



रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS  
सी ई एन आर आर बी - ०३/२०२४ - CEN RRB - 03/2024



Test Date	17/12/2024
Test Time	4:30 PM - 6:00 PM
Subject	RRB JE DMS CMA CS MS

\* 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 JE, DMS, CMA, CS, MS CBT-1

Q.1 Which scientist(s) established the laws of Inheritance?

- Ans ☒ 1. Watson and Crick  
☒ 2. Charles Darwin  
☒ 3. Gregor Johann Mendel  
☒ 4. Thomas Hunt Morgan

Q.2 Find the value of  $1.356 + 4.25 \times 8 - 3.562 \times 6 + 7.5 \times 4$ .

- Ans ☒ 1. 41.625  
☒ 2. 42.237  
☒ 3. 43.012  
☒ 4. 43.984

Q.3 What should come in place of the question mark (?) in the given series?

86 78 64 56 42 34 ?

- Ans ☒ 1. 20  
☒ 2. 22  
☒ 3. 26  
☒ 4. 28

Q.4 What is the mean of the following distribution?

Marks	13	23	51	61	96
No. of Students	51	34	62	87	17

- Ans ☒ 1. 46  
☒ 2. 72  
☒ 3. 37  
☒ 4. 34

Q.5	A tube like structure grows down from the pollen grain to the style and reaches the ovule. This pollen tube is responsible for:
Ans	<div><div><input checked="" type="checkbox"/></div>1. carrying oxygen to the female germ cell in the ovary</div> <div><div><input checked="" type="checkbox"/></div>2. carrying nutrition to the female germ cell in the ovary</div> <div><div><input checked="" type="checkbox"/></div>3. carrying the male germ cell to the female germ cell in the ovary</div> <div><div><input checked="" type="checkbox"/></div>4. carrying carbon dioxide to the female germ cell in the ovary</div>
Q.6	A trader lost 10% by selling a shirt for ₹840. He will gain x%' by selling it for ₹1540, the value of x is:
Ans	<div><div><input checked="" type="checkbox"/></div>1. 75</div> <div><div><input checked="" type="checkbox"/></div>2. 55</div> <div><div><input checked="" type="checkbox"/></div>3. 80</div> <div><div><input checked="" type="checkbox"/></div>4. 65</div>
Q.7	Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.  CYU XTP SOK NJF ?
Ans	<div><div><input checked="" type="checkbox"/></div>1. ERT</div> <div><div><input checked="" type="checkbox"/></div>2. IEA</div> <div><div><input checked="" type="checkbox"/></div>3. IAI</div> <div><div><input checked="" type="checkbox"/></div>4. EAI</div>
Q.8	When an aqueous solution of potassium iodide reacts with lead nitrate, what type of product is formed?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Sodium nitrate</div> <div><div><input checked="" type="checkbox"/></div>2. Lead nitrate</div> <div><div><input checked="" type="checkbox"/></div>3. Lead chloride</div> <div><div><input checked="" type="checkbox"/></div>4. Lead iodide (precipitate)</div>
Q.9	In which of the following cases did the Supreme Court of India enunciate the ‘Doctrine of Basic Structure’?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Menka Gandhi case</div> <div><div><input checked="" type="checkbox"/></div>2. Golaknath case</div> <div><div><input checked="" type="checkbox"/></div>3. Keshvanand Bharti case</div> <div><div><input checked="" type="checkbox"/></div>4. AK Gopalan case</div>
Q.10	Which of the following is NOT a method of pollination?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Self-pollination</div> <div><div><input checked="" type="checkbox"/></div>2. Water pollination</div> <div><div><input checked="" type="checkbox"/></div>3. Asexual pollination</div> <div><div><input checked="" type="checkbox"/></div>4. Wind pollination</div>
Q.11	Anamika travels a distance of 183 km with speed of 61 km/h and 225 km with 45 km/h by her car. Find the average speed (in km/h) of Anamika.
Ans	<div><div><input checked="" type="checkbox"/></div>1. 54</div> <div><div><input checked="" type="checkbox"/></div>2. 59</div> <div><div><input checked="" type="checkbox"/></div>3. 51</div> <div><div><input checked="" type="checkbox"/></div>4. 56</div>

