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# CGGL

## PRACTICE KING

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With  
Detailed  
Solution &  
Smart  
Tricks

**Chapter-Wise**

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SSC CGL Tier 1-Tier-2, SSC CPO, CET  
SSC CHSL, SSC MTS, Selection Post  
& All other competitive Exams

**Gagan Pratap Sir**

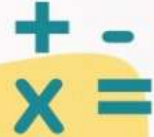




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*Author*

**Gagan Pratap Sir**

*Co-Author & Editor*

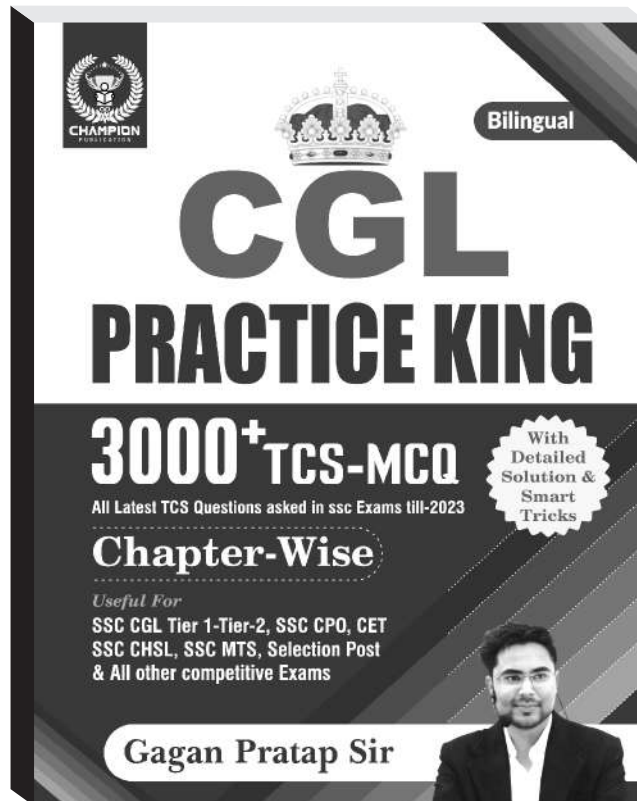
**Manvendra Singh**

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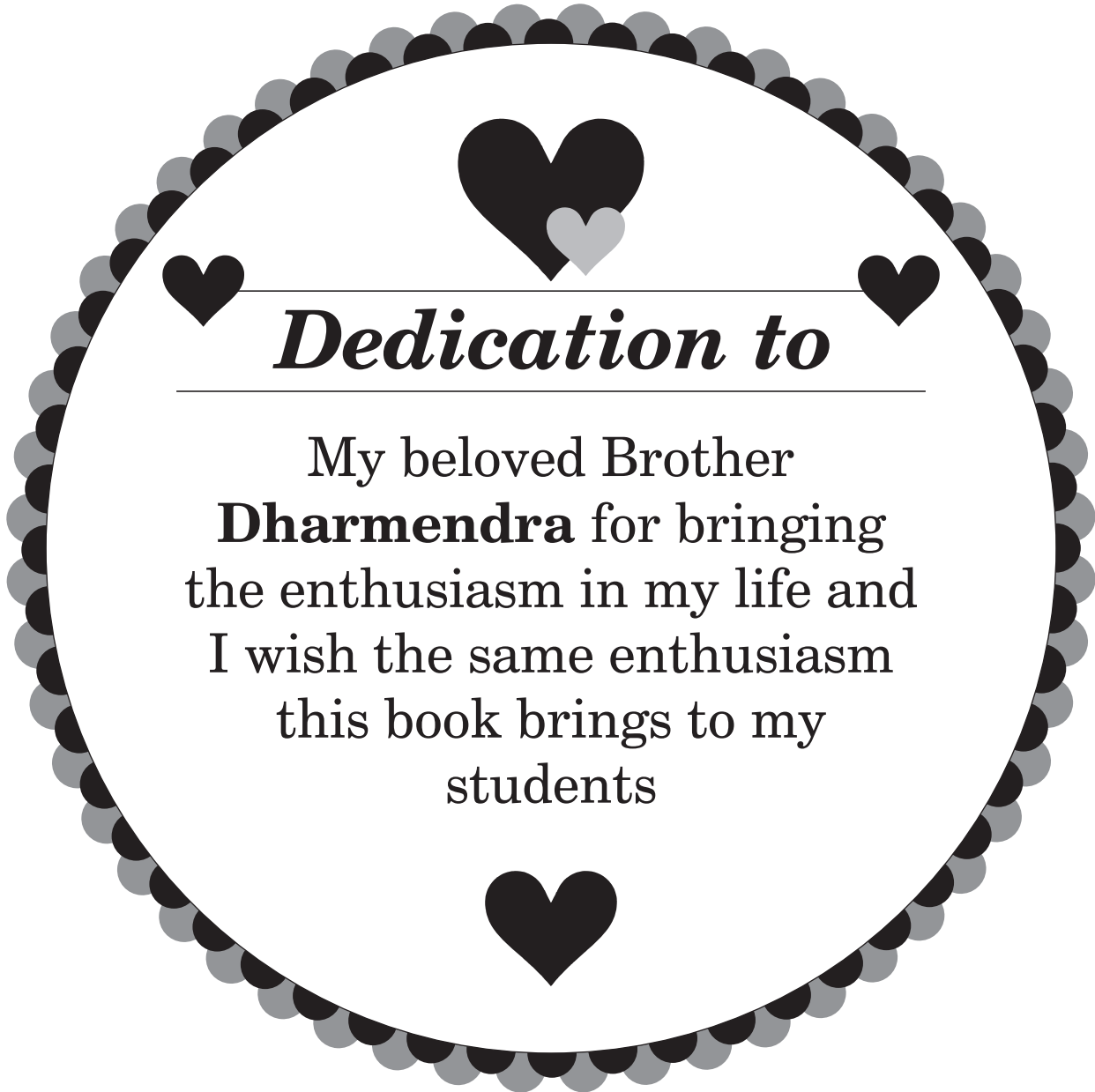
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# *Preface*

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The main aim of publishing this book is to spread the knowledge in the easiest way amongst learners. There are manifold purposes of writing this book on the subject. Basically, it caters to the needs of the candidates aspiring for competitive examinations, and for the beginners to understand the intricacies of the subject.

It is observed that the very name of the subject, Mathematics evokes fear in the minds of the students. Through this book an effort has been made to dispel that fear. MCQs at the end of every unit will help the students to make a self-assessment of the knowledge assimilated by going through the Chapters. The answers have been given for MCQs along with explanations.

As a professional it is observed that the books in the market are providing useful information to the students. They provide very useful multiple choice questions with their correct answers. The inquisitive mind of the student is still left high and dry as he is at a loss to know as to why a particular answer and why not otherwise. Through this book, the author has made an effort to provide rationale for the solutions. The book, therefore, meets the expectations of the students as it answers the demand and the quest in their mind.

The book is user-friendly and provides content in a well structured manner. It provides comprehensive and critical study of the various concepts of the subject matter. A word or suggestion from your side may add another feather to the cap of the subject matter of the book. The author looks forward to the comments, suggestions and criticism from the readers. Constructive suggestions and feedback from users would be highly appreciated, gratefully acknowledged and suitably incorporated.

Striving to serve the student community and to impart quality education.

**With best wishes**  
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## NUMBER SYSTEM

## संख्या पद्धति

1

SSC CGL 2018



Tier-I

SSC CGL Tier-I (2018)

{04/06/2019}

1. If a nine-digit number  $985x3678y$  is divisible by 72, then the value of  $(4x - 3y)$  is :  
यदि नौ अंको की संख्या  $985x3678y$ , संख्या 72 से विभाज्य है, तो  $(4x - 3y)$  का मान होगा:

- (a) 5 (b) 4  
(c) 3 (d) 6

2. If the 8 digit number  $789x531y$  is divisible by 72, then the value of  $(5x - 3y)$  is :

यदि आठ अंकों की संख्या  $789x531y$ , संख्या 72 से विभाज्य है, तो  $(5x - 3y)$  का मान होगा:

- (a) 0 (b) -1  
(c) 2 (d) 1

3. If the 8-digit number  $179x091y$  is divisible by 88, the value of  $(5x - 8y)$  is:

यदि 8-अंकीय संख्या  $179x091y$ , 88 से विभाज्य है, तो  $(5x - 8y)$  का मान है:

- (a) 4 (b) 7  
(c) 9 (d) 5

SSC CGL Tier-I (2018)

{06/06/2019} All Shifts

4. If the 8-digit number  $2074x4y2$  is divisible by 88, then the value of  $(4x + 3y)$  is :

यदि 8-अंकों की संख्या  $2074x4y2$ , 88 से विभाज्य है, तो  $(4x + 3y)$  का मान है:

- (a) 49 (b) 36  
(c) 42 (d) 45

5. If a 9 digit number  $32x4115y2$  is divisible by 88, then the value of  $(4x - y)$  for the smallest possible value of  $y$ , is:

यदि एक 9 अंको की संख्या  $32x4115y2$ , 88 से विभाज्य है, तो  $y$  के न्यूनतम संभव मान के लिए  $(4x - y)$  का मान है:

- (a) 31 (b) 20  
(c) -1 (d) 11

6. If a 10-digit number  $2094x843y2$  is divisible by 88, then the value of  $(5x - 7y)$  for the largest possible value of  $x$ , is:

यदि 10-अंको की एक संख्या  $2094x843y2$ , 88 से विभाज्य है, तो  $x$  के अधिकतम संभव मान के लिए,  $(5x - 7y)$  का मान है:

- (a) 3 (b) 5  
(c) 2 (d) 6

SSC CGL Tier-I (2018)

{07/06/2019} All Shifts

7. If the 10-digit number  $897359y7x2$  is divisible by 72, then what is the value of  $(3x - y)$ , for the possible greatest value of  $y$ ?

यदि 10-अंकीय एक संख्या  $897359y7x2$ , 72 से विभाज्य है, तो  $y$  के संभव अधिकतम मान के लिए,  $(3x - y)$  का मान, है:

- (a) 3 (b) 8  
(c) 7 (d) 5

8. If 10-digit number  $67127y76x2$  is divisible by 88, then the value of  $(7x - 2y)$  is:

यदि 10-अंकीय एक संख्या  $67127y76x2$ , 88 से विभाज्य है, तो  $(7x - 2y)$  का मान है:

- (a) 10 (b) 7  
(c) 3 (d) 5

SSC CGL Tier-I (2018)

{10/06/2019} All Shifts

9. If an 11-digit number  $5y5884805x6$ ,  $x \neq y$ , is divisible by 72, then the value of  $\sqrt{xy}$  is :

एक 11-अंकीय संख्या  $5y5884805x6$ ,  $x \neq y$ , यदि 72 से विभाज्य है, तो  $\sqrt{xy}$  का मान है :

- (a)  $\sqrt{7}$  (b) 3  
(c) 7 (d)  $\sqrt{6}$

10. If the six digit number  $15x1y2$  is divisible by 44, then  $(x + y)$  is equal to :

यदि छह अंकों की संख्या  $15x1y2$ , संख्या 44 से विभाज्य है तो  $(x + y)$  बराबर होगा:

- (a) 8 (b) 7  
(c) 6 (d) 9

11. If the six digit number  $6x2904$  is divisible by 88, then the value of  $x$  is :

यदि छह-अंकों की संख्या  $6x2904$ , 88 से विभाज्य है तो  $x$  का मान होगा :

- (a) 5 (b) 6  
(c) 7 (d) 8

SSC CGL Tier-I (2018)

{11/06/2019} All Shifts

12. What is the least value of  $x$  such that  $517x324$  is divisible by 12?

$x$  का न्यूनतम मान क्या होगा जिससे  $517x324$ , संख्या 12 से विभाज्य हो जाए?

- (a) 3 (b) 1  
(c) 0 (d) 2

13. If the six digit number  $4x573y$  is divisible by 72 then the value of  $x + y$  is :

यदि छह अंकों की संख्या  $4x573y$ , संख्या 72 से विभाज्य है, तो  $x + y$  का मान है :

- (a) 9 (b) 4  
(c) 8 (d) 6

14. For what value of  $x$  is the seven digit number  $46393x8$  divisible by 11?

$x$  के किस मान के लिए सात अंकों वाली संख्या  $46393x8$ , संख्या 11 विभाज्य है?

- (a) 5 (b) 3  
(c) 2 (d) 7

SSC CGL Tier-I (2018)

{12/06/2019} All Shifts

15. What is the value of  $x$  so that the seven digit number  $91876x2$  is divisible by 72?

$x$  के किस मान के लिए सात अंकीय संख्या  $91876x2$ , संख्या 72 से विभाज्य है?

- (a) 2 (b) 7  
(c) 5 (d) 3

16. What is the value of  $x$  so that the seven digit number  $6913x08$  is divisible by 88?

$x$  के किस मान के लिए सात अंकों वाली संख्या  $6913x08$ , संख्या 88 से विभाज्य है?

- (a) 4 (b) 2  
(c) 8 (d) 6

**SSC CGL Tier-I (2018)****{13/06/2019} All Shifts**

17. What is the value of  $x$  so that the seven digit number  $55350x2$  is divisible by 72?  
 $x$  के किस मान के लिए सात अंकीय संख्या,  $55350x2$ , संख्या 72 से विभाज्य है?  
(a) 1 (b) 7  
(c) 8 (d) 3

18. What is the value of  $x$  so that the seven digit number  $8439x53$  is divisible by 99?  
 $x$  के किस मान के लिए सात अंकीय संख्या  $8439x53$ , संख्या 99 से विभाज्य है?  
(a) 9 (b) 4  
(c) 3 (d) 6

19. When an integer  $n$  is divided by 8, the remainder is 3. What will be the remainder if  $6n - 1$  is divided by 8?  
जब एक पूर्णांक  $n$  को 8 से विभाजित किया जाता है, तो शेष 3 बचता है। यदि  $6n - 1$  को 8 से विभाजित किया जाता है तो शेष क्या बचेगा?  
(a) 4 (b) 1  
(c) 0 (d) 2

**SSC CGL Tier-I (2018)****{19/06/2019} All Shifts**

20. A integer  $n$  is divided by 7 leaves remainder 3. When the 6 times of the number is divided by 7, the remainder is :  
जब एक पूर्णांक  $n$  को 7 से विभाजित किया जाता है, तो शेष 3 बचता है। जब किसी संख्या के 6 गुने को 7 से विभाजित किया जाता है, तो शेष क्या बचेगा?  
(a) 1 (b) 4  
(c) 0 (d) 2

**SSC CGL 2019**

Tier-I

**SSC CGL Tier-I (2019)****{03/03/2020} All Shifts**

21. If the number  $1005x4$  is completely divisible by 8, then the smallest integer in place of  $x$  will be?  
यदि संख्या  $1005x4$ , 8 से पूरी तरह विभाज्य है तो  $x$  के स्थान पर सबसे छोटा पूर्णांक \_\_\_\_\_ होगा।  
(a) 1 (b) 0  
(c) 4 (d) 2

22. When 200 is divided by a positive integer  $x$ , the remainder is 8. How many values of  $x$  are there?  
जब 200 को एक धन पूर्णांक  $x$  से विभाजित किया जाता है, तो शेष 8 प्राप्त होता है।  $x$  के कितने मान हो सकते हैं।  
(a) 6 (b) 7  
(c) 8 (d) 5

23. What should replace \* in the number  $94*2357$ , so that number is divisible by 11?  
संख्या  $94*2357$  में \* को किस अंक से प्रतिस्थापित करना चाहिए, ताकि वह संख्या 11 से विभाज्य हो?  
(a) 1 (b) 7  
(c) 8 (d) 3

**SSC CGL Tier-I (2019)****{04/03/2020} All Shifts**

24. When 732 is divided by a positive integer  $x$ , the remainder is 12. How many values of  $x$  are there?  
जब 732 को किसी धन पूर्णांक  $x$  से विभाजित किया जाता है, तो शेष 12 रहता है।  $x$  के कितने मान हो सकते हैं?  
(a) 19 (b) 20  
(c) 18 (d) 16

25. If the 6-digit numbers  $x35624$  and  $1257y4$  are divisible by 11 and 72, respectively, then what is the value of  $(5x - 2y)$ ?  
यदि 6 अंकों वाली संख्याएँ  $x35624$  और  $1257y4$  क्रमशः 11 और 72, से विभाज्य हैं, तो  $(5x - 2y)$  का मान क्या होगा?  
(a) 14 (b) 12  
(c) 10 (d) 13

26. How many numbers are there from 200 to 800 which are neither divisible by 5 nor by 7?  
200 से 800 के बीच ऐसी कितनी संख्याएँ हैं, जो न तो 5 से और न ही 7 से विभाज्य है?  
(a) 407 (b) 410  
(c) 413 (d) 411

**SSC CGL Tier-I (2019)****{05/03/2020} All Shifts**

27. If nine-digit number  $708x6y8z9$  is divisible by 99, then what is the value of  $x + y + z$ ?  
यदि  $708x6y8z9$  नौ अंकों वाली संख्या 99 से विभाज्य है तो  $x + y + z$  का मान क्या है?  
(a) 27 (b) 5  
(c) 16 (d) 9

28. When a positive integer divided by  $d$ , the remainder is 15. When ten times of the same number is divided by  $d$ , the remainder is 6. The least possible value of  $d$  is:

जब किसी धन पूर्णांक को  $d$  से विभाजित किया जाता है, तो शेषफल 15 प्राप्त होता है। जब उसी संख्या के दस गुने को  $d$  से विभाजित किया जाता है, तो शेषफल 6 प्राप्त होता है।  $d$  का न्यूनतम संभव मान ज्ञात कीजिए।  
(a) 9 (b) 16  
(c) 18 (d) 12

29. The greatest number which should be replace '\*' in the number  $146*48$  to make it divisible by 8 is:  
संख्या  $146*48$  में '\*' के स्थान पर वह सबसे बड़ी कौन सी संख्या होनी चाहिए जिससे कि प्राप्त संख्या 8 से विभाज्य हो?  
(a) 2 (b) 0  
(c) 9 (d) 8

**SSC CGL Tier-I (2019)****{06/03/2020} All Shifts**

30. If the number  $687x29$  is divisible by 9, then the value of  $2x$  is:  
यदि संख्या  $687x29$ , 9 से विभाज्य है, तो  $2x$  का मान ज्ञात कीजिए।  
(a) 8 (b) 3  
(c) 2 (d) 4

