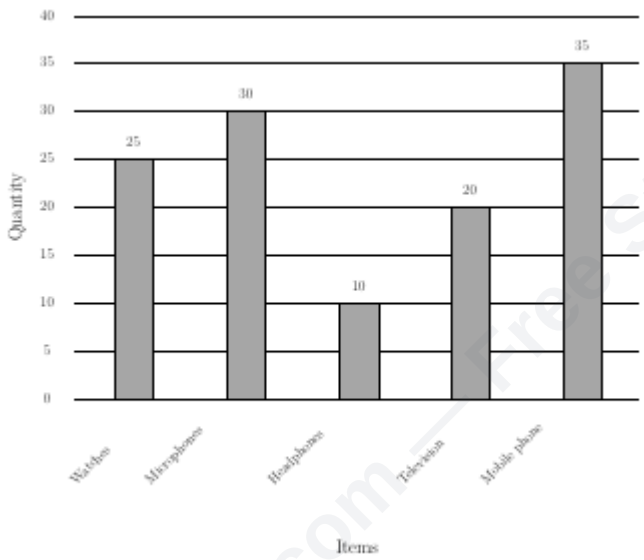
(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) GJO
(b) CGK
(c) LOT
(d) SVA

Q63. Study the following graph and answer the given question.

The bar graph shows the number of different items sold by a shopkeeper in their respective quantities.

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c

What is the total units of Headphones and Mobile phones sold put together?

(a) 25
(b) 35
(c) 15
(d) 45

Q64. In the case of reflection of light from a concave mirror, when a parallel beam of light is incident on the reflecting surface, reflected light _____.

(a) appears to converge at the centre of curvature
(b) appears to diverge from the principal focus
(c) appears to diverge from the centre of curvature
(d) appears to converge at the principal focus

Q65. At what rate (in percentage) per annum will Rs. 1,300 give Rs. 520 as simple interest in 5 years?

(a) 4%
(b) 5%
(c) 7%
(d) 8%

Q66. What percentage of solar energy is captured by green plants in terrestrial ecosystem?

(a) 10 percent
(b) 5 percent
(c) 100 percent
(d) 1 percent

Q67. A thief running at a speed of 8 km/h is chased by a policeman whose speed is 10 km/h. If the thief is 100 m ahead of the policeman, then the time required for the policeman to catch the thief will be:

(a) 3 minutes
(b) 2 minutes
(c) 6 minutes
(d) 10 minutes

Q68. Which of the following elements is extracted by using electrolytic reduction?

(a) Zn
(b) Fe
(c) Pb
(d) Na

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Q69. The formula unit mass of CaCl2 is:

(a) 115u
(b) 114u
(c) 111u
(d) 110u

Q70. If the surface area of a sphere is 2124 4/7 cm², then what is the diameter of that sphere? [Use π = 22/7]

(a) 26cm
(b) 28cm
(c) 13cm
(d) 14cm

Q71. Which of the following hormones stimulates the growth of all organs?

(a) Adrenaline
(b) Glucagon
(c) Insulin
(d) Growth hormone

Q72. The internal bisectors of angle Q and angle R of ΔPQR meet at S. If mangle P = 75º, then mangle QSR is:

(a) 105.5º
(b) 102.5º
(c) 112.5º
(d) 127.5º

Q73. Which award has been conferred to Ms. Prema Dhanraj in the field of Medicine in 2024?

(a) Bharat Ratna
(b) Padma Bhusan
(c) Padma Shri
(d) Padma Vibhusan

Q74. A solution contains 25 g of copper chloride salt in 250 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.

(a) 9.09%
(b) 36.01%
(c) 18.01%
(d) 27.01%

Q75. Which of the following fractions is greater than 2/3 and less than 4/5 ?

(a) 3/4
(b) 1/2
(c) 5/6
(d) 9/11

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

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71	a	72	a	73	a	74	a	75	a

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