Q.12	A and B can do a piece of work in 4 days and 46 days, respectively. The number of days [Correct to one decimal place] required to complete the work if both A and B work together is:
Ans	<div><div><div>✖</div><div>1. 6.9</div></div><div><div>✖</div><div>2. 5.5</div></div><div><div>✔</div><div>3. 3.6</div></div><div><div>✖</div><div>4. 6.8</div></div></div>
Q.13	Which team clinched the Irani Cup title for the season 2024-25?
Ans	<div><div><div>✔</div><div>1. Mumbai</div></div><div><div>✖</div><div>2. Railways</div></div><div><div>✖</div><div>3. Karnataka</div></div><div><div>✖</div><div>4. Rest of India</div></div></div>
Q.14	Select the letter-cluster pair that best represents a similar relationship to the one expressed in the pairs of letter-clusters given below.  WJT : ZNO KAK : NEF
Ans	<div><div><div>✔</div><div>1. NKH : QOC</div></div><div><div>✖</div><div>2. LBL : OEG</div></div><div><div>✖</div><div>3. TFV : WJR</div></div><div><div>✖</div><div>4. MTK : PXG</div></div></div>
Q.15	Mayank starts from Point A and drives 18 km towards east. He then takes a right turn, drives 19 km, turns right and drives 21 km. He then takes a right turn and drives 25 km. He takes a final right turn, drives 3 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90° turns only unless specified.)
Ans	<div><div><div>✖</div><div>1. 4 km to the south</div></div><div><div>✖</div><div>2. 5 km to the south</div></div><div><div>✔</div><div>3. 6 km to the south</div></div><div><div>✖</div><div>4. 8 km to the south</div></div></div>
Q.16	₹3300 were divided among P, Q and R, such that 4 times of P = 7 times of Q = 2 times of R. Find the share of R.
Ans	<div><div><div>✖</div><div>1. ₹2024</div></div><div><div>✖</div><div>2. ₹2028</div></div><div><div>✖</div><div>3. ₹2046</div></div><div><div>✔</div><div>4. ₹1848</div></div></div>
Q.17	The angle of elevation of a tower from a point which is at a distance of 44 m from it's foot is 60°. Find the height of the tower. (use $\sqrt{3} = 1.73$ )
Ans	<div><div><div>✔</div><div>1. 76.12 m</div></div><div><div>✖</div><div>2. 48 m</div></div><div><div>✖</div><div>3. 68 m</div></div><div><div>✖</div><div>4. 56.37 m</div></div></div>

**Q.18** In a certain code language,  
'actor singer dancer' is coded as 'ma ph st',  
'dancer doctor engineer' is coded as 'cd le ma' and  
'engineer actor cricketer' is coded as 'st bq cd'.  
(All the codes are two-letter codes only.)  
What is the code for 'actor' in that language?

- Ans**    ☒ 1. st  
          ☐ 2. bq  
          ☐ 3. ma  
          ☐ 4. cd

**Q.19** Oxidation of metals in the presence of acids or moisture is called:

- Ans**    ☒ 1. corrosion  
          ☐ 2. neutralisation  
          ☐ 3. rancidity  
          ☐ 4. rusting

**Q.20** Who among the following was the ruler of Gujarat when Humayun attacked the kingdom in 1532?

- Ans**    ☐ 1. Sikandar Shah  
          ☐ 2. Zafar Khan Muzaffar  
          ☐ 3. Muzaffar Shah II  
          ☒ 4. Bahadur Shah

**Q.21** The average age of 40 boys in a class is 18 years. One boy, aged 26 years left the class, and two new boys joined the class. If the average age of all boys now in the class remains 18 years, then find the average age of the two newcomers.

- Ans**    ☐ 1. 21 years  
          ☐ 2. 20 years  
          ☒ 3. 22 years  
          ☐ 4. 24 years

**Q.22** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and 'x' and '÷' are interchanged?

$11 + 37 - 5 \times 40 \div 24 = ?$

- Ans**    ☐ 1. -22  
          ☐ 2. -25  
          ☐ 3. -21  
          ☒ 4. -23

**Q.23** Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number result(s) in the second number. Similarly, certain mathematical operation(s) on the second number result(s) in the third number and so on. Which of the given options follows the same set of operations as in the given sets? (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting / multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

6-18-72-102; 8-20-80-110

- Ans**    ☐ 1. 9-21-84-94  
          ☐ 2. 4-16-64-84  
          ☒ 3. 7-19-76-106  
          ☐ 4. 11-22-88-116

