रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS
CEN 01/2024 - ALP / सहायक लोको पायलट

सत्यमेव जयते

Test Date	25/11/2024
Test Time	12:30 PM - 1:30 PM
Subject	ALP Stage 1

*** Note**
Correct Answer will carry 1 mark per Question.
Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.
2. Chosen option on the right of the question indicates the option selected by the candidate.

Section : **RRB ALP**

Q.1 Which award has been conferred to **Ram Chet Chaudhary** in the field of Science and Engineering in 2024?

Ans
✗ 1. Padma Vibhusan
✓ 2. Padma Shri
✗ 3. Padma Bhusan
✗ 4. Bharat Ratna

Q.2 The average of all the prime numbers between 30 and 50 is:

Ans
✗ 1. 40.2
✗ 2. 40.4
✗ 3. 38.9
✓ 4. 39.8

Q.3 If $4\sin^2\theta = 1$ and θ is an acute angle, then the value of $\cos^2\theta + \tan^2\theta =$ _____.

Ans
✓ 1. $\frac{13}{12}$
✗ 2. $\frac{5}{13}$
✗ 3. 1
✗ 4. $\frac{1}{4}$

Q.4 The division of labour occurs in:

Ans
✗ 1. only unicellular organisms
✗ 2. only multicellular organisms
✗ 3. neither unicellular nor in multicellular organism
✓ 4. both unicellular and multicellular organisms

Q.5 The value of M in $(p/q)^{2M+2} = (q/p)^{9-M}$ is:

Ans

✗ 1. $\frac{-7}{2}$

✓ 2. -11

✗ 3. 6

✗ 4. 5

Q.6 Which of the following options should come in place of the question mark (?) in the given series to make it logically complete?

361, 348, 335, 322, 309,?

Ans

✗ 1. 290

✗ 2. 300

✓ 3. 296

✗ 4. 294

Q.7 A man sold an article for ₹247.50, there by gaining 12.5%. The cost of the article was:

Ans

✓ 1. ₹220

✗ 2. ₹225

✗ 3. ₹210

✗ 4. ₹224

Q.8 If each letter of the word TYPING, is changed to the letter immediately preceding it in the English alphabetical order and the new group of letters thus formed is rearranged in English alphabetical order, then which letter is first to the right in the new rearranged group of letters?

Ans

✗ 1. O

✓ 2. X

✗ 3. M

✗ 4. S

Q.9 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 lemons are potatoes.

Some lemons are papayas.

Conclusions:

(I) Some potatoes are papayas.

(II) All papayas are potatoes.

Ans
✔ 1. Only conclusion (I) follows
✗ 2. Only conclusion (II) follows
✗ 3. Both conclusions (I) and (II) follow
✗ 4. Neither conclusion (I) nor (II) follows

Q.10 Which of the following options represents sub-atomic particles found in Thomson's model of an atom?

Ans
✔ 1. Only electrons
✗ 2. Protons and neutrons both
✗ 3. Only protons
✗ 4. Electrons and protons both

Q.11 Seven boxes A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order. F is kept third from the top. Only two boxes are kept between B and G. D is kept immediately above G. Only three boxes are kept between E and A. D is kept at one of the positions below F. E is not kept at the top-most position.

Which box is kept fourth from the top?

Ans
✗ 1. E
✔ 2. B
✗ 3. C
✗ 4. A

Q.12 The sum of three consecutive multiples of 8 is 2424, find the largest one.

Ans
✗ 1. 824
✗ 2. 848
✗ 3. 810
✔ 4. 816

Q.13 Which of the following environmental factors plays a role in sex determination of few reptiles?

Ans
✗ 1. Pressure
✗ 2. Water
✗ 3. Soil
✔ 4. Temperature

Q.14 Gastric glands present in the wall of the stomach do NOT release:

Ans
✔ 1. saliva
✘ 2. pepsin
✘ 3. hydrochloric acid
✘ 4. mucus

Q.15 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 : 128 :: 146 : Y

Ans
✔ 1. X = 164, Y = 92
✘ 2. X = 168, Y = 98
✘ 3. X = 174, Y = 84
✘ 4. X = 156, Y = 86

Q.16 Select the correct balanced equation for the reaction $Al_2(SO_4)_3 + BaCl_2 \rightarrow AlCl_3 + BaSO_4$.