31. The largest number which should replace \* in the number  $2365*4$  to make the number divisible by 4 is:  
वह सबसे बड़ी संख्या कौन सी है जो संख्या  $2365*4$  में \* के स्थान पर आनी चाहिए ताकि प्राप्त संख्या 4 से विभाज्य हो?  
(a) 9 (b) 0  
(c) 2 (d) 8

32. The sum of the squares of 3 natural numbers is 1029, and they are in the proportion 1:2:4. The difference between greatest number and smallest number is:  
3 प्राकृतिक संख्याओं के वर्गों का योग 1029 है, और वे 1 : 2 : 4 के अनुपात में हैं। सबसे बड़ी संख्या और सबसे छोटी संख्या के बीच अंतर \_\_\_\_\_ है।  
(a) 21 (b) 18  
(c) 15 (d) 31

33. What is the smallest integer that is divisible by 3, 7 and 18?  
3, 7 और 18 से विभाज्य सबसे छोटा पूर्णांक कौन-सा है?  
(a) 72 (b) 252  
(c) 63 (d) 126

**SSC CGL Tier-I (2019)****{07/03/2020} All Shifts**

34. If the given number  $925x85$  is divisible by 11, then the smallest value of  $x$  is:  
यदि दी गई संख्या  $925x85$ , 11 से विभाज्य है तो  $x$  का न्यूनतम मान \_\_\_\_\_ है।  
(a) 1 (b) 2  
(c) 3 (d) 4

35. If 7 divided a positive integer  $n$ , the remainder is 2. Which of the following numbers given a remainder of 0 when divided by 7?  
किसी धन पूर्णांक  $n$  को 7 से विभाजित करने पर शेषफल के रूप में 2 प्राप्त होता है। निम्नलिखित किस संख्या को 7 में विभाजित करने पर शेषफल के रूप में 0 प्राप्त होगा?  
(a)  $n + 2$  (b)  $n + 5$   
(c)  $n - 5$  (d)  $n + 1$

36. What is the remainder when we divide  $5^{70} + 7^{70}$  by 74 ?  
 $5^{70} + 7^{70}$  को 74 से विभाजित करने पर शेषफल क्या प्राप्त होता है?  
 (a) 5 (b) 0  
 (c) 7 (d) 1
37.  $25a^2 - 9$  is factored as:  
 $25a^2 - 9$  का गुणखंडन-----है।  
 (a)  $(5a + 3)(5a - 3)$   
 (b)  $(5a - 3)^2$   
 (c)  $(25a + 1)(a - 9)$   
 (d)  $(5a + 1)(5a - 9)$
- SSC CGL Tier-I (2019)**  
**{09/03/2020} All Shifts**
38. What is the smallest integer that is multiple of 5, 8 and 15? वह सबसे छोटा पूर्णांक क्या है, जो 5, 8 और 15 का गुणज है?  
 (a) 120 (b) 40  
 (c) 60 (d) 600
39. If 5 divided the integer n, the remainder is 2. What will be the remainder if 7n is divided by 5? यदि पूर्णांक n को 5 से विभाजित किया जाता है तो शेषफल 2 प्राप्त होता है। यदि 7n को 5 से विभाजित किया जाए तो शेष क्या प्राप्त होगा?  
 (a) 1 (b) 2  
 (c) 3 (d) 4
40. The greatest number which may replace \* in the number 1190\*6 to make the number divisible by 9 is: वह बड़ी से बड़ी संख्या ज्ञात करे जो \* को प्रतिस्थापित कर सके ताकि 9 से 1190\*6 पूर्णतः विभाजित हो सके?  
 (a) 1 (b) 0  
 (c) 3 (d) 9
41. If the 5-digit number 676xy is divisible by 3, 7 and 11, then what is the value of  $(3x - 5y)$ ? यदि 5-अंक वाली संख्या 676xy, 3, 7 और 11 से विभाज्य है, तो  $(3x - 5y)$  का मान ज्ञात करें।  
 (a) 10 (b) 7  
 (c) 9 (d) 11
42. If a five digit number 247xy is divisible by 3, 7 and 11, then what is the value of  $(2y - 8x)$ ? यदि पांच अंक वाली संख्या 247xy, 3, 7 और 11 से विभाज्य है, तो  $(2y - 8x)$  का मान ज्ञात करें।  
 (a) 6 (b) 17  
 (c) 9 (d) 11
43. Find the greatest value of b so that 30a68b ( $a > b$ ) is divisible by 11. b का अधिकतम मान ज्ञात करें, जिससे 30a68b ( $a > b$ ) संख्या, 11 से विभाज्य हो।  
 (a) 4 (b) 9  
 (c) 3 (d) 6
- SSC CGL Tier-I (2020)**  
**{16/08/2021} All Shifts**
44. If the 6-digit number 5x423y is divisible by 88. then what is the value of  $(5x - 8y)$ ? यदि 6-अंक वाली संख्या 5x423y, 88 से विभाज्य है, तो  $(5x - 8y)$  का मान ज्ञात करें।  
 (a) 28 (b) 14  
 (c) 16 (d) 24
45. If the nine-digit number 7p5964q28 is completely divisible by 88, what is the value of  $(p^2 - q)$ , for the largest value of q, where p and q are natural numbers? यदि नौ-अंक वाली संख्या 7p5964q28, 88 से पूर्णतः विभाज्य है, तो q के अधिकतम मान के लिए,  $(p^2 - q)$  का मान ज्ञात करें जहां p और q प्राकृतिक संख्याएँ हैं।  
 (a) 72 (b) 9  
 (c) 0 (d) 81
46. Find the difference between squares of the greatest value and the smallest value of P if the number 5306P2 is divisible by 3. यदि 5306P2 संख्या, 3 से विभाज्य है, तो P के अधिकतम मान और न्यूनतम मान के वर्गों के बीच अंतर ज्ञात करें।  
 (a) 60 (b) 68  
 (c) 36 (d) 6
- SSC CGL Tier-I (2020)**  
**{17/08/2021} All Shifts**
47. If the seven-digit number 94x29y6 is divisible by 72, then what is the value of  $(2x + 3y)$  for  $x \neq y$ ? यदि सात अंक वाली संख्या 94x29y6, 72 से विभाज्य है, तो  $x \neq y$  के लिए,  $(2x + 3y)$  का मान ज्ञात करें।  
 (a) 35 (b) 21  
 (c) 37 (d) 23
48. Find the smallest value of a so that 42a48b ( $a > b$ ) is divisible by 11. a का न्यूनतम मान ज्ञात करें, जिससे 42a48b ( $a > b$ ) संख्या, 11 से विभाज्य हो।  
 (a) 4 (b) 5  
 (c) 0 (d) 9
49. Find the sum of squares of the greatest value and the smallest value of K in the number so that the number 45082K is divisible by 3. संख्या में K के अधिकतम मान और न्यूनतम मान के वर्गों का योगफल ज्ञात करें, जिससे संख्या 45082K, 3 से विभाज्य हो।  
 (a) 68 (b) 64  
 (c) 100 (d) 50
- SSC CGL Tier-I (2020)**  
**{18/08/2021} All Shifts**
50. If the 8-digit number 888x53y4 is divisible by 72, then what is the value of  $(7x + 2y)$ , for the maximum value of y? यदि 8-अंक वाली संख्या 888x53y4, 72 से विभाज्य है, तो y के अधिकतम मान के लिए,  $(7x + 2y)$  का मान ज्ञात करें।  
 (a) 19 (b) 15  
 (c) 23 (d) 27
51. If the 5-digit number 688xy is divisible by 3, 7 and 11, then what is the value of  $(5x + 3y)$ ? यदि 5-अंक वाली संख्या 688xy, 3, 7 और 11 से विभाज्य है, तो  $(5x + 3y)$  का मान ज्ञात करें।  
 (a) 43 (b) 23  
 (c) 36 (d) 39
52. If a number P is divisible by 2 and another number Q is divisible by 3, then which of the following is true? यदि संख्या P, 2 से विभाज्य है और संख्या Q, 3 से विभाज्य है, तो निम्न में से कौन सा कथन सत्य है?  
 (a)  $P \times Q$  is divisible by 6  
 $P \times Q$ , 6 से विभाज्य है।  
 (b)  $P + Q$  is divisible by 6  
 $P + Q$ , 6 से विभाज्य है।  
 (c)  $P + Q$  is divisible by 5  
 $P + Q$ , 5 से विभाज्य है।  
 (d)  $P \times Q$  is divisible by 5  
 $P \times Q$ , 5 से विभाज्य है।
- SSC CGL Tier-I (2020)**  
**{20/08/2021} All Shifts**
53. What is the value of k such that number 72k460k is divisible by 6? K का वह मान ज्ञात करें कि संख्या 72k460k, 6 से विभाज्य हो जाए?  
 (a) 4 (b) 9  
 (c) 7 (d) 8

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SSC CGL Tier-I (2020)

{13/08/2021} All Shifts

41. If the 5-digit number 676xy is divisible by 3, 7 and 11, then what is the value of  $(3x - 5y)$ ? यदि 5-अंक वाली संख्या 676xy, 3, 7 और 11 से विभाज्य है, तो  $(3x - 5y)$  का मान ज्ञात करें।  
 (a) 10 (b) 7  
 (c) 9 (d) 11
42. If a five digit number 247xy is divisible by 3, 7 and 11, then what is the value of  $(2y - 8x)$ ? यदि पांच अंक वाली संख्या 247xy, 3, 7 और 11 से विभाज्य है, तो  $(2y - 8x)$  का मान ज्ञात करें।  
 (a) 6 (b) 17  
 (c) 9 (d) 11

54. What is the sum of the digits of the largest five digit number which is divisible by 5, 35, 39 and 65?  
5, 35, 39 और 65 से विभाज्य, पांच अंकों वाली सबसे बड़ी संख्या के अंकों का योगफल ज्ञात करें।  
(a) 33 (b) 30  
(c) 35 (d) 27
55. If  $(56\sqrt{7}x^3 - 2\sqrt{2}y^3) \div (2\sqrt{7}x - \sqrt{2}y) = Ax^2 + By^2 - Cxy$ , then find the value of  $A + B - \sqrt{14}C$ .  
यदि  $(56\sqrt{7}x^3 - 2\sqrt{2}y^3) \div (2\sqrt{7}x - \sqrt{2}y) = Ax^2 + By^2 - Cxy$  है, तो  $A + B - \sqrt{14}C$  का मान ज्ञात करें।  
(a) 19 (b) 10  
(c) 58 (d) 38
56. The number  $823p2q$  is exactly divisible by 7, 11 and 13. What is the value of  $(p - q)$ ?  
संख्या  $823p2q$ , 7, 11 और 13 से पूर्णतः विभाज्य है।  $(p - q)$  का मान ज्ञात करें।  
(a) 8 (b) 3  
(c) 5 (d) 11
57. Fourth proportion to 12, 18, 6 is equal to the third proportion to 4, k. What is the value of k?  
12, 18, 6 का चतुर्थानुपात (Fourth proportion), 4, k के तृतीयानुपात के बराबर है। k का मान ज्ञात करें।  
(a) 6 (b)  $4\sqrt{3}$   
(c) 6.5 (d) 4
- SSC CGL Tier-I (2020)**  
**{23/08/2021} All Shifts**
58. If the 5-digit number  $593ab$  is divisible by 3, 7 and 11, then what is the value of  $(a^2 - b^2 + ab)$ ?  
यदि 5-अंक वाली संख्या  $593ab$ , 3, 7 और 11 से विभाज्य है, तो  $(a^2 - b^2 + ab)$  का मान ज्ञात करें।  
(a) 35 (b) 31  
(c) 25 (d) 29
59. In an examination, the average score of a student was 67.6. If he would have got 27 more marks in Mathematics, 10 more marks in Computer Science, 18 more marks in History and retained the same marks in other subjects, then his average score would have been 72.6. How many papers

- were there in the examination?  
किसी परीक्षा में, किसी छात्र के औसत अंक 67.6 थे। यदि उसे गणित में 27 अधिक अंक, कम्प्यूटर विज्ञान में 10 अधिक अंक, इतिहास में 18 अधिक अंक मिलते, और अन्य विषयों में समान अंक मिलते, तो उसके औसत अंक 72.6 होते। परीक्षा में कुल कितने पेपर थे?  
(a) 11 (b) 10  
(c) 12 (d) 9
60. If the six-digit number  $5z3x4y$  is divisible by 7, 11 and 13, then what is the value of  $(x + y - z)$ ?  
यदि छः अंक वाली संख्या  $5z3x4y$ , 7, 11 और 13 से विभाज्य है, तो  $(x + y - z)$  का मान ज्ञात करें।  
(a) 5 (b) 4  
(c) 6 (d) 3
61. If the 9-digit number  $89x64287y$  is divisible by 72, then what is the value of  $(3x + 2y)$ ?  
यदि 9-अंक वाली संख्या  $89x64287y$ , 72 से विभाज्य है, तो  $(3x + 2y)$  का मान ज्ञात करें।  
(a) 30 (b) 25  
(c) 28 (d) 31

**SSC CGL Tier-I (2020)**

**{24/08/2021} All Shifts**

62. The sum of 3-digit numbers  $abc$ ,  $cab$  and  $bca$  is not divisible by:  
3-अंक वाली संख्याओं  $abc$ ,  $cab$  और  $bca$  का योगफल \_\_\_\_\_ से विभाज्य नहीं है।  
(a)  $a + b + c$  (b) 37  
(c) 31 (d) 3
63. Find the sum of all the possible values of  $(a + b)$ , so that the number  $4a067b$  is divisible by 11.  
 $(a + b)$  के सभी संभावित मानों का योगफल ज्ञात करें, जिससे संख्या  $4a067b$ , 11 से विभाज्य हो।  
(a) 5 (b) 16  
(c) 21 (d) 11
64. If a nine-digit number  $7698x138y$  is divisible by 72, then the value of  $\sqrt{4x + y}$  is:  
यदि नौ अंक वाली संख्या  $7698x138y$ , 72 से विभाज्य है, तो  $\sqrt{4x + y}$  का मान ज्ञात करें।  
(a) 8 (b) 6  
(c) 5 (d) 9



**SSC CGL Tier-I (2021)**

**{11/04/2022} All Shifts**

65. Find the greatest number  $23a68b$ , which is divisible by 3 but NOT divisible by 9.

- वह सबसे बड़ी संख्या  $23a68b$  ज्ञात कीजिए, जो 3 से विभाज्य है लेकिन 9 से विभाज्य नहीं है।  
(a) 238689 (b) 239685  
(c) 239688 (d) 237687
66. Find the greatest number which divides 108, 124 and 156, leaving the same remainder.  
वह बड़ी से बड़ी संख्या ज्ञात कीजिए, जिससे 108, 124 और 156 को विभाजित करने पर समान शेषफल प्राप्त होता है।  
(a) 18 (b) 10  
(c) 12 (d) 16
67. How many numbers are there from 500 to 650 (including both) which are neither divisible by 3 nor by 7?  
500 से 650 तक (दोनों को सम्मिलित करते हुए) ऐसी कितनी संख्या है, जो 3 और 7 दोनों से विभाज्य नहीं है?  
(a) 21 (b) 121  
(c) 87 (d) 99
68. What is the greatest number by which when 156, 181 and 331 are divided, the remainder is 6 in each case?  
वह सबसे बड़ी संख्या कौन-सी है, जिससे 158, 181 और 331 को विभाजित करने पर प्रत्येक स्थिति में शेषफल 6 आता है?  
(a) 26 (b) 17  
(c) 25 (d) 13
69. If the 7-digit number  $x8942y4$  is divisible by 56, what is the value of  $(x^2 + y)$  for the largest value of  $y$ , where  $x$  and  $y$  are natural numbers?  
यदि  $x8942y4$  एक ऐसी 7 अंकों की संख्या है, जो 56 से विभाज्य है, तो  $y$  के सबसे बड़े मान के लिए  $(x^2 + y)$  का मान क्या है? जहाँ  $x$  और  $y$  प्राकृत संख्याएँ हैं।  
(a) 33 (b) 44  
(c) 55 (d) 70
- SSC CGL Tier-I (2021)**  
**{12/04/2022} All Shifts**
70. What is the remainder when the product of 335, 608 and 853 is divided by 13?  
335, 608 और 853 के गुणनफल को 13 से विभाजित करने पर प्राप्त शेषफल क्या होगा?  
(a) 11 (b) 12  
(c) 6 (d) 7
71. Which is the smallest multiple of 7, which leaves 5 as remainder in each case, when divided by 8, 9, 12 and 15?  
7 का सबसे छोटा गुणज कौन सा है, जिसे 8, 9, 12 और 15 से विभाजित करने पर प्रत्येक स्थिति में 5 शेष बचता है?  
(a) 365 (b) 1085  
(c) 2525 (d) 725

