RRB ALP CBT-I 2024 Official Paper (Held On: 26 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. Given below is a cause followed by three effects numbered I, II and III. Read the cause carefully and decide which of the three can be a/the possible effect(s).

Cause - A major train accident occurred at Katpadi Junction last night, where seven bogies of G.T. Express derailed and fell across the tracks.

Effect I - Many trains on the Katpadi - Chennai route are running several hours late today.

Effect II - Long queues were seen at the railway ticket booking counters in Bangalore.

Effect III - Railways has decided to run two holiday special trains between Kolkata and Patna from October to December 2023.

(a) Both I and II are possible effects.
(b) Only I is a possible effect.
(c) Both II and III are possible effects.
(d) Only II is a possible effect.

Q2. If each vowel in the word PARKING 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 third from the left in the group of letters thus formed?

(a) L
(b) S
(c) O
(d) J

Q3. An article is sold for Rs. x after offering two successive discounts of 25% and 8% on its marked price of Rs. 500. The value of x is

(a) 285
(b) 280
(c) 300
(d) 345

Q4. Which of the following statements refer/s to the law of conservation of energy?

Statements:

I) Energy can be converted from one form to another form of energy.

II) Energy can neither be created nor destroyed.

(a) Both Statements I and II
(b) Only Statement I
(c) Neither Statement I nor II
(d) Only Statement II

Q5. 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?

61 D 39 C 14 C (62 A 2) B 4 = ?

(a) 110
(b) 145
(c) 160
(d) 180

Q6. 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 bees are insects.

All bees are hives.

Conclusions:

(I) Some hives are insects.

(II) All hives are bees.

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

Q7. Which organelle is found ONLY in plant cells?

(a) Mitochondria
(b) Chloroplast
(c) Lysosome
(d) Nucleus

Q8. A, B, C, D, E and F are sitting around a circular table facing the centre. E sits to the immediate right of D. A is an immediate neighbour of B and D. F sits second to the right of D. What is the position of C with respect to D?

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

Q9. In the word BLEACH, 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. Which of the following letters is repeated twice in the new group of letters thus formed?

(a) A
(b) K
(c) F
(d) B

Q10. What constant speed should be maintained in order to reach a distance of 600 km in 10 hrs?

(a) 60 km/h
(b) 80 km/h
(c) 50 km/h
(d) 85 km/h

Q11. 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) VZ-TX
(b) GK-ZD

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(c) CG-VZ
(d) WA-PT

Q12. The work done in moving 10 coulomb charges across the potential difference of 5 volts is _____.
(a) 20 joules
(b) 2 joules
(c) 50 joules
(d) 5 joules

Q13. Seven people, A, B, C, D, E, F and G, are sitting in a row, facing north. A sits fifth from the right end. Only two people sit between E and A. C is an immediate neighbour of G and E. B sits to the immediate right of F. How many people sit between D and B?
(a) Two
(b) Three
(c) Four
(d) One

Q14. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?
BDG, DFI, FHK, HJM, JLO, ?
(a) LNQ
(b) OPR
(c) POR
(d) NLQ

Q15. Town L lies to the west of Town M. Town D lies to the northeast of Town L. Town A lies to the west of Town D. Town R lies to the east of Town D. What is the position of Town R with respect to Town L?
(a) Northwest
(b) Northeast
(c) Southwest
(d) Southeast

Q16. Which of the following statements is/are correct?
Statements:
I) A current carrying conductor acts like a magnet.
II) Moving electrons perpendicular to the magnetic field do not experience any force.
(a) Statement I only
(b) Statement II only
(c) Neither Statement I nor II
(d) Both Statements I and II

Q17. Three years ago, the average age of a family of six members was 19 years. Since then a boy has been born and the average age of the family is the same today as it was three years ago. What is the age of the boy?
(a) 2.5 years
(b) 1.5 years
(c) 2 years
(d) 1 year

Q18. Select the correct pair from the following options.
(a) Object's resistance to change its state of motion - Gravitation
(b) Object's resistance to change its state of motion - Inertia
(c) Object's resistance to change its state of motion - Momentum
(d) Object's resistance to change its state of motion - Acceleration

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Q19. 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 : 961 :: 34 : Y

(a) X = 39, Y = 529
(b) X = 41, Y = 576
(c) X = 45, Y = 625
(d) X = 47, Y = 729

Q20. Which of the following statements is INCORRECT about Rutherford's model of an atom?

(a) Electrons revolve around the nucleus in circular paths.
(b) There is a positively charged centre in an atom, which is called the nucleus.
(c) Electrons revolve around the nucleus in elliptical paths.
(d) The size of the nucleus is very small as compared to that of the atom.

