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PREVIOUS YEAR PAPER

# RRB JE CBT-I 2024

## Official Question Paper with Answers

**17 Dec 2024 · Shift 1**

| | |
|---|---|
| Exam | **RRB JE CBT-I (CEN RRB-03/2024)** |
| Test Date | **17/12/2024** |
| Test Time | **9:00 AM - 10:30 AM** |
| Subject | **RRB JE DMS CMA CS MS** |
| Total Questions | **100** |

**Marking scheme:** Correct answer carries 1 mark per question. Incorrect answer carries 1/3 negative mark per question.

**Answer key:** The correct option for every question is marked ✔ Correct inline.

## SECTION : RRB JE, DMS, CMA, CS, MS CBT-1

**Q.1** Who among the following was the first attorney General of Independent India?

1. SV Gupta
2. Niren de
3. Soli Sorabjee
4. **MC Setalvad** ✔ Correct

**Q.2** Three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which is the letter-cluster pair that does NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their positions in the letter-cluster.)

1. **OF - NG** ✔ Correct
2. CT - AU
3. HY - FZ
4. SJ - QK

**Q.3** Evaluate: 32 ÷ 12 × 3 - 3 × 4

1. -2
2. -5
3. **-4** ✔ Correct
4. -1

**Q.4** Which of the following is NOT an essential qualification for being elected as the President?

1. Qualified for election as a member of the House of the People
2. **Highly educated** ✔ Correct
3. Completion of 35 years
4. Citizen of India

**Q.5** The first fundamental factor for evolution is:

1. competition among individuals
2. **genetic variation** ✔ Correct
3. healthy offsprings
4. cell division for growth

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**Q.6** Write the expanded form of $(6a + 8b + 3c)^2$.

1. $36a^2 + 64b^2 + 9c^2 + 96ab + 48bc + 36ac$ ✔ Correct
2. $36a^2 + 64b^2 + 9c^2 + 100ab + 48bc + 36ac$
3. $36a^2 + 64b^2 + 9c^2 + 96ab + 43bc + 36ac$
4. $36a^2 + 64b^2 + 9c^2 + 96ab + 48bc + 46ac$

**Q.7** Among five people named A, B, C, D and E, each has a certain age. C is thrice the age of D. The age of A is 6. D is half the age of E. B is twice the age of A. If E is four times the age of B, what is the age of C?

1. 70
2. 72 ✔ Correct
3. 75
4. 76

**Q.8** The diameters of two concentric circles are 34 cm and 50 cm. A strai

1. 34 cm
2. 30 cm
3. 50 cm
4. 40 cm ✔ Correct

**Q.9** In which process multicellular organisms break into smaller pieces upon maturation?

1. Fragmentation ✔ Correct
2. Sporulation
3. Regeneration
4. Fission

**Q.10** Which of the following is an example of a natural monopoly?

1. Malls
2. Apple store in delhi
3. Bookshop
4. Railways ✔ Correct

**Q.11** This question is based on five, four-digit numbers given below.

(Example- 6970 – First digit = 6, second digit = 9, third digit = 7 and fourth digit=0)
2314 7651 3245 9072 8062

How many numbers are there wherein the sum of first and second digits is equal to the sum of third and fourth digits?

1. Three ✔ Correct
2. Four
3. One
4. Two

**Q.12** Pollen grains are transferred to which part of pistil?

1. Ovary
2. Style
3. Ovule
4. Stigma ✔ Correct

**Q.13** 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'.

How is S related to H if 'S × D + F % G – H'?

1. Brother's wife ✔ Correct
2. Daughter
3. Wife
4. Brother's daughter

**Q.14** Select the option in which the triads share the same relationship as that shared by the given triads.

JINX - JXIN - JNXI

COZY - CYOZ - CZYO

1. DRUG - DGUR - DUGR
2. EVIL - EIVL - ELIV
3. FAIR - FARI - FIAR
4. JAWS - JSAW - JWSA ✔ Correct

**Q.15** If the area of a trapezium is 80 $cm^2$ and the parallel sides are 13.5 and 6.5 cm, then the distance between them (in cm) is _____.

1. 12
2. 9
3. 10
4. **8** ✔ Correct

**Q.16** What should come in place of the question mark (?) in the given series?

19 30 52 96 184 ?