72. If 8A5146B is divisible by 88, then what is the value of B-A? यदि 8A5146B से विभाज्य है, तो B-A का मान क्या है?  
 (a) 0 (b) -1  
 (c) 1 (d) 2
73. If 8A5146B is divisible by 88, then what is the value of B<sup>A</sup>? यदि 8A5146B है, तो B<sup>A</sup> का मान क्या है?  
 (a) 81 (b) 64  
 (c) 15 (d) 12
- SSC CGL Tier-I (2021)**  
**{13/04/2022} All Shifts**
74. If the 9-digit number 7x79251y8 is divisible by 36, What is the value of (10x<sup>2</sup> - 3y<sup>2</sup>) for the largest possible value of y? यदि नौ-अंक वाली संख्या 7x79251y8, 36 से पूर्णतः विभाजित है, तो y के अधिकतम मान के लिए (10x<sup>2</sup> - 3y<sup>2</sup>) का मान ज्ञात करें।  
 (a) 490 (b) 289  
 (c) 192 (d) 298
75. If 8A5146B is divisible by 88, then what is the value of AB? यदि 8A5146B, 88 से विभाज्य है, तो AB का मान क्या है?  
 (a) 15 (b) 12  
 (c) 9 (d) 20
76. What is the least number which when decreased by 7 is divisible by 15, 24, 28 and 32? वह छोटी संख्या कौन सी है जिसमें 7 घटाने पर प्राप्त संख्या 15, 24, 28 और 32 से विभाजित हो जाती है?  
 (a) 10097 (b) 10087  
 (c) 10067 (d) 10077
77. If the nine-digit number 9m2365n48 is completely divisible by 88, what is the value of (m<sup>2</sup> × n<sup>2</sup>). for the smallest value of n, where m and n are natural numbers? 9m2365n48 एक ऐसी नौ अंकों की संख्या है, जो 88 से पूर्णतः विभाज्य है, तो n के सबसे छोटे मान के लिए (m<sup>2</sup> × n<sup>2</sup>) का मान क्या होगा, जहां m और n प्राकृत संख्याएँ हैं?  
 (a) 36 (b) 64  
 (c) 32 (d) 20
- SSC CGL Tier-I (2021)**  
**{18/04/2022} All Shifts**
78. The greatest number that divides 126,224 and 608 leaving remainders 2, 7 and 19, respectively, is: वह सबसे बड़ी संख्या कौन सी है, जिससे 126, 224 और 608 को विभाजित करने पर शेषफल क्रमशः 2, 7 और 19 प्राप्त होता है?  
 (a) 27 (b) 31  
 (c) 21 (d) 37
79. Find the greatest number 234a5b, which is divisible by 22, but NOT divisible by 5. सबसे बड़ी संख्या 234a5b ज्ञात कीजिए, जो 22 से विभाज्य है, लेकिन 5 से विभाज्य नहीं है।  
 (a) 234058 (b) 234850  
 (c) 234652 (d) 234751
80. What is the greatest four-digit number which on being divided by 6, 7 and 8 leaves 4, 5 and 6 as remainders, respectively? चार अंकों की सबसे बड़ी संख्या कौन सी है, जिसे 6, 7 और 8 से विभाजित करने पर क्रमशः 4, 5 और 6 शेषफल प्राप्त होता है?  
 (a) 9910 (b) 9920  
 (c) 9921 (d) 9912
81. If a nine digit number 468x5138y is divisible by 72, then the value of  $\sqrt{4x+3y}$  is: यदि एक नौ अंकों की संख्या 468x5138y 72 से विभाज्य है, तो  $\sqrt{4x+3y}$  इसका मान है:  
 (a) 8 (b) 9  
 (c) 12 (d) 6
82. A number 'n' when divided by 6 leaves remainder 2. What will be the remainder when (n<sup>2</sup> + n + 2) is divided by 6? एक संख्या 'n' को 6 से विभाजित करने पर 2 शेषफल प्राप्त होता है। (n<sup>2</sup> + n + 2) को 6 से विभाजित करने पर शेषफल क्या प्राप्त होगा?  
 (a) 4 (b) 6  
 (c) 0 (d) 2
- SSC CGL Tier-I (2021)**  
**{19/04/2022} All Shifts**
83. If each of the two numbers 5<sup>16</sup> and 5<sup>25</sup> are divided by 6, the remainders are R<sub>1</sub> and R<sub>2</sub> respectively. What is the value of  $\frac{R_1 + R_2}{R_2}$ ? यदि दो संख्याओं 5<sup>16</sup> और 5<sup>25</sup> में से प्रत्येक को 6 से विभाजित किया जाता है, तो शेषफल क्रमशः R<sub>1</sub> और R<sub>2</sub> प्राप्त होते हैं।  $\frac{R_1 + R_2}{R_2}$  का मान क्या है?  
 (a)  $\frac{1}{6}$  (b)  $\frac{5}{6}$   
 (c)  $\frac{1}{5}$  (d)  $\frac{6}{5}$
84. If 8A5146B is divisible by 88, then what is the value of A<sup>B</sup>? यदि 8A5146B से 88 विभाज्य है, तो A<sup>B</sup> का मान क्या होगा?  
 (a) 27 (b) 64  
 (c) 81 (d) 12
85. Find the value of k such that the number k53206k is divisible by 6. k का वह मान ज्ञात कीजिए, जिससे संख्या k53206k, 6 से विभाज्य होगी।  
 (a) 7 (b) 4  
 (c) 2 (d) 1
86. Find the greatest 3-digit number which, when divided by 3, 4, 5 and 8, leaves remainder 2 in each case. तीन अंकों की वह बड़ी संख्या ज्ञात कीजिए, जिसे 3, 4, 5 और 8 से विभाजित करने पर प्रत्येक स्थिति में शेषफल 2 बचे।  
 (a) 962 (b) 122  
 (c) 958 (d) 482
- SSC CGL Tier-I (2021)**  
**{20/04/2022} All Shifts**
87. Find the value of k in the number 3426k if the number is divisible by 6 but NOT divisible by 5. संख्या 3426k में k का मान ज्ञात कीजिए, यदि संख्या 6 से विभाज्य है, लेकिन 5 से विभाज्य नहीं है।  
 (a) 4 (b) 6  
 (c) 3 (d) 9
88. What is the least square number which is exactly divisible by 2, 3, 10, 18 and 20? वह छोटी से छोटी वर्ग संख्या कौन सी है जो 2, 3, 10, 18 और 20 से पूर्णतः विभाज्य है?  
 (a) 900 (b) 180  
 (c) 196 (d) 30
89. If the number 48k2048p6 is divisible by 99, then (k × p) is equal to: यदि 48k2048p6 एक ऐसी संख्या है, जो 99 से विभाज्य है, तो (k × p) का मान क्या होगा?  
 (a) 2 (b) 6  
 (c) 4 (d) 0
90. The least number which should be added to 3627 so that the sum is exactly divisible by 4, 5, 6 and 8 is: वह छोटी से छोटी संख्या कौन सी है जिसे 3627 में जोड़ने पर प्राप्त योग 4, 5, 6 और 8 से पूर्णतः विभाज्य होगा?  
 (a) 93 (b) 39  
 (c) 27 (d) 72
91. What is the average of the first six prime numbers? प्रथम छः अभाज्य संख्याओं का औसत क्या होगा?  
 (a) 6 (b)  $6\frac{5}{6}$   
 (c)  $9\frac{1}{3}$  (d) 7

यदि भारसंगत संख्याएँ हैं तो प्रथम 'n' प्राकृत संख्याओं का भारत समांतर माध्य ज्ञात करें।

$$(a) \frac{\{n(n+1)(2n+1)\}}{2}$$

$$(b) \frac{\{n(n+1)\}}{2}$$

$$(c) n$$

$$(d) \frac{\{2n+1\}}{3}$$

104. What is the value of/का मान क्या है?

$$100^2 - 99^2 + 98^2 - 97^2 + 96^2 - 95^2 + 94^2 - 93^2 + \dots + 12^2 - 11^2?$$

$$(a) 5050 \quad (b) 4985$$

$$(c) 4995 \quad (d) 4950$$

### Divisibility & Remainder

105. Which of the following numbers is a divisor of  $(45^{15}-1)$ ?

निम्नलिखित में से कौन-सी संख्या  $(45^{15}-1)$  का भाजक है?

$$(a) 46 \quad (b) 14$$

$$(c) 8 \quad (d) 50$$

106. What is the remainder when 8127 is divided by 8?

8127 को 8 से भाग देने पर शेषफल क्या होगा?

$$(a) 5 \quad (b) 7$$

$$(c) 4 \quad (d) 6$$

107. What will be the remainder when  $27^{27} + 27$  is divided by 28?

जब  $27^{27} + 27$  के मान को 28 से विभाजित किया जाए, तो शेषफल कितना होगा?

$$(a) 28 \quad (b) 27$$

$$(c) 25 \quad (d) 26$$

108. If the 5-digit number 750PQ is divisible by 3, 7 and 11, then what is the value of  $P + 2Q$ ?

यदि 750PQ एक ऐसी 5-अंकीय संख्या है जो 3, 7 और 11 से विभाज्य है, तो  $P + 2Q$  का मान ज्ञात कीजिए।

$$(a) 17 \quad (b) 15$$

$$(c) 18 \quad (d) 16$$

109. If the 4-digit number  $x67y$  is exactly divisible by 9, then the least value of  $(x + y)$  is \_\_\_\_\_.

यदि  $x67y$  एक ऐसी 4-अंकीय संख्या है जो 9 से पूर्णतः विभाज्य है, तो  $(x + y)$  का न्यूनतम मान ..... है।

$$(a) 9 \quad (b) 0$$

$$(c) 5 \quad (d) 3$$

## SSC CGL 2022 Tier-I

92. Which of the following is the smallest number that is a perfect square and is divisible by each of the numbers 6, 8 and 15?

निम्नलिखित में से कौन-सी सबसे छोटी संख्या है जो कि एक पूर्ण वर्ग है और संख्याओं 6, 8 और 15 प्रत्येक से विभाज्य है?

$$(a) 225 \quad (b) 121$$

$$(c) 576 \quad (d) 3600$$

### SSC CGL Tier-I (2021)

{21/04/2022} All Shifts

93. Find the smallest number which should be added to the smallest number divisible by 6, 9 and 15 to make it a perfect square.

वह छोटी से छोटी संख्या ज्ञात कीजिए, जिसे 6, 9 और 15 से विभाज्य सबसे छोटी संख्या में जोड़ने पर यह एक पूर्ण वर्ग बन जाए।

$$(a) 10 \quad (b) 9$$

$$(c) 19 \quad (d) 21$$

94. Find the sum of greatest and the smallest number which may replace K in the number 3281k6 to make the number divisible by 6. उस सबसे बड़ी और सबसे छोटी संख्या का योग ज्ञात करें, जो संख्या 3281k6 में k को प्रतिस्थापित करके संख्या को 6 से विभाज्य बना सकती है।

$$(a) 9 \quad (b) 8$$

$$(c) 5 \quad (d) 4$$

95. What is the sum of the numbers between 400 and 500 such that when they are divided by 6, 12 and 16, it leaves no remainder?

400 और 500 के बीच की उन संख्याओं का योग क्या है, जिन्हें 6, 12 और 16 से विभाजित करने पर कोई शेषफल नहीं बचता है?

$$(a) 40 \quad (b) 1024$$

$$(c) 960 \quad (d) 912$$

96. If a nine-digit number  $485x3678y$  is divisible by 72, then for the smallest value of  $x$ , the value of  $(2y - 3x)$  is:

यदि नौ अंकों वाली संख्या  $485x3678y$ , 72 से विभाज्य है, तो  $x$  के सबसे छोटे मान के लिए  $(2y - 3x)$  का मान क्या होगा?

$$(a) 6 \quad (b) 9$$

$$(c) 11 \quad (d) 8$$

97. If a 10-digit number  $54726x79y6$  is divisible by 72, then what is the value of  $5x - 3y$ , for the least value of  $y$ ?

यदि 10 अंकों की एक संख्या  $54726x79y6$ , 72 से विभाज्य है, तो  $y$  के न्यूनतम मान के लिए,  $5x - 3y$  का मान क्या होगा?

$$(a) 17 \quad (b) 16$$

$$(c) 19 \quad (d) 23$$

98. If  $\frac{(17)^3 + (7)^3}{(17^2 + 7^2 - k)} = 24$ , then what is the value of  $k$ ?

यदि  $\frac{(17)^3 + (7)^3}{(17^2 + 7^2 - k)} = 24$  है, तो  $k$  का मान क्या है?

$$(a) 119 \quad (b) 128$$

$$(c) 24 \quad (d) 109$$

99. Simplify the following निम्नलिखित को सरल करें।

$$25^3 - 75^3 + 50^3$$

$$(a) -281250 \quad (b) 281350$$

$$(c) 271250 \quad (d) -281450$$

100. The value of  $97 \times 103$  is \_\_\_\_\_.

$97 \times 103$  का मान \_\_\_\_\_ है।

$$(a) 7999 \quad (b) 9991$$

$$(c) 8991 \quad (d) 9981$$

101. 7 is added to a certain number and the sum is multiplied by 5. The product is then divided by 3 and 4 is subtracted from the quotient. If the result comes to 16, then what is the original number?

एक निश्चित संख्या में 7 जोड़ा जाता है और योग को 5 से गुणा किया जाता है। फिर गुणफल को 3 से विभाजित किया जाता है और 4 को भागफल में से घटाया जाता है। यदि परिणाम 16 आता है, तो मूल संख्या क्या है?

$$(a) 3 \quad (b) 1$$

$$(c) 5 \quad (d) 4$$

102. Choose the option in which the numbers are in correct ascending order.

वह विकल्प चुनें जिसमें संख्याएँ सही आरोही क्रम में हों।

$$(a) \frac{4}{5}, \frac{2}{3}, \frac{1}{11} \text{ and } \frac{2}{9}$$

$$(b) \frac{1}{11}, \frac{2}{9}, \frac{2}{3} \text{ and } \frac{4}{5}$$

$$(c) \frac{2}{9}, \frac{1}{11}, \frac{4}{5} \text{ and } \frac{2}{3}$$

$$(d) \frac{2}{3}, \frac{4}{5}, \frac{1}{11} \text{ and } \frac{2}{9}$$

103. Find the weighted arithmetic mean of the first 'n' natural numbers, the weights being the corresponding numbers.

- 110.** In a class of students, the first student has 2 toffees, second has 4 toffees, third has 6 toffees and so on. If the number of students in the class is 25, then the total number of toffees are divisible by \_\_\_\_\_.
- छात्रों की एक कक्षा में, पहले छात्र के पास 2 टॉफियां हैं, दूसरे के पास 4 टॉफियां हैं, तीसरे के पास 6 टॉफियां हैं और इसी तरह सभी छात्रों के पास टॉफियां हैं। यदि कक्षा में छात्रों की संख्या 25 है, तो टॉफियों की कुल संख्या को ..... से भाज्य किया जा सकता है?
- (a) 5 and 7 (b) 5 and 13  
(c) 11 and 13 (d) 7 and 11
- 111.** The difference of two numbers is 1564. After dividing the larger number by the smaller, we get 6 as quotient and 19 as remainder. What is the smaller number?
- दो संख्याओं का अंतर 1564 है। बड़ी संख्या को छोटी से विभाजित करने पर, हमें भागफल के रूप में 6 और शेषफल के रूप में 19 प्राप्त होता है। छोटी संख्या क्या है?
- (a) 456 (b) 287  
(c) 623 (d) 309
- 112.** Which of the following numbers are divisible by 2, 3, 5?
- निम्नलिखित में से कौन-सी संख्या 2, 3 5 से विभाज्य है?
- (a) 5467760 (b) 1345678  
(c) 2345760 (d) 2456732
- 113.** What will be the remainder when 742 is divided by 48?
- जब 742 को 48 से विभाजित किया जाए, तो शेष ज्ञात कीजिए।
- (a) 1 (b) 3  
(c) 2 (d) 0
- 114.** A number when divided by 7 leaves remainder of 4. If the square of the same number is divided by 7, then what is the remainder?
- किसी संख्या को 7 से विभाजित करने पर 4 शेषफल बचता है। यदि उसी संख्या के वर्ग को 7 से विभाजित किया जाए, तो शेषफल क्या होगा?
- (a) 3 (b) 1  
(c) 4 (d) 2
- 115.** Find the largest number of 3 digits divisible by 4 and 7.
- 4 और 7 से विभाज्य 3 अंकों वाली सबसे बड़ी संख्या ज्ञात करें।
- (a) 960 (b) 980  
(c) 990 (d) 970
- 116.** If the 8-digit number 123456xy is divisible by 8, then the total possible pairs of (x, y) are:
- यदि 8 अंकों की संख्या 123456xy 8 से विभाज्य है, तो (x, y) के कुल कितने संभावित युग्म होंगे?
- (a) 8 (b) 13  
(c) 10 (d) 11
- 117.** Which of the following pairs of non-zero values of p and q make 6-digit number 674pq0 divisible by both 3 and 11?
- p और q के शून्येतर मानों का निम्नलिखित में से कौन-सा युग्म 6 अंकों की संख्या 674pq0 को 3 और 11 दोनों से विभाज्य बनाता है?
- (a) p = 2 and q = 2  
(b) p = 5 and q = 4  
(c) p = 4 and q = 2  
(d) p = 5 and q = 2
- 118.** On dividing a certain number by 363, we get 17 as the remainder. What will be the remainder when the same number is divided by 11?
- एक संख्या को 363 द्वारा विभाजित किया जाता है तो शेषफल 17 प्राप्त होता है। जब उसी संख्या को 11 द्वारा विभाजित किया जाएगा तो शेषफल क्या होगा?
- (a) 7 (b) 8  
(c) 6 (d) 9
- 119.** The largest five-digit number which when divided by 7, 9 and 11, leaves the same remainder as 3 in each case, is:
- पांच अंकों वाली सबसे बड़ी संख्या कौनसी है, जिसे 7, 9 और 11 से विभाजित करने पर प्रत्येक स्थिति में समान शेषफल 3 बचता है?
- (a) 95840 (b) 98685  
(c) 96720 (d) 99795
- 120.** Find the greatest 5-digit number which is divisible by 11, 33, 99 and 121.
- 5 अंकों की सबसे बड़ी संख्या ज्ञात कीजिए जो 11, 33, 99 और 121 से विभाज्य हो।
- (a) 90099 (b) 99990  
(c) 99099 (d) 90909
- 121.** What is the smallest number that should be added to 4567 so that the sum is divisible by 7?
- 4567 में वह छोटी से छोटी कौन-सी संख्या जोड़ी जाए कि योगफल 7 से विभाज्य हो?
- (a) 7 (b) 5  
(c) 6 (d) 4
- 122.** If the 9-digit number 83P93678Q is divisible by 72, then what is the value of  $\sqrt{P^2 + Q^2 + 12}$ ?
- यदि 9 अंकों की संख्या 83P93678Q, 72 से विभाज्य है, तो  $\sqrt{P^2 + Q^2 + 12}$  का मान क्या है?
- (a) 6 (b) 7  
(c) 8 (d) 9
- 123.** Find the greatest number that will divide 49, 147 and 322 to leave the same remainder in each case.
- वह बड़ी से बड़ी संख्या ज्ञात कीजिए, जिससे 49, 147 और 322 को विभाजित करने पर प्रत्येक स्थिति में समान शेषफल प्राप्त हो।
- (a) 9 (b) 5  
(c) 7 (d) 8
- 124.** A number n when divided by 6, leaves a remainder 3. What will be the remainder when  $(n^2+5n+8)$  is divided by 6?
- एक संख्या n को जब 6 से विभाजित किया जाता है, तो शेषफल 3 बचता है।  $(n^2+5n+8)$  को 6 से विभाजित करने पर शेषफल क्या होगा?
- (a) 1 (b) 3  
(c) 5 (d) 2
- 125.**  $3^{50} + 9^{26} + 27^{18} + 9^{28} + 9^{29}$  is divisible by which of the following integers?
- $3^{50} + 9^{26} + 27^{18} + 9^{28} + 9^{29}$  निम्नलिखित में से किस पूर्णांक से विभाज्य है?
- (a) 11 (b) 5  
(c) 7 (d) 2
- 126.** What is the smallest perfect square which is completely divisible by each of 16, 18 and 36?
- वह सबसे छोटा पूर्ण वर्ग कौन सा है जो 16, 18 और 36 में से प्रत्येक से पूर्णतः विभाज्य है?
- (a) 144 (b) 81  
(c) 196 (d) 169
- 127.** Numbers divisible by 9 between 43 and 481 are:
- 43 और 481 के बीच में कितनी संख्याएँ 9 द्वारा विभाज्य हैं?
- (a) 51 (b) 49  
(c) 48 (d) 50
- 128.** What should be subtracted from 246837 to make it divisible by 13?
- 246837 में से कितना घटाया जाए कि यह 13 से विभाज्य हो जाएगा?
- (a) 4 (b) 5  
(c) 3 (d) 6

