

4. RATIONAL NUMBERS
IN DECIMAL FORM. 2025/26 ①
Class: VII. MATHEMATICS
FOUNDATION; SOLUTIONS

TEACHING TASK
JEE MAINS

2025/26

01. Conceptual

Ans: C

02. Conceptual

Ans: C

03. Conceptual

Ans: C

04. $\frac{3}{11} = 0.272727 \dots$
 $\therefore \text{Period} = 27$

Ans: B

05 $(8 + 0.\bar{6}) \frac{1}{2} = \frac{8}{2} + \frac{0.\bar{6}}{2}$
 $= 4 + 0.\bar{3}$
 $= 4.\bar{3}$
 $= \frac{39}{10}$
 $= 3\frac{9}{10}$

Ans: D

06. $3.\overline{12} = \frac{281}{90}$; $1.\overline{78} = \frac{161}{90}$ (2)

$$3.\overline{12} - 1.\overline{78} = \frac{281}{90} - \frac{161}{90}$$

$$= \frac{120}{90} = \frac{4}{3} = 3\frac{1}{3}$$

Ans: D

07. $x = 1.\overline{79}$

$$x = 1.797979 \dots \rightarrow (1)$$

$$100x = 179.7979 \dots \rightarrow (2)$$

$$(2) - (1) \Rightarrow 100x = 179.797979 \dots$$

$$x = 1.797979$$

$$99x = 178$$

$$\Rightarrow x = \frac{178}{99}$$

Ans: B

08. $\frac{9}{11} = 0.\overline{81}$ Ans: A

09. $2.3\overline{4} + x = 4.5\overline{3}$

$$\Rightarrow x = 4.5\overline{3} - 2.3\overline{4}$$

$$= 4.53333 \dots - 2.3444 \dots$$

$$= 2.18888 \dots$$

$$= 2.1\overline{8}$$

Ans: D

$$10. \quad 5.\overline{36} - x = 2.\overline{75}$$

(3)

$$\Rightarrow x = 5.\overline{36} - 2.\overline{75}$$

$$\Rightarrow x = 2.\overline{61}$$

Ans: B

$$11. \quad \frac{8.\overline{46}}{x} = 3.\overline{43}$$

$$\Rightarrow x = \frac{8.\overline{46}}{3.\overline{43}}$$

$$\text{Now } 8.\overline{46} = 8.466666 \dots$$

$$= 8.4 + 0.66666 \dots$$

$$= 8.4 + \frac{1}{15}$$

$$= \frac{42}{5} + \frac{1}{15} = \frac{127}{15}$$

$$\text{Now, } 3.\overline{43} = 3.43333 \dots$$

$$= 3.4 + 0.03333 \dots$$

$$= 3.4 + \frac{1}{30}$$

$$= \frac{34}{10} + \frac{1}{30} = \frac{103}{30}$$

$$\therefore x = \frac{127}{15} \times \frac{30}{103} = \frac{254}{103}$$

Ans: D

$$12. \frac{13}{125} = \frac{13}{5^3} \rightarrow \text{terminating}$$

Ans: C

(4)

JEE ADVANCED

$$01. 0.6 = \frac{6}{10} = \frac{3}{5} \text{ ~~1006~~}$$

Ans: A, D

$$\begin{aligned} 02. x &= 0.1\overline{6} \\ &= 0.16666 \dots \\ &= 0.1 + 0.06666 \dots \\ &= 0.1 + \frac{1}{15} \\ &= \frac{1}{10} + \frac{1}{15} \\ &= \frac{1}{6} = \frac{15}{90} \end{aligned}$$

Ans: B, C

$$03. \left| -\frac{3}{5} \right| - \left| \frac{1}{4} \right| = \frac{3}{5} - \frac{1}{4}$$

$$= \frac{12-5}{20} = \frac{7}{20} = 0.35$$

Ans: B, A

$$04. \text{Statement I: } \frac{137}{25} = \frac{137}{5^2} \rightarrow \text{terminating (True)}$$

Statement II: Conceptual (True)

Ans: A

$$05. \text{Statement I: } \frac{8a}{12b} = \frac{8 \times 5}{12 \times 5} = \frac{40}{60} = \frac{2}{3}$$

Non-terminating (False)

Statement II: Conceptual (True)

Ans: D



06. Assertion: Conceptual (False)

(5)

Reason: Conceptual (True)

Ans: D

07. Assertion: Conceptual (True)

Reason: Conceptual (True)

Ans: A

08.

$$A = 2.3\overline{7} = 2.37777 \dots = \frac{107}{45}$$

$$B = 3.0\overline{4} = 3.0444 \dots = \frac{301}{99}$$

$$A+B = \frac{107}{45} + \frac{301}{99}$$

$$= \frac{298}{55} = 5.4\overline{18}$$

Ans: —

09.

$$B-A = \frac{301}{99} - \frac{107}{45}$$

$$= 0.662626 \dots$$

$$= 0.66\overline{26}$$

Ans: —

10. Conceptual

Ans: D

11. Conceptual

Ans: C

$$12. 1000 = 2^3 \times 3^3 = 2^m \times 3^m \Rightarrow m = 3$$

Ans: 3

$$13. \frac{25}{1000} = 0.025 \rightarrow 3$$

Ans: 3



$$14. a) \frac{2}{100} + \frac{3}{100} = \frac{5}{100} = 0.05$$

(6)

$$b) 10 \frac{1}{10} = \frac{101}{10} = 10.1$$

$$c) 3 \frac{1}{4} = \frac{13}{4} = 3.25$$

$$d) \frac{6}{25} = \frac{24}{100} = 0.24$$

Ans: q, r, s, p

$$15 a) \frac{7}{8} = 0.875$$

$$b) \frac{5}{3} = 1.66\ldots = 1.\overline{6}$$

$$c) \frac{5}{3} = 1.\overline{6} = \frac{166}{100} = 1.66$$

$$d) \frac{100}{9} = 11.\overline{1}$$

Ans: s, p, q, r

LEARNERS TASK

⑦

CUB'S

01. Conceptual

Ans: D

02. $\frac{1}{9} = 0.111\ldots = 0.\overline{1}$

Ans: A

03. $0.161616\ldots$

Ans: B

04. $\frac{4}{5} = 0.8$

Ans: A

05. $\frac{486}{1000} = 0.486$

Ans: B

06. $\frac{6}{25} = \frac{24}{100} = 0.24$

Ans: B

07. Conceptual

Ans: C

08. $\frac{44}{10} = 4.4$

Ans: B

09. Conceptual

Ans: C

10. Rs 130 + 7 paise

$= \text{Rs } 130 + \text{Rs. } \frac{7}{100}$

$= \text{Rs } 130 + \text{Rs. } 0.07$

$= \text{Rs } 130.07.$

Ans: C

$$11. \frac{2}{125} = 0.016$$

⑧
Ans: C

$$12. \frac{2}{125} = \frac{2}{5^3} \rightarrow \text{Terminating}$$

Ans: B

JEE MAINS LEVEL

01. Conceptual.

Ans: B

$$02. 0.75 = \frac{75}{100} = \frac{3}{4}$$

Ans: A

$$03. 0.333 \dots$$

Ans: C

04. Conceptual

Ans: C

$$05. \frac{1}{999} = 0.001001001 \dots$$

Ans: C

$$06. \frac{47}{99} = 0.4747 \dots$$

Ans: B

$$07. \frac{1}{32} = \frac{1}{2^5} \rightarrow \text{Terminating}$$

Ans: C

08. ~~$x = 0.2\overline{36}$
 $x = 0.2363636 \dots \rightarrow \text{①}$
 $100x = 23.63636 \dots \rightarrow \text{②}$
 $\text{②} - \text{①} \Rightarrow 100x - x = 23.63636 \dots - 0.2363636 \dots$
 $99x = 23.4 \Rightarrow x = \frac{234}{990} = \frac{13}{55}$~~

08

$$x = 0.2\overline{36}$$

$$x = 0.2363636 \dots \rightarrow \textcircled{1}$$

$$1000x = 236.3636 \dots$$

$$10x = 2.3636 \dots$$

$$990x = 234$$

$$x = \frac{234}{990} = \frac{13}{55}$$

Ans: A

09

$$\frac{5}{9} \neq \frac{5}{2^m \cdot 5^n}$$

 $\rightarrow$ non-terminating

Ans: A

10

$$\frac{3}{16} = \frac{3}{2^4} \rightarrow \text{Terminating}$$

Ans: A

11.

$$x = 134.4575757 \dots$$

$$1000x = 134457.5757 \dots$$

$$10x = 1344.5757$$

$$990x = 133113$$

$$\therefore x = \frac{133113}{990}$$

$$x = \frac{44371}{330}$$

Ans: D

12

$$12.3454545 \dots = \frac{679}{55}$$

Ans: C

13.

Conceptual

Ans: D

14.

Conceptual

Ans: D



15 Conceptual.

ADVANCED LEVEL

01. $0.625 = \frac{625}{1000} = \frac{25}{40} = \frac{5}{8}$ Ans: B

02. $\frac{11}{25} = \frac{44}{100} = 0.4 = \frac{11}{2 \times 5^2}$ Ans: B, C

03. Statement I:
 $0.041 = \frac{0041}{1000} = \frac{41}{1000} = \frac{41}{2 \times 5^3}$ (True)

Statement II: True Ans: A

04. Statement I:
 $\frac{5}{6} \rightarrow$ Nonterminating (~~True~~) ^{False}
Statement II: Conceptual (False) Ans: B

05. Assertion: $0.2\bar{7}$ is a rational number (True)

Reason: Conceptual (True) Ans: A

06. Assertion: Conceptual (True)

Reason: Conceptual (True) Ans: A

$$07. \quad A = 0.\overline{3} = 0.333\ldots = \frac{1}{3}$$

(11)

$$B = 0.\overline{18} = \frac{17}{90}$$

$$A - B = \frac{1}{3} - \frac{17}{90}$$

$$= \frac{30 - 17}{90} = \frac{13}{90} = 0.\overline{14}$$

Ans: B

$$08. \quad A + B = \frac{1}{3} + \frac{17}{90}$$

$$= \frac{30 + 17}{90} = \frac{47}{90} = 0.\overline{52}$$

Ans: B

$$09. \quad \frac{2}{15} \neq \frac{2}{2^m \cdot 5^n} \rightarrow \text{Non-Terminating}$$

Ans: B

$$10. \quad \frac{4}{5} = \frac{4}{2^0 \times 5^1} \rightarrow \text{Terminate}$$

Ans: A

$$11. \quad \frac{37}{2500} \times \frac{4}{4} = \frac{148}{10000} = 0.0148.$$

Ans: 4

$$12. \quad \frac{A}{990} = \frac{x}{11} \Rightarrow x = \frac{A}{90}$$

Let $x \in (1, 2, 3, \dots, 10)$.

$$\frac{1}{11} = 0.\overline{09}, \quad \frac{2}{11} = 0.\overline{18}, \quad \frac{3}{11} = 0.\overline{27}$$

$\dots$ periodicity = 2.

Ans: 2

13

a) $0.142857142857 \dots \rightarrow$ non-terminating & recurring (r) (2)

b) $0.25 \rightarrow$ terminating (s)

c) $\frac{35}{16} = \frac{35}{2^4} \rightarrow$ terminating (s)

d) $-\frac{17}{8} = -2.125$ (s)

Ans: r, s, s, s

14 a) $\frac{1}{6} = 0.1666 \dots = 0.1\overline{6}$ (r)

b) $\frac{7}{20} = \frac{35}{100} = 0.35$ (s)

c) $\frac{2}{11} = 0.\overline{18}$ (r)

d) $\frac{3}{8} = 0.375$ (s)

Ans: r, r, r, s

$\Rightarrow$ THE END $\Leftarrow$