RRB Assistant Loco Pilot (ALP) 2024 Previous Year Paper Shift 2

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

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MATHEMATICS

Q1. 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) FK-IN
(b) DI-GL
(c) LP-NR
(d) QV-TY

Q2. According to the '2024 State of the Rhino' Report by the International Rhino Foundation (IRF), which species of rhino could be severely affected by climate change?

(a) Sumatran Rhino
(b) Javan Rhino
(c) Black Rhino
(d) Greater One-horned Rhino

Q3. A reduction of 20% in the price of sugar enables a purchaser to obtain 2.5 kg more for Rs. 160. The original price per kg of sugar is:

(a) Rs. 12
(b) Rs. 16
(c) Rs. 20
(d) Rs. 15

Q4. Two trains travelling in the same direction at 40 km/h and 22 km/h cross each other completely in 1 minute. If the length of the first train is 125 m, what is the length of the second train?

(a) 175 m
(b) 185 m
(c) 150 m
(d) 125 m

Q5. What can be formed by a coil of many circular turns of insulated copper wire wrapped closely in the shape of a cylinder?

(a) Circular coil
(b) Solenoid
(c) Straight conductor
(d) Toroid

Q6. Which indigenously developed technology was used in the AKASH-NG missile during its flight test in 2024?

(a) Electro-optical Seeker
(b) Radio Frequency Seeker
(c) Laser-guided Seeker

(d) Infrared Seeker

Q7. In the word MAJESTIC, each consonant is changed to the letter immediately preceding it in the English alphabetical order and each vowel is changed to the letter immediately succeeding it in the English alphabetical order. How many vowels are present in the new group of letters thus formed?

(a) Two
(b) One
(c) Four
(d) None

Q8. A can do a certain work in the same time in which B and C together can do it. If A and B together could do it in 10 days and C alone in 50 days, then B alone could do it in:

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

Q9. Seven people, B, C, D, E, F, G, and K, are sitting in a straight line, facing north.

Only two people sit between D and G. Only E sits to the right of K. Only one person sits between G and K. C sits at some place to the right of B but at some place to the left of F.

Who sits third from the right end of the line?

(a) F
(b) C
(c) G
(d) B

Q10. The corresponding sides of two similar triangles are in the ratio of 2: 3. If the area of the smaller triangle is 36 sq cm, then the area of the bigger triangle is:

(a) 16 sq cm
(b) 96 sq cm
(c) 81 sq cm
(d) 36 sq cm

Q11. Each vowel in the word JOURNALIST 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. How many letters will appear exactly twice in the group of letters thus formed?

(a) Two
(b) Three
(c) None
(d) One

Q12. Which of the following options does NOT represent a property of liquids?

(a) Liquids have no fixed shape.
(b) Liquids flow and change shape.
(c) Liquids do not have fixed volume.
(d) Liquids take the shape of the container in which they are kept.

Q13. A, B, C, D, E and F are sitting around a circular table facing the centre. C sits to the immediate left of E. F is an immediate neighbour of A and C. D is not an immediate neighbour of E. What is the position of D with respect to F?

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

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Q14. In 2024, the Ministry of Women and Child Development launched the platform _____ to register and monitor complaints of sexual harassment of women at the workplace.

(a) Work Guard
(b) SHe-Box
(c) WomenSafe
(d) Secure Her

Q15. The oxygen molecule is a _____.

(a) triatomic molecule
(b) diatomic molecule
(c) tetratomic molecule
(d) monoatomic molecule

Q16. If the mean of a distribution is 8.73 and its median is 11, then the mode of the distribution is _____ (using empirical relation).

(a) 15.54
(b) 19.73
(c) 22
(d) 17.46

Q17. Which two numbers should be interchanged to make the given equation correct?

$3 \times (9 + 7 - 5) + (64 \div 2) - 22 + 78 - 8 \times 4 = 82$

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

(a) 3 and 4
(b) 2 and 4
(c) 64 and 78
(d) 7 and 5

Q18. If 'I' stands for '+', 'J' stands for '×', 'K' stands for '÷' and 'L' stands for '–' what will come in place of the question mark '?' in the following equation?