Q.24	In which year was 'Heirloom Treasures: The Cultural Tapestry of India: A Compilation of Selected Articles from India Beckons: Volume 1,' by Arunima Hoskote, published?
Ans	<div><div><input type="checkbox"/></div>1. 2019</div> <div><div><input type="checkbox"/></div>2. 2021</div> <div><div><input type="checkbox"/></div>3. 2018</div> <div><div><input checked="" type="checkbox"/></div>4. 2020</div>
Q.25	Seven boxes, I, J, K, L, W, X and Y, are kept one over the other but not necessarily in the same order. Only K is kept above W. Only two boxes are kept between W and J. Only L is kept below I. J is not kept immediately below Y. How many boxes are kept between X and L?
Ans	<div><div><input type="checkbox"/></div>1. Three</div> <div><div><input type="checkbox"/></div>2. One</div> <div><div><input type="checkbox"/></div>3. Four</div> <div><div><input checked="" type="checkbox"/></div>4. Two</div>
Q.26	Evaluate: $32 \div 12 \times 3 - 2 \times 4$
Ans	<div><div><input checked="" type="checkbox"/></div>1. 0</div> <div><div><input type="checkbox"/></div>2. 3</div> <div><div><input type="checkbox"/></div>3. -1</div> <div><div><input type="checkbox"/></div>4. 2</div>
Q.27	What is the purpose of using devices like Copper-T in family planning?
Ans	<div><div><input checked="" type="checkbox"/></div>1. To prevent fertilised eggs from implanting in the uterus</div> <div><div><input type="checkbox"/></div>2. To block sperm transfer in males</div> <div><div><input type="checkbox"/></div>3. To act as a physical barrier to sperm</div> <div><div><input type="checkbox"/></div>4. To alter hormonal levels in women</div>
Q.28	Yeast reproduces through which asexual mode of reproduction?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Budding</div> <div><div><input type="checkbox"/></div>2. Vegetative propagation</div> <div><div><input type="checkbox"/></div>3. Fusion</div> <div><div><input type="checkbox"/></div>4. Fission</div>
Q.29	What is the name of the famous temple complex in Tamil Nadu, known for its Dravidian architecture and 1,000-pillar hall?
Ans	<div><div><input type="checkbox"/></div>1. Kanchipuram Temple</div> <div><div><input type="checkbox"/></div>2. Jagannath Temple</div> <div><div><input type="checkbox"/></div>3. Brihadeeswarar Temple</div> <div><div><input checked="" type="checkbox"/></div>4. Meenakshi Temple</div>
Q.30	Which of the following steps is the first step in balancing a chemical equation?
Ans	<div><div><input type="checkbox"/></div>1. Balancing oxygen atoms</div> <div><div><input type="checkbox"/></div>2. Adding coefficients randomly</div> <div><div><input type="checkbox"/></div>3. Balancing hydrogen atoms</div> <div><div><input checked="" type="checkbox"/></div>4. Writing the skeleton equation</div>
Q.31	What is the median of the following data? 17, 54, 51, 64, 13, 39, 23, 40, 78, 66, 96
Ans	<div><div><input type="checkbox"/></div>1. 52</div> <div><div><input type="checkbox"/></div>2. 51.5</div> <div><div><input type="checkbox"/></div>3. 50.5</div> <div><div><input checked="" type="checkbox"/></div>4. 51</div>

Q.32	What is the angle formed between two lateral faces of a triangular glass prism called?
Ans	<div><div><div>✖</div><div>1. Angle of refraction</div></div><div><div>✖</div><div>2. Angle of incidence</div></div><div><div>✔</div><div>3. Angle of the prism</div></div><div><div>✖</div><div>4. Angle of deviation</div></div></div>
Q.33	Among five people named A, B, C, D and E, each has a certain age. C is twice the age of A. A is three times the age of D. D is one fifth the age of B. The age of B is 45. If E is equal the age of C, what is the age of E?
Ans	<div><div><div>✖</div><div>1. 52</div></div><div><div>✖</div><div>2. 58</div></div><div><div>✔</div><div>3. 54</div></div><div><div>✖</div><div>4. 56</div></div></div>
Q.34	If x is inversely proportional to y, and y = 5 when x = 2, find the value of x, when y = 41.
Ans	<div><div><div>✖</div><div>1. <math>\frac{11}{42}</math></div></div><div><div>✔</div><div>2. <math>\frac{10}{41}</math></div></div><div><div>✖</div><div>3. <math>\frac{10}{42}</math></div></div><div><div>✖</div><div>4. <math>\frac{12}{44}</math></div></div></div>
Q.35	Contraception is one of the main goals of which health care programme?
Ans	<div><div><div>✖</div><div>1. Mental Health Programme</div></div><div><div>✔</div><div>2. Reproductive Health Programme</div></div><div><div>✖</div><div>3. Indradhanush Immunisation Programme</div></div><div><div>✖</div><div>4. Pulse Polio Programme</div></div></div>
Q.36	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 letter-cluster 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	<div><div><div>✖</div><div>1. CM-JL</div></div><div><div>✔</div><div>2. LV-TU</div></div><div><div>✖</div><div>3. GQ-NP</div></div><div><div>✖</div><div>4. OY-VX</div></div></div>
Q.37	If two parallel lines are cut by a transversal, and one pair of the corresponding angles formed are $(x + 30)^\circ$ and $(2x - 10)^\circ$ , then find the value of x.
Ans	<div><div><div>✖</div><div>1. 30</div></div><div><div>✖</div><div>2. 45</div></div><div><div>✖</div><div>3. 35</div></div><div><div>✔</div><div>4. 40</div></div></div>
Q.38	The measure of how much a material resists the flow of charges is known as:
Ans	<div><div><div>✔</div><div>1. resistivity</div></div><div><div>✖</div><div>2. potential difference</div></div><div><div>✖</div><div>3. current</div></div><div><div>✖</div><div>4. power generated</div></div></div>