Ans
✘ 1. $Al_2(SO_4)_3 + 3BaCl_2 \rightarrow 3AlCl_3 + 2\ BaSO_4$
✘ 2. $2Al_2(SO_4)_3 + 3BaCl_2 \rightarrow 2AlCl_3 + 3BaSO_4$
✘ 3. $Al_2(SO_4)_3 + 2BaCl_2 \rightarrow 2AlCl_3 + 3\ BaSO_4$
✔ 4. $Al_2(SO_4)_3 + 3BaCl_2 \rightarrow 2AlCl_3 + 3\ BaSO_4$

Q.17 L, P, R, V, X, Y and Z are sitting around a circular table facing the centre. Only one person sits between V and L, when counted from the right of V. Only one person sits between L and X. Only one person sits between V and Z. Only two people sit between R and X. Only one person sits between P and Z. Who sits to the immediate right and left of Y, respectively?

Ans
✘ 1. Z and V
✘ 2. V and X
✔ 3. V and Z
✘ 4. X and Z

Q.18 **The discussion paper titled '_____' was released by NITI Aayog on 15 January 2024.**

Ans
✘ 1. Poverty Alleviation in India
✔ 2. Multidimensional Poverty in India since 2005-06
✘ 3. Economic Growth and Poverty Reduction
✘ 4. Government Initiatives for Poverty Eradication

Q.19 The tax on a commodity is reduced by 20% and its consumption is increased by 15%. What is the effect on tax revenue?

Ans

✗ 1. It increases by 10%

✓ 2. It decreases by 8%

✗ 3. It increases by 8%

✗ 4. No change

Q.20 A diver rowing at the speed of 3 km/h in still water takes double the time going 50 km upstream compared to going 50 km downstream. The speed of the diver downstream is:

Ans

✗ 1. $\frac{9}{2}$ km/h

✓ 2. 4 km/h

✗ 3. $\frac{7}{2}$ km/h

✗ 4. $\frac{10}{3}$ km/h

Q.21 Two successive discounts of 40% and 60% on a deal are equivalent to a single discount of:

Ans

✗ 1. 70%

✗ 2. 66%

✓ 3. 76%

✗ 4. 80%

Q.22 Simplify the following expression:

$(2z - 5y)^2 + (5z + 2y)^2 - 25z^2$

Ans

✗ 1. $19y^2+4z^2$

✗ 2. $19y^2-4z^2$

✓ 3. $29y^2+4z^2$

✗ 4. $29y^2-4z^2$

Q.23 The LCM of 84, 105 and 140 is:

Ans

✗ 1. 360

✗ 2. 240

✗ 3. 120

✓ 4. 420

Q.24 When we are travelling in a bus, we tend to move forward when the bus is stopped suddenly. This is because of _____.

Ans

✗ 1. Newton's third law of motion

✗ 2. acceleration due to gravity

✓ 3. the inertia of our body

✗ 4. Newton's second law of motion

Q.25 **Which of the following Sustainable Development Goals is highlighted as needing targeted efforts due to its score being below 50?**

Ans

✔ 1. Goal 5 (Gender Equality)

✘ 2. Goal 15 (Life on Land)

✘ 3. Goal 13 (Climate Action)

✘ 4. Goal 8 (Decent Work and Economic Growth)

Q.26 Find the number of bricks, each measuring 24 cm × 12 cm × 8 cm, required to construct a wall 24 m long, 8m high and 60 cm thick if 10% of the wall is filled with mortar?

Ans

✔ 1. 45000

✘ 2. 450000

✘ 3. 450

✘ 4. 4500

Q.27 Select the INCORRECT statement.

Ans

✘ 1. Male germ-cells are produced by pollen grain.

✔ 2. Female gamete is present in the stigma.

✘ 3. Fertilisation gives us zygote.

✘ 4. The fusion of male gamete and female gamete is known as fertilisation.

Q.28 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 - The railway authorities have decided to run two holiday special trains on Tuesdays and Fridays from City A to City B from 19th October 2023 to 5th January 2024.

Reasons:

(I) Flights from City A to City C are booked to capacity, and airlines are planning to increase the number of flights operating between City A and City C from August 2023.

(II) Many migrants from City B who work in city A, travel back to City B on trains from October to January for the festivals. The existing trains cannot accommodate this increase in passenger demand.

Ans

✘ 1. Neither I nor II is a possible reason.

✘ 2. Only I is a possible reason.

✔ 3. Only II is a possible reason.

✘ 4. Both I and II are possible reasons.

Q.29 KBWJ is related to MZZG in a certain way based on the English alphabetical order. In the same way, OXCD is related to QVFA. To which of the following options is STIX related, following the same logic?