(35 L 19) J 4 I 26 L (7 J 3) I 11 = ?

(a) 105
(b) 60
(c) 80
(d) 120

Q19. The force of attraction between two bodies which is directly proportional to the product of masses of the bodies and inversely proportional to the square of the distance of separation is _____.

(a) gravitational force
(b) electromagnetic force
(c) electrostatic force
(d) electromotive force

Q20. 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 : 803 :: 469 : Y

(a) X = 545, Y = 727
(b) X = 512, Y = 792
(c) X = 558, Y = 712
(d) X = 526, Y = 758

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GENERAL INTELLIGENCE AND REASONING

Q21. The following substances are stored in the vacuole of plant cells, EXCEPT:

(a) sugars
(b) proteins
(c) amino acids
(d) mineral salts

Q22. Which of the following has the lowest pH value?

(a) Lemon juice
(b) Blood
(c) Milk of magnesia
(d) Gastric juice

Q23. If each consonant in the word GRAVITY is changed to the letter immediately preceding it in the English alphabetical order and each vowel is changed to the letter immediately succeeding it in the English alphabetical order. How many consonants are present in the new group of letters thus formed?

(a) Six
(b) Two
(c) Seven
(d) Three

Q24. Malarial parasite shows which type of asexual reproduction?

(a) Binary fission
(b) Regeneration
(c) Budding
(d) Multiple fission

Q25. Which of the following is NOT a characteristic feature of epithelial tissue?

(a) Have no intercellular spaces
(b) Covers most organs and cavities within the body
(c) Are tightly packed
(d) Separated from the underlying tissue by a cellular, non-fibrous basement membrane

Q26. Evaluate the given expression.

19 - 20 ÷ 4

(a) -1
(b) 24
(c) 19
(d) 14

Q27. An amount is divided between two friends in the ratio 4 : 7. If the second part is Rs. 6 more than the first, then the difference in amount between two friends is:

(a) Rs. 2
(b) Rs. 6
(c) Rs. 4
(d) Rs. 3

Q28. By how much is 50% of 60 greater than 30% of 40?

(a) 15
(b) 18
(c) 20
(d) 13

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Q29. Power of a lens of focal length ‘f’ is directly proportional to _____.

(a) 1/f
(b) f^2
(c) f
(d) $1/f^2$

Q30. The resistance of a conductor of length ‘L’ and cross-section area ‘A’ is directly proportional to _____.

(a) A
(b) L^2
(c) L/A
(d) A/L

Q31. For what value of K is the equation [Formula above] true?

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

Q32. Select the correct statement.

(a) Pollination is transfer of pollen grains from stamen to stigma.
(b) Pollination is the growth of pollen tube in ovule.
(c) Pollination is visit of insects to the flower.
(d) Pollination is germination of pollen grains.

Q33. Simplify the expression: [Formula above] is:

(a) sec θ + cot θ
(b) cosec θ - cot θ
(c) sec θ - cot θ
(d) cosec θ + cot θ

Q34. The 63rd National Open Athletics Championship was conducted in the city of _____.

(a) Bhopal
(b) Hyderabad
(c) Bengaluru
(d) Mumbai

Q35. On 9 November 2023, N Srikant was appointed as the Additional Secretary in the Union Ministry of _____.

(a) Power and New and Renewable Energy
(b) Finance
(c) Environment and Forests
(d) Housing and Urban Affairs

Q36. Which of the following missions will lead to India’s first human presence on the International Space Station (ISS)?