Q.39	Find the simple interest (in closest integral ₹) on ₹4000 at 5.25% per annum rate of interest for the period from 3 February 2024 to 4 April 2024
Ans	<div><div><div>✖</div><div>1. 33</div></div><div><div>✔</div><div>2. 35</div></div><div><div>✖</div><div>3. 34</div></div><div><div>✖</div><div>4. 36</div></div></div>
Q.40	The population of a town in 1974 was 222900. If its population increased in two successive decades by 50% in each decade, the population of the town in 1994 was:
Ans	<div><div><div>✔</div><div>1. 501525</div></div><div><div>✖</div><div>2. 501521</div></div><div><div>✖</div><div>3. 501520</div></div><div><div>✖</div><div>4. 501526</div></div></div>
Q.41	In a convex mirror, the principal focus is located _____.
Ans	<div><div><div>✖</div><div>1. at the pole of the mirror</div></div><div><div>✔</div><div>2. behind the mirror</div></div><div><div>✖</div><div>3. at the centre of curvature</div></div><div><div>✖</div><div>4. in front of the mirror</div></div></div>
Q.42	Based on the English alphabetical order, three of the following four are alike in a certain way and thus form a group. Which is the one that 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	<div><div><div>✖</div><div>1. OSR</div></div><div><div>✖</div><div>2. HLK</div></div><div><div>✔</div><div>3. DGF</div></div><div><div>✖</div><div>4. SWV</div></div></div>
Q.43	Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of ::?
	# : GJM :: FIL : %
Ans	<div><div><div>✖</div><div>1. # = XAD, % = MRU</div></div><div><div>✖</div><div>2. # = XAD, % = ORP</div></div><div><div>✖</div><div>3. # = YAD, % = ORU</div></div><div><div>✔</div><div>4. # = XAD, % = ORU</div></div></div>
Q.44	The average price of three items of furniture is Rs 15765. If their prices are in the ratio 3:5:7, the price of the costliest item (in Rs) is
Ans	<div><div><div>✔</div><div>1. 22071</div></div><div><div>✖</div><div>2. 7357</div></div><div><div>✖</div><div>3. 3153</div></div><div><div>✖</div><div>4. 5255</div></div></div>
Q.45	What should come in place of the question mark (?) in the given series?
	68 76 86 98 112 ?
Ans	<div><div><div>✖</div><div>1. 122</div></div><div><div>✖</div><div>2. 125</div></div><div><div>✔</div><div>3. 128</div></div><div><div>✖</div><div>4. 132</div></div></div>

Q.46	A man sold an article for ₹687 by first giving a d% discount on its marked price, and then another discount having the same nominal value (in ₹). If the marked price of the article is ₹1145, then what is the value of d?
Ans	<div><div><div>✖</div><div>1. 19</div></div><div><div>✖</div><div>2. 16</div></div><div><div>✔</div><div>3. 20</div></div><div><div>✖</div><div>4. 23</div></div></div>
Q.47	When Plaster of Paris is mixed with water, it undergoes which of the following changes?
Ans	<div><div><div>✖</div><div>1. It loses all its water molecules.</div></div><div><div>✖</div><div>2. It produces a gas.</div></div><div><div>✔</div><div>3. It changes to gypsum.</div></div><div><div>✖</div><div>4. It dissolves completely.</div></div></div>
Q.48	AB and CD are parallel straight lines and HI is the transversal intersecting AB at E and CD at F. G is a point between the lines AB and CD but not on HI, such that $m\angle EGF = 65^\circ$ . If $\frac{2}{5} \times m\angle BEG = \frac{3}{5} \times m\angle DFG$ , and $m\angle DFG = \frac{1}{3} \times m\angle DFE$ , what is the measure of $\angle FEG$ ?
Ans	<div><div><div>✖</div><div>1. <math>62^\circ</math></div></div><div><div>✖</div><div>2. <math>52^\circ</math></div></div><div><div>✔</div><div>3. <math>63^\circ</math></div></div><div><div>✖</div><div>4. <math>69^\circ</math></div></div></div>
Q.49	The first President of the Indian National Congress was _____.
Ans	<div><div><div>✖</div><div>1. Ras Behari Bose</div></div><div><div>✖</div><div>2. Dada Bhai Naoroji</div></div><div><div>✔</div><div>3. Womesh Chandra Banerjee</div></div><div><div>✖</div><div>4. Gopal Krishna Gokhale</div></div></div>
Q.50	Which of the following statements are correct with respect to Arunachal Himalaya? Statement 1: These extend from the east of the Bhutan Himalayas up to the Diphu pass in the east. Statement 2: The general direction of the mountain range is from southwest to northeast. Statement 3: Some of the important mountain peaks of the region are K2 and Annapurna. Statement 4: These ranges are dissected by fast-flowing rivers from the north to the south, forming deep gorges.
Ans	<div><div><div>✔</div><div>1. Statements 1, 2 and 4 are correct.</div></div><div><div>✖</div><div>2. Statements 2, 3 and 4 are correct.</div></div><div><div>✖</div><div>3. Only statements 2 and 3 are correct.</div></div><div><div>✖</div><div>4. Statements 1, 2 and 3 are correct.</div></div></div>
Q.51	What will come in the place of the question mark (?) in the following equation if '÷' and '-' are interchanged and '+' and '×' are interchanged?
	$17 + 9 - 3 \times 3 \div 7 = ?$
Ans	<div><div><div>✔</div><div>1. 47</div></div><div><div>✖</div><div>2. 43</div></div><div><div>✖</div><div>3. 49</div></div><div><div>✖</div><div>4. 40</div></div></div>