1. **360** ✔ Correct
2. 362
3. 361
4. 359

**Q.17** 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 ::?

# : ZWP :: FCV : %

1. # = USL, % = JGZ
2. # = VSU, % = JGZ
3. # = VSL, % = JGO
4. **# = VSL, % = JGZ** ✔ Correct

**Q.18** Write the expanded form of $(5a + 6b + 8c)^2$.

1. **$25a^2 + 36b^2 + 64c^2 + 60ab + 96bc + 80ac$** ✔ Correct
2. $25a^2 + 36b^2 + 64c^2 + 60ab + 96bc + 90ac$
3. $25a^2 + 36b^2 + 64c^2 + 60ab + 91bc + 80ac$
4. $25a^2 + 36b^2 + 64c^2 + 64ab + 96bc + 80ac$

**Q.19** Which of the following was the venue of the 46$^{th}$ session of the UNESCO World Heritage Committee?

1. New York, United States
2. Paris, France
3. **New Delhi, India** ✔ Correct
4. Dubai, United Arab Emirates

**Q.20** 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 plums are lamps. Some lamps are ants. All ants are meats.

Conclusions:

(I): All meats are lamps.

(II): Some meats are plums.

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

**Q.21** 18 is related to 62 following a certain logic. Following the same logic, 22 is related to 78. To which of the given options is 15 related to, 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.)

1. 45
2. **50** ✔ Correct
3. 55
4. 60

**Q.22** Which of the following is the National Waterway 2 in India?

1. West Coast canal and Champakara and Udyogmandal canals
2. East Coast canal and Matai river
3. Kakinada canal (Kakinada to Rajahmundry)
4. **Brahmaputra river** ✔ Correct

**Q.23** In the reaction: $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$, what happens to zinc?

1. Zinc is reduced.
2. **Zinc is oxidised.** ✔ Correct
3. Zinc does not change.
4. Zinc loses electrons.

**Q.24** In a certain code, 'air water land' is coded as 'dy ph mt','fire land ice' is coded as 'lp ph st', and'water fire grass' is coded as 'st bq dy'.What is the code for 'land' in that language?

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

1. **ph** ✔ Correct
2. st
3. mt
4. dy

**Q.25** A and B can do a piece of work in 8 days and 37 days, respectively. The number of days [Correct to one decimal place] required to complete the work if both A and B work together is:

1. 10.7
2. 7.1
3. 7.7
4. **6.5** ✔ Correct

**Q.26** 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.)

8-24-72-216; 6-18-54-162

1. 11-33-99-287
2. 9-27-81-343
3. 12-36-108-216
4. **7-21-63-189** ✔ Correct

**Q.27** Write the expanded form of $(7a + 9b + 4c)^2$.

1. $49a^2 + 81b^2 + 16c^2 + 130ab + 72bc + 56ac$
2. $49a^2 + 81b^2 + 16c^2 + 126ab + 67bc + 56ac$
3. $49a^2 + 81b^2 + 16c^2 + 126ab + 72bc + 66ac$
4. **$49a^2 + 81b^2 + 16c^2 + 126ab + 72bc + 56ac$** ✔ Correct

**Q.28** What is the average of all the natural numbers from 1 to 98?

1. 50
2. **49.5** ✔ Correct
3. 50.5
4. 49

**Q.29** A man walks to a viewpoint and returns to the starting point by his car maintaining constant speed and thus takes a total time of 3 hours 15 minutes. He would have gained 3 hours by driving both ways. How long would it have taken for him to walk both ways with same walking speed?

1. **6 hours 15 minutes** ✔ Correct
2. 5 hours 15 minutes
3. 6 hours 45 minutes
4. 7 hours 30 minutes

**Q.30** A man spends 76% of his monthly salary (in ₹) on the rent of his house. If every month he also spends ₹813 on his conveyance and ₹2508 on his grocery and saves the remaining ₹687, his monthly salary (in ₹) is:

1. 16611
2. 16621
3. **16700** ✔ Correct
4. 16617

**Q.31** Shalini travels a distance of 138 km with speed of 46 km/h and 438 km with 73 km/h by her car. Find the average speed (in km/h) of Shalini.

1. **64** ✔ Correct
2. 70
3. 68
4. 56

**Q.32** Samples of four metals A, B, C and D were taken and added to a solution individually. The results obtained have been listed as follows.

A can displace B from its solution

B can displace D from its solution

C can displace D from its solution

C can displace A from its solution

Which is the most reactive metal?