- 129.** If a number  $K = 42 \times 25 \times 54 \times 135$  is divisible by  $3a$ , then find the maximum value of  $a$ .  
 यदि एक संख्या  $K = 42 \times 25 \times 54 \times 135$ ,  $3a$  द्वारा विभाज्य है, तो  $a$  का अधिकतम मान ज्ञात कीजिए।  
 (a) 6 (b) 7  
 (c) 4 (d) 5
- 130.** How many numbers from 1 to 430 are divisible by 7 and 11 both?  
 1 से 430 तक कितनी संख्याएँ 7 और 11 दोनों से विभाज्य हैं?  
 (a) 5 (b) 11  
 (c) 9 (d) 7
- 131.** 9435 is added to 7593, then 2607 is subtracted from the sum. The result is divisible by: 9435 को 7593 में जोड़ा जाता है, और फिर 2607 को इनके योगफल से घटाया जाता है। परिणाम किसके विभाज्य होगा?  
 (a) 4 (b) 10  
 (c) 3 (d) 5
- 132.** A number when divided by 221, leaves a remainder 30. If the same number is divided by 13, the remainder will be: किसी संख्या को 221 से विभाजित करने पर शेषफल 30 रहता है। यदि उसी संख्या को 13 से विभाजित किया जाए, तो शेषफल ज्ञात कीजिए।  
 (a) 4 (b) 3  
 (c) 2 (d) 1
- 133.** In a division sum, the divisor is 10 times the quotient and four times the remainder. What is the dividend if the remainder is 45?  
 एक भाग के प्रश्न में भाजक, भागफल का 10 गुना और शेषफल का चार गुना है। यदि शेषफल 45 है तो भाज्य क्या है?  
 (a) 4123 (b) 3285  
 (c) 2895 (d) 5412
- 134.** If 7-digit number  $678p37q$  is divisible by 75 and  $p$  is not a composite, then the values of  $p$  and  $q$  are:  
 यदि 7 अंकों की संख्या  $678p37q$ , 75 से विभाज्य है और  $p$  एक भाज्य संख्या नहीं है, तो  $p$  और  $q$  के मान ज्ञात कीजिए।  
 (a)  $p = 5, q = 5$   
 (b)  $p = 3, q = 0$   
 (c)  $p = 3, q = 5$   
 (d)  $p = 2, q = 5$
- 135.** The largest 5-digit number that is exactly divisible by 88 is:  
 5 अंकों की सबसे बड़ी संख्या ..... है, जो 88 से पूर्णतः विभाज्य है।  
 (a) 99968 (b) 99689  
 (c) 68999 (d) 66698
- 136.** If the number 123456789 is divided by 9, then the remainder is:  
 यदि संख्या 123456789 को 9 द्वारा विभाजित किया जाता है, तो शेषफल क्या होगा?  
 (a) 0 (b) 1  
 (c) 2 (d) 3
- 137.** In a 7-digit number  $89476*2$ , what is the smallest possible value of  $*$  such that the number is divisible by 8?  
 एक 7-अंकीय संख्या  $89476*2$  में,  $*$  का न्यूनतम संभव मान क्या है जिससे संख्या 8 से विभाज्य हो?  
 (a) 2 (b) 1  
 (c) 4 (d) 3
- 138.** The remainder when  $1919 + 20$  is divided by 18, is:  
 जब  $19^{19} + 20$  को 18 से विभाजित किया जाए, तो शेष ज्ञात कीजिए।  
 (a) 3 (b) 2  
 (c) 1 (d) 0
- 139.** The least number that should be added to 35460 so that the sum is exactly divisible by 3, 4, 5 and 7 is:  
 35460 में कौन-सी सबसे छोटी संख्या जोड़ी जानी चाहिए ताकि योगफल 3, 4, 5 और 7 द्वारा पूर्णतः विभाज्य हो?  
 (a) 84 (b) 420  
 (c) 240 (d) 180
- 140.** Any six-digit number that is formed by repeating a three-digit number, is always divisible by:  
 कोई भी छह अंकों की संख्या जो तीन अंकों की संख्या को दोहराकर बनती है, सदैव किससे विभाज्य होती है?  
 (a) 111 (b) 1001  
 (c) 19 (d) 101
- 141.** If the seven-digit number  $52A6B7C$  is divisible by 33, and  $A, B, C$  are primes, then the maximum value of  $2A+3B+C$  is:  
 यदि सात अंकों की संख्या  $52A6B7C$ , 33 से विभाज्य है, और  $A, B, C$  भाज्य हैं, तो  $2A+3B+C$  का अधिकतम मान है-  
 (a) 32 (b) 23  
 (c) 27 (d) 34
- 142.** If a 7-digit number  $54p3987$  is divisible by 11, then  $p$  is equal to:  
 यदि एक 7-अंकीय संख्या  $54p3987$ , 11 से विभाज्य है, तो  $p$  किसके बराबर होगा?  
 (a) 5 (b) 9  
 (c) 4 (d) 1
- 143.** When  $m^{12}-1$  is divided by  $m + 1$ , the remainder is:  
 जब  $m^{12}-1$  को  $m + 1$  द्वारा विभाजित किया जाता है, तो शेषफल क्या होगा?  
 (a) 2 (b) 1  
 (c) 0 (d) -1
- 144.** A four-digit pin, say  $abcd$ , of a lock has different non-zero digits. The digits satisfy  $b = 2a, c = 2b, d = 2c$ . The pin is divisible by \_\_\_\_\_.  
 मान लीजिए, एक ताले के चार अंकों वाले पिन,  $abcd$  में अलग-अलग गैर-शून्य अंक होते हैं। अंक  $b = 2a, c = 2b, d = 2c$  को संतुष्ट करते हैं। पिन \_\_\_\_\_ से विभाज्य है।  
 (a) 2, 3, 5 (b) 2, 3, 7  
 (c) 2, 3, 13 (d) 2, 3, 11
- 145.** If the number  $6788934a4$  is divisible by 11, then find the smallest whole number in the place of  $a$ .  
 यदि संख्या  $6788934a4$ , 11 से विभाज्य है, तो  $a$  के स्थान पर सबसे छोटी पूर्ण संख्या ज्ञात कीजिए।  
 (a) 3 (b) 4  
 (c) 5 (d) 2
- 146.** If the nine-digit number  $3422213AB$  is divisible by 99, then what is the value of  $2A + B$ ?  
 यदि नौ-अंकीय संख्या  $3422213AB$ , 99 से विभाज्य है, तो  $2A + B$  का मान कितना है?  
 (a) 11 (b) 12  
 (c) 10 (d) 13



- 147.** The cube of the difference between two given natural numbers is 1728, while the product of these two given numbers is 108. Find the positive difference between the cubes of these two given numbers.

दी गई दो प्राकृतिक संख्याओं के अंतर का घन 1728 है, जबकि दी गई इन दोनों संख्याओं का गुणफल 108 है। दी गई इन दोनों संख्याओं के घनों का अंतर ज्ञात करें।  
 (a) 4104 (b) 5616  
 (c) 2160 (d) 5626



- 148.** The square of the sum of two given natural numbers is 784, while the product of the two given numbers is 192. Find the positive difference between the squares of these two given numbers.

किन्हीं दो प्राकृत संख्याओं के योग का वर्ग 784 है, जबकि दी गई दोनों संख्याओं का गुणनफल 192 है। दी गई इन दोनों संख्याओं के वर्गों का धनात्मक अंतर ज्ञात कीजिए।

- (a) 512 (b) 122  
(c) 400 (d) 112

- 149.** The difference between the cubes of two given natural numbers is 6272, while the positive difference between the two given numbers is 8. What is the sum of the cubes of the two given numbers?

किन्हीं दो प्राकृत संख्याओं के घनों के बीच का अंतर 6272 है, जबकि दी गई दोनों संख्याओं का घनात्मक अंतर 8 है। दी गई दोनों संख्याओं के घनों का योग क्या है?

- (a) 9728 (b) 9684  
(c) 8000 (d) 9600

- 150.** The sum of the cubes of two given natural numbers is 9728, while the sum of the two given numbers is 32. What is the positive difference between the cubes of the two given numbers?

किन्हीं दो प्राकृत संख्याओं के घनों का योग 9728 है, जबकि दी गई दो संख्याओं का योग 32 है। दी गई दोनों संख्याओं के घनों के बीच घनात्मक अंतर क्या होगा?

- (a) 6272 (b) 5832  
(c) 4662 (d) 7904

### Divisibility

- 151.**  $6^{25} + 6^{26} + 6^{27} + 6^{28}$  is divisible by: / निम्न में से किस संख्या से विभाज्य है:

- (a) 256 (b) 254  
(c) 255 (d) 259

- 152.** What will be the remainder when  $(265)^{4081} + 9$  is divided by 266?

जब  $(265)^{4081} + 9$  को 266 से विभाजित किया जाए तो शेषफल ज्ञात कीजिये?

- (a) 8 (b) 6  
(c) 1 (d) 9

- 153.** The largest 5 digit number exactly divisible by 88 is:

88 से पूर्णतः विभाज्य 5 अंकीय सबसे बड़ी

संख्या ज्ञात कीजिए:

- (a) 99990 (b) 99984  
(c) 99978 (d) 99968

- 154.** During a division, Pranjal mistakenly took as the dividend a number that was 10% more than the original dividend. He also mistakenly took as the divisor a number that was 25% more than the original divisor. If the correct quotient of the original division problem was 25 and the remainder was 0, what was the quotient that Pranjal obtained, assuming his calculations had no error?

भाग का प्रश्न करते समय प्रांजल ने गलती से भाज्य के रूप में एक संख्या लेली जो मूल भाज्य से 10% अधिक थी। उन्होंने गलती से भाजक के रूप में एक ऐसी संख्या लेली जो मूल भाजक से 25% अधिक थी। यदि भाग के मूल प्रश्न का सही भागफल 25 था और शेषफल 0 था, तो यह मानते हुए कि उसकी गणना में कोई त्रुटि नहीं है, प्रांजल ने कितना भागफल प्राप्त किया?

- (a) 21.75 (b) 21.25  
(c) 28.75 (d) 22

- 155.** A six-digit number is divisible by 33. If 54 is added to the number, then the new number formed will also be divisible by: छह अंकों की एक संख्या 33 से विभाज्य है। यदि संख्या में 54 जोड़ दिया जाए, तो निर्मित नई संख्या से भी विभाजित होगी:

- (a) 3 (b) 2  
(c) 5 (d) 7

- 156.** Find the smallest number that can be subtracted from 148109326 so that it becomes divisible by 8.

वह सबसे छोटी संख्या ज्ञात कीजिए जिसे 148109326 से घटाने पर प्राप्त संख्या 8 से विभाज्य हो होगी।

- (a) 4 (b) 8  
(c) 6 (d) 10

- 157.** Which number among 24963, 24973, 24983 and 24993 is divisible by 7?

24973, 24983 और 24993 में से कौन-सी संख्या 7 से विभाज्य है?

- (a) 24973 (b) 24983  
(c) 24963 (d) 24993

- 158.** Which of the following numbers is divisible by 36?

निम्नलिखित में से कौन-सी संख्या 36 से विभाज्य है?

- (a) 47502 (b) 29412  
(c) 54732 (d) 87064

- 159.** An 11-digit number 7823326867X is divisible by 18. What is the value of X?

एक 11-अंकीय संख्या 7823326867X, 18 से विभाज्य है। X का मान क्या है?

- (a) 6 (b) 4  
(c) 8 (d) 2

- 160.** Part One While solving a problem, Suhas by mistake took a number as the dividend which was 10% less than the original dividend. He also mistakenly took a number as the denominator which was 20% less than the original denominator. If the correct quotient of the original question of division was 24 and the remainder was 0, then assuming that there was no error in his calculation, what quotient did Suhas get?

भाग एक एक प्रश्न हल करते समय, सुहास ने गलती से भाज्य के रूप में एक संख्या ले ली जो मूल भाज्य से 10% कम थी। उसने गलती से भाजक के रूप में एक संख्या भी ले ली जो मूल भाजक से 20% कम थी। यदि भाग के मूल प्रश्न का सही भागफल 24 था और शेषफल 0 था, तो यह मानते हुए कि उसकी गणना में कोई त्रुटि नहीं है, सुहास ने कितना भागफल प्राप्त किया?

- (a) 27 (b) 21.6  
(c) 26.4 (d) 30

- 161.** Which of the numbers 9592450, 9592330, 9592885 and 9592741 is divisible by 11? 9592450, 9592330, 9592885 और 9592741 में से कौन-सी संख्या 11 से विभाज्य है?

- (a) 9592885 (b) 9592741  
(c) 9592450 (d) 9592330

- 162.** Which number among 98984, 98992, 98998 and 99008 is NOT divisible by 8?

98984, 98992, 98998 और 99008 में से कौन-सी संख्या 8 से विभाज्य नहीं है?

- (a) 98998 (b) 98992  
(c) 98984 (d) 99008

- 163.** What is the sum of the divisors of 484 that are perfect squares?  
484 के उन भाजकों का योग कितना है जो पूर्ण वर्ग हैं?  
(a) 125 (b) 35  
(c) 610 (d) 13
- 164.** Which number among 34936, 35508, 35580 and 36508 is divisible by 33?  
34936, 35508, 35580 और 36508 में से कौन-सी संख्या 33 से विभाज्य है?  
(a) 35508 (b) 35580  
(c) 36508 (d) 34936
- 165.** What is the smallest number which can be added to 9454351626 so that it becomes divisible by 11?  
वह छोटी से छोटी संख्या कौन-सी है जिसे 9454351626 में जोड़ने पर प्राप्त संख्या 11 से विभाज्य होगी?  
(a) 1 (b) 6  
(c) 5 (d) 4
- 166.** In a division sum, the divisor is 13 times the quotient and 6 times the remainder. If the remainder is 39, then the dividend is:  
एक भाग प्रश्न में, भाजक भागफल का 13 गुना और शेषफल का 6 गुना है। यदि शेषफल 39 है, तो भाज्य ज्ञात करें।  
(a) 4240 (b) 4576  
(c) 4251 (d) 4800
- 167.** Which of the following numbers is divisible by 99?  
निम्नलिखित में से कौन-सी संख्या 99 से विभाज्य है?  
(a) 31548 (b) 60687  
(c) 44775 (d) 84456
- 168.** Which of the following numbers is divisible by 44?  
निम्नलिखित में से कौन-सी संख्या 44 से विभाज्य है?  
(a) 32802 (b) 54736  
(c) 93472 (d) 27048
- 169.** A four-digit number abba is divisible by 4 and  $a < b$ . How many such numbers are there?  
abba एक ऐसी चार अंकीय संख्या है जो 4 विभाज्य है और  $a < b$  से विभाज्य है। ऐसी कितनी संख्याएँ हैं?  
(a) 10 (b) 8  
(c) 12 (d) 6
- 170.** A 9-digit number 846523X7Y is divisible by 9, and  $Y - X = 6$ . Find the value of  $\sqrt{2X + 4Y}$ .  
846523X7Y एक ऐसी 9-अंकीय संख्या 9 से विभाज्य है, और  $Y - X = 6$ .  $\sqrt{2X + 4Y}$  का मान ज्ञात कीजिए।  
(a) 4 (b) 2  
(c) 6 (d) 8
- 171.** Which of the following is the smallest 5-digits number that is exactly divisible by 526?  
निम्नलिखित में से 5 अंकों की सबसे छोटी संख्या कौन सी है जो 526 से पूर्णतः विभाज्य है?  
(a) 10520 (b) 11046  
(c) 10516 (d) 10426
- 172.** A 6-digit number has digits as consecutive natural numbers. The number is always divisible by \_\_\_\_\_.  
एक 6 अंक की संख्या में अंक क्रमागत प्राकृतिक संख्या के रूप में होते हैं। यह संख्या सदैव \_\_\_\_\_ से विभाज्य होगी।  
(a) 4 (b) 5  
(c) 2 (d) 3
- 173.** How many of the following numbers are divisible by 3 but NOT by 9?  
निम्नलिखित में से कितनी संख्याएँ 3 से विभाज्य हैं लेकिन 9 से नहीं?  
5826, 5964, 6039, 6336, 6489, 6564, 6867 and 6960  
(a) 5 (b) 3  
(c) 4 (d) 6

## ANSWER KEY - NUMBER SYSTEM

1. (b) 2. (b) 3. (a) 4. (d) 5. (a) 6. (b) 7. (c) 8. (b) 9. (d) 10. (b)  
11. (b) 12. (d) 13. (c) 14. (b) 15. (d) 16. (c) 17. (b) 18. (b) 19. (b) 20. (b)  
21. (b) 22. (c) 23. (d) 24. (b) 25. (a) 26. (d) 27. (c) 28. (b) 29. (d) 30. (a)  
31. (d) 32. (a) 33. (d) 34. (d) 35. (b) 36. (b) 37. (a) 38. (a) 39. (d) 40. (a)  
41. (c) 42. (a) 43. (c) 44. (d) 45. (a) 46. (a) 47. (c) 48. (b) 49. (a) 50. (c)  
51. (d) 52. (a) 53. (a) 54. (a) 55. (c) 56. (c) 57. (a) 58. (d) 59. (b) 60. (b)  
61. (c) 62. (c) 63. (c) 64. (b) 65. (b) 66. (d) 67. (c) 68. (c) 69. (c) 70. (d)  
71. (b) 72. (c) 73. (b) 74. (d) 75. (b) 76. (b) 77. (b) 78. (b) 79. (c) 80. (a)  
81. (d) 82. (d) 83. (d) 84. (c) 85. (b) 86. (a) 87. (b) 88. (a) 89. (d) 90. (a)  
91. (b) 92. (d) 93. (a) 94. (b) 95. (d) 96. (d) 97. (b) 98. (a) 99. (a) 100. (b)  
101. (c) 102. (b) 103. (d) 104. (c) 105. (c) 106. (b) 107. (d) 108. (a) 109. (c) 110. (b)  
111. (d) 112. (c) 113. (c) 114. (d) 115. (d) 116. (b) 117. (d) 118. (c) 119. (d) 120. (c)  
121. (d) 122. (c) 123. (c) 124. (d) 125. (a) 126. (a) 127. (b) 128. (d) 129. (b) 130. (a)  
131. (c) 132. (a) 133. (b) 134. (c) 135. (a) 136. (a) 137. (d) 138. (a) 139. (c) 140. (b)  
141. (b) 142. (a) 143. (c) 144. (c) 145. (d) 146. (a) 147. (b) 148. (d) 149. (a) 150. (a)  
151. (d) 152. (a) 153. (d) 154. (d) 155. (a) 156. (c) 157. (b) 158. (b) 159. (d) 160. (a)  
161. (d) 162. (a) 163. (c) 164. (a) 165. (b) 166. (c) 167. (b) 168. (b) 169. (b) 170. (c)  
171. (a) 172. (d) 173. (c)