**Q.52** A trader claims to sell rice at a profit of 74%, but also dishonestly uses a weight which is 9% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round the answer to the nearest whole number.)

- Ans
- ☐ 1. 87%
  - ☒ 2. 91%
  - ☐ 3. 89%
  - ☐ 4. 94%

**Q.53** Pooja and Ritu invest in a business in the ratio 4 : 1. If total profit is Rs. 1480, then what is difference between the profit (in Rs.) of Pooja and Ritu?

- Ans
- ☐ 1. 788
  - ☐ 2. 988
  - ☒ 3. 888
  - ☐ 4. 938

**Q.54** In a certain code, 'copy book pencil' is coded as 'fd rl sg', 'pencil crayon eraser' is coded as 'bz xw rl', and 'crayon copy pen' is coded as 'xw sg xo'.What is the code for 'book' in that language?

(Note: All the codes are two letter coded only.)

- Ans
- ☐ 1. rl
  - ☐ 2. xo
  - ☒ 3. fd
  - ☐ 4. sg

**Q.55** A question is followed by two statements numbered (I) and (II). You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and select the most appropriate answer.

**Question:**  
Five boxes, V, W, X, Y and Z, have different weights. Which box among them is the second heaviest?

**Statements:**  
(I) Y is heavier than W. Only three boxes are lighter than Z.  
(II) X is heavier than W. X is heavier than V.

- Ans
- ☐ 1. Data in statement II alone is sufficient to answer the question while data in statement I is not.
  - ☐ 2. Data in statements I and II together are sufficient to answer the question.
  - ☒ 3. Data in statement I alone is sufficient to answer the question while data in statement II is not.
  - ☐ 4. Data in statements I and II together are not sufficient to answer the question.

**Q.56** A number when increased by 50 %', gives 3120. The number is:

- Ans
- ☐ 1. 1040
  - ☐ 2. 6240
  - ☒ 3. 2080
  - ☐ 4. 4160

**Q.57** What happens when zinc (Zn) reacts with hydrochloric acid (HCl)?

- Ans
- ☐ 1. Both Zinc and Hydrogen are oxidised.
  - ☐ 2. Zinc is reduced.
  - ☒ 3. Zinc is oxidised.
  - ☐ 4. Hydrogen is oxidised.

Q.58	Find the cost (in ₹) of digging a cuboidal pit 9 m long, 5 m broad and 4 m deep at the rate of ₹20 per m <sup>3</sup> .
Ans	<div><div><input checked="" type="checkbox"/></div>1. 3,900</div> <div><div><input checked="" type="checkbox"/></div>2. 3,800</div> <div><div><input checked="" type="checkbox"/></div>3. 3,700</div> <div><div><input checked="" type="checkbox"/></div>4. 3,600</div>
Q.59	The Indian Constitution guarantees Fundamental Rights to its citizens under which of the following Articles?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Only Articles 15 to 35</div> <div><div><input checked="" type="checkbox"/></div>2. Only Articles 14 to 32</div> <div><div><input checked="" type="checkbox"/></div>3. Only Articles 12 to 30</div> <div><div><input checked="" type="checkbox"/></div>4. Only Articles 12 to 35</div>
Q.60	The LCM of two numbers is seven times of their HCF. If the product of two numbers is 448, then find the difference between LCM and HCF.
Ans	<div><div><input checked="" type="checkbox"/></div>1. 48</div> <div><div><input checked="" type="checkbox"/></div>2. 54</div> <div><div><input checked="" type="checkbox"/></div>3. 42</div> <div><div><input checked="" type="checkbox"/></div>4. 30</div>
Q.61	Which of the following is correct with regard to resistances in a series circuit?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Total resistance is equal to the sum of all individual resistances.</div> <div><div><input checked="" type="checkbox"/></div>2. Total resistance is less than any individual resistance.</div> <div><div><input checked="" type="checkbox"/></div>3. Total resistance is equal to the product of all resistances.</div> <div><div><input checked="" type="checkbox"/></div>4. Total resistance is inversely proportional to each resistance.</div>
Q.62	Which of the following factors is primarily responsible for survival of species?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Temperature</div> <div><div><input checked="" type="checkbox"/></div>2. Niche</div> <div><div><input checked="" type="checkbox"/></div>3. Variations</div> <div><div><input checked="" type="checkbox"/></div>4. Mutation</div>
Q.63	Which of the following materials will have the least resistance at room temperature?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Iron</div> <div><div><input checked="" type="checkbox"/></div>2. Aluminum</div> <div><div><input checked="" type="checkbox"/></div>3. Nichrome</div> <div><div><input checked="" type="checkbox"/></div>4. Copper</div>
Q.64	At which of the following points does each firm employ labour?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Each firm employs labour up to the point where the marginal revenue product of labour multiplies the wage rate.</div> <div><div><input checked="" type="checkbox"/></div>2. Each firm employs labour up to the point where the marginal cost of labour equals the wage rate.</div> <div><div><input checked="" type="checkbox"/></div>3. Each firm employs labour up to the point where the marginal revenue product of labour minus the wage rate.</div> <div><div><input checked="" type="checkbox"/></div>4. Each firm employs labour up to the point where the marginal revenue product of labour equals the wage rate.</div>