1. D
2. C ✔ Correct
3. A
4. B

**Q.33** If at same rate of interest, in 2 years, the simple interest is ₹56 and compound interest is ₹64, then what is the principal (in ₹)?

1. 91
2. 102
3. 98 ✔ Correct
4. 93

**Q.34** Seven boxes, R, S, T, U, X, Y and Z, are kept one over the other but not necessarily in the same order. Only T is kept above X. Only Z is kept between X and Y. Only U is kept below R. How many boxes are kept between S and U?

1. Three
2. Two
3. One ✔ Correct
4. Four

**Q.35** Which of these is NOT a property of magnetic field lines?

1. They repel each other. ✔ Correct
2. They are continuous closed loops.
3. They travel from south to north inside the magnet.
4. They never intersect.

**Q.36** What is the role of the ovary in the process of fertilisation in plants?

1. To produce pollen
2. To provide nutrients to the pollen grains
3. **To produce the egg cell** ✔ Correct
4. To store the male gametes

**Q.37** Two taps can fill a cistern in 2 hours and 45 hours respectively. A third tap can empty it in 45 hours. How long (in hours) will it take to fill the empty cistern, if all of them are opened together?

1. 4
2. **2** ✔ Correct
3. 5
4. 3

**Q.38** If an image is formed by a spherical mirror with a magnification of +1, which of the following statements is true?

1. The image is virtual and half the size of the object.
2. The image is real and equal in size to the object.
3. The image is real and twice the size of the object.
4. **The image is virtual and equal in size to the object.** ✔ Correct

**Q.39** In a certain code language,'batter ball six' is coded as 'lo ka di','bowler ball wicket' is coded as 'ka mi th' and'batter cricket bowler' is coded as 'lo th qy'. What is the possible code for 'cricket ball' in that language?

1. ka th
2. **ka qy** ✔ Correct
3. th lo
4. qy lo

**Q.40** When several resistors are joined in series, the equivalent resistance of the combination is:

1. equal to the sum of the individual resistances ✔ Correct
2. greater than the sum of the individual resistances
3. equal to the product of the individual resistances
4. less than the sum of the individual resistances

**Q.41** Which of the following statements is INCORRECT?

1. Amit Shah assumed charge as Union Home Minister and Minister of Cooperation in June 2024.
2. Om Birla is elected as the Speaker of the $18^{th}$ Lok Sabha.
3. Narendra Modi took oath as the Prime Minister of India in June 2024.
4. Sonia Gandhi became the Leader of Opposition in the $18^{th}$ Lok Sabha. ✔ Correct

**Q.42** Find the arithmetic mean of the following data (correct to two places of decimals).

| Class- | 5-15 | 15-25 | 25-35 | 35-45 | 45-55 | 55-65 interval |
|---|---|---|---|---|---|---|
| Frequency | 12 | 18 | 8 | 14 | 16 | 8 |

1. 43.72
2. 33.68 ✔ Correct
3. 39.45
4. 22.38

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**Q.43** A number when increased by 50 %', gives 2760. The number is:

1. 3680
2. **1840** ✔ Correct
3. 920
4. 5520

**Q.44** In the process of vegetative propagation, which part of the plant is used in grafting?

1. Root
2. Seed
3. Leaf
4. **Stem** ✔ Correct

**Q.45** What is the average of all the natural numbers from 1 to 59?

1. **30** ✔ Correct
2. 30.5
3. 29.5
4. 31

**Q.46** Mahesh purchased 10 kg of rice at the rate of ₹35 per kg and 38 kg of rice at ₹46 per kg. He sold the mixture at the rate of ₹43.5 per kg. Find his loss (in ₹).

1. **10** ✔ Correct
2. 18
3. 15
4. 5

**Q.47** Which of the following rivers is ephemeral?

1. Beas
2. Chambal
3. Yamuna
4. **Luni** ✔ Correct

**Q.48** A piece of zinc is placed in three different solutions: lead nitrate, aluminium sulphate and silver nitrate. Which solution(s) will zinc be able to displace the metal from its solution?

1. Aluminium sulphate and silver nitrate
2. **Lead nitrate and silver nitrate** ✔ Correct
3. Only silver nitrate
4. Lead nitrate and aluminium sulphate

**Q.49** Evaluate: 16 + 16 ÷ 4 - 3 × 4

1. 11
2. 10
3. 7
4. 8 ✔ Correct

**Q.50** What will come in the place of the question mark (?) in the following equation, if '+' and '–' are interchanged and '×' and '÷' are interchanged?