Ans

✘ 1. VRKU

✔ 2. URLU

✘ 3. VSLT

✘ 4. TSLV

Q.30 **A total of _____ Arjun awards were conferred during the National Sports Awards 2023.**

Ans

✗ 1. 21

✗ 2. 31

✓ 3. 26

✗ 4. 18

Q.31 Two trains, each 250 m in length, are running on parallel lines in opposite directions at speeds of 90 km/h and 60 km/h respectively. In how many seconds will they cross each other completely?

Ans

✗ 1. 15 sec

✗ 2. 18 sec

✗ 3. 10 sec

✓ 4. 12 sec

Q.32 **In May 2024, DRDO handed over _____ defence technology projects to IIT Bhubaneswar.**

Ans

✓ 1. nine

✗ 2. seven

✗ 3. five

✗ 4. eleven

Q.33 Which two numbers should be interchanged to make the given equation correct?

$72 - 56 + (13 + 19) \times 2 - 95 \div 5 + 17 = 76$

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

Ans

✗ 1. 19 and 5

✓ 2. 19 and 17

✗ 3. 17 and 56

✗ 4. 13 and 17

Q.34 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.)

Ans

✗ 1. QV – SX

✗ 2. KP – MR

✓ 3. AD – CG

✗ 4. BG – DI

Q.35 In a certain code language, 'FEND' is coded as '9735' and 'FEUD' is coded as '3769'. What is the code for 'U' in the given code language?

Ans

✗ 1. 7

✓ 2. 6

✗ 3. 3

✗ 4. 9

Q.36 We observe geometrical shadow of an opaque object when light is incident on it. This is due to _____.

Ans
✗ 1. diffraction of the light
✗ 2. dispersion of the light by an object
✓ 3. light travelling in a straight line
✗ 4. reflection of the light

Q.37 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 R related to T if 'Q # R × P ÷ K × T'?

Ans
✗ 1. Daughter's daughter
✓ 2. Wife's mother
✗ 3. Son's wife
✗ 4. Son's daughter

Q.38 Nalin starts from Point Y and drives 8 km towards North. He then takes a right turn, drives 23 km, turns right and drives 29 km. He then takes a left turn and drives 14 km. He takes a left turn, drives 21 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)

Ans
✗ 1. 29 km towards the south
✓ 2. 37 km towards the west
✗ 3. 26 km towards the north
✗ 4. 21 km towards the east

Q.39 **Fruits and seeds have a high concentration of which of the following plant hormones?**

Ans
✗ 1. Auxin
✗ 2. Gibberellin
✓ 3. Cytokinin
✗ 4. Abscisic acid

Q.40 Last year, there were 610 boys in a school. The number decreased by 20% this year. How many girls are there in the school if the number of girls is 175% of the total number of boys in the school this year?

Ans
✓ 1. 854
✗ 2. 798
✗ 3. 782
✗ 4. 848

Q.41 Which of the following numbers is divisible by 4?

Ans
✗ 1. 9876754
✓ 2. 8978624
✗ 3. 7864534
✗ 4. 9876342

Q.42 The work done by the motor per unit time is called _____.

Ans
✓ 1. power
✗ 2. energy
✗ 3. acceleration
✗ 4. momentum

Q.43 Refer to the given number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 7 3 @ 1 7 3 ^ 4 & 3 Ω 9 # * £ 5 (Right)

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

Ans
✓ 1. Four
✗ 2. Three
✗ 3. Five
✗ 4. More than five

Q.44 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 giraffes are rhinos.

All rhinos are tigers.

Conclusions:

(I) Some tigers are giraffes.

(II) All tigers are rhinos.

Ans
✗ 1. Only conclusion (II) follows
✗ 2. Neither conclusion (I) nor (II) follows
✓ 3. Only conclusion (I) follows
✗ 4. Both conclusions (I) and (II) follow

Q.45 In a certain code language, 'ARGOT' is coded as '12497' and 'GRAFT' is coded as '29743'. What is the code for 'F' in the given code language?

Ans
✗ 1. 7
✓ 2. 3
✗ 3. 2
✗ 4. 4

Q.46 If + means −, − means ×, × means ÷, ÷ means +, then what will come in place of the question mark (?) in the following equation?