## Hints & Solutions (CGL)



### SSC CGL Tier-I (2018) {04/06/2019}

1. (b)  $\frac{985x3678y}{72}$   
 $72 = 8 \times 9$   
 so we apply divisibility rule of 8 & 9  
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $78y \div 8 \Rightarrow$  here  $y$  must be 4  
 Divisibility rule for 9 → sum of digits must be divisible by 9.  
 $9+8+5+x+3+6+7+8+4$   
 $50 + x$   
 here  $x$  must be 4  
 $x = 4, y = 4$   
 $\Rightarrow 4x - 3y = 16 - 12 = 4$
2. (b)  $\frac{789x531y}{72}$   
 $72$  is multiple of  $8 \times 9$ , so we check divisibility rule for 8 & 9  
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $\frac{31y}{8} \Rightarrow y$  must be 2  
 Divisibility rule for 9 → sum of digits must be divisible by 9.  
 $\frac{7+8+9+x+5+3+1+2}{9}$   
 here  $x$  must be 1  
 $\Rightarrow 5x - 3y = 5(1) - 3(2) = -1$
3. (a)  $\frac{179x091y}{88}$   
 $88$  is multiple of  $11 \times 8$ , so we will check divisibility rule of 11 and 8  
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $91y \div 8 \Rightarrow$  here  $y$  must be 2  
 Divisibility rule for 11 → The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $1+9+0+1 \quad 7+x+9+2$   
 $11 \quad 18+x$   
 nearest sum 22 so  $x$  must be 4  
 $x = 4, y = 2$   
 $\Rightarrow 5x - 8y = 5 \times 4 - 8 \times 2 = 4$

### SSC CGL Tier-I (2018) {06/06/2019} All Shifts

4. (d)  $\frac{2074x4y2}{88}$   
 $88$  is multiple of 11 and 8, so we will check divisibility rule for 11 and 8  
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $4y2 \div 8$  here  $y$  must be 3  
 Divisibility rule for 11 → The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $2+7+x+3 \quad 0+4+4+2$   
 $12+x \quad 10$   
 here  $x$  must be 9  
 $x = 9, y = 3$   
 $\Rightarrow 4x + 3y = 4 \times 9 + 3 \times 3 = 45$
5. (a)  $\frac{32x4115y2}{88}$   
 $88$  is multiple of  $11 \times 8$   
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $5y2 \div 8 \Rightarrow$  here  $y$  must be 1  
 Divisibility rule for 11 → The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $3+x+1+5+2 \quad 2+4+1+1$   
 $11+x \quad 8$   
 here  $x$  must be 8  
 $x = 8, y = 1$   
 $\Rightarrow (4x - 1) = 4 \times 8 - 1 = 31$
6. (b)  $\frac{2094x843y2}{88}$   
 $88$  is multiply of 11 & 8 so we check divisibility rule for 11 and 8  
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $3y2 \div 8 \Rightarrow$  here  $y$  must be 5  
 Divisibility rule for 11 → The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $2+9+x+4+5 \quad 0+4+8+3+2$   
 $20+x \quad 17$   
 here  $x$  must be 8  
 $x = 8$  (largest)  
 $y = 5$   
 $\Rightarrow 5x - 7y = 5 \times 8 - 7 \times 5 = 5$

### SSC CGL Tier-I (2018) {07/06/2019} All Shifts

7. (c)  $897359y7x2$   
 For a number to be divisible by 72, that number should be divisible by 9 as well as 8.  
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $\frac{7x2}{8} \Rightarrow x = 5$  (for max value of  $y$ )  
 Divisibility rule for 9 → sum of digits must be divisible by 9.  
 $897359y752 \Rightarrow \frac{55+y}{9}$   
 $y$  must be 8  
 $\Rightarrow 3x - y = 3(5) - 8 = 7$
8. (b)  $67127y76x2$   
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $\Rightarrow \frac{6x2}{8} \Rightarrow x$  must be 3  
 Divisibility rule for 11 → The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $\frac{67127y76x2}{21+x \quad 17+y}$   
 $y$  must be 7  
 $\Rightarrow 7x - 2y = 7 \times 3 - 2 \times 7 = 7$
- SSC CGL Tier-I (2018)  
{10/06/2019} All Shifts
9. (d)  $5y5884805x6$   
 $72 = 8 \times 9$   
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $\Rightarrow \frac{5x6}{8} \Rightarrow x = 3$  or 7  
 Divisibility rule for 9 → sum of digits must be divisible by 9.  
 $5+y+5+8+8+4+8+0+5+3+6$   
 $52+y$   
 If we take  $x = 3$  then  $y = 2$   
 $\sqrt{xy} = \sqrt{6}$   
 If we take  $x = 7$  then  $y = 7$   
 but in que.  $x \neq y$

10. (b)  $15x1y2$   
 $44 = 4 \times 11$   
 Divisibility rule for 4  $\rightarrow$  last 2 digits must be divisible by 4.  
 $\frac{y2}{4} \Rightarrow$  here  $y$  must be 1  
 Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $\overbrace{15x1y2}$   
 $5 + 1 + 2 \quad 1 + x + 1$   
 $8 \quad 2 + x$   
 $x = 6$   
 $\Rightarrow x + y = 4 + 3 = 7$
11. (b)  $6x2904$   
 Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $\overbrace{6x2904}$   
 $(4+9+x) - (6+2+0) \Rightarrow 11$  or 0  
 $x$  must be 6  
**SSC CGL Tier-I (2018)**  
**{11/06/2019} All Shifts**
12. (d)  $\frac{517x324}{12}$   
 12 is multiple of  $3 \times 4$  so we will check 3 and 4 divisibility rule  
 Divisibility rule for 4  $\rightarrow$  last 2 digits must be divisible by 4.  
 24 is completely divisible by 4.  
 Divisibility rule for 3  $\rightarrow$  sum of digits must be divisible by 3.  
 $5+1+7+x+3+2+4 =$  multiple of 3  
 $\frac{22+x}{3}$   
 $x = 2$
13. (c)  $\frac{4x573y}{72}$   
 72 is multiple of 8 & 9 so we will check divisibility rule for 8 & 9  
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.  
 $73y \div 8 \Rightarrow$  here  $y$  must be 6  
 Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.  
 $4+x+5+7+3+6$   
 $\frac{25+x}{9} \Rightarrow x = 2$   
 $\Rightarrow x + y = 2 + 6 = 8$
14. (b)  $\frac{46393x8}{11}$   
 Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $\overbrace{46393x8}$   
 $8+3+3+4 = 6+9+x$   
 $18 = 15 + x$   
 $x = 3$   
**SSC CGL Tier-I (2018)**  
**{12/06/2019} All Shifts**
15. (d)  $\frac{91876x2}{72}$   
 $72 = 8 \times 9$   
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.  
 Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.  
 $\frac{9+1+8+7+6+x+2}{9}$   
 $= \frac{33+x}{9}$  so  $x$  will be 3
16. (c)  $\frac{6913x08}{88}$   
 88 is multiple of  $11 \times 8$   
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.  
 Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $\overbrace{6913x08}$   
 $8+x+1+6 \quad 0+3+9$   
 $15+x \quad 12$   
 here  $x$  must be 8 then it will be divisible by both 8 and 11.  
**SSC CGL Tier-I (2018)**  
**{13/06/2019} All Shifts**
17. (b)  $\frac{55350x2}{72}$   
 $72 = 8 \times 9$   
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.  
 $0x2 \div 8$   
 Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.  
 $= \frac{5+5+3+5+0+x+2}{9}$   
 $= \frac{20+x}{9}$   
 here  $x$  must be 7
18. (b)  $\frac{8439x53}{99}$   
 $99 = 11 \times 9$   
 Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.  
 $= \frac{8+4+3+9+x+5+3}{9}$   
 $= \frac{32+x}{9}$   
 Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 $8+3+x+3 \quad 4+9+5$   
 $14+x \quad 18$   
 $x = 4$
19. (b)  $\frac{n}{8} =$  Remainder 3  
 $6n - 1 \Rightarrow \frac{6 \times 3 - 1}{8}$   
 Remainder = 1  
**Alternatively:-**  
 Let  $n = 11$   
 $\frac{n}{8} = 3 \Rightarrow \frac{11}{8} = 3$   
 $\frac{6 \times 11 - 1}{8} \Rightarrow R = 1$   
**SSC CGL Tier-I (2018)**  
**{19/06/2019} All Shifts**
20. (b)  $\frac{n}{7}$ , Remainder = 3  
 $\frac{6n}{7} =$  In this condition assume remainder as a quotient so  
 Remainder =  $\frac{6 \times 3}{7} = \frac{18}{7} = 4$   
**SSC CGL Tier-I (2019)**  
**{03/03/2020} All Shifts**
21. (b) Rule of divisibility of 8 = Last 3 digits of any number must be divisible by 8.  
 $1005x4$   
 $\frac{5x4}{8} \Rightarrow x = 0$
22. (c) Remainder is 8 it means the divisor must be greater than 8.  
 $\frac{192+8}{x}$   
 192 must be completely divisible by  $x$ .  
 $192 = 2^6 \times 3^1$   
 Total factors =  $(6+1)(1+1) = 14$   
 Factors till 8 = 1, 2, 3, 4, 6, 8 = 6 will not be considered.  
 Req. Factors =  $14 - 6 = 8$

**23. (d)**  $94 \_ 2357$   
 Divisibility rule for 11 → The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.

$$9 + * + 3 + 7 \sim 4 + 2 + 5$$

$$19 + * \sim 11$$

$$19 + 3 = 22 \text{ (nearest)}$$

$$22 \text{ is a multiple of } 11 \Rightarrow * = 3$$

**SSC CGL Tier-I (2019)**

**{04/03/2020} All Shifts**

**24. (b)** Remainder is 12 it means divisor must be greater than 12.

$$\frac{720+12}{x}$$

$x$

720 must be divisible by  $x$ . or  $x$  is a factor of 720.

$$720 = 2^4 \times 3^2 \times 5^1$$

Total factors of 720

$$= (4+1) \times (2+1) \times (1+1) = 30$$

Factors till 12

$$= 1, 2, 3, 4, 5, 6, 8, 9, 10, 12 = 10$$

$$x = 30 - 10 = 20$$

**25. (a)**  $x \ 35624$  is divisible by 11. Apply Rule of divisibility of 11.

$$x + 5 + 2 = 3 + 6 + 4$$

$$x + 7 = 13$$

$$x = 6$$

1257y4 is divisible by 72.

$$72 = 9 \times 8$$

A number must be divisible by 9 when the sum of digits divisible by 9.

For 8 - Last 3 digits must be divisible by 8.

$$1 + 2 + 5 + 7 + y + 4$$

$$19 + y \text{ (sum must be } 27) \therefore y = 8$$

$$y = 8$$

$y$  must be 8

$$\Rightarrow 5x - 2y$$

$$= 5 \times 6 - 2 \times 8$$

$$= 30 - 16 = 14$$

**26. (d)** Find number which are divisible by 5 & 7.

Total term

$$= \frac{\text{Last term} - \text{First terms}}{\text{Common difference}} + 1$$

Divisible by 5-

$$= \frac{800 - 200}{5} + 1 = 121$$

Divisible by 7-

$$= \frac{798 - 203}{7} + 1 = 86$$

Divisible by both 5 & 7 or (35)

$$\frac{770 - 210}{35} + 1 = 17$$

Total term divisible by 5 & 7

$$121 + 86 - 17 = 190$$

Total terms from 200 to 800

$$= 601$$

neither divisible by 5 nor by 7

$$601 - 190 = 411$$

**Alternatively:-**

Term nearest to 800 which is

divisible by both 5 & 7 = 770

4 term out of 5 not divisible by 5.

6 term out of 7 not divisible by 7.

$$770 \times \frac{4}{5} \times \frac{6}{7} = 528$$

Remaining  $800 - 770 = 30$  terms

$$\frac{30}{5} = 6, \frac{30}{7} = 4$$

In 30 term total  $6+4=10$  terms are divisible. And remaining 20 term are not divisible by either 5 or 7.

Total not divisible

$$= 528 + 20 = 548$$

But this (548) is ans of 1 to 800. but question wants 200 to 800.

So, find up to 200 and subtract those terms.

Nearest term to 200 which is divisible 5 & 7 = 175

$$175 \times \frac{4}{5} \times \frac{6}{7} = 120$$

$$\frac{25}{5} = 5, \frac{25}{7} = 3$$

Remaining  $(25-5-3) = 17$

$$120 + 17 = 137$$

$$\therefore \text{Ans} = 548 - 137 = 411$$

**SSC CGL Tier-I (2019)**

**{05/03/2020} All Shifts**

**27. (c)**  $99 = 11 \times 9$

A number is divisible by 99 when that number separately divisible by 11 & 9.

Divisibility Rule of 11 → The difference of sum of even place digits and sum of odd place digits either zero or a multiple of 11.

Divisibility Rule of 9 → sum of a number must be divisible by 9.

$$\frac{708x6y8z9}{7+8+6+8+9} \square 0+x+y+z$$

$$38 \sim x+y+z$$

$$\frac{38 - (x + y + z)}{11}$$

$$\frac{38 + x + y + z}{9} = (\text{sum of no.})$$

Now go through option (3)

$$\frac{38 - 16}{11} = \frac{22}{11} = 2 \text{ (divisible)}$$

$$\frac{38 + 16}{9} = \frac{54}{9} = 6 \text{ (divisible)}$$

$$\Rightarrow x+y+z = 16$$

**28. (b)** Let quotient = 1

$$\text{Number} = d \times 1 + 15$$

$$\text{New Number} = 10(d \times 1 + 15)$$

In this case remainder is 6 so, maximum possible number must be  $(150-6=144)$

Least possible number must be 16 because number must be greater than 15 because remainder is 15.

**29. (d)**  $8 \overline{)146*48}$

Divisibility of 8 = Last 3 digit must be divisible

$$8 \overline{) * 48}$$

$$* = 2, 4, 6, 8$$

All number can be replace \* but the need of question is largest number so the value of \* = 8

**SSC CGL Tier-I (2019)**

**{06/03/2020} All Shifts**

**30. (a)**  $687x29$

Divisibility rule of 9 @ sum of digits of a number must be divisible by 9.

$$6 + 8 + 7 + x + 2 + 9 = 32 + x$$

Nearest number of 32 which is divisible by 9 is 36

$$\therefore x \text{ must be } = 4$$

$$2x = 4 \times 2 = 8$$

**31. (d)** Divisibility rule of 4 → last two digits of any no must be divisible by 4.

$$\therefore 2365 * 4$$

Required digits = \* 4

for divisible by 4 possible digits are 0, 2, 4, 6, 8.

but in question largest digit is asked so ans will be 8.

**32. (a)** Let numbers =  $1x, 2x, 4x, x^2 + 4x^2 + 16x^2 = 1029$

$$21x^2 = 1029 \Rightarrow x = 7$$

Greatest number =  $4x$

smallest number =  $x$

$$\text{difference} = 4x - x = 3x$$

$$\Rightarrow 3x = 3 \times 7 = 21$$

**33. (d)** LCM of 3, 7 and 18 = 126

Note:- LCM is the smallest number that is divisible by given numbers. hence ans = 126

**SSC CGL Tier-I (2019)**

**{07/03/2020} All Shifts**

$$34. (d) = \frac{925x85}{11}$$

$$= \frac{(9+5+8) - (5+2+x)}{11}$$

$$= \frac{(22) - (7+x)}{11}$$

difference must be multiple of 11 or 0

$$\therefore x = 4$$

35. (b)  $\frac{7|n|2}{1}$  (let quotient=1)  
 $n = 7 \times 1 + 2$   
 $n = 9$   
 In option only  $(n+5) = 14$  which is divisible by 7.