Q21. If a sum of money doubles itself in 10 years on compound interest, then in how many years will it become 16 times of itself at the same rate of interest?

(a) 20
(b) 10
(c) 40
(d) 30

Q22. Which department's Disaster Management Division organised the conference on 'Experience Sharing and Capacity Building in Disaster Management' in August 2024?

(a) National Institute of Disaster Management (NIDM)
(b) National Disaster Response Force (NDRF)
(c) Department of Telecommunications (DoT)
(d) Ministry of Communications

Q23. CYBS is related to GWFQ in a certain way based on the English alphabetical order. In the same way, KUJO is related to OSNM. To which of the following options is SQRK related, following the same logic?

(a) UOWH
(b) VNWJ
(c) WOVI
(d) UPVH

Q24. Which of the following statements is INCORRECT regarding metals?

(a) Metals are good conductors of heat.
(b) Metals have to be drawn into thin wires.
(c) Lead and mercury are comparatively good conductors of heat.
(d) Surface of metals in their pure state is shiny.

Q25. In 2023, 'Garba' was declared as an intangible cultural heritage by UNESCO. Which of the following states is Garba from?

(a) Assam
(b) Kerala
(c) West Bengal
(d) Gujarat

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Q26. In which of the following are CFCs NOT used?

(a) Fire extinguishers
(b) Grinders
(c) Aerosol sprays
(d) Refrigerators

Q27. Two angles are complementary. The larger angle is 6° less than five times the measure of the smaller angle. What is the measure of the larger angle?

(a) 63°
(b) 87°
(c) 74°
(d) 66°

Q28. IIT Bombay and _____ have partnered to develop India's first Quantum Diamond Microchip Imager.

(a) Mahindra and Mahindra
(b) TCS
(c) Google
(d) L&T

Q29. 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 oceans are rivers.

Some rivers are ponds.

Conclusions:

(I) All ponds are oceans.

(II) Some oceans are ponds.

(a) Only conclusion (II) follows
(b) Both conclusions (I) and (II) follow
(c) Neither conclusion (I) nor (II) follows
(d) Only conclusion (I) follows 2

Q30. In 2024, which company entered into a Memorandum of Understanding (MoU) with iCreate to promote AI startups in India?

(a) Infosys
(b) Meta
(c) Google
(d) Microsoft

Q31. The Sangameshwara Temple had been submerged in the backwaters of the Srisailam project due to heavy rainfall in the monsoon of 2024. This temple lies on the banks of which river?

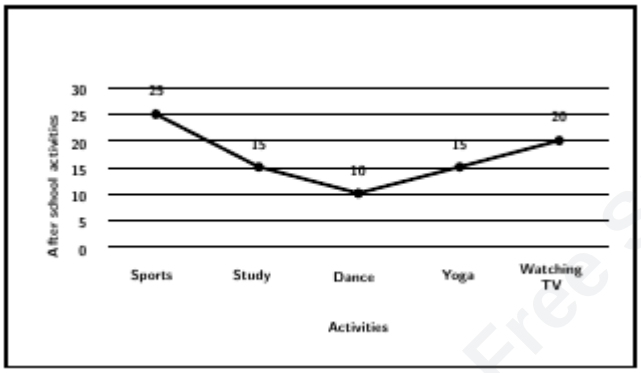
(a) Narmada
(b) Yamuna
(c) Krishna
(d) Ganga

Q32. Study the given graph and answer the question that follows.

The graph shows the number of students involved in different after-school activities.

What is the average number of students participating in Sports and Yoga?

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(a) 40
(b) 20
(c) 30
(d) 50

Q33. The particles size of a solution is:

(a) smaller than 1 nm in diameter
(b) smaller than 28 nm in diameter
(c) smaller than 100 nm in diameter
(d) smaller than 52 nm in diameter

Q34. The relation between focal length ‘f’, object distance ‘u’ and image distance ‘v’ in the case of reflection of light by a spherical mirror is given by _____.

(a) 1/f = (uv)/(u+v)
(b) 1/f = (1/u) + (1/v)
(c) 1/f = (1/u) - (1/v)
(d) 1/f = (1/v) - (1/u)

Q35. Amita is 2 years older than her friend Amrita. Amita's father is twice as old as Amita, and Amrita is twice as old as her sister. The ages of Amita's father and Amrita's sister differ by 43 years. The sum of the ages (in years) of Amita and Amrita is:

(a) 54
(b) 50
(c) 64
(d) 68

Q36. Simplify the following expression:

$(a + 2b - c)(b - c) + (a - c)2b + b^2$

(a) $3b^2+3ab-5bc-ac$
(b) $2b^2+3ab-4bc+c$
(c) $3ab+b^2+c^2-3ab-5bc-ac$
(d) $3b^2+c^2+3ab-5bc-ac$

Q37. 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) GMJ
(b) BHF
(c) KQN
(d) RXU

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Q38. Select the number from among the given options that can replace the question mark (?) in the following series.