$62 - 2 \div 7 + 14 \times 7 = ?$

Ans
✔ 1. 129
✘ 2. 133
✘ 3. 143
✘ 4. 131

Q.47 The sides of a rectangle are in the ratio 8 : 10 and its perimeter is 90 cm. The area of this rectangle is:

Ans
✘ 1. 550 cm^2
✘ 2. 450 cm^2
✘ 3. 520 cm^2
✔ 4. 500 cm^2

Q.48 Which of the following is formed by the action of chlorine on dry slaked lime?

Ans
✘ 1. Calcium oxide
✘ 2. Hydrochloric acid
✘ 3. Calcium chloride
✔ 4. Bleaching powder

Q.49 A sum of money doubles itself at a certain rate of compound interest in 12 years when the interest is compounded annually. In how many years will it become eight times of itself?

Ans
✔ 1. 36
✘ 2. 12
✘ 3. 48
✘ 4. 24

Q.50 Which of the following is NOT an example of homogenous mixture?

Ans
✘ 1. Copper sulphate powder in water
✘ 2. Sugar dissolved in water
✘ 3. Salt dissolved in water
✔ 4. Oil in water

Q.51 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 :: ?

X : 125 :: 13 : Y

Ans
✘ 1. X = 12, Y = 173
✔ 2. X = 11, Y = 173
✘ 3. X = 11, Y = 169
✘ 4. X = 12, Y = 169

Q.52 When an object is kept at a distance 20 cm in front of a concave mirror, a real image is formed at the centre of curvature of the mirror. Magnification produced by the mirror is _____.

Ans
1. –20
2. –1
3. –10
4. –0.5

Q.53 Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

BEG, CFH, DGI, EHJ, ?

Ans
1. FGK
2. FIK
3. FKL
4. FGL

Q.54 Select the INCORRECT pair.

Ans
1. Primary consumer – second trophic level
2. Autotrophs– first trophic level
3. Small carnivorous– third trophic level
4. Bacteria – fourth trophic level

Q.55 Which of the following is the general formula of alkenes?

Ans
1. C_nH_{2n+1}
2. $C_{2n}H_{2n}$
3. C_nH_n
4. C_nH_{2n}

Q.56 If 25 people working 15 hours a day can complete 5 units of work in 8 days, how many days would be required by 12 persons to complete 10 units of work, working 20 hours a day?

Ans
1. 20 days
2. 25 days
3. 22 days
4. 24 days

Q.57 The average marks of the students of a class in a particular exam is 80. If 5 students whose average marks in that exam is 40 are excluded, the average marks of the remaining students will be 90. Find the number of students who wrote the exam.

Ans
1. 25
2. 20
3. 15
4. 35

Q.58 What will happen during the free fall of a massive object under the influence of gravitational force of the earth?

Ans
✔ 1. Velocity of the massive object increases.

✘ 2. Velocity of the massive object decreases.

✘ 3. Mass of the object increases.

✘ 4. Mass of the object decreases.

Q.59 Which of the following statements is INCORRECT?

Ans
✘ 1.
The strength of the force of attraction between the particles of matter varies from one kind of matter to another.

✘ 2. The force acting between the particles of matter keeps them together.

✔ 3.
The strength of the force of attraction between the particles of matter is constant, irrespective of the kind of matter.

✘ 4. The particles of matter have force acting between them.

Q.60 UPTQ is related to OJNK in a certain way based on the English alphabetical order. In the same way, RMQN is related to LGKH. To which of the following options is NIMJ related, following the same logic?

Ans
✔ 1. HCGD

✘ 2. CHDG

✘ 3. CHGD

✘ 4. HCDG

Q.61 Seven people, A, B, C, D, E, F and G, are sitting in a row, facing north. Only five people sit between C and D. B sits third from the right end. G sits to the immediate right of C. E sits third to the right of A. How many people sit between G and F?

Ans
✘ 1. Four

✘ 2. Three

✔ 3. One

✘ 4. Two

Q.62 **Who among the following is the Non-Playing Captain and Coach of Indian Chess team at Chess Olympiad 2024?**