26 + 43 – 32 × 23 ÷ 46 = ?

1. 45
2. 48
3. 49
4. 47 ✔ Correct

**Q.51** The concepts no double jeopardy, no self incrimination and no ex post facto are mentioned under _____ of the Indian Constitution.

1. Article 20 ✔ Correct
2. Article 21
3. Article 19
4. Article 23

**Q.52** One of the famous Kali temples in India, Kalighat, is located in which of the following Indian states?

1. West Bengal ✔ Correct
2. Maharastra
3. Odisha
4. Assam

**Q.53** Which Indian cricketer was appointed as the brand ambassador for MotoGP in India in July 2024?

1. Rohit Sharma
2. Jasprit Bumrah
3. Shikhar Dhawan ✔ Correct
4. Virat Kohli

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**Q.54** Which of the following statements is NOT a reason for the versatile nature of carbon?

1. Carbon exhibits catenation
2. **Carbon can form ionic bonds with itself** ✔ Correct
3. Carbon has tetravalency
4. Carbon can form single, double, and triple bonds

**Q.55** The National Health Authority (NHA) and _____ signed a Memorandum of Understanding (MoU) on 11th September. The partnership aims to revolutionise artificial intelligence in health research with an innovative data platform.

1. IIT Kharagpur
2. IIT Delhi
3. IIT Madras
4. **IIT Kanpur** ✔ Correct

**Q.56** The median of 7, 18, 22, 12, 14, 7, 23, 16 and 3 is:

1. 18
2. **14** ✔ Correct
3. 22
4. 7

**Q.57** What are the two versions of a gene controlling a trait called?

1. Chromosomes
2. Proteins
3. Mutations
4. **Alleles** ✔ Correct

**Q.58** Five bells toll together initially and then continue to toll at time intervals of 4, 8, 12, 16 and 20 seconds respectively. If they start tolling simultaneously at 12:00 p.m., then find how many times they will toll together between 12:00 p.m. to 3:00 p.m.

1. 42
2. 54
3. 62
4. **46** ✔ Correct

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**Q.59** Find the simple interest (in closest integral ₹) on ₹4000 at 5.25% per annum rate of interest for the period from 11 February 2024 to 12 April 2024

1. 34
2. 36
3. 33
4. **35** ✔ Correct

**Q.60** 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 trees, S, M, N, O and A, are of different heights. Which among them is the tallest tree?

Statements:

(I) N is taller than A. A is taller than M.

(II) S is taller than M. S is shorter than O.

1. Data in statement I alone is sufficient to answer the question while data in statement II is not.
2. Data in statement II alone is sufficient to answer the question while data in statement I is not.
3. **Data in statements I and II together are not sufficient to answer the question.** ✔ Correct
4. Data in statements I and II together are sufficient to answer the question.

**Q.61** A vertical stick 11 m long casts a shadow 7 m long on the ground. At the same time, a tower casts a shadow of 35 m long on the ground. The height of the tower is:

1. 60 m
2. 50 m
3. 52 m
4. **55 m** ✔ Correct

**Q.62** Seven people, B, D, E, F, P, Q and R, are sitting in a row, facing north. No one sits to the left of E. Only four people sit between E and R. Only three people sit to the right of D. F sits to the immediate left of B. P is not an immediate neighbour of D.

Who sits third to the left of P?

1. B
2. F
3. R
4. **D** ✔ Correct

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**Q.63** Which of the following describes the relationship between the aperture of a lens and its radius of curvature in the context of thin lenses?

1. The aperture is independent of the radius of curvature.
2. The aperture is much larger than the radius of curvature.
3. **The aperture is much smaller than the radius of curvature.** ✔ Correct
4. The aperture equals the radius of curvature.

**Q.64** Which combination of factors would result in the lowest resistance for a conductor?

1. **Short length and large cross-sectional area** ✔ Correct
2. Long length and small cross-sectional area
3. Short length and small cross-sectional area
4. Long length and large cross-sectional area

**Q.65** Equipment such as geysers and air conditioners, compared to light bulbs and fans, require:

1. higher voltage
2. less power
3. less voltage
4. **higher power** ✔ Correct

**Q.66** In a row of 38 students facing north, Sunil is $20^{th}$ from the left end. If Harsh is $10^{th}$ to the right of Sunil, what is Harsh's position from the right end of the row?