36. (b)  $\frac{5^{70} + 7^{70}}{74}$   
 $\frac{(5^2)^{35} + (7^2)^{35}}{74}$   
 $\frac{(25)^{35} + (49)^{35}}{74}$

$a^n + b^n$  always divisible by  $(a + b)$  when 'n' is odd number.  
 $\therefore 25 + 49 = 74$   
 $\therefore$  Remainder = **zero**

37. (a)  $25a^2 - 9$   
 $(5a)^2 - (3)^2$   
 $= (5a + 3)(5a - 3)$   
 $\therefore a^2 - b^2 = (a+b)(a-b)$   
**SSC CGL Tier-I (2019)**  
**{09/03/2020} All Shifts**

38. (a) In option only Option (a) **120** is the smallest multiple (or LCM) of 5, 8 and 15

39. (d)  $\frac{n}{5} = 2$   
 $\frac{7n}{5} = \frac{7 \times 2}{5} = \frac{14}{5}$   
 Remaining = **4**

(Remainder यदि 7 नदौं यं क्द्रे िसि ख, स Remainder वभि ङि हदिनतर्मा यदि 7 नदौं यं क्द्रे वभि ङि)

40. (a) Divisible rule of 9  $\rightarrow$   
 The sum of digit is divisible by 9  
 $= 1 + 1 + 9 + 0 + * 6$   
 $= 17 + *$   
 Possible value of \* from option is  
 $\therefore * = 1$

**SSC CGL Tier-I (2020)**  
**{13/08/2021} All Shifts**

41. (c) When  $676xy$  is divisible by 3, 7, 11. It will also be divisible by the LCM of 3, 7, 11.  
 Dividend = Divisor  $\times$  Quotient + Remainder  
 LCM (3, 7, 11) = 231  
 By taking the largest five digit number 67699 & divide it by 231.  
 $67699 = 231 \times 293 + 16$   
 $67699 = 67683 + 16$   
 Hence, 67683 will be completely divisible by 231.  
 where  $x = 8$  &  $y = 3$   
 $\Rightarrow 3x - 5y$   
 $= 3 \times 8 - 5 \times 3 = 24 - 15 = 9$

**Alternatively:-**

$$\begin{array}{r} 6+6+y = 7+x \\ x-y = 5 \quad \text{sum of no.} \\ 6-1 \quad 26 \times \\ 7-2 \quad 28 \times \\ 8-3 \quad 30 \checkmark \\ 9-4 \quad 32 \times \end{array}$$

$\Rightarrow 3x - 5y = 3 \times 8 - 5 \times 3 = 9$

42. (a) L.C.M of 3, 7, 11 = 231  
 Largest possible value of  $247xy$  is = 24799  
 When we divide 24799 by 231 we obtain 82 as a remainder  
 So required number =  $24799 - 82 = 24717$   
 After comparing  
 $x = 1$   
 $y = 7$

43. (c) Divisibility rule for 11  $\rightarrow$   
 The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 Go through option:-  
 take min value (3)  
 $30a68b \quad (3+a+8) \quad (0+6+b)$   
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$   
 $9 \quad 3 \quad 11+a \quad b+6$   
 $\quad \quad \quad 9 \quad 3$   
 $\therefore a > b$   
 $\therefore b = 3$

**SSC CGL Tier-I (2020)**  
**{16/08/2021} All Shifts**

44. (d)  $88 = 11 \times 8$   
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.  
 $\frac{23y}{8} \Rightarrow y = 2$

Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.

$$\begin{array}{r} 5 \ x \ 4 \ 2 \ 3 \ y \quad 5+4+3 \sim x+2+2 \\ \downarrow \quad \quad \downarrow \quad \quad \quad 12 \sim x+4 = 0 \\ 8 \quad \quad 2 \quad \quad x = 8 \end{array}$$

$\Rightarrow 5x - 8y = 40 - 16 = 24$

45. (a)  $88 = 11 \times 8$   
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.  
 Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.

$$\begin{array}{r} 7p5964q28 \\ \downarrow \quad \downarrow \\ 9 \quad 9 \quad \text{(for maximum)} \end{array}$$

Largest possible value of q to be divisible by 8 is = 9  
 $\Rightarrow p^2 - q = (9)^2 - 9 = 72$

46. (a) Divisibility rule for 3  $\rightarrow$  sum of digits must be divisible by 3.  
 5306P2

$$\begin{array}{c} \swarrow \quad \searrow \\ 2 \quad 8 \\ 5+3+0+6+P+2 \end{array}$$

$= \frac{16+P}{3}$

Difference =  $(8)^2 - (2)^2 = 60$   
**SSC CGL Tier-I (2020)**

**{17/08/2021} All Shifts**

47. (c)  $72 = 8 \times 9$   
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.

$\frac{9y6}{8} \Rightarrow y = 7$

Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.

$$\begin{array}{r} 94 \ x \ 29 \ y \ 6 \quad 9+4+x+2+9+7+6 \\ \downarrow \quad \downarrow \quad \quad 37+x \\ 8 \quad 7 \quad x \text{ must be } 8 \end{array}$$

$\Rightarrow 2x + 3y$   
 $= 2 \times 8 + 3 \times 7 = 37$

48. (b) Divisibility rule for 11  $\rightarrow$   
 The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.

$$\begin{array}{r} 42 \ a \ 48 \ b \\ \downarrow \quad \downarrow \\ 5 \quad 0 \end{array}$$

49. (a) Divisibility rule for 3  $\rightarrow$  sum of digits must be divisible by 3.

$$\begin{array}{c} 45082 \ K \\ \swarrow \quad \searrow \\ G \quad S \\ 8 \quad 2 \end{array}$$

$= (G)^2 + (S)^2 = 64 + 4 = 68$

**SSC CGL Tier-I (2020)**  
**{18/08/2021} All Shifts**

50. (c)  $72 = 8 \times 9$   
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.

$\frac{3y4}{8} \Rightarrow y = 8$  (max)

Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.

$$\begin{array}{r} 888x53y4 \quad 8+8+8+x+5+3+8+4 \\ \downarrow \quad \downarrow \quad \quad x+44 \\ 1 \quad 8 \quad x = 1 \end{array}$$

$\Rightarrow 7x + 2y =$   
 $7 \times 1 + 2 \times 8 = 23$

- 51. (d)** LCM of 3, 7, 11 = 231  
 By taking the number nearest to 688xy = 68838  
 Dividend = Divisor × Quotient + Remainder  
 68838 = 231 × 298 + 0  
 ∴ After comparing  
 68838 = 688xy  
 x = 3, y = 8  
 ⇒ (5x+3y) = (15+24) = **39**

**Alternatively:-**

688xy is divisible by 3, 7, 11  
 For 3, (x+y) = 2, 5, 8, 11  
 For 11, (6+8+y)-(8+x)=0 or 11  
 (14+y)-(8+x) = 0 or 11  
 We take y = 8 & x = 3  
 22-11 = 11 (divisible by 11)  
 So, x = 3 & y = 8  
 Now,  
 ⇒ 5x+3y = 5×3+8×3 = **39**

- 52. (a)** If P is divisible by '2' and another number Q is divisible by '3'. then **P×Q is also divisible by '2×3' = '6'**  
 Divisibility rule for 6 → number must be divisible by both 2 & 3.

**SSC CGL Tier-I (2020)**  
**{20/08/2021} All Shifts**

- 53. (a)** 6 = 3×2  
 Divisibility rule for 3 → sum of digits must be divisible by 3.  
 Divisibility rule for 2 → last two digits must be divisible by 2.

$$\begin{array}{r} 72K460K \quad 19+2K \\ \downarrow \quad \downarrow \\ 4 \quad 4 \end{array}$$

∴ K = **4**

- 54. (a)** LCM of 5, 35, 39, and 65 = 1365  
 Largest five digit numbers = 99999  
 When 99999 divisible by 1365, the remainders comes 354, when the quotient is '73'.  
 ∴ The largest five digit number which is divisible by 5, 35, 39 and 65 = 99999-354 = 99645  
 Sum = 9+9+6+4+5 = **33**

**Alternatively:-**

LCM of (5, 35, 39, 65) = 1365  
 Largest 5-digit number = 99999  
 when 99999 is divided by 1365  
 $\frac{99999}{1365} = \sim 73$   
 Largest 5-digits number which is divisible by 1365  
 ⇒ 73×1365 = 99645  
 99645 is the no. required  
 sum of digits = 9+9+6+4+5 = **33**

- 55. (c)**  $(56\sqrt{7}x^3 - 2\sqrt{2}y^3)$   
 $\div (2\sqrt{7}x - \sqrt{2}y) = Ax^2 + By^2 - Cxy$   
 $a^3 - b^3 = (a-b)(a^2 + b^2 + ab)$   
 $(2\sqrt{7}x - \sqrt{2}y) (28x^2 + 2y^2 + 2\sqrt{14}xy)$   
 $\div (2\sqrt{7}x - \sqrt{2}y) = Ax^2 + By^2 - Cxy$   
 $28x^2 + 2y^2 + 2\sqrt{14}xy = Ax^2 + By^2 - Cxy$

After Comparing:-

$$\begin{aligned} A &= 28 \\ B &= 2 \\ C &= -2\sqrt{14} \\ \Rightarrow A+B - \sqrt{14}C &= 28+2+28 = \mathbf{58} \end{aligned}$$

- 56. (c)** If the six digits number divisible by 7, 11, 13 then the first three digits and the last three digits are same

$$\begin{array}{r} 823p2q \\ \downarrow \quad \downarrow \\ 8 \quad 3 \end{array}$$

$$\Rightarrow p - q = 8 - 3 = \mathbf{5}$$

- 57. (a)** Let Forth proportion = x

$$\frac{12}{18} = \frac{6}{x} \Rightarrow x = 9$$

Now,  
 Third proportion is

$$\frac{4}{k} = \frac{k}{9} \Rightarrow k^2 = 36 \Rightarrow k = \mathbf{6}$$

**SSC CGL Tier-I (2020)**  
**{23/08/2021} All Shifts**

- 58. (d)** LCM of (3, 7, 11) = 231  
 Let 593ab is the greatest no. is with values of a & b = 59399  
 On dividing by 231  
 We get approx 257.13  
 So, the actual no = 231×257 = 59367

$$\begin{aligned} a &= 6, b = 7 \\ \Rightarrow a^2 - b^2 + ab &= 36 - 49 + 42 = \mathbf{29} \end{aligned}$$

- 59. (b)** Let number of subjects = x

$$\begin{aligned} \text{Now,} \\ 67.6x + 27 + 10 + 18 &= 72.6x \\ 5x &= 55 \\ x &= 11 \end{aligned}$$

Number of subjects = **11**

- 60. (b)** If the six digit number divisible by 7, 11 and 13 then first three digits and last three digits must be same.

$$\begin{array}{r} 5z3x4y \\ \downarrow \downarrow \downarrow \\ 4 \quad 5 \quad 3 \end{array}$$

$$\Rightarrow (x+y-z) = (5+3-4) = \mathbf{4}$$

- 61. (c)** 72 = 8 × 9  
 Divisibility rule for 8 → last 3 digits must be divisible by 8.

$$\frac{87y}{8} \Rightarrow y = 8$$

Divisibility rule for 9 → sum of digits must be divisible by 9.

$$89x64287y$$

$$\begin{array}{r} \downarrow \quad \downarrow \\ 8 \quad 2 \end{array}$$

$$\Rightarrow 3x + 2y = 24 + 4 = \mathbf{28}$$

**SSC CGL Tier-I (2020)**  
**{24/08/2021} All Shifts**

- 62. (c)** abc = (100a+10b+c)  
 cab = (100c+10a+b)  
 bca = (100b + 10c + a)  
 Calculate according to question  
 (100a+10b+c)+(100c+10a+b)+(100b+10c+a)  
 = 111a+111b+111c  
 = 111(a+b+c)  
 111 = 3 × 37

The sum of 3 digit numbers abc, cab and bca is not divisible by '31'.

- 63. (c)** Divisibility rule for 11 → The difference between the sum of the digits at the odd places and the sum of the digits at the even places must be zero or multiple of 11.

$$\begin{aligned} 4a067b \\ 4 + 7 = 6 + a + b \\ a + b = 5 \text{ or } 16 \end{aligned}$$

∴ Sum of all possible value = 5 + 16 = **21**

- 64. (b)** 72 = 8 × 9  
 Divisibility rule of 8 → last 3 digits must be divisible by 8.

$$\frac{38y}{8} \Rightarrow y = 4$$

Divisibility rule of 9 → sum of the digits must be divisible by 9.

$$\begin{array}{r} 7698x138y \\ \downarrow \quad \downarrow \\ 8 \quad 4 \end{array}$$

$$\Rightarrow \sqrt{4x+y} = \sqrt{32+4} = \mathbf{6}$$

**SSC CGL Tier-I (2021)**  
**{11/04/2022} All Shifts**

- 65. (b)** 23168b  
 Divisibility rule for 3 → sum of digits must be divisible by 3.  
 Divisibility rule for 9 → sum of digits must be divisible by 9.

∴ Check options  
 digit sum of (a) and (c) is divisible by 9.  
 Out of (b) and (d) both numbers are divisibly by 3 but 239685 is greater.  
 ∴ **239685**

66. (d) Find HCF  

$$\begin{array}{ccc} 108 & 124 & 156 \\ & \swarrow & \searrow \\ & 16 & 32 \\ & \swarrow & \searrow \\ & 16 & \end{array} \quad \textcircled{R}$$
  
 ∴ Required greatest number = **16**

67. (c) From 500 to 650 → 151 no's  
 Divisible by 3 =  $\frac{151}{3} = 50$   
 Divisible by 7 =  $\frac{151}{7} = 21$

Divisible by both =  $\frac{151}{21} = 7$   
 ∴ Neither divisible by 3 nor 7  
 = 151 - (50 + 21 - 7)  
 = 151 - 64 = **87**

68. (c) 156 - 6 = 150  
 181 - 6 = 175  
 331 - 6 = 325  
 To find greatest no we find HCF  

$$\begin{array}{ccc} 150 & 175 & 325 \\ & \swarrow & \searrow \\ & 25 & 50 \\ & \swarrow & \searrow \\ & 25 & \end{array}$$
  
 ∴ **25**

69. (c) Divisible by 7 Make pair of 3 digits from right side.  
 Add alternate pairs  
 Take difference of the sum if difference is divisible by 7 then the number is divisible by 7 otherwise not divisible by 7.  
 $x8942y4 \quad 56 \rightarrow 7 \times 8$

$\frac{2y4}{8} \rightarrow y = 2, 6$   
 ∴ y (largest) = 6  
 $x894264$   
 $894 - (264 + x)$   
 $\frac{630 - x}{7} \therefore x = 7$   
 ∴  $x^2 + y = 49 + 6 = 55$   
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 $(-3) \times (-3) \times (8)$

70. (d)  $\frac{335 \times 608 \times 853}{13}$   
 $= \frac{72}{13} = 7$

71. (b) LCM of 8, 12, 9, 15 = 360  
 Required no =  $\frac{360k + 5}{7}$   
 k = 1, 365 → not div. by 7  
 k = 2, 725 → not div. by 7  
 k = 3, 1085 → div. by 7  
 ∴ **1085**

72. (c)  $\frac{8A5146B}{11 \times 8}$   
 $\frac{46B}{8} \rightarrow B = 4$   

$$\begin{array}{cccccc} 8 & A & 5 & 1 & 4 & 6 & 4 \\ \hline 21 & \sim & (7+A) & = & 0 & \text{or div by 11} \\ 21 & - & 7 & - & A & = & 0 & \text{or div by 11} \\ 14 & - & A & = & 0 & \text{or div by 11} \\ \hline \therefore A & = & 3 \\ \therefore B - A & = & 4 - 3 = & 1 \end{array}$$

73. (b)  $\frac{46B}{8} \rightarrow B = 4$   

$$\begin{array}{cccccc} 8 & A & 5 & 1 & 4 & 6 & 4 \\ \hline 21 & \sim & (7+A) & = & 0 & \text{or div by 11} \\ 21 & - & 7 & - & A & = & 0 & \text{or div by 11} \\ \hline \therefore A & = & 3 \\ \therefore B - A & = & 4 - 3 = & 1 \end{array}$$
  
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74. (d)  $\frac{7x79251y8}{9 \times 4}$   
 $\therefore \frac{y8}{4} \rightarrow y = 0, 2, 4, 6, 8$   
 $\therefore y = 8$  (largest)  

$$\begin{array}{cccccc} 7 & x & 7 & 9 & 2 & 5 & 1 & 8 & 8 \\ \hline 9 & & & & & & & & \\ \hline = & \frac{47 + x}{9} \Rightarrow \frac{2 + x}{9} \\ \therefore x & = & 7 \\ \therefore 10x^2 - 3y^2 & = & 490 - 192 = & 298 \end{array}$$

75. (b)  $88 = 11 \times 8$   
 $\therefore \frac{46B}{8}, B = 4$   

$$\begin{array}{cccccc} 8 & A & 5 & 1 & 4 & 6 & 4 \\ \hline 21 & - & (7+A) & = & 0 & \text{or div by 11} \\ \hline \therefore A & = & 3 \\ \therefore A \times B & = & 4 \times 3 = & 12 \end{array}$$

76. (b) LCM of 15, 24, 28, 32  
 $15 \rightarrow 3^1 \times 5^1$   
 $24 \rightarrow 2^3 \times 3^1$   
 $28 \rightarrow 2^2 \times 7^1$   
 $32 \rightarrow 2^5$   
 $LCM = 2^5 \times 3^1 \times 5^1 \times 7^1 = 3360$   
 $\therefore 3360 \times 3 = 10080$   
 $\therefore$  **10087**

77. (b)  $88 = 11 \times 8$   
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $\frac{n48}{8} \Rightarrow n = 2$  (for smallest)  
 Divisibility rule for 11 → The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or

multiple of 11.  

$$\begin{array}{ccccccc} 9 & m & 2 & 3 & 6 & 5 & 2 & 4 & 8 \\ \hline 27 & - & (12 + m) \\ 15 & - & m & \therefore m = 4 \\ \hline \therefore m^2 \times n^2 & = & 16 \times 4 = & 64 \end{array}$$

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 78. (b) That greatest number will be HCF of (126-2), (224-7), (608-19)  
 ∴ HCF of 124, 217, 589  

$$\begin{array}{ccc} 124 & 217 & 589 \\ & \swarrow & \searrow \\ & 93 & 372 \\ & \swarrow & \searrow \\ & 279 & \\ & \swarrow & \searrow \\ & 31 \times 9 & \end{array}$$
  
 ∴ Greatest number = **31**

79. (c)  $\frac{234a5b}{2 \times 11}$  but not 5  

$$\begin{array}{cccc} 2 & 3 & 4 & a & 5 & b \\ \hline 11 & \sim & (3+a+b) & = & 0 & \text{or div. by 11} \\ 8 & \sim & (a+b) & = & 0 & \text{or div. by 11} \end{array}$$
  
 Divisibility rule for 11 → The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.  
 ∴ a+b should be 8  
 b ≠ 0 (not divisible by 5)  
 b ≠ 1 (divisible by 2)  
 ∴ From remaining numbers **234652** is greatest.