184, 242, 275, 333, 366, 424, ?

(a) 464
(b) 457
(c) 426
(d) 478

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 father of B',

A ÷ B means 'A is the sister of B'.

Based on the above, how is Q related to T if 'P + Q – R × S ÷ T'?

(a) Father's brother
(b) Brother
(c) Mother's mother
(d) Mother's brother

Q40. In our body, brain and spinal cord together constitute the:

(a) endocrine system
(b) central nervous system
(c) peripheral nervous system
(d) autonomic nervous system

Q41. The average of the first 30 natural numbers is:

(a) 15
(b) 16
(c) 15.5
(d) 16.5

Q42. Which of the following organisations is responsible for the development of the Long-Range Glide Bomb (LRGB), GAURAV, tested in August 2024?

(a) Indian Space Research Organisation (ISRO)
(b) Hindustan Aeronautics Limited (HAL)
(c) Defence Research and Development Organisation (DRDO)
(d) Indian Navy

Q43. A trader lost 20% by selling a watch for Rs. 1,024. What percentage will he gain by selling it for Rs. 1,472?

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

Q44. The book authored by Vijay Lokapally on Virat Kohli in the year 2023 is _____.

(a) The Cover Shot: The Virat Kohli Story (Revised and Updated World Cup Edition)
(b) The Straight Drive: The Virat Kohli Story (Revised and Updated World Cup Edition)
(c) Driven: The Virat Kohli Story (Revised and Updated World Cup Edition)
(d) The Cover Drive: The Virat Kohli Story (Revised and Updated World Cup Edition)

Q45. The angle of elevation of the top of a small tree from a point on the ground 300 m away from the foot of the tree was 30°. When the tree grew taller, its angle of elevation became 60° from the same point. By how much did the tree grow?

(a) 100 / √3 m
(b) 200√3 m

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(c) 200 / √3 m
(d) 100√3 m

Q46. The angles of a quadrilateral are in the ratio 2 : 5 : 7 : 10. Find the difference between the greatest and the smallest angles of the quadrilateral.
(a) 50°
(b) 120°
(c) 180°
(d) 60°

Q47. The 2024 philately scholarship scheme was launched by the Department of Posts under the _____.
(a) Sarva Shiksha Abhiyan
(b) Pradhan Mantri Kaushal Vikas Yojana
(c) Deen Dayal SPARSH Yojana
(d) Digital India Program

Q48. Seven boxes A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order. G is kept third from the bottom. Only two boxes are kept between C and E. A is kept immediately above D. D is kept at one of the positions above G. Only two boxes are kept between B and E. B is not kept at the top-most position.
How many boxes are kept between D and B?
(a) Four
(b) Two
(c) Three
(d) One

Q49. Who coined the term ‘protoplasm’ for the fluid substance of the cell?
(a) Virchow
(b) Robert Brown
(c) Purkinje
(d) Robert Hooke

Q50. In a certain code language, ‘lost in space’ is coded as ‘vp de ez’ and ‘never get lost’ is coded as ‘gb ez cy’. What is the code for ‘lost’ in the given code language?
(a) gb
(b) dc
(c) vp
(d) ez

Q51. The tax on a commodity is reduced by 10%, but its consumption is increased by 20%. The percentage increase in the tax revenue derived from it is:
(a) 15%
(b) 8%
(c) 20%
(d) 10%

Q52. In the word HYPNOTIC, each letter of the word is changed to the letter immediately succeeding it in the English alphabetical order and then the new group of letters thus formed is rearranged according to the English alphabetical order. Which letter is second to the left in the new rearranged group of letters?
(a) I
(b) O
(c) D
(d) J

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Q53. Why does carbon make a stable compound?

(a) Due to big size carbon forms strong bonds.
(b) Due to small size carbon forms strong bonds.
(c) Due to higher electronegativity carbon forms strong bonds.
(d) Due to higher enthalpy carbon forms strong bonds.

Q54. Which two numbers should be interchanged to make the given equation correct?

46 + 24 - (12 + 19) × 2 + 38 × 6 + 44 ÷ 4 = 262

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

(a) 6 and 2
(b) 2 and 4
(c) 24 and 38
(d) 24 and 44

Q55. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

ACDF, GIJL, MOPR, SUVX, YABD, ?