1. $6^{th}$
2. $7^{th}$
3. $8^{th}$
4. **$9^{th}$** ✔ Correct

**Q.67** An electric fan is connected to a 220 V generator. The current is 0.50 A. What is the power used by the fan?

1. 11 Watt
2. 440 Watt
3. 220 Watt
4. **110 Watt** ✔ Correct

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**Q.68** Refer to the following number, symbol series and answer the question. Counting to be done from left to right only.

(Left) € $ 7 1 5 * 9 % 2 £ 5 $ 6 £ € 8 8 4 6 £ % 8 (Right)

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

1. 5
2. 4 ✔ Correct
3. 3
4. 6

**Q.69** A man sold an article for ₹330 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 ₹1320, then what is the value of d?

1. 37.5 ✔ Correct
2. 41.1
3. 38.4
4. 36.9

**Q.70** Seeds that are dispersed by animals often:

1. have hooks or edible flesh ✔ Correct
2. are very small and light weight
3. can float easily in water
4. have wings or parachutes

**Q.71** The selling price of 30 books is equal to the cost price of 45 books. Find the loss or gain percentage.

1. 50 % gain ✔ Correct
2. 50 % loss
3. $\frac{100}{15}\%\ loss$
4. $\frac{100}{15}\%\ gain$

**Q.72** Quwwat-al-islam mosque is located in which of the following cities?

1. Hyderabad
2. New Delhi ✔ Correct
3. Sikar
4. Ajmer

**Q.73** What should come in place of the question mark (?) in the given series?

136 117 122 103 108 89 ?

1. 108
2. **94** ✔ Correct
3. 70
4. 84

**Q.74** Which of the following statements is true about the physical properties of compounds in a homologous series?

1. They have identical melting and boiling points.
2. **They have a regular change in melting and boiling points.** ✔ Correct
3. Their boiling points decrease as the number of carbon atoms increase.
4. Their physical properties do not change.

**Q.75** Why are danger signals typically red in colour?

1. **Red light has a longer wavelength and is scattered the least, making it visible from a distance.** ✔ Correct
2. Red light is more reflective than other colours.
3. Red light is easier to produce artificially.
4. The colour red is aesthetically pleasing.

**Q.76** What was the name of the movement started in 1927 in Maharashtra, led by Dr. BR Ambedkar to access public resources such as water bodies, temples and schools?

1. Shahada Movement
2. Bombay Peasants Revolt
3. Kheda Satyagraha
4. **Mahad Satyagraha** ✔ Correct

**Q.77** Who is the author of "Postcolonial Elements in Amitav Ghosh's 'The Shadow Lines,'" published in 2018?

1. Arundhati Roy
2. Salman Rushdie
3. **Nivedhaa Nivi** ✔ Correct
4. Amitav Ghosh

**Q.78** Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

NTZ 14, KQW 23, HNT 32, EKQ 41, BHN 50, ?

1. YEK 58
2. ZEK 59
3. YKK 59
4. **YEK 59** ✔ Correct

**Q.79** Two numbers are in the ratio 2 : 4. If the first number is increased by 4 and the second number is decreased by 14, then the ratio becomes 8 : 5. What is the sum of the original two numbers?

1. 41
2. 38
3. 24
4. **36** ✔ Correct

**Q.80** How do hormonal contraceptives prevent pregnancy?

1. By creating a physical barrier
2. By blocking the fallopian tubes
3. By increasing sperm production
4. **By changing the hormonal balance to prevent egg release** ✔ Correct

**Q.81** The balanced equation which shows the decomposition of hydrogen peroxide is:

1. **$2H_2O_2 \rightarrow 2H_2O + O_2$** ✔ Correct
2. $2HO_2 \rightarrow 2HO + O_2$
3. $H_2O_2 \rightarrow 2H_2O + O_2$
4. $H_2O_2 \rightarrow H_2O + O_2$

**Q.82** $$\frac{3x}{1+\frac{1}{1+\frac{x}{1-x}}} = 12,$$

If

then find the value of 'x'.

1. **1.6** ✔ Correct
2. 1.4
3. 1.2
4. 1.8

**Q.83** Which of the following best describes a common industrial use of washing soda?

1. Fertiliser manufacturing
2. Cement production
3. **Glass manufacturing** ✔ Correct
4. Vinegar production

**Q.84** 20 ml of NaOH is neutralised by 10 ml of $HNO_3$. How much NaOH will be required to neutralise 15 ml of $HNO_3$?

