

RRB Technician Grade I Signal 2025

Technician Grade I Signal · CEN 02/2025 · Mathematics · Question Paper Compilation

English

Single Shift (Set) · Mathematics Section · Official Answer Key

About this Compilation

This booklet compiles all **1 shift papers** of the **RRB Technician Grade I Signal 2025** examination (CEN 02/2025) in **English** (**Mathematics** section only), with the correct option marked as per the official answer key.

✓ Correct option (highlighted green)

How to use

- Use the **Index** page to jump directly to any set (clickable).
- Questions appear in shift order, numbered 1 onward within each set.
- Diagram and wide-table questions appear at full width at the end of their set.
- The correct answer is highlighted in green with a tick.

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Index — All Sets (click to open)

Set 1

13 Mar 2026

9:00 AM - 10:30 AM

Mathematics

20 Questions • Answer Key

Q1 Mathematics

Given that $112^{0.17} = x$, $112^{0.94} = y$ and $x^z = y^6$, then the value of z is close to:

A. 34.19

B. 33.18 ✓

C. 34.73

D. 32.2

Q2 Mathematics

A kite is flying in the sky. A person is holding the kite with 40 m long tightly stretched string. Find the height of the kite (in meters) if the angle made by the string with the horizontal is 30 degrees.

A. 10

B. 20

C. 15

D. 30 ✓

Q3 Mathematics

Find the product of all the possible values of 'a' for $a^2 x^2 + a^{3/2}x + 3 = 0$ to be a quadratic equation with discriminant $28a$.

A. -28 ✓

B. 0

C. 14

D. -12

Q4 Mathematics

The number of elements in the Power set $P(S)$ of the set $S = \{1, 2, 3, 4, 5, 6, 7, 8\}$ is:

A. 256 ✓

B. 247

C. 258

D. 250

Q5 Mathematics

Simplify $(2.5 \times 0.48 \div 0.6) + (3.5 + 1.6 \div 0.8) - (4.8 \times 0.25 \div 0.8)$.

A. 8

B. 6

C. 5 ✓

D. 7

Q6 Mathematics

If the sum of the 8th and the 12th terms of an AP is 100, and the 20th term is 95, then what is the 7th term?

A. 36.5 ✓

B. 37.5

C. 39.5

D. 38.5

Q7 Mathematics

If X and Y are two sets such that $X \cup Y$ has 56 elements, X has 45 elements and Y has 33 elements, how many elements does $X \cap Y$ have?

A. 19

B. 25

C. 22 ✓

D. 13

Q8 Mathematics

The HCF of two numbers, each having three digits, is 19 and their LCM is 760. The number of such pairs is:

A. 3

B. 0 ✓

C. 1

D. 2

Q9 Mathematics

If $a = 18$ and $d = 30$, then sum of first 6 terms of the A.P. is?

A. 559

B. 555

C. 558 ✓

D. 561



Q10 Mathematics

- A. 6 cm
- B. 2 cm
- C. 4 cm
- D. 8 cm

**Q11 Mathematics**

If the roots of the equation $x^2 - 5x + 6 = 0$ are α and β , find the value of $\alpha^2 + \beta^2$:

- A. 13
- B. 5
- C. 6
- D. 12

**Q12 Mathematics**

- A. $\frac{7}{10}$
- B. $\frac{2}{3}$
- C. $\frac{19}{30}$
- D. $\frac{3}{5}$

**Q13 Mathematics**

Triangle ABC is similar to triangle PQR. AM and PS are altitudes and AN and PT are medians. If $\frac{AM}{PS} = \frac{3}{5}$, the area of triangle PQR is 150 cm^2 and $BC = 6 \text{ cm}$, then the sum of the lengths of AM and QR is:

- A. 28 cm
- B. 38 cm
- C. 24 cm
- D. 36 cm



Q14 Mathematics

A. $\frac{5}{6}$



B. $\frac{1}{2}$

C. $\frac{1}{3}$

D. $\frac{2}{3}$

Q15 Mathematics

The coordinates of the centroid of the triangle ABC whose vertices are A(-16, 13), B(-2, -9) and C(2, 13), is

A. $\left(-\frac{14}{3}, \frac{18}{3}\right)$

B. $\left(-\frac{17}{3}, \frac{17}{3}\right)$

C. $\left(-\frac{16}{3}, \frac{17}{3}\right)$



D. $\left(-\frac{16}{3}, \frac{15}{3}\right)$

Q16 Mathematics

A cylindrical pillar is 28 cm in diameter and 25 m in height. Find the cost of painting the curved surface of the pillar at the rate of ₹50 per m².

(Use $\pi = \frac{22}{7}$)

A. ₹1080

B. ₹1138

C. ₹1100



D. ₹1072



Q17 Mathematics

The following table represents the marks obtained by six students in an aptitude test. Study the data carefully and answer the questions given below by matching the following types.

Student	A	B	C	D	E	F
Marks	48	50	52	55	60	65

Match the following (standard deviation values are rounded off to two decimal places):

A. Standard deviation of entire dataset	I. 5.88
B. Standard deviation of only the middle four values (B, C, D, E)	II. 3.77
C. Standard deviation of only first three values (A, B, C)	III. 4.08
D. Standard deviation of only last three values (D, E, F)	IV. 1.63

A. A – II, B – IV, C – I, D – III

B. A – II, B – IV, C – III, D – I

C. A – I, B – II, C – IV, D – III

D. A – I, B – II, C – III, D – IV

**Q18 Mathematics**

Find the coordinates of a point P on the x-axis which is equidistant from the points A(2,3) and B(-4,5).

A. (3,0)



B. (-7,0)

C. $(-\frac{7}{3}, 0)$

D. $(\frac{1}{4}, 0)$

Q19 Mathematics

Simplify: $[\{\sin^8\theta - \cos^8\theta\} \frac{1}{\sin^4\theta + \cos^4\theta}] + 2\cos^2\theta$

A. 1

B. 2

C. -1



D. 0

Q20 Mathematics

A. 32

B. 48

C. 24



D. 40



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