Q.65	Rose flower pollen has reached Sunflower stigma through pollination. The pollen will be rejected by the stigma because:
Ans	<div><div><input checked="" type="checkbox"/></div>1. pollen has nothing to do with stigma</div> <div><div><input checked="" type="checkbox"/></div>2. stigma has nothing to do with pollen</div> <div><div><input checked="" type="checkbox"/></div>3. pollen was not of sunflower</div> <div><div><input checked="" type="checkbox"/></div>4. pollen was of rose flower</div>
Q.66	Which Article of the Indian Constitution permits the Supreme Court to review its judgement or order?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Article 132</div> <div><div><input checked="" type="checkbox"/></div>2. Article 135</div> <div><div><input checked="" type="checkbox"/></div>3. Article 137</div> <div><div><input checked="" type="checkbox"/></div>4. Article 138</div>
Q.67	What was the venue of the 13 <sup>th</sup> Ministerial Conference of the World Trade Organization in 2024?
Ans	<div><div><input checked="" type="checkbox"/></div>1. Abu Dhabi, United Arab Emirates</div> <div><div><input checked="" type="checkbox"/></div>2. New Delhi, India</div> <div><div><input checked="" type="checkbox"/></div>3. London, England</div> <div><div><input checked="" type="checkbox"/></div>4. Paris, France</div>
Q.68	What should come in place of the question mark (?) in the given series based on the English alphabetical order?  FDW LJC RPI XVO ?
Ans	<div><div><input checked="" type="checkbox"/></div>1. DBU</div> <div><div><input checked="" type="checkbox"/></div>2. DUB</div> <div><div><input checked="" type="checkbox"/></div>3. BDU</div> <div><div><input checked="" type="checkbox"/></div>4. BUD</div>
Q.69	The solution of the system of the given linear equations is:  $2x + 3y - z = 5, x - 2y + 4z = -2, 3x + y + 2z = 7$
Ans	<div><div><input checked="" type="checkbox"/></div>1. <math>x = \frac{-44}{7}, y = \frac{27}{7}, z = -4</math></div> <div><div><input checked="" type="checkbox"/></div>2. <math>x = \frac{-44}{7}, y = \frac{-27}{7}, z = 4</math></div> <div><div><input checked="" type="checkbox"/></div>3. <math>x = \frac{44}{7}, y = \frac{-27}{7}, z = -4</math></div> <div><div><input checked="" type="checkbox"/></div>4. <math>x = \frac{44}{7}, y = \frac{-27}{7}, z = -8</math></div>
Q.70	What is the name (acronym) of the software developed by ISRO, through its Vikram Sarabhai Space Centre (VSSC), a Computational Fluid Dynamics (CFD) tool aimed at facilitating aerodynamic design and analysis for aerospace vehicles?
Ans	<div><div><input checked="" type="checkbox"/></div>1. PraNaMa</div> <div><div><input checked="" type="checkbox"/></div>2. PraViNa</div> <div><div><input checked="" type="checkbox"/></div>3. PraVaHa</div> <div><div><input checked="" type="checkbox"/></div>4. PraYoGa</div>

**Q.71** Select the option in which the numbers share the same relationship as that shared by the given pairs of numbers.  
(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.)

185, 113  
170, 98

- Ans
- ☒ 1. 165, 103
  - ☒ 2. 112, 50
  - ☒ 3. 146, 74
  - ☒ 4. 136, 62

**Q.72** Which of the following is an example of a decomposition reaction that occurs due to the application of electric current?

- Ans
- ☒ 1. Heating calcium carbonate
  - ☒ 2. Decomposition of potassium permanganate by heat
  - ☒ 3. Decomposition of sodium bicarbonate by heat
  - ☒ 4. Electrolysis of water

**Q.73** Which of the following options is INCORRECT with relation to the given statement?

The magnetic field lines of a bar magnet may be drawn using:

- Ans
- ☒ 1. iron filings
  - ☒ 2. a magnetic compass
  - ☒ 3. wood particles
  - ☒ 4. another bar magnet

**Q.74** What is the difference between the hypotenuse and the base of an isosceles right triangle that has an area of 392 m<sup>2</sup> (use  $\sqrt{2} = 1.4$ )?