80. (a) Diff. is same in each case (6-4), (7-5), (8-6) = 2  
 ∴ That greatest four digit no will be LCM of (6,7,8) = 168  

$$\begin{array}{r} 168 \overline{)9999} \left( 59 \right. \\ \underline{840} \\ 1599 \\ \underline{1512} \\ 87 \end{array}$$
  
 ∴ Greatest four digit no. divisible by 168 =  
 $9999 - 87 = 9912$   
 ∴ Required no. =  
 $9912 - 2 = 9910$

81. (d)  $72 \rightarrow 8 \times 9$   
 Divisibility rule for 8 → last 3 digits must be divisible by 8.  
 $8 = \frac{38y}{8} \rightarrow y = 4$   

$$\frac{468x51384}{9}$$
  
 digit sum =  $\frac{39 + x}{9} \rightarrow x = 6$   
 ∴  $\sqrt{4x + 3y}$   
 $= \sqrt{24 + 12} = 6$



82. (d) Put,  $n = 2$   

$$\frac{4+2+2}{6} \Rightarrow R = 2$$

Alternatively:-

$$\frac{n^2+n+2}{6} = \frac{2 \times 2 + 2 + 2}{6} = \frac{8}{6}$$

$$\Rightarrow R = 2$$

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83. (d)  $R_1 \rightarrow \frac{5^{16}}{6} \Rightarrow 1$

$$R_2 \rightarrow \frac{5^{25}}{6} \Rightarrow -1 \Rightarrow 5$$

$$\frac{R_1 + R_2}{R_2} \Rightarrow \frac{1+5}{5} \Rightarrow \frac{6}{5}$$

84. (c)  $88 \rightarrow 8 \times 11$   
 Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.

$$8 = \frac{46B}{8} \Rightarrow B = 4$$

$$11 = \overline{8a51464}$$

Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.

$$21 - (7+A) = 0 \text{ or div by } 11.$$

$$\therefore A = 3$$

$$\therefore A^B = 3^4 = 81$$

85. (b)  $6 = 2 \times 3$

$$k \neq 7, 1$$

$$k = 2, 4$$

$$\text{digit sum} = 16+k+k$$

At  $k = 2$ , the given no. will not be divisible by 3

$$\therefore k = 4$$

86. (a) LCM of 3, 4, 5, 8 = 120

$$120 \overline{) 999} \left( \begin{array}{r} 8 \\ 960 \\ \hline 39 \end{array} \right.$$

$\therefore$  greatest 3 digit no. divisible by 120 is  $999 - 39 = 960$

$$\therefore \text{Required no.} = 960 + 2 = 962$$

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87. (b)  $6 = 2 \times 3$

$$k \neq 3, 9, \quad k \neq 0, 5$$

$\therefore$  for divisibility by 2 last digit should be 0 or any even no.

$$k = 6 \text{ or } 4$$

check 4  $\rightarrow$

$$\text{digit sum} = 15+k$$

$k \neq 4 \therefore$  for divisible by 3 digit sum should be divisible by 3

$$\therefore k = 6$$

88. (a) LCM of 2, 3, 10, 18, 20 = 180  
 $\therefore$  Least square no. which is multiple of 180 is  
 $180 \times 5 = 900$  (complete square)

89. (d)  $99 \rightarrow 9 \times 11$

$$11 \rightarrow \overline{48K2048P6}$$

$(18+k) - (14+P) = 0$  or div by 11.  
 Divisibility rule for 11  $\rightarrow$  The difference between the sum of the digits in the odd places and the sum of the digits in the even places must be zero or multiple of 11.

$$= 4+k-P = 0 \text{ or div by } 11.$$

Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.

$$\text{digit sum} = 5+k+P$$

$$\therefore \overline{5+K+P}$$

$$4, 13$$

$$K+P \rightarrow 4, 13$$

$$K = 4 - P$$

Put value of  $k$  in  $4+k-P$

$$\therefore 4+4-P-P = 0$$

$$8-2P = 0 \quad \therefore P = 4$$

$$\therefore K = 4-4=0 \quad \therefore K = 0$$

$$\therefore K \times P = 4 \times 0 = 0$$

90. (a) LCM of (4, 5, 6, 8) is 120

$$120 \overline{) 3627} \left( \begin{array}{r} 3 \\ 360 \\ \hline 27 \end{array} \right.$$

$\therefore$  The least no. should be added is  $120 - 27 = 93$

91. (b) First six prime no's = 2, 3, 5, 7, 11, 13

$$\text{Avg.} = \frac{\text{sum}}{\text{no's}} = \frac{41}{6} = 6 \frac{5}{6}$$

92. (d) LCM of (6, 8, 15) = 120

$\therefore$  Only no. from given numbers that is divisible by 120 and is also a perfect square is 3600

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93. (a) LCM of (6, 9, 15)  $\rightarrow$  90

$$\therefore 90+10 = 100$$



Perfect square

$$\therefore \text{Req. no} = 10$$

94. (b)  $6 = 2 \times 3$

Divisibility rule for 6  $\rightarrow$  number must be divisible by both 2 & 3.

Divisibility rule for 2  $\rightarrow$  last two digits must be divisible by 2.

Divisibility rule for 3  $\rightarrow$  sum of digits must be divisible by 3.

$$\text{digit sum} = 20+k$$

$$(3+2+8+1+k+6)$$

$K$  (smallest) = 1

$K$  (greatest) = 7

$$\text{Req. Sum} = 1+7 = 8$$

95. (d) LCM of 6, 12, & 16 = 48  
 Multiples of 48 between 400 & 500 = 432, 480  
 Sum =  $432+480 = 912$

96. (d)  $72 \rightarrow 8 \times 9$

Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.

$$8 = \frac{78y}{8} \Rightarrow y = 4$$

Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.

$$485x36784$$

digit sum =  $45+x$  for  $x = 0$ , the no. will be divisible by 9.

$$\therefore 2y-3x = 2 \times 4 - 0 = 8$$

97. (b)  $72 \rightarrow 8 \times 9$

Divisibility rule for 8  $\rightarrow$  last 3 digits must be divisible by 8.

$$8 = \frac{9y6}{8} \Rightarrow y \text{ (least)} = 3$$

Divisibility rule for 9  $\rightarrow$  sum of digits must be divisible by 9.

$$54726x7936$$

$$\text{digit sum} = 13+x \therefore x = 5$$

$$\therefore 5x-3y = 25-9 = 16$$

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98. (a)  $a^3+b^3 = (a+b)(a^2+b^2-ab)$

$$\therefore \frac{(17^3+7^3)}{(17^2+7^2-K)} = 24$$

$$\Rightarrow \frac{(17+7)(17^2+7^2-17 \times 7)}{17^2+7^2-K} = 24$$

$$\Rightarrow 17^2+7^2-119 = 17^2+7^2-K$$

$$\Rightarrow K = 119$$

99. (a)  $a - b + c = 0$

$$\text{Hence, } a^3 - b^3 + c^3 = -3abc$$

$$\Rightarrow -25 \times 75 \times 50 \times 3$$

$$= -281250$$

100. (b)  $97 \times 103 = (100-3)(100+3)$

$$\Rightarrow a^2 - b^2 = (a+b)(a-b)$$

$$\therefore 100^2 - 3^2 = 10000 - 9$$

$$= 9991$$

101. (c) Let original number =  $x$

$\therefore$  Acc to question,

$$\frac{(x+7) \times 5}{3} - 4 = 16$$

$$\frac{(x+7) \times 5}{3} = 20$$

$$(x+7) \times 5 = 60$$

$$x = 5$$

**102. (b)**  $\Rightarrow$  Multiply each number by 100

$$\therefore \frac{4}{5} \Rightarrow \frac{4}{5} \times 100 = 80$$

$$\frac{2}{3} \Rightarrow \frac{2}{3} \times 100 = 66.66$$

$$\frac{1}{11} \Rightarrow \frac{1}{11} \times 100 = 9.09$$

$$\frac{2}{9} \Rightarrow \frac{2}{9} \times 100 = 22.22$$

$\therefore$  Correct ascending order is  $\Rightarrow$

$$\frac{1}{11}, \frac{2}{9}, \frac{2}{3} \text{ and } \frac{4}{5}$$

**103. (d)** Let  $n = 3$

no.  $\rightarrow 1 \ 2 \ 3$

Weight  $\rightarrow 1 \ 2 \ 3$

Weighted average  $\Rightarrow$

$$\frac{1+2 \times 2+3 \times 3}{1+2+3}$$

$$\Rightarrow \frac{14}{6} = \frac{7}{3}$$

Put  $n = 3$  in options only option

(d) gives  $\frac{7}{3}$  on putting  $n = 3$

$$\therefore \frac{\{2n+1\}}{3}$$

**104. (c)**  $a^2 - b^2 = (a - b)(a + b)$

$$100^2 - 99^2 + 98^2 - 97^2 + \dots + 12^2 - 11^2$$

$$\Rightarrow (100-99)(100+99) + (98-97)$$

$$(98+97) + \dots + (12-11)(12+11)$$

$$\Rightarrow 199, 195, \dots, 23$$

$$\text{No. of terms} = \frac{23-199}{-4} + 1 = 45$$

$$\text{Sum} = \frac{n}{2}[2a + (n-1)d]$$

$$= \frac{45}{2}[398 + 44(-4)]$$

$$= \frac{45}{2} \times 222$$

$$= 45 \times 111 = 4995$$

### Divisibility & Remainder

**105. (c)**  $a^n - b^n$  is divisible by  $(a - b)$  if  $n$  is odd.

$(49)^{15} - 1^{15}$  is divisible by

$$49-1=48$$

$\therefore 8$  is a factor of 48

Hence, this no. also divisible by **8**

**106. (b)**  $8 \rightarrow$  A no. is divisible by 8 when last 3 digits are divisible by 8

$$\therefore \frac{127}{8}, R = 7$$

$$\mathbf{107. (d)} \quad \frac{27^{27} + 27}{28} = \frac{(-1)^{27} + 27}{28}$$

$$\Rightarrow -1 + 27 = 26$$

**108. (a)** LCM of (3, 7, 11) = 231

$$\begin{array}{r} 231 \overline{)750PQ} \left( 325 \right. \\ \underline{693} \phantom{0} \\ 57P \phantom{0} \rightarrow 7 \\ \underline{462} \phantom{0} \\ 115Q \rightarrow 5 \\ \underline{1155} \\ \phantom{0} \times \end{array}$$

$$\therefore P + 2Q = 7 + 2 \times 5 = 17$$

$$\mathbf{109. (c)} \quad \frac{x67y}{9} \Rightarrow \frac{13+(x+y)}{9}$$

$\therefore$  Least value of  $(x + y) = 5$

**110. (b)** No. of toffees  $\rightarrow$

2, 4, 6, 8 ..... 50

$$\text{Sum} = \frac{n}{2}[2a + (n-1)d]$$

$$= \frac{25}{2}[4 + 24 \times 2]$$

$$= \frac{25}{2} \times 52$$

$$= 25 \times 26$$

It is divisible by **5 and 13**

**111. (d)**  $A - B = 1564$

$$\begin{array}{r} B \overline{)A} \left( 6 \right. \\ \underline{1} \phantom{0} \\ 19 \end{array}$$

$$A = 6B + 19$$

$$\therefore 6B + 19 - B = 1564$$

$$5B = 1545$$

$$B = 309$$

**112. (c)** LCM of (2, 3, 5) = 30

$$\begin{array}{c} \wedge \\ 3 \times 10 \end{array}$$

Only option (a) and (c) are divisible by 10 digit sum of (a) is not divisible by 3.

$\therefore (2345760)$  is divisible by 2, 3, 5

$$\mathbf{113. (c)} \quad \frac{742}{48} \Rightarrow 48 \times 15 = 720$$

$$\therefore \text{Remainder} = 742 - 720 = 22$$

$$\mathbf{114. (d)} \text{ Remainder} = \frac{4^2}{7} = \frac{16}{7}$$

$$R = 2$$

**115. (b)** LCM of 4, 7 = 28

$$\begin{array}{r} 28 \overline{)999} \left( 35 \right. \\ \underline{84} \phantom{0} \\ 159 \\ \underline{140} \\ 19 \end{array}$$

$$\therefore \text{Required no.} = 999 - 19 = 980$$

**116. (b)**  $8 \rightarrow$  Last 3 digit should be divisible by 8.

$$\therefore \frac{6xy}{8}$$

Numbers of the formate  $6xy$  divisible by 8  $\Rightarrow$

600, 608, 616, 624, 632, 640, 648, 656, 664, 672, 680, 688, 696.

$\therefore 13$  pairs of  $(x, y)$  is possible.

**117. (d)**  $3 \rightarrow$  Digit sum should be divisible by 3

$$\frac{17+p+q}{3}$$

$$\therefore p + q = 4, 7, 10, 13, 16$$

$$11 \rightarrow \overbrace{6 \ 7 \ 4 \ p \ q}^0$$

$$(6 + 4 + q) \sim (7 + p)$$

$$(10 + q) \sim (7 + p)$$

$$(p \sim q) = 3$$

Only option (d) has  $p - q = 3$

$$\therefore p = 5 \text{ and } q = 2$$

**118. (c)** Since 11 is a factor of 363.

Hence, new remainder =

$$\frac{17}{11}, \quad R = 6$$

**119. (d)** LCM of (7, 9, 11) = 693

$$\begin{array}{r} 693 \overline{)99999} \left( 144 \right. \\ \underline{693} \phantom{000} \\ 3069 \\ \underline{2772} \\ 2979 \\ \underline{2772} \\ 207 \end{array}$$

Largest 5 digit number divided by (7, 9, 11) =

$$99999 - 207 = 99792$$

$\therefore$  Largest 5 digit no. divided by (7, 9, 11) which leaves 3 as remainder =  $99792 + 3$

$$= 99795$$

**120.(c)** LCM of (11, 33, 99 and 121)  
= 1089

$$\begin{array}{r} \therefore 1089 \overline{)99999} \begin{array}{l} 91 \\ \underline{9801} \\ 1989 \\ \underline{1089} \\ 900 \end{array} \end{array}$$

$\therefore$  Required number =  
 $99999 - 900 = 99099$

$$\begin{array}{r} \text{121.(d)} \quad 7 \overline{)4567} \begin{array}{l} 653 \\ \underline{-42} \\ 36 \\ \underline{-36} \\ 17 + 4 \\ \underline{-21} \\ 0 \end{array} \end{array}$$

$\therefore$  **4** Should be added

**122.(c)**  $72 \rightarrow 8 \times 9$   
 $8 \rightarrow$  Last 3 digit should be divisible by 8

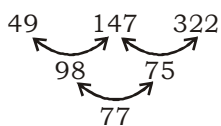
$$\therefore \frac{78Q}{8}, \quad Q = 4$$

$9 \rightarrow$  digit sum should be divisible by 9

$$\therefore \frac{48+P}{9}, \quad P = 6$$

$$\begin{aligned} \sqrt{P^2 + Q^2 + 12} &= \sqrt{36 + 16 + 12} \\ &= \sqrt{64} = 8 \end{aligned}$$

**123.(c)** Greatest number = HCF of



$77 \rightarrow 7 \times 11$

$\therefore$  HCF = 7

$\therefore$  Required no. = **7**

**124.(d)** Let  $n = 3$   
 $n^2 + 5n + 8 = 9 + 15 + 8 = 32$

$$\therefore \frac{32}{6}, \quad R = 2$$

**125.(a)**  $3^{50} + 9^{26} + 27^{18} + 9^{28} + 9^{29}$   
 $\Rightarrow 9^{25} + 9^{26} + 9^{27} + 9^{28} + 9^{29}$   
 $\Rightarrow 9^{25} (1 + 9 + 9^2 + 9^3 + 9^4)$   
 $\Rightarrow 9^{25} (1 + 9 + 81 + 729 + 6561)$   
 $\Rightarrow 9^{25} \times 7381$  which is divisible by **11**.

**126.(a)** LCM of (16, 18, 36) = 144  
 $\therefore$  Smallest perfect square which is completely divisible by 16, 18 and 36 is **144**

**127.(b)** 45, 54, ..... 477

$$\begin{aligned} n &= \frac{477 - 45}{9} + 1 \\ &= 48 + 1 = 49 \end{aligned}$$

$$\begin{array}{r} \text{128.(d)} \quad 13 \overline{)246837} \begin{array}{l} 18987 \\ \underline{116} \\ 104 \\ \underline{128} \\ 117 \\ \underline{113} \\ 104 \\ \underline{97} \\ 91 \\ \underline{6} \end{array} \end{array}$$

$\therefore$  **6** should be subtracted.

$$\text{129.(b)} \quad \frac{42 \times 25 \times 54 \times 135}{3a}$$

Out of the given options the maximum value of  $a = 7$

$$\therefore \frac{42 \times 25 \times 54 \times 135}{21}$$

Which divides it completely

**130.(a)** LCM of 7 and 11 = 77  
Total no = 77, 154, 231, 308, 385

$\therefore$  Total **5** numbers are divisible by 7 and 11

**131.(c)**  $(9435 + 7593) - 2607$   
 $\Rightarrow 14421$  which is divisible by **3**

**132.(a)** Since 13 is a factor of 221.

$$\text{Hence, } \frac{30}{13}, \quad R = 4$$

<b>133.(b)</b> Divisor:	Quo	: Rem
40	: 4	: 10
20	: 2	: 5
$\downarrow \times 9$	: $\downarrow \times 9$	: $\downarrow \times 9$
180	: 18	: 45

Dividend = Divisor  $\times$  Quotient + Remainder  
 $= 180 \times 18 + 45 = 3285$

**134.(c)**  $75 \rightarrow 25 \times 3$   
 $25 \rightarrow$  Last two digit should be divisible by 25

$$\therefore \frac{7q}{25}, \quad q = 5$$

$3 \rightarrow$  digit sum should be divisible by 3

$$\begin{aligned} \therefore \frac{678P375}{3} \\ \Rightarrow \frac{36+P}{3}, \quad P = 3 \\ \therefore P = 3, q = 5 \end{aligned}$$

**135.(a)**  $88 \rightarrow 8 \times 11$   
 $8 \rightarrow$  Last 3 digit should be divisible by 8

$$\frac{968}{8}, \quad R = 0$$

$\therefore$  Largest 5 digit no. divisible by 88 = **99968**

**136.(a)** Digital sum of the given no.  
 $= 1 + 2 + 3 + \dots + 9$   
 $= 45$  which is divisible by 9  
 $\therefore$  Remainder will be **0**

**137.(d)**  $8 \rightarrow$  Last 3 digit should be divisible by 8

$$\frac{6 * 2}{8}, \quad * = 3$$

$$\frac{632}{8}, \quad R = 0$$

$$\begin{aligned} \text{138.(a)} \quad \frac{19^{19} + 20}{18} \\ \Rightarrow 1 + 2 = 3 \end{aligned}$$

**139.(c)** LCM of (3, 4, 5 and 7)  $\Rightarrow 420$

$$\begin{array}{r} 420 \overline{)35460} \begin{array}{l} 84 \\ \underline{3360} \\ 1860 \\ \underline{1680} \\ 180 \end{array} \end{array}$$

$\therefore 420 - 180 = 240$  should be added for exactly divisible

**140.(b)** Any six digit number of the form abcabc is always divisible by **1001**.

**141.(b)**  $33 \rightarrow 3 \times 11$

$$11 \rightarrow 5 \overbrace{2}^A \overbrace{6}^B \overbrace{7}^C$$

$$(5 + A + B + C) \sim (2 + 6 + 7)$$

$$(A + B + C) - 10$$

$$\therefore A + B + C = 10, 0$$

$$3 \rightarrow \frac{52A6B7C}{3}$$

$$\Rightarrow \frac{20 + (A+B+C)}{3}$$

$\therefore (A + B + C) = 10$   
 $\therefore$  Values of (A, B, C) are (2, 3, 5)  
 $\therefore$  Maximum value of  
 $2A + 3B + C$   
 $= 2 \times 3 + 3 \times 5 + 2$   
 $= 23$

$$\text{142.(a)} \quad 5 \overbrace{4}^P \overbrace{3}^Q \overbrace{9}^R \overbrace{8}^7$$

$$(21 + P) \sim (15)$$

Difference should be 0 or 11

Or multiple of 11

$\therefore P = 5$

**143.(c)**  $m^{12} - 1^{12}$

Since  $a^2 - b^2 = (a + b)(a - b)$   
 Divisible by both  $(a+b)$  and  $(a-b)$   
 Hence,  
 $m^{12} - 1^{12}$  is divisible by  $(m + 1)$   
 and  $(m - 1)$   
 Hence, when divided by  $(m + 1)$   
 remainder will be **zero**.