(a) Axiom-4
(b) Taxsci-4
(c) VenSpac-4
(d) Spacoon-4

Q37. 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 : 676 :: 17 : Y

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(a) X = 21, Y = 396
(b) X = 23, Y = 400
(c) X = 25, Y = 324
(d) X = 28, Y = 361

Q38. Which rapper, known for the indie album 'Halaat', has risen from the slums of Dharavi to the forefront of Indian hip hop music?
(a) Naezy
(b) MC Altaf
(c) Divine
(d) Emiway Bantai

Q39. 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’ and
A ÷ B means ‘A is the father of B’.
Based on the above, how is Q related to T if ‘P × Q ÷ R - S + T’?
(a) Mother's Father
(b) Mother's brother
(c) Brother
(d) Husband

Q40. Uniform circular motion is described by which of the following examples?
(a) A rain drop falling from the sky
(b) A car moving on a straight road
(c) A monkey jumping from one tree to another
(d) motion of clock hands

Q41. A fruit seller had some apples. He sells 40% of those apples and still has 240 apples. How many apples did he originally have?
(a) 400
(b) 588
(c) 372
(d) 600

Q42. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?
YRM, PID, GZU, XQL, ?
(a) OGC
(b) PHC
(c) OHC
(d) OHB

Q43. The work done by a 10 Newton force acting on a body, which results in the displacement of 2 m in the direction of the force, is _____.
(a) 10 joules
(b) 0
(c) 20 joules
(d) 0.2 joule

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Q44. 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) TX-RV
(b) SV-MP
(c) AD-UX
(d) FI-ZC

Q45. In the 2024 Union Budget, the government allocated funds for the development of the Vishnupad Temple Corridor. In which of the following states is the Vishnupad Temple located?

(a) Uttar Pradesh
(b) Tamil Nadu
(c) West Bengal
(d) Bihar

BASIC SCIENCE AND ENGINEERING

Q46. According to the reactivity series, iron is more reactive than _____.

(a) potassium
(b) sodium
(c) copper
(d) calcium

Q47. 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 water is milk.

No milk is oil.

Conclusions:

(I) Some milk is water.

(II) No oil is water.

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

Q48. Two successive discounts of 25% and 10% on a deal are equivalent to a single discount of:

(a) 32%
(b) 34.5%
(c) 32.5%
(d) 35%

Q49. Select the option that shows the correct age range of puberty in human male and female.

(a) 8-11 years
(b) 11-17 years
(c) 6-10 years
(d) 9-12 years

Q50. The volume of a wall that is 5 times as high as it is broad and 8 times as long as it is high is 12.8 cubic meters. Find the breadth of the wall.

(a) 0.004 meter
(b) 40 cm
(c) 400 cm

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(d) 0.04 meter

Q51. 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 vegetables are fruits.

Some fruits are sweets.

Conclusions:

(I) Some fruits are vegetables.

(II) Some sweets are vegetables.

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

Q52. Which of the following options should come in place of the question mark (?) in the given series to make it logically complete?

125, 128, 133, 140, 149, ?

(a) 156
(b) 160
(c) 158
(d) 154

Q53. 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:

Long queues are seen outside the electricity bill payment counters on 14th and 15th of each month, as 15th of each month is the last date for payment of electricity bills. Citizens have lodged several complaints with the electricity board regarding this difficulty in payment.

Courses of Action:

(I) The electricity board should set up additional counters for payment collection on 14th and 15th of each month, to make it easier for citizens.

(II) The electricity board should increase the penalty to be paid after the specified last date.

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

Q54. In a certain code language, ‘MEND’ is coded as ‘3186’ and ‘MINE’ is coded as ‘1623’. What is the code for ‘I’ in the given code language?

(a) 3
(b) 6
(c) 1
(d) 2

Q55. In a certain code language, ‘cafe hotel room’ is coded as ‘aa bb ee’, ‘room kitchen hall’ is coded as ‘ff aa bb’, and ‘hall hotel garden’ is coded as ‘ee ff tt’. What is the code for ‘garden’ in the given code language?

(a) bb
(b) tt
(c) ff
(d) ee

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Q56. If the radius of a sphere is increased by 2 cm, then its surface area increases by 704 cm². Using π = 22/7, find the radius of the sphere after the increase.

(a) 16 cm
(b) 15 cm
(c) 14 cm
(d) 13 cm

Q57. Johny starts from Point A and drives 6 km towards the North. He then takes a right turn, drives 17 km, turns right and drives 13 km. He then takes a right turn and drives 8 km. He takes a final right turn, drives 7 km and stops at Point P. How far (shortest distance) and towards which direction should he drive to reach Point A again? (All turns are 90 degrees turns only unless specified.)

(a) 9 km towards the East
(b) 9 km towards the West
(c) 10 km towards the East
(d) 10 km towards the West

Q58. Which of the following molecules has triple bond between the two atoms?

(a) F2
(b) Cl2
(c) N2
(d) O2

Q59. Different cell organelles such as mitochondria, ribosome, etc., together constitute the basic unit of life called the:

(a) organ system
(b) tissue
(c) cell
(d) organ

Q60. The book 'Coaching Beyond: My Days with the Indian Cricket Team' is authored by R Sridhar and the foreword is by _____.

(a) Sachin Tendulakar
(b) VVS Laxman
(c) Rahul Dravid
(d) Saurabh Ganguly

Q61. In an election between two candidates, 75% of the voters cast their votes. 2% of the votes cast were declared invalid. A candidate got 9261 votes which were 75% of the total valid votes. The total number of voters enrolled in that election was:

(a) 16,400
(b) 18,000
(c) 16,800
(d) 10,000

Q62. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

BJL, EMO, HPR, KSU, ?

(a) NVX
(b) NUY
(c) NVY
(d) NUW

Q63. Simplify the following expression:

9992 × 10008

(a) 91999964
(b) 99999936

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(c) 9999964
(d) 9999936

Q64. If x : y = 8 : 3, then (x - y) : (x + y) = ?
(a) 2 : 5
(b) 5 : 11
(c) 5 : 2
(d) 11 : 5

Q65. QLPK is related to IDHC in a certain way based on the English alphabetical order. In the same way, VQUP is related to NIMH. To which of the following options is TOSN related, following the same logic?
(a) GLFK
(b) GLKF
(c) LGFK
(d) LGKF

Q66. Which of the following is the correct statement about colloidal solutions?
(a) The size of particles of the colloid is not too small.
(b) A colloidal solution is a homogeneous mixture.
(c) Colloids do not scatter a beam of light passing through them and make its path visible.
(d) The components of a colloidal solution are the dispersed phase and the dispersion medium.

Q67. Study the given table and answer the question that follows.
The table depicts the number of different articles X and Y sold in the year 2019 and 2020.

Years	Number of article X	Number of article Y
2019	125	150
2020	110	130

What is the absolute difference between the number of article X sold in the year 2019 and 2020?
(a) 15
(b) 45
(c) 25
(d) 35

Q68. Which of the following is NOT an example of combination reaction?
(a) Burning of natural gas
(b) Calcium oxide reacts vigorously with water to produce slaked lime
(c) Formation of water from H2(g) and O2(g)
(d) Silver chloride turns grey in sunlight

Q69. Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.
FB-IE-LM
JF-MI-PQ
(a) NI-QN-TU
(b) KG-NJ-QS
(c) HD-KG-NP
(d) LH-OK-RS

Q70. Find the mean marks of the following distribution.

Marks obtained	No. of students
25	5
30	6

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35	3
40	1

(a) 32
(b) 29
(c) 30
(d) 31

Q71. Ariel ranked 6th from the top and 18th from the bottom in her class. How many students are there in the class?

(a) 23
(b) 26
(c) 25
(d) 22

Q72. Arnab buys 9 oranges and 8 bananas for Rs. 276. When the cost of an orange is decreased by 10% and that of a banana remains the same, then the cost of 5 oranges and 10 bananas is Rs. 210. What is the original cost of 4 oranges and 3 bananas?

(a) Rs. 116
(b) Rs. 120
(c) Rs. 123
(d) Rs. 108

Q73. The line joining the centre of curvature and the pole of a given spherical mirror is called _____.

(a) principal focus
(b) principal axis
(c) focal length
(d) radius of curvature

Q74. In 2024, which of the following Indian banks launched the Green Rupee Term Deposit?

(a) Central Bank of India
(b) State Bank of India
(c) HDFC Bank
(d) ICICI Bank

Q75. How long will it take for Rs. 1,500 to become Rs. 2,040 at a rate of 8% per annum simple interest?

(a) 3 years
(b) 4 ½ years
(c) 2 years
(d) 4 ¾ years

ANSWER KEY

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

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