1. 20 ml
2. 25 ml
3. 40 ml
4. **30 ml** ✔ Correct

**Q.85** Three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which is the letter-cluster pair that does NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their positions in the letter-cluster.)

1. **FD - LK** ✔ Correct
2. FI - EH
3. LO - KN
4. QT - PS

**Q.86** The pattern of the magnetic field lines of a solenoid is similar to that of a:

1. **bar magnet** ✔ Correct
2. horseshoe magnet
3. button magnet
4. ring magnet

**Q.87** Which of the following received the top honour in the Best Urban Local Body category at the 5th National Water Awards for its innovative water conservation initiatives?

1. Pune, Maharashtra
2. Indore, Madhya Pradesh
3. **Surat, Gujarat** ✔ Correct
4. Bhopal, Madhya Pradesh

**Q.88** The volume (in $cm^3$) of a wire of diameter 56 cm and length 3 m is:

$take\ \pi = \frac{22}{7}$

1. 739700
2. 740200
3. **739200** ✔ Correct
4. 739400

**Q.89** Mendel had selected garden pea for certain favourable reasons. Which of the following is NOT a reason for his choice required for his experiments?

1. They can be self-pollinated and cross-pollinated.
2. They produce many offsprings.
3. They have easily observable traits.
4. **They have a long generation time.** ✔ Correct

**Q.90** Which of the following statements is true for a balanced chemical equation?

1. The total mass of molecules is unequal on both sides.
2. The total number of molecules is the same on both sides.
3. The total number of moles is the same on both sides.
4. **The total number of atoms of each element is the same on both sides.** ✔ Correct

**Q.91** The average score of a cricketer in 20 matches is 40 runs. If his highest score in a match was 78 runs, what is the average of his scores in the remaining 19 matches?

1. 40
2. 36
3. 34
4. **38** ✔ Correct

**Q.92** Anmol starts from Point A and drives 23 km towards the west. He then takes a right turn, drives 27 km, turns right and drives 29 km. He then takes a right turn and drives 32 km. He takes a final right turn, drives 6 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.)

1. 6 km to the north
2. **3 km to the north** ✔ Correct
3. 5 km to the north
4. 4 km to the north

**Q.93** What is formed when sodium sulfate reacts with barium chloride in a double displacement reaction?

1. Sodium sulfate and barium chloride
2. Sodium chloride and barium hydroxide
3. **Sodium chloride and barium sulfate** ✔ Correct
4. Sodium hydroxide and barium chloride

**Q.94** If 2 is added to each odd digit and 1 is subtracted from each even digit in the number 2687531, then how many digits will appear more than once in the new number thus formed?

1. Three
2. One
3. Four
4. **Two** ✔ Correct

**Q.95** Which of the following ratio is smallest?

1. 28 : 39
2. **20 : 51** ✔ Correct
3. 22 : 47
4. 21 : 49

**Q.96** 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 ::?

# : RXT :: FLH : %

1. # = OGT, % = IKH
2. **# = OUQ, % = IOK** ✔ Correct
3. # = OUP, % = KIU
4. # = GHT, % = INY

**Q.97** An object is placed 12 cm in front of a convex mirror with a focal length of 8 cm. What is the image distance (v)?

1. **+4.8 cm** ✔ Correct
2. −4.8 cm
3. +20 cm
4. −20 cm

**Q.98** ₹4800 were divided among P, Q and R, such that 6 times of P = 3 times of Q = 8 times of R. Find the share of R.

1. ₹960 ✔ Correct
2. ₹1068
3. ₹815
4. ₹1034

**Q.99** Suppose a gardener wants to plant pea which should be of the dwarf varieties. What do you suggest for the choice of the parent plant seeds by the gardener?

1. All seeds should be of tall varieties.
2. Any kind of seed can be used.
3. **All seeds should be of dwarf varieties.** ✔ Correct
4. All seeds should be of mixed varieties.

**Q.100** Select the term from among the given options that can replace the question mark (?) in the following series.

PKI 23, MHF 31, JEC 47, GBZ 79, DYW 143, ?

1. **AVT 271** ✔ Correct
2. AYT 271
3. AVT 270
4. UVT 271

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