(a) EGFJ
(b) EGHJ
(c) EGIK
(d) EFHJ

Q56. Select the INCORRECT pair regarding Asexual reproduction

(a) Hydra - multiple fission
(b) Yeast - spore formation
(c) Plasmodium - multiple fission
(d) Leishmania - binary fission

Q57. If $(584)^2 = 3,41,056$, then the value of square root of 34.1056 is:

(a) 0.0584
(b) 0.000584
(c) 0.584
(d) 5.84

Q58. 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.)

(11, 44, 2)

(6, 54, 3)

(a) (12, 72, 3)
(b) (2, 32, 4)
(c) (7, 98, 2)
(d) (10, 50, 5)

Q59. Which of the following statements is/are correct?

Statements:

I) The mass of an object is the same as its weight.

II) The mass of an object is not the same as its weight.

III) Mass is scalar quantity, whereas weight is vector quantity.

(a) Statements I and III
(b) Statement III
(c) Statements I and II

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(d) Statements II and III

Q60. The radius of a cylinder is 5 cm more than its height. If the curved surface area of the cylinder is 792 cm^2, then the volume of the cylinder (in cm^3), is _____. [Use π = 22/7]

(a) 5306
(b) 5254
(c) 5544
(d) 5712

Q61. Select the correct balanced equation option for the reaction Fe + H2O → Fe3O4 + H2.

(a) 3Fe + 4H2O → Fe3O4 + 2H2
(b) 2Fe + 4H2O → Fe3O4 + 4H2
(c) 3Fe + 4H2O → Fe3O4 + 4H2
(d) 4Fe + 4H2O → Fe3O4 + 4H2

Q62. In a certain code language, 'LOBE' is coded as '2653' and 'BORE' is coded as '6823'. What is the code for 'L' in the given code language?

(a) 3
(b) 5
(c) 2
(d) 8

Q63. The highest common factor of a set of coprime numbers is equal to:

(a) 1
(b) the lowest among them
(c) the highest among them
(d) 2

Q64. From a 2.25-litre mango drink bottle, how many small glasses of 45 ml can be filled?

(a) 45
(b) 50
(c) 55
(d) 40

Q65. Ravi and Kumar are working on an assignment. Ravi takes 6 hours to type 32 pages on a computer, while Kumar takes 5 hours to type 40 pages. How much time will they take, working together on two different computers to type an assignment of 110 pages?

(a) 8 hours
(b) 8 hours 15 minutes
(c) 7 hours 30 minutes
(d) 8 hours 25 minutes

Q66. Which sexually transmitted diseases are caused by a viruses?

(a) Warts and Gonorrhoea
(b) Gonorrhoea and Syphilis
(c) Syphilis and AIDS
(d) Warts and AIDS

Q67. DEF is related to CDE in a certain way. In the same way, MNO is related to LMN. To which of the following options is UVW related, following the same logic?

(a) EFD
(b) FED
(c) TUV
(d) FDE

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Q68. In October 2023, Prime Minister Narendra Modi formally announced India's interest in bidding for the _____ Olympics at the 141^(st) IOC Session.

(a) 2028
(b) 2040
(c) 2036
(d) 2032

Q69. When 10% of the inhabitants of a village died of cholera, a panic set in, during which 25% of the remaining inhabitants left the village. The population then reduced to 4050. Find the number of original inhabitants.

(a) 7000
(b) 5000
(c) 8000
(d) 6000

Q70. Magnification produced by a spherical mirror is equal to _____.

(a) Object distance / Image distance
(b) Height of the image / Height of the object
(c) Height of the image × Height of the object
(d) Object distance × Image distance

Q71. India's rank in the Corruption Perceptions Index (CPI) decline from ___ in 2022 to ___ in 2023.

(a) 85; 93
(b) 93; 85
(c) 40; 39
(d) 85; 40

Q72. The sum of the length, the breadth and the height of a cuboid is 38 cm and the length of its diagonal is 22 cm. Find the total surface area of the cuboid.

(a) 480 cm^2
(b) 432 cm^2
(c) 960 cm^2
(d) 864 cm^2

Q73. What is the effect of heating on the rate of diffusion?

(a) It first increases and then, decreases after some time.
(b) It increases with increase of temperature
(c) It decreases with increase of temperature
(d) There is no effect of temperature on the rate of diffusion.

Q74. If 25 : x :: x : 36, and x > 0, then what is the value of x?

(a) 21
(b) 18
(c) 27
(d) 30

Q75. Which of the following will be formed when dilute hydrochloric acid is added to a beaker having copper oxide?

(a) A solution with blue-green colour is formed due to the formation of copper (III) chloride.
(b) A solution with green colour is formed due to the formation of copper (II) chloride.
(c) A colourless solution is formed due to the formation of copper (II) chloride.
(d) A solution with blue-green colour is formed due to the formation of copper (II) chloride.

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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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