- Ans
- ☒ 1. 11.9 m
  - ☒ 2. 10.9 m
  - ☒ 3. 11.2 m
  - ☒ 4. 12.4 m

**Q.75** If the distance between A and B is 1089 Km. From A, Vishal goes to B with speed 104 km/h and return to A with the speed 125 km/h. Find the average speed of Vishal. (rounded off to two decimal place)

- Ans
- ☒ 1. 111.79 km/h
  - ☒ 2. 113.54 km/h
  - ☒ 3. 117.44 km/h
  - ☒ 4. 120.89 km/h

**Q.76** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statements.

Statements: All hens are juices. Some juices are nests. All pins are nests.

Conclusions:  
(I): Some pins are hens.  
(II): Some pins are juices

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

Q.77	How can you experimentally determine the focal length of a concave mirror?
Ans	<div><div><div><div></div></div><div>1. Measure the angle of reflection.</div></div><div><div><div></div></div><div>2. Measure the diameter of the mirror.</div></div><div><div><div></div></div><div>3. Measure the distance between the mirror and the image of a distant object formed by it.</div></div><div><div><div></div></div><div>4. Measure the distance between the pole and the centre of curvature.</div></div></div>
Q.78	India has reduced the windfall tax on crude oil to ₹_____ per metric tonne from ₹4,600, effective 17 August 2024.
Ans	<div><div><div><div></div></div><div>1. 2,100</div></div><div><div><div></div></div><div>2. 1,800</div></div><div><div><div></div></div><div>3. 3,600</div></div><div><div><div></div></div><div>4. 2,600</div></div></div>
Q.79	YT21 is related to TO19 in a certain way based on the English alphabetical order. In the same way, PL17 is related to KG15. To which of the following is KF13 related, following the same logic? (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
Ans	<div><div><div><div></div></div><div>1. FO11</div></div><div><div><div></div></div><div>2. AE11</div></div><div><div><div></div></div><div>3. FT17</div></div><div><div><div></div></div><div>4. FA11</div></div></div>
Q.80	What is the unit of electric power commonly used to measure household energy consumption?
Ans	<div><div><div><div></div></div><div>1. Kilowatt-hours</div></div><div><div><div></div></div><div>2. Amperes</div></div><div><div><div></div></div><div>3. Joules</div></div><div><div><div></div></div><div>4. Watts</div></div></div>
Q.81	What is the average of all the natural numbers from 1 to 97?
Ans	<div><div><div><div></div></div><div>1. 48.5</div></div><div><div><div></div></div><div>2. 49</div></div><div><div><div></div></div><div>3. 50</div></div><div><div><div></div></div><div>4. 49.5</div></div></div>
Q.82	Refer to the given number, symbol series and answer the question that follows. Counting to be done from left to right only. (Left) 6 # 1 * 8 & 7 & 5 4 Ω 3 % 9 6 @ 2 \$ 9 £ 3 (Right) How many such symbols are there each of which is immediately preceded by an odd number but NOT immediately followed by an even number?
Ans	<div><div><div><div></div></div><div>1. Four</div></div><div><div><div></div></div><div>2. Two</div></div><div><div><div></div></div><div>3. One</div></div><div><div><div></div></div><div>4. Three</div></div></div>
Q.83	A car rental company rents small cars at \$50 per day and large cars at \$80 per day. If a total of 13 cars were rented for \$920 in one day, how many large cars were rented?
Ans	<div><div><div><div></div></div><div>1. 4</div></div><div><div><div></div></div><div>2. 9</div></div><div><div><div></div></div><div>3. 6</div></div><div><div><div></div></div><div>4. 11</div></div></div>

**Q.84** If the resistance of a conductor is doubled while the current remains the same, how will the heat produced per unit time change?

- Ans**
- ☒ 1. It will be halved.
  - ☒ 2. It will remain the same.
  - ☒ 3. It will quadruple.
  - ☒ 4. It will double.

**Q.85**  $\frac{(a^9 \times b^3 \times c^6)}{(a^{10} \times b^6 \times c^3)}$  in simplified form is:

- Ans**
- ☒ 1.  $(a^1) \times (b^6) \times (c^{-9})$
  - ☒ 2.  $(a^1) \times (b^1) \times (c^5)$
  - ☒ 3.  $(a^{-7}) \times (b^{-9}) \times (c^4)$
  - ☒ 4.  $(a^{-1}) \times (b^{-3}) \times (c^3)$

**Q.86** Refer to the following number and symbol series and answer the question that follows.  
(Counting to be done from left to right only.)  
(Left) 2 @ 4 + = 3 1 # 3 @ \$ 9 8 \* 9 4 2 8 7 6 5 (Right)  
How many such symbols are there, each of which is immediately preceded by and also immediately followed by a number?