Ans
✘ 1. Vikram Singh

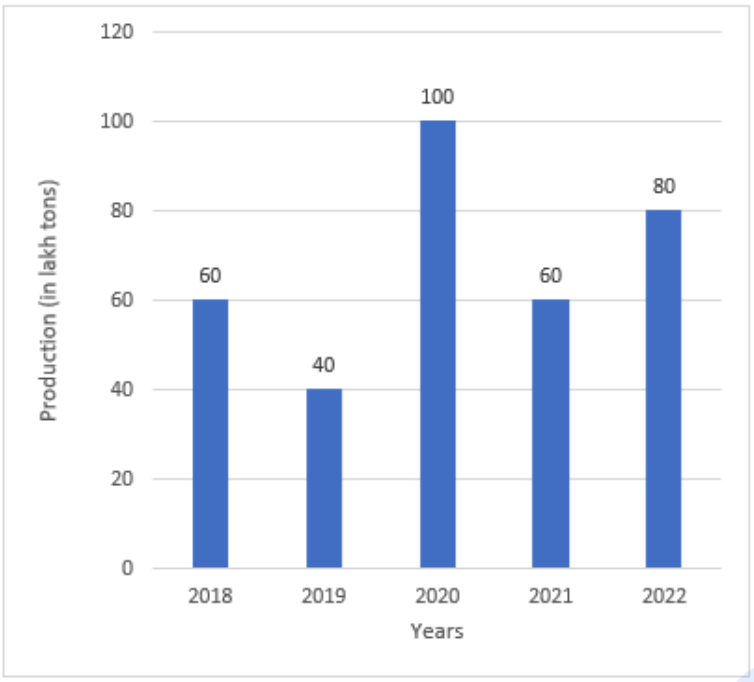
✔ 2. Srinath Narayanan

✘ 3. Abhijit Ganguly

✘ 4. Pendyala Harikrishna

Q.63 Study the following graph and answer the given question.

The given bar graph shows the annual production of rice in a state during the period 2018 to 2022.



What is the total production of rice (in lakh tons) for the years 2020, 2021 and 2022 together?

Ans

✗ 1. 270

✓ 2. 240

✗ 3. 250

✗ 4. 260

Q.64 Which of the following electrolytes is used in the electrolytic refining of copper?

Ans

✗ 1. Sodium sulphate

✗ 2. Cuprous chloride

✗ 3. Copper oxide

✓ 4. Copper sulphate

Q.65 **Which Sikkimese craftsman, renowned for his skill in creating the 'Sumak Thyaktuk' (Lepcha traditional hat), was awarded the Padma Shri in 2024 for his contributions to art and cultural heritage?**

Ans

✓ 1. Jordan Lepcha

✗ 2. Karma Wangchuk

✗ 3. Sonam Tshering

✗ 4. Tashi Namgyal

Q.66 **The resistance of a 10 m long copper wire is R ohm. What will be the resistance of a 5 m long copper wire?**

Ans

✓ 1. 0.5R ohm

✗ 2. R ohm

✗ 3. 5R ohm

✗ 4. 2R ohm

Q.67 Which of the following devices does NOT make use of current carrying conductor in a magnetic field?

Ans
✗ 1. Electric motor
✗ 2. Electric fan
✗ 3. Electric generator
✓ 4. Electric heater

Q.68 Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

YUS, WSQ, UQO, SOM, ?

Ans
✓ 1. QMK
✗ 2. QOL
✗ 3. RML
✗ 4. QKL

Q.69 If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2 : 3, then the greater of the two angles is:

Ans
✓ 1. 108^0
✗ 2. 54^0
✗ 3. 136^0
✗ 4. 120^0

Q.70 **In 2023, which institution implemented two-factor authentication for all e-way bill and e-invoice systems?**

Ans
✗ 1. RBI
✗ 2. CBDT
✓ 3. CBIC
✗ 4. SEBI

Q.71 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.)

Ans
✗ 1. QL – OJ
✗ 2. WR – UP
✗ 3. ID – GB
✓ 4. MS – LH

Q.72 **Which Indian Bharatanatyam dancer and film star, already awarded the Padma Shri in 1968, was honoured with the Padma Bhushan in 2024 during the Civil Investiture Ceremony?**

Ans
✗ 1. Rukmini Devi Arundale
✓ 2. Vyjayanthimala
✗ 3. Shobana
✗ 4. Hema Malini

Q.73 **Who was appointed as the Director General of the Narcotics Control Bureau on 17 September 2024?**

Ans
- ✔ 1. Anurag Garg
- ✘ 2. Sanjay Arora
- ✘ 3. Samant Goel
- ✘ 4. Rakesh Asthana

Q.74 If 18 : 24 :: 24 : y, what is the value of y?

Ans
- ✘ 1. 36
- ✘ 2. 18
- ✘ 3. 24
- ✔ 4. 32

Q.75 In the word MASTER, 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 consonants are present in the new group of letters thus formed?

Ans
- ✔ 1. Six
- ✘ 2. Four
- ✘ 3. Three
- ✘ 4. Five