**144.(c)** a    b    c    d

$$\begin{array}{cccc} 1 & : & 2 & \\ & & 1 & : & 2 \\ & & & & 1 & : & 2 \\ \hline 1 & : & 2 & : & 4 & : & 8 \end{array}$$

$\therefore$  Pin abcd = 1248  
 It will be divisible by **(2, 3, 13)**

**145.(d)**  $\overbrace{678934}^{\text{a}} \overbrace{a4}^{\text{b}}$

$(31) \sim (18 + a)$   
 Difference should be zero or multiple of 11  
 $\therefore a_{\text{smallest}} = 2$

**146.(a)**  $99 \rightarrow 9 \times 11$

9  $\rightarrow$  digit sum should be divisible by 9.

$$\begin{array}{r} 3422213AB \\ \hline 9 \end{array}$$

$\Rightarrow \frac{17+A+B}{9}$

$\therefore A + B = 10$

$11 \rightarrow \overbrace{3422213}^{\text{a}} \overbrace{AB}^{\text{b}}$

$$\begin{array}{cc} (10 + B) \sim (7 + A) \\ \downarrow \qquad \qquad \downarrow \\ 9 \qquad \qquad 1 \end{array}$$

$19 - 8 = 11$

$\therefore 2A + B = 2 + 9 = 11$

**SSC CGL 2023** Tier-I

**147.(b)**  $(a^1 - b)^3 = 1728$

$(a - b) = \sqrt[3]{1728} = 12 \dots(i)$

$a \times b = 108$

then

from  $(a + b)^2 = (12)^2 + 4 \times 108$

$a + b = \sqrt{576} = 24 \dots(ii)$

From eq. (i) and (ii)

$a = 18, b = 6$

Hence,  $(18)^3 - (6)^3 = 5616$

**148.(d)**  $(a + b)^2 = 784$

$a + b = \sqrt{784} = 28 \dots(i)$

$a \times b = 192$

From  $(a - b)^2 - 4ab$

$(a - b)^2 = (28)^2 - 4 \times 192$

$a - b = \sqrt{16} = 4 \dots(ii)$

From eq. (i) and (ii)

$a = 16, b = 12$

Hence,  $(16)^2 - (12)^2 = 112$

**149.(a)**  $a^3 - b^3 = 6272$

$a - b = 8 \dots(i)$

from

$(a - b)^3 = a^3 - b^3 - 3ab(a - b)$

$(8)^3 = 6272 - 3ab \times 8$

$ab = 240$

From  $(a + b)^2 = (a - b)^2 + 4ab$

$a + b = \sqrt{1024} = 32 \dots(ii)$

$a = 20, b = 12$

Hence,  $(20)^3 + (12)^3 = 9728$

**150.(a)**  $a^3 + b^3 = 9728$

$a + b = 32 \dots(i)$

From  $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$

$(32)^3 = 9728 + 3ab \times 32$

$ab = 240$

From  $(a - b)^2 = (a + b)^2 - 4ab$

$(a - b)^2 = (32)^2 - 4 \times 240$

$a - b = \sqrt{64} = 8 \dots(ii)$

From eq. (i) and (ii)

Hence,  $(20)^3 - (12)^3 = 6272$

**Divisibility**

**151.(d)**  $6^{25} + 6^{26} + 6^{27} + 6^{28}$

$= 6^{25} (1 + 6^1 + 6^2 + 6^3)$

$= 6^{25} (1 + 6 + 36 + 216)$

$= 6^{25} \times 259$

$\therefore$  The given no. is divisible by

**259**

**152.(a)**  $-1 \quad +9$

$$\begin{array}{r} (265)^{4081} + 9 \\ \hline 266 \end{array}$$

$\Rightarrow (-1)^{4081} + 9$

$\Rightarrow -1 + 9 = 8$

**153.(d)**  $88 \overline{)99999} 1136$

$$\begin{array}{r} 119 \\ \hline 88 \\ \hline 319 \\ \hline 264 \\ \hline 559 \\ \hline 528 \\ \hline 31 \end{array}$$

$\therefore$  Largest 5 digit no. exactly divisible by 88 is  $99999 - 31 = 99968$

Or

You can check from options divisibility by 11 or 8.

**154.(d)** Original    Mistakenly  
 dividend    dividend

100 : 110  
 10 : 11

Original    Mistakenly  
 divisor    divisor

100 : 125  
 4 : 5

Original quotient =  $\frac{10}{4} = 2.5$

2.5 unit  $\times 10 \rightarrow 25$

$\therefore$  Original dividend

=  $10 \times 10 = 100$

Mistakenly quotient obtained

was =  $\frac{110}{5} = 22$

**155.(a)** The given six digit no. is divisible by 33 means it is also divisible by 3 and 11.

When 54 is added. The digit sum of 54 is divisible by 3.

Hence the new number formed will be divisible by **3**

**156.(c)** Divisibility by 8  $\rightarrow$  The last 3 digits should be divisible by 8.

$\therefore$  Last 3 digits = 326

$\therefore \frac{326 - x}{8}$

$x$  should be 6

$326 - 6 = 320$  is divisibility by 8

$\therefore$  **6** should be subtracted.

**157. (b)**

$$\begin{array}{r} 2498 \overline{)3} \\ \underline{-6} \times 2 \\ 249 \overline{)2} \\ \underline{44} \times 2 \\ 245 \\ \underline{104} \times 2 \end{array}$$

**14**  $\rightarrow$  Remaining no. is divisible by 7  
 $\therefore$  **24983** is divisible by 7.

**158.(b)**  $36 \rightarrow 9 \times 4$

Divisibility by 4  $\rightarrow$  Last 2 digit should be divisible by 4.

Divisibility by 9  $\rightarrow$  digit sum of the number should be divisible by 9.

$29412 \rightarrow$  Last two digit is divisible by 4

Digit sum =  $2+9+4+1+2 = 18$

18 is divisible by 9

$\therefore$  **29412** is divisible by 36



## SIMPLIFICATION

## संख्य प

2

## SSC CGL 2018



Tier-I

Simplify the following expression.

सर्व 10 अंकी की एक संख्या

## SSC CGL Tier-I (2018)

{04/06/2019}

1.  $2 \times 3 \div 2 \text{ of } 3 \times 2 \div (4 + 4 \times 4 \div 4 \text{ of } 4 - 4 \div 4 \times 4) = ?$

- (a) 8 (b) 1  
(c) 4 (d) 2

2.  $5 \div 5 \text{ of } 5 \times 2 + 2 \div 2 \text{ of } 2 \times 5 - (5 - 2) \div 6 \times 2 = ?$

- (a)  $\frac{9}{5}$  (b)  $\frac{19}{10}$   
(c) 19 (d)  $\frac{23}{2}$

3.  $2\frac{7}{8} \div \left(3\frac{5}{6} \div \frac{2}{7} \text{ of } 2\frac{1}{3}\right) \times$

$\left[\left(2\frac{6}{7} \text{ of } 4\frac{1}{5} \div \frac{2}{3}\right) \times \frac{5}{9}\right] = ?$

- (a)  $\frac{1}{4}$  (b) 4  
(c) 10 (d) 5

## SSC CGL Tier-I (2018)

{06/06/2019} All Shifts

4.  $(5+3 \div 5 \times 5) \div (3+3 \text{ of } 6) \text{ of } (4 \times 4 \div 4 \text{ of } 4 + 4 \div 4 \times 4) = ?$

- (a)  $8\frac{1}{5}$  (b)  $7\frac{1}{3}$   
(c)  $9\frac{3}{5}$  (d)  $6\frac{2}{3}$

5.  $\frac{9}{15} \text{ of } \left(\frac{2}{3} \div \frac{2}{3} \text{ of } \frac{3}{2}\right) \div \left(\frac{3}{4} \times \frac{3}{4} \div \frac{3}{4} \text{ of } \frac{4}{3}\right)$

$\text{of } \left(\frac{5}{4} \div \frac{5}{2} \times \frac{2}{5} \text{ of } \frac{4}{5}\right) = ?$

- (a)  $\frac{20}{9}$  (b)  $\frac{4}{25}$   
(c)  $\frac{18}{125}$  (d)  $\frac{40}{9}$

6.  $16 \div 4 \text{ of } 4 \times [3 \div 4 \text{ of } \{4 \times 3 \div (3 + 3)\}] \div (2 \div 4 \text{ of } 8) = ?$

- (a) 6 (b) 9  
(c) 48 (d) 16

## SSC CGL Tier-I (2018)

{07/06/2019} All Shifts

7.  $\frac{8}{9} \text{ of } \left(5\frac{1}{4} \div 2\frac{1}{3} \text{ of } 4\right) \div \left(8 \div \frac{2}{3} \text{ of } \frac{4}{5}\right)$

$\text{of } \left(8 \times \frac{2}{3} \div \frac{4}{5}\right) = ?$

- (a)  $1\frac{1}{8}$  (b)  $\frac{4}{15}$   
(c)  $\frac{1}{200}$  (d)  $\frac{1}{100}$

8.  $7\frac{1}{2} \times \left(3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3}\right) +$

$\left[11 - \left(\frac{5}{8} + 3 - 1\frac{1}{4}\right)\right] \div 5\frac{3}{4} - 5 \div 5 \times$

$5 \text{ of } 5 \div 25 = ?$

- (a)  $\frac{1}{2}$  (b)  $\frac{1}{10}$   
(c)  $\frac{3}{10}$  (d)  $1\frac{1}{2}$

9.  $6 - 6 \div 6 \times 6 + (6 \div 6 \text{ of } 6) \times 6 -$

$\left(3\frac{2}{3} \div \frac{11}{30} \text{ of } \frac{2}{3}\right) \div 5 = ?$

- (a) 0 (b) 2  
(c) -1 (d) -2

## SSC CGL Tier-I (2018)

{10/06/2019} All Shifts

10.  $\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9} \text{ of } 1\frac{1}{5} + \frac{2}{23} \times 3\frac{5}{6} \div \frac{2}{7}$

$\text{of } 2\frac{1}{3} = ?$

- (a)  $1\frac{5}{6}$  (b)  $1\frac{2}{3}$   
(c)  $3\frac{1}{2}$  (d)  $4\frac{5}{6}$

11.  $4.5 - (3.2 \div 0.8 \times 5) + 3 \times 4 \div 6 = ?$

- (a) -13.5 (b) 4.2  
(c) -8.5 (d) 5.7

12.  $3.8 - (4.2 \div 0.7 \times 3) + 5 \times 2 \div 0.5$

- (a) 5.8 (b) 18.4  
(c) 21.8 (d) 15.6

## SSC CGL Tier-I (2018)

{11/06/2019} All Shifts

13.  $2.8 + (5.2 \div 1.3 \times 2) - 6 \times 3 \div 8 + 2$

- (a) 6.45 (b) 4.55  
(c) 8.44 (d) 10.55

14.  $7.2 + (8.4 \div 0.12 \times 0.2) - 5 \times 3 \div 0.05 + 3 = ?$

- (a) -75.8 (b) -275.8  
(c) 21.2 (d) -175.8

15.  $5.8 + (7.4 \div 3.7 \times 5) - 6 \times 2 \div 2.5$

- (a) 12 (b) 11  
(c) 10 (d) 9

## SSC CGL Tier-I (2018)

{12/06/2019} All Shifts

16.  $3.8 + (8.2 \div 4.1 \times 2) - 4 \times 3 \div 1.2$

- (a) 2.2 (b) -1.2  
(c) 1.2 (d) -2.2

17.  $7.5 + (5.4 \div 4.5 \times 2) - 8 \times 4 \div 3.2$

- (a) 0.1 (b) -0.1  
(c) 0.2 (d) 0.2

18.  $108 \div 36 \times 4 + 2.5 \times 4 \div 0.5 - 10$

- (a) 18 (b) 16  
(c) 22 (d) 20

## SSC CGL Tier-I (2018)

{13/06/2019} All Shifts

19.  $21.6 \div 3.6 \times 2 + 0.25 \times 16 \div 4 - 6 = ?$

- (a) 6 (b) 5  
(c) 8 (d) 7

20.  $15.2 + 5.8 \div 2.9 \times 2 - 3.5 \times 2 \div 0.5 = ?$

- (a) 4.8 (b) 3.2  
(c) 5.2 (d) 5.4

21.  $9\frac{3}{4} \div [2\frac{1}{6} \div \{4\frac{1}{3} - (2\frac{1}{2} + \frac{3}{4})\}] = ?$

- (a)  $\frac{15}{4}$  (b) 3  
(c)  $\frac{39}{8}$  (d) 4

## SSC CGL Tier-I (2018)

{13/06/2019} All Shifts

22.  $9\frac{3}{4} + [2\frac{1}{6} \div \{4\frac{1}{3} - (2\frac{1}{2} + \frac{3}{4})\}] = ?$

- (a)  $\frac{15}{4}$  (b) 4  
(c)  $\frac{47}{4}$  (d) 3

## SSC CGL Tier-I (2019)

{03/03/2020} All Shifts

23. If '+' means '-', '-' means '+', 'x' means '÷' and '÷' means 'x', then the value of

$$\frac{42-12 \times 3+8 \div 2+15}{8 \times 2-4+9 \div 3}$$
 is:

यदि '+' नो '-' आं, '-' नो '+' आं, 'x' नो '÷' आं, '÷' नो 'x' आं, तब तो निम्नलिखित का मान क्या है?

$$\frac{42-12 \times 3+8 \div 2+15}{8 \times 2-4+9 \div 3}$$

भत : निम्नलिखित का मान

- (a)  $\frac{15}{19}$  (b)  $-\frac{5}{3}$   
(c)  $-\frac{15}{19}$  (d)  $\frac{5}{3}$

24.  $(18 \div 2 \text{ of } \frac{1}{4}) \times (\frac{2}{3} \div \frac{3}{4} \times \frac{5}{8}) \div$

$$(\frac{2}{3} \div \frac{3}{4} \text{ of } \frac{3}{4}) = ?$$

- (a)  $8\frac{5}{8}$  (b)  $16\frac{7}{8}$   
(c)  $2\frac{7}{64}$  (d)  $10\frac{2}{3}$

25.  $-\frac{5}{2} + \frac{3}{2} \div 6 \times \frac{1}{2} = ?$

- (a)  $-\frac{1}{3}$  (b)  $-\frac{1}{12}$   
(c)  $-\frac{19}{8}$  (d)  $-\frac{9}{8}$

26.  $(a+b-c+d)^2 - (a-b+c-d)^2 = ?$

- (a)  $4a(b+d-c)$  (b)  $2a(a+b-c)$   
(c)  $2a(b+c-d)$  (d)  $4a(b-d+c)$

- 27.

$$\frac{36+42 \text{ of } 6 \times 7+24 \times 6 \div 18+3 \div (2-6)-(4+3 \times 2) \div 8}{21 \div 3 \text{ of } 7}$$

- (a) 7 (b)  $7\frac{1}{2}$   
(c) 8 (d)  $\frac{1}{7}$

## SSC CGL Tier-I (2019)

{04/03/2020} All Shifts

28.  $\frac{7-[4+3(2-2 \times 2+5)-8] \div 5}{2 \div 2 \text{ of } (4+4 \div 4 \text{ of } 4)} = ?$

- (a) 26 (b)  $25\frac{1}{2}$   
(c)  $8\frac{1}{2}$  (d) 24

29. On simplification,

$$\frac{x^3 - y^3}{x[(x+y)^2 - 3xy]} \div \frac{y[(x-y)^2 + 3xy]}{x^3 + y^3} \times \frac{(x+y)^2 - (x-y)^2}{x^2 - y^2} = ?$$

- (a) 4 (b) 1  
(c)  $\frac{1}{2}$  (d)  $\frac{1}{4}$

30. If  $P = \frac{x^4 - 8x}{x^3 - x^2 - 2x}$ ,  $Q = \frac{x^2 + 2x + 1}{x^2 - 4x - 5}$

$$\text{and } R = \frac{2x^2 + 4x + 8}{x - 5}, \text{ then}$$

(P×Q)+R is equal to:

$$\text{यदि } P = \frac{x^4 - 8x}{x^3 - x^2 - 2x},$$

$$Q = \frac{x^2 + 2x + 1}{x^2 - 4x - 5} \text{ आं, तब तो } R =$$

$$\frac{2x^2 + 4x + 8}{x - 5} \text{ तब तो निम्नलिखित का मान (P × Q) + R का}$$

भत : निम्नलिखित का मान

- (a)  $\frac{1}{2}$  (b) 1  
(c) 2 (d) 4

- 31.

$$\frac{5\frac{1}{2} \div 3\frac{2}{3} \text{ of } \frac{1}{4} + (5\frac{1}{9} - 7\frac{7}{8} \div 9\frac{9}{20}) \times \frac{9}{11}}{5 \div 5 \text{ of } \frac{1}{10} - 10 \times 10 \div 20} = ?$$

- (a)  $1\frac{4}{5}$  (b)  $1\frac{1}{2}$   
(c)  $3\frac{4}{5}$  (d)  $9\frac{1}{2}$

32.  $\frac{8 \div [(8-3) \div (4 \div 4 \text{ of } 8) + 4 - 4 \times 4 \div 8] - 2}{8 \times 8 \div 4 - 8 \div 8 \text{ of } 2 - 7}$

- (a)  $\frac{17}{8}$  (b)  $\frac{8}{3}$   
(c)  $\frac{16}{170}$  (d)  $\frac{2}{17}$

## SSC CGL Tier-I (2019)

{05/03/2020} All Shifts

33. If  $P = \frac{x^3 + y^3}{(x-y)^2 + 3xy}$ ,

$$Q = \frac{(x+y)^2 - 3xy}{x^3 - y^3} \text{ and}$$

$$R = \frac{(x+y)^2 + (x-y)^2}{x^2 - y^2}, \text{ then what}$$

is the value of  $(P \div Q) \times R$ ?

$$\text{यदि } P = \frac{x^3 + y^3}{(x-y)^2 + 3xy},$$

$$Q