- Ans**
- ☒ 1. Three
  - ☒ 2. Two
  - ☒ 3. One
  - ☒ 4. Four

**Q.87** Where does the image form when an object is positioned at the centre of curvature of a concave mirror?

- Ans**
- ☒ 1. At the centre of curvature
  - ☒ 2. At the pole
  - ☒ 3. At infinity
  - ☒ 4. At the focal point

**Q.88** What is the role of chlorine gas in the preparation of bleaching powder?

- Ans**
- ☒ 1. It reacts with dry slaked lime to form bleaching powder.
  - ☒ 2. It reacts with water to produce hydrogen peroxide.
  - ☒ 3. It is used as a catalyst for the reaction.
  - ☒ 4. It is used to neutralise calcium hydroxide.

**Q.89** NATO will establish a new land command in \_\_\_\_\_ near the Russian border in 2025 to oversee northern European land operations during potential conflicts.

- Ans**
- ☒ 1. Finland
  - ☒ 2. Ukraine
  - ☒ 3. Turkmenistan
  - ☒ 4. Kyrgyzstan

**Q.90** Suman invested a sum of ₹3500 at 20% per annum compound interest, compounded annually. If she received an amount of ₹6048 after n years, the value of n is:

- Ans**
- ☒ 1. 3
  - ☒ 2. 2.6
  - ☒ 3. 4
  - ☒ 4. 2

Q.91	Two taps can fill a cistern in 2 hours and 46 hours respectively. A third tap can empty it in 46 hours. How long (in hours) will it take to fill the empty cistern, if all of them are opened together?
Ans	<div><div><input checked="" type="checkbox"/> 1. 2</div><div><input type="checkbox"/> 2. 4</div><div><input type="checkbox"/> 3. 3</div><div><input type="checkbox"/> 4. 5</div></div>
Q.92	<p>In a certain code language, 'A + B' means 'A is the son 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'.</p> <p>How is S related to H if 'S – D + F ÷ G × H'?</p>
Ans	<div><div><input type="checkbox"/> 1. Wife's Father</div><div><input checked="" type="checkbox"/> 2. Wife's Brother</div><div><input type="checkbox"/> 3. Father</div><div><input type="checkbox"/> 4. Brother</div></div>
Q.93	<p>A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on, till the topmost floor is numbered 6.</p> <p>Only four people live between D and F. C lives on an even numbered floor but not on floor number 2. E lives immediately below A but above D.</p> <p>How many people live below B?</p>
Ans	<div><div><input type="checkbox"/> 1. Two</div><div><input type="checkbox"/> 2. One</div><div><input checked="" type="checkbox"/> 3. Four</div><div><input type="checkbox"/> 4. Three</div></div>
Q.94	The pH of acid rain is:
Ans	<div><div><input type="checkbox"/> 1. more than 7</div><div><input type="checkbox"/> 2. more than 5.6 but less than 7</div><div><input checked="" type="checkbox"/> 3. less than 5.6</div><div><input type="checkbox"/> 4. equal to 7</div></div>
Q.95	As the concentration of hydronium ions increases, the pH value _____.
Ans	<div><div><input type="checkbox"/> 1. increases</div><div><input checked="" type="checkbox"/> 2. decreases</div><div><input type="checkbox"/> 3. decreases and then increases</div><div><input type="checkbox"/> 4. remains the same</div></div>
Q.96	Which part of the Bryophyllum plant develops new plants via vegetative propagation?
Ans	<div><div><input type="checkbox"/> 1. Roots</div><div><input checked="" type="checkbox"/> 2. Leaves</div><div><input type="checkbox"/> 3. Flowers</div><div><input type="checkbox"/> 4. Stems</div></div>
Q.97	Leishmania reproduces by:
Ans	<div><div><input checked="" type="checkbox"/> 1. binary fission in a definite plane</div><div><input type="checkbox"/> 2. binary fission in two equal halves</div><div><input type="checkbox"/> 3. binary fission in only vertical planes</div><div><input type="checkbox"/> 4. binary fission in any plane</div></div>

**Q.98** A homologous series is a group of organic compounds that have:

- Ans**
- ☐ 1. the same molecular formula
  - ☐ 2. no relation to each other
  - ☐ 3. the same structural formula
  - ☒ 4. the same functional group but differ by a  $\text{CH}_2$  group

**Q.99** Which of the following waterways is located on the Tapi river?

- Ans**
- ☐ 1. NW-1
  - ☒ 2. NW-100
  - ☐ 3. NW-10
  - ☐ 4. NW-91

**Q.100** O, P, Q, R, S and T are sitting around a circular table facing the centre. P sits second to the left of T. Q is the immediate neighbour of P and R. S is not the immediate neighbour of R. Who sits to the immediate left of R?

- Ans**
- ☐ 1. S
  - ☐ 2. Q
  - ☒ 3. O
  - ☐ 4. T