



Number System - I

Complete Course on General Aptitude for GATE 2023/2024

Saurabh Thakur • Lesson 2 • Oct 16, 2022

PREVIEW

HINDI GA,GS AND MATHEMATICS

Complete Course on General Aptitude for GATE 2023/2024

Saurabh Thakur

Ends on Jan 29, 2023
Oct 14 - Jan 29 • 16 weeks

UNACADEMY PLUS CLASS

COMPLETE COURSE ON General Aptitude for GATE 2023/ 24

USE CODE ST26 — Saurabh Sir —

25M+ WATCH MINUTE

12+ YEARS TEACHING EXPERIENCE

SUBSCRIPTION

CODE: ST26

SAURABH THAKUR
IIM ROHTAK



Number System

Integers.

$0, \pm 1, \pm 2, \pm 3 \dots$

P/C / Prob.

* Even Integers $\Rightarrow 0, \pm 2, \pm 4, \pm 6 \dots$

* Odd Integers $\Rightarrow \pm 1, \pm 3, \pm 5 \dots$

Natural \mathbb{N}_0 . | Countable \mathbb{N}_0 .

1, 2, 3, 4, 5, ... + 0 = Whole \mathbb{N}_0 .

(A)

\mathcal{L}^{01c} | TTS_c. Bayl

① — Prime \times | comp. \times

Prime \mathbb{N}_0 . \Rightarrow 2, 3, 5, 7, ...

Composite \mathbb{N}_0 . \Rightarrow 4, 6, 8, 9, 10, ...



~~8871383926~~

Pick the odd one out in the following : 13, 23, 33, 43, 53

- (A) 23
- ~~(B) 33~~
- (C) 43
- (D) 53

$$\begin{array}{c} \text{1} \times 33 \\ \text{3} \times 11 \end{array}$$

[GATE 2016 : IISc Bangalore (EE Set - 2)]

13 Perfect square \rightarrow 456 = 0|1|4|5|6|9

$$1^2 = 1$$

$$2^2 = 4$$

$$3^2 = 9$$

$$4^2 = 16$$

$$5^2 = 25$$

$$6^2 = 36$$

$$7^2 = 49$$

$$8^2 = 64$$

$$9^2 = 81$$

$$10^2 = 100$$

2
3
7
8

=



18^2

The number that least fits this set: (324, 441, 97 and 64) is _____.

- (A) 324
- (B) 441
- (C) 97
- (D) 64

$\cancel{18^2}$

8^2

~~97~~

[GATE 2016 : IISc Bangalore (IN)]

Intyus

Prime

composite

Perfect

Square

$$2022 \mid 2014$$

IIT - Khar

National Alp.

2021

IIT - Bombay

2018 -

IIT - Gu.

2016 -

IISC



~~Odd no.~~ \Rightarrow 15

Prime no.

~~9~~

Find the next term in the sequence: 7G, 11K, 13M,
17Q.

- (A) ~~15Q~~
(C) ~~15P~~

- (B) 17Q
(D) ~~17P~~

$$J = 10$$

$$P = 16$$

$$m = 13$$

$$w = 23$$

$$S = 19$$

[GATE 2014 : IIT Kharagpur (EC Set - 3, ME Set - 3)]



Find the next term in the sequence: 13M, 17Q, 19S,
_____.

15
↑
~~d+~~

- (A) ~~21W~~
- (B) ~~21V~~
- ~~(C) 23W~~
✓
- (D) 23V

[GATE 2014 : IIT Kharagpur
(EC Set - 4, ME Set - 4)]

Alphabets

IIT

+2 (A C) +3
+2 (C E) +3
+2 (E I) +3
+2 (I G) +3
+2 (G K) +3
+2 (K Q) +3
+2 (Q L) +3

+2 | 3 4 5

const. | ↑
→

IIT kharjpur

IIT-Delhi.
2012



+2 +3

Find the missing sequence in the letter series below:

A, CD, GHI, ?, UVWXYZ
1 2 3 4 5

- (A) LMN (B) MNO
(C) MNOP (D) NOPQ

[GATE 2015 : IIT Kanpur (EC Set - 3, ME Set - 2)]

$+2 | 3 | 4 | 5^-$

Given the sequence of terms, **AD** **CG** **FK** **JP**, the next term is

(A) **OV**

(C) **PV**

(B) **OW**

(D) **PW**

$+2 \rightarrow A \rightarrow D \rightarrow +3$
 $+3 \rightarrow C \rightarrow G \rightarrow +4$
 $+4 \rightarrow F \rightarrow K \rightarrow +5^-$
 $+5^- \rightarrow J \rightarrow P \rightarrow +1$
 $- \rightarrow O \rightarrow V$

[GATE 2012 : IIT Delhi (ME, CE, CSE)]

4 Divisibility Rule $N = 91087$ ✓

↓ $\boxed{1 \div 3}$

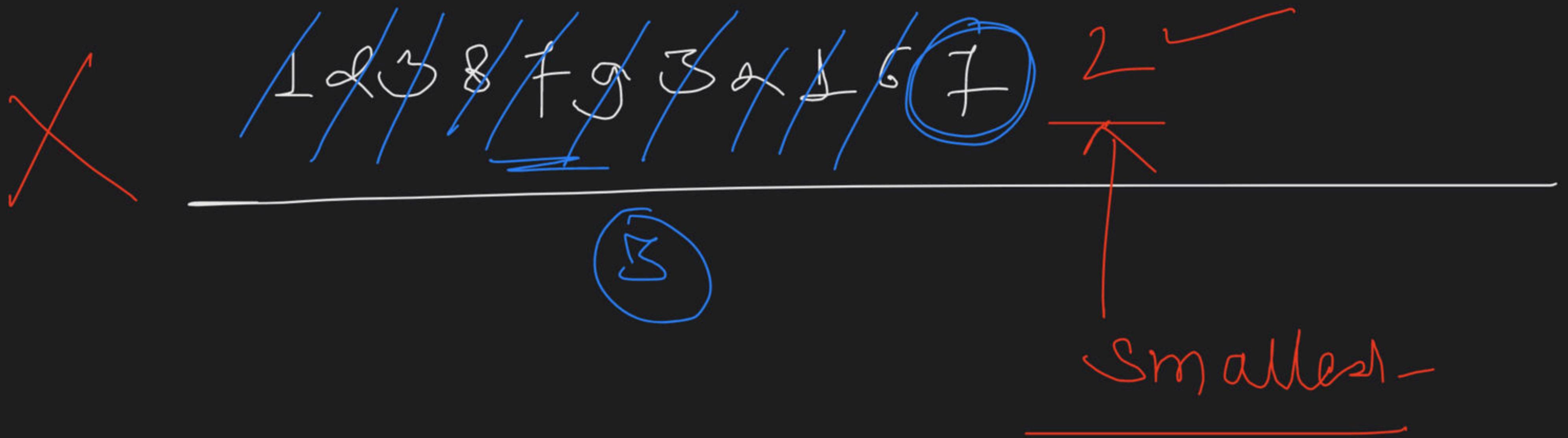
$$N = abcd$$

DS = $\frac{a+b+c+d}{3}$

+ 3 ✓

DS = $\frac{9+9+9}{3} = 27$

$N = 91087$ ✓



g

(x)

DS - $\pi \sqrt{3}$

$$DS = a + b + c + d$$

g

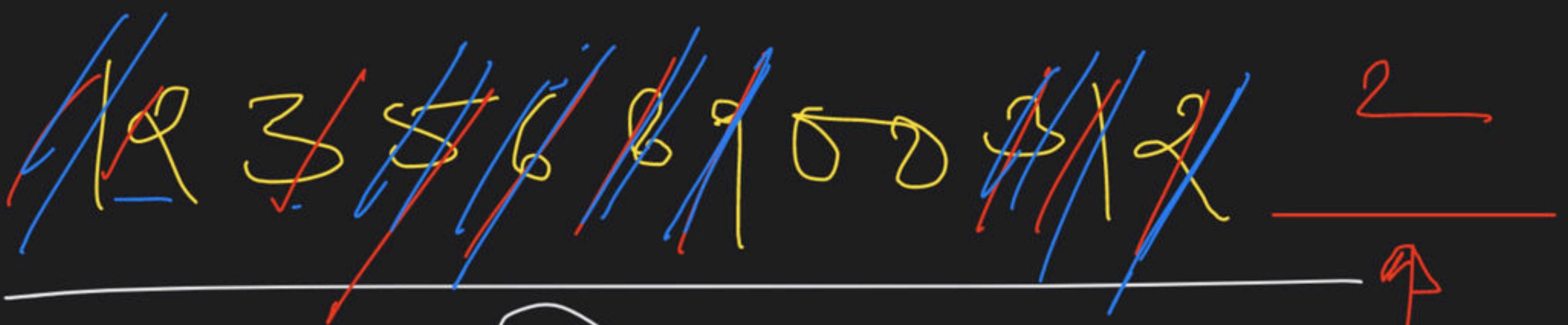
N ✓
g

~~18127 00 ✓~~

N = 9-1 91 + 9

- 27 ✓
9

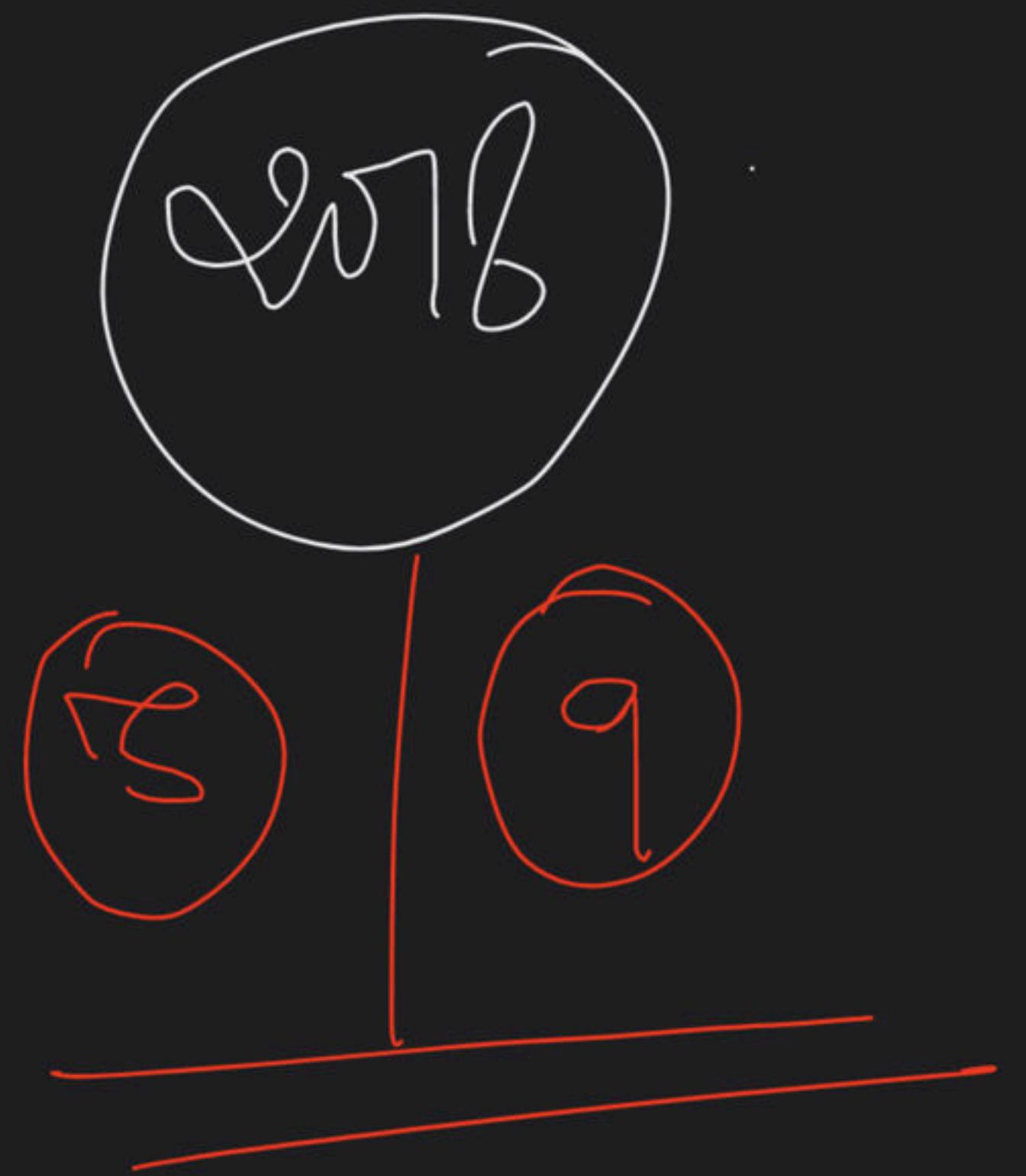
1023678



Man. | Min.

(smallest)





Aptixpress.

5 → 15 - Wet.

If the number $715 \blacksquare 423$ is divisible by 3 (\blacksquare denotes the missing digit in the thousandths place), then the smallest whole number in the place of \blacksquare is _____.

- A. 0
- B. 2
- C. 5
- D. 6

$$\begin{array}{r} 715 \\ \underline{\quad} \end{array} \begin{array}{r} 423 \\ = \end{array}$$

$$\begin{array}{r} 715 \\ \underline{\quad} \end{array} \begin{array}{r} 5 \\ \underline{\quad} \end{array} \begin{array}{r} 423 \\ = \end{array}$$

[GATE 2018 : IIT Guwahati (EC Set – 1)]

Inteyus | Plc | Perfum. Sg.



2014 - INT-KJP

If ROAD is written as URDG, then SWAN should be written as:

- (A) VXDQ
- (B) VZDQ
- (C) VZDP
- (D) UXDQ

[GATE 2015 : IIT Kanpur (CE Set - 1, CSE Set - 3)]

$$\boxed{\text{Perfect Sq}} + 1$$

Which number does not belong in the series below :

$$1^2 + 1 \underline{2,5} \underline{10,17} \underline{26,37} \underline{50,64}$$

- (A) 17 (B) 37

(C) 64 (D) 26

[GATE 2014 : IIT Kharagpur (EE Set - 3, CSE Set - 3)]

1, 4, 9, 16, 25

3, 5, 7, 9



(σd)



+3 +4 S

Find the missing group of letters in the following series :

BC, FGH, LMNO, _____.

- (A) UVWXY (B) TUVWX
(C) STUVW (D) RSTUV

180°

1.01) \Rightarrow

A. B < D
= . = .
B < D C
= = =
C B D C
C B E D
= = =
E D C B.

[GATE 2018 : IIT Guwahati (ME Set - 2)]

365°

37.5°



If the list of letters, P,R,S,T,U is an arithmetic sequence, which of the following are also in arithmetic sequence?

- I. 2P, 2R, 2S, 2T, 2U
 - II. P- 3,R-3,S- 3,T- 3,U- 3
 - III. P2 , R2 , S2 ,T2 ,U2

(A) I only

(B) I and II

(C) II and III

(D) I and III

[GATE 2015 : IIT Kanpur (EE Set - 2, CSE Set - 2)]



If a and b are integers and $a - b$ is even, which of the following must always be even?

- (A) ab
- (B) $a^2 + b^2 + 1$
- (C) $a^2 + b + 1$
- (D) $ab - b$

[GATE 2017 : IIT Roorkee (ME Set – 2)]



Given that a and b are integers and $a + a^2 b^3$ is odd then, which one of the following statements is correct?

- (A) a and b are both odd
- (B) a and b are both even
- (C) a is even and b is odd
- (D) a is odd and b is even

[GATE 2018 : IIT Guwahati (ME Set – 1)]



What is the next number in the series :

12 35 81 173 357 _____

[GATE 2014 : IIT Kharagpur
(EC Set - 1, ME Set - 1)]

The next term in the series 81, 54,
36, 24 ... is _____

[GATE 2014 : IIT Kharagpur
(EC Set - 3, ME Set - 3)]



If ROAD is written as URDG, then SWAN should be written as:

- (A) VXDQ (B) VZDQ
- (C) VZDP (D) UXDQ

[GATE 2015 : IIT Kanpur
(CE Set - 1, CSE Set - 3)]



In a certain code, AMCF is written as EQGJ and NKUF is written as ROYJ. How will DHLP be written in that code?

- (A) RSTN (B) TLPH
- (C) HLPT (D) XSVR

[GATE 2018 : IIT Guwahati (EE Set – 1)]



The missing number m the given sequence 343, 1331,
_____, 4913 is

- (A) 4096 (B) 2744
- (C) 2197 (D) 3375

[GATE 2019 : IIT Madras (EE)]



M has a son Q and a daughter R. He has no other children. E is the mother of P and daughter-in-law of M. How is P related to M?

- (A) P is the son-in-law of M.
- (B) P is the grandchild of M.
- (C) P is the daughter-in law of M.
- (D) P is the grandfather of M.

[GATE 2016 : IISc Bangalore (IN)]



What is the value of $1 + \frac{1}{4} + \frac{1}{16} + \frac{1}{64} + \frac{1}{256} + \dots$?

- (A) 2
- (B) $\frac{7}{4}$
- (C) $\frac{3}{2}$
- (D) $\frac{4}{3}$

[GATE 2018 : IIT Guwahati (EC Set – 1)]

The value of $\sqrt{12 + \sqrt{12 + \sqrt{12 + \dots}}}$ is

- (A) 3.464
- (B) 3.932
- (C) 4.000
- (D) 4.444

[GATE 2014 : IIT Kharagpur
(EE Set - 2, CSE Set - 2)]



What will be the maximum sum of 44, 42, 40, ?

- (A) 502
- (B) 504
- (C) 506
- (D) 500

[GATE 2013 : IIT Bombay (ME, CSE)]



Find the smallest number y such that : $y \times 162$ is a perfect cube.

- (A) 24
- (B) 27
- (C) 32
- (D) 36

[GATE 2017 : IIT Roorkee (EE, CS, Set - 1)]



Fill in the missing number in the series :

2 3 6 15 _____ 157.5 630.

[GATE 2014 : IIT Kharagpur (EC Set - 2, ME Set - 2)]