RRB Assistant Loco Pilot (ALP) 2024 Previous Year Paper Shift 1

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

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MATHEMATICS

Q1. Simplify the following expression:

9991 × 10009

(a) 9999999
(b) 91999919
(c) 9999919
(d) 99999919

Q2. In two triangles ABC and DEF, if AB = EF, BC = DF and CA = DE, then:

(a) ΔABC ~= ΔDEF
(b) ΔDEF ~= ΔBCA
(c) ΔBAC ~= ΔFDE
(d) ΔCBA ~= ΔDFE

Q3. Study the following graph and answer the given question.

The graph shows the height of five students in a class.

What is the respective ratio between the height of Amit and height of Rahul?

[Figure: see this question online]

(a) 12 : 13
(b) 5 : 6
(c) 7 : 8
(d) 9 : 10

Q4. Which two numbers should be interchanged to make the given equation correct?

75 ÷ 5 + 15 × 4 - 17 × 3 + (60 ÷ 6) × 10 = 100

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

(a) 5 and 3
(b) 3 and 6
(c) 17 and 15
(d) 3 and 4

Q5. Sharad starts from Point Y and drives 9 km towards the South. He then takes a left turn, drives 19 km, turns right and drives 23 km. He then takes a right turn and drives 8 km. He takes a right turn and drives 17 km. He then turns left, drives 11 km, turns left and drives 6 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) 15 km towards the south
(b) 26 km towards the north
(c) 21 km towards the north
(d) 23 km towards the south

Q6. Given below is a statement followed by two possible reasons numbered I and II. Read the statement carefully and decide which of the two explain(s) the event/observation/information given in the statement.

Statement - Price of tomatoes has been steadily rising in the last two weeks and has crossed Rs. 200 per kg in most parts of the country.

Reasons:

(I) Farmers have reported a new unknown insect infestation in tomato crops, which has affected the crop output of tomatoes in many states across the country.

(II) Heavy flooding in many states during the monsoon season has destroyed many standing vegetable crops, leading to shortages in supplies.

(a) Both I and II are possible reasons.
(b) Only II is a possible reason.
(c) Only I is a possible reason.
(d) Neither I nor II is a possible reason.

Q7. P is 30% more efficient than Q. How much time will they, working together, take to complete a job that P alone could have done in 23 days?

(a) 11 days
(b) 13 days
(c) 20 3/17 days
(d) 10 days

Q8. 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 gold are silver.

Some silver are diamonds.

Conclusions:

(I) Some diamonds are gold.

(II) Some silver are gold.

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

Q9. Who among the following is currently the Governor of the Reserve Bank of India (RBI) as of 2024?

(a) Shaktikanta Das
(b) Raghuram Rajan
(c) Duvvuri Subbarao
(d) Urjit Patel

Q10. Which of the following household items does NOT use the heating effect of current?

(a) Electric stove (heater)
(b) Electric water heater
(c) Electric iron box
(d) Electric motor

Q11. The median of the observations 4, 14, 11, 8, 7, 8, 9, 12, 4 and 6 is:

(a) 11
(b) 10
(c) 8
(d) 9

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Q12. 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) DK-HO
(b) RY-VC
(c) QX-UB
(d) AD-GJ

Q13. Which of the following Acts was amended in 2023 to enhance child protection measures in India?

(a) Juvenile Justice (Care and Protection of Children) Act
(b) Right to Education Act
(c) Child Labour (Prohibition and Regulation) Act
(d) Protection of Children from Sexual Offences Act

Q14. Evaluate the given expression.

(-4) + (-12) ÷ (-6)

(a) -6
(b) -2
(c) -4
(d) -8

Q15. Umesh took 100 chocolates out of 250 chocolates from Ruchi. Umesh gave 20% of his chocolates to Shalaka and 35% of his chocolates to Marry. Then Ruchi gave 50% of her remaining chocolates to Umesh. Find the number of chocolates Umesh had at the end.

(a) 125
(b) 130
(c) 120
(d) 75

Q16. Which of the following statements is correct according to the law of conservation of mass?

(a) Mass can be created but cannot be destroyed in a chemical reaction.
(b) Mass can neither be created nor be destroyed in a chemical reaction.
(c) Mass can be destroyed in a chemical reaction.
(d) Mass can be created in a chemical reaction.

Q17. The number of chromosomes become half in a daughter cell by the process of:

(a) binary fission
(b) meiosis
(c) mitosis
(d) amitosis

Q18. 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’,

and A # B means ‘A is the daughter of B’.

How is P related to K if ‘Q – R × P ÷ S – T + K’?

(a) Daughter's son
(b) Son's daughter
(c) Father's father
(d) Mother's father

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Q19. The weights (in kg) of 9 members of a school cricket team are 50, 63, x, 62, 64, 48, 51, 55, 48. If the mean weight is 56 kg, then the value of x is _____.

(a) 48
(b) 63
(c) 64
(d) 57

Q20. Which of the following metals CANNOT be cut with a knife?

(a) Sodium
(b) Copper
(c) Lithium
(d) Potassium

GENERAL INTELLIGENCE AND REASONING

Q21. If each vowel in the word ELASTIC 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, then which of the following letters will be fourth from the right in the group of letter thus formed?

(a) B
(b) T
(c) M
(d) U

Q22. The gravitational force between two objects of masses m1 and m2 is directly proportional to _____.

(a) m2-m1
(b) m1-m2
(c) m1 / m2
(d) m1 × m2

Q23. The HCF of the numbers 310, 208 and 180 is:

(a) 2
(b) 4
(c) 6
(d) 8

Q24. Which Kashmiri wood carver was honoured with the Padma Shri award in 2024 for his contributions in the field of art?

(a) Bashir Ahmad Mir
(b) Shri Ghulam Nabi Dar
(c) Mohammad Yousuf
(d) Abdul Rashid Khan

Q25. 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. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(6, 13, 78)

(5, 22, 110)

(a) (24, 9, 206)
(b) (7, 13, 90)
(c) (8, 19, 162)
(d) (8, 12, 96)

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Q26. The magnetic field produced by a current-carrying wire at a given point depends on which of the following factors?

(a) Neither distance from the wire nor current through the wire
(b) Current flowing through the wire Only
(c) Distance from the wire Only
(d) Both distance from the wire and current through the wire

Q27. If + means -, - means ×, × means ÷, ÷ means +, then what will come in place of the question mark (?) in the following equation?

28 - 6 ÷ 4 + 14 × 14 = ?

(a) 171
(b) 168
(c) 169
(d) 160

Q28. Each letter in the word HYDROMETER is changed to the letter preceding it in the English alphabetical order and then all the letters thus formed are arranged in alphabetical order. Which of the following letters will be fifth from the right in the new group of letters thus formed?

(a) N
(b) Q
(c) L
(d) G

Q29. Evaluate the given expression.

16 + 8 ÷ 4 - 2 × 3

(a) 18
(b) 0
(c) 6
(d) 12

Q30. 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) NJ-MP
(b) SO-RV
(c) PL-OR
(d) LH-KN

Q31. If a force 'F' acts on a body such that body gets displaced through the distance 'x' in the direction of the force, then the work done by the force is _____.

(a) F/x
(b) x/F
(c) x^2F
(d) Fx

Q32. TRPMK is related to XVTQO in a certain way based on the English alphabetical order. In the same way, LJHEC is related to PNLIG. To which of the following options is KIGDB related, following the same logic?

(a) OMKIG
(b) OMKIF
(c) NLJGE
(d) OMKHF

Q33. Which of the following options does NOT represent a property of solids?

(a) It is not difficult to change their shape.
(b) They have distinct boundaries and fixed volumes.
(c) They have a definite shape.

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(d) They have a tendency to maintain their shape when subjected to outside force.

Q34. In a certain code language, 'bright as day' is coded as 'cb mn ju' and 'day and night' is coded as 'mn fd rs'. How is 'day' coded in the given language?

(a) fd
(b) cb
(c) ju
(d) mn

Q35. An order was placed for the supply of a carpet whose breadth was 6 m and whose length were 1.44 times the breadth. What is the cost of a carpet whose length and breadth are 40% more and 25% more respectively than the first carpet. [The cost of a carpet is Rs. 45 per sq m.]

(a) Rs. 3642.60
(b) Rs. 4216.20
(c) Rs. 4082.40
(d) Rs. 3868.80

Q36. The simple interest on Rs. 1,280 at 5% p.a. in 3 years is:

(a) Rs. 192
(b) Rs. 180
(c) Rs. 185
(d) Rs. 195

Q37. A, B, E, F, L, M and P are sitting around a circular table, facing the centre. Only three people sit between P and E when counted from the left of P. Only three people sit between M and A when counted from the right of A. L sits to the immediate right of M. F is an immediate neighbour of A as well as E. Who sits second to the left of B?

(a) F
(b) P
(c) E
(d) A

Q38. Simplify: $(1 - \sec^2 \theta)(1 - \sin \theta)(1 + \sin \theta)(1 + \cot^2 \theta)$.

(a) 2
(b) -1
(c) 0
(d) 1

Q39. What is the title of Parimal Nathwani's book, which was presented to PM Modi in 2024?

(a) The Kingdom of Lions
(b) The Pride of Gujarat
(c) Call of the Gir
(d) Asiatic Lions: A Conservation Story

Q40. If a : b = 3 : 2 and b : c = 4 : 5, then a : b : c = ?

(a) 3 : 4 : 5
(b) 6 : 4 : 5
(c) 4 : 5 : 3
(d) 6 : 5 : 4

Q41. Which of the following types of reaction represents formation of slaked lime from calcium oxide and water?

(a) Decomposition reaction
(b) Precipitation reaction
(c) Displacement reaction
(d) Combination reaction

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Q42. Which of the following is NOT an example of osmosis?

(a) Absorption of water by plant roots
(b) Movement of O2 and CO2 in and out of the living cell
(c) Swelling of raisins when soaked in water
(d) Gaining of water by unicellular fresh water organisms

Q43. 8 men and 12 women can build a wall in 10 days. 6 men and 8 women can build the same wall in 14 days. How long will take for 2 women and 1 man to build it together?

(a) 280 days
(b) 35 days
(c) 140 days
(d) 70 days

Q44. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

EGI, KMO, QSU, WYA, ?

(a) DGJ
(b) CEG
(c) DFH
(d) CFI

Q45. Which of the following compounds is unsaturated?

(a) C2H6
(b) C3H8
(c) C2H4
(d) C4H10

BASIC SCIENCE AND ENGINEERING

Q46. A car moving along a straight path slows down and stops. The car is under which type of motion?

(a) Uniform motion
(b) Non-uniform motion
(c) Circular motion
(d) Periodic motion

Q47. In a row of 34 students facing North, Jignesh is 12th from the right end. If Kamlesh is 7th to the left of Jignesh, what is Kamlesh's position from the left end of the line?

(a) 19th
(b) 16th
(c) 18th
(d) 17th

Q48. Which of the following is formed when carbon dioxide reacts with calcium hydroxide?

(a) Carbon monoxide
(b) Methane
(c) Calcium oxide
(d) Calcium carbonate

Q49. In September 2024, Prime Minister Narendra Modi launched three _____ supercomputers, developed indigenously under the National Supercomputing Mission.

(a) Parma Chandra
(b) PARAM Surya
(c) PARAM Rudra
(d) PARAM Shakti

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Q50. RGEL is related to VKAH in a certain way based on the English alphabetical order. In the same way, HWOV is related to LAKR. To which of the following options is TICJ related, following the same logic?

(a) XNYG
(b) XNYF
(c) XMYF
(d) XMZF

Q51. The Defence Research and Development Organisation's headquarters is located in _____.

(a) New Delhi
(b) Hyderabad
(c) Bengaluru
(d) Mumbai

Q52. The nature of an image formed by a concave mirror when an object is kept at the position between the principal focus and the pole of the mirror is _____.

(a) virtual and inverted
(b) real and inverted
(c) real and erect
(d) virtual and erect

Q53. A dishonest dealer professes to sell goods at the cost price, but uses a false weight of 900 grams instead of a kg. His gain percentage is:

(a) [Formula 1 above]
(b) 11%
(c) [Formula 2 above]
(d) 10%

Q54. Amit bought a laptop at a 25% discount on its marked price. If he paid Rs. 28,500 for the laptop, what was its marked price?

(a) Rs. 38,000
(b) Rs. 37,400
(c) Rs. 37,000
(d) Rs. 38,600

Q55. 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 cars are bikes.

All bikes are trucks.

Conclusions:

(I) Some trucks are cars.

(II) All trucks are cars.

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

Q56. Select the correct option for liquid connective tissue.

(a) Cartilage
(b) Adipose connective tissue
(c) Blood
(d) Areolar connective tissue

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Q57. The sum of a two-digit number and the number obtained by reversing the digits is 99. If the digits of the number differ by 7, then the two-digit number can be:

(a) 29
(b) 92
(c) 19
(d) 81

Q58. Select the number from among the given options that can replace the question mark (?) in the following series.

175 221 267 313 359 ?

(a) 413
(b) 431
(c) 405
(d) 429

Q59. 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 : 649 :: 956 : Y

(a) X = 923, Y = 738
(b) X = 894, Y = 711
(c) X = 944, Y = 742
(d) X = 876, Y = 724

Q60. How many such pairs of letters are there in the word JOURNEY (in forward direction), each of which has as many letter in the same sequence between them in the word as in the English alphabet?

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

Q61. India scripted history at the 2024 edition of Chess Olympiad, winning the gold medal in both the open and women's section for the _____.

(a) First Time
(b) Second Time
(c) Third time
(d) Fourth Time

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

SHK, WLO, APS, ETW, ?

(a) IXB
(b) IXA
(c) JXA
(d) IYA

Q63. Find the perimeter of a rhombus whose diagonals are of lengths 6 cm and 8 cm.

(a) 24 cm
(b) 25 cm
(c) 20 cm
(d) 26 cm

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Q64. Seven people, A, B, C, D, E, F and G, are sitting in a row, facing north. Only two people sit to the left of A. Only three people sit between G and A. C is an immediate neighbour of F and E. D sits second to the left of F. How many people sit to the left of F?

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

Q65. Which of the following organisms does NOT show asexual reproduction by means of fission?

(a) Leishmania
(b) Amoeba
(c) Earthworm
(d) Plasmodium

Q66. Which element is needed by the thyroid gland to produce thyroxine hormone?

(a) Sodium
(b) Iodine
(c) Calcium
(d) Potassium

Q67. Two trains of equal length, running at the speeds of 60 km/h and 40 km/h, take 50 seconds to cross each other while they are running in the same direction. What time will they take to cross each other if they are running in opposite directions?

(a) 8 sec
(b) 10 sec
(c) 9 sec
(d) 7 sec

Q68. Ms. Yanung Jamoh Lego, who has been conferred with Padma Shri award in the field of Agriculture in 2024, belongs to which state of India?

(a) Madhya Pradesh
(b) Rajasthan
(c) Maharashtra
(d) Arunachal Pradesh

Q69. In a certain code language, 'RUIN' is coded as '3719' and 'RUNG' is coded as '7916'. What is the code for 'G' in the given code language?

(a) 7
(b) 6
(c) 9
(d) 1

Q70. When white light is incident on aglass prism, it undergoes dispersion. This phenomenon is due to _____

(a) refractive index of the glass being different for different colours
(b) interference of the light
(c) diffraction of the light
(d) refractive index of the glass being the same for different colours

Q71. What organisation is hosting the six-day international festival on Indian dance from 16 October 2024 in Delhi?

(a) Kalakshetra Foundation
(b) Indian Council for Cultural Relations
(c) Sangeet Natak Akademi
(d) Kathak Kendra

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Q72. A solution contains 40 g of common salt in 320 g of water. What is the concentration of the solution in terms of mass by mass percentage?

(a) 11.0%
(b) 11.3%
(c) 1.0%
(d) 11.1%

Q73. Who among the following won the Gold Medal in 2020 Paralympics and Silver in 2024 Paralympics in Shooting?

(a) Nishad Kuamr
(b) Manish Narwal
(c) Pramod Bhagat
(d) Rubina Francis

Q74. By how much is 80% of 40 greater than 4/5 of 25?

(a) 12
(b) 6
(c) 9
(d) 4

Q75. Which of the following substances can move across the cell membrane by diffusion?

(a) Oxygen
(b) Nucleic acid
(c) Proteins
(d) Starch

ANSWER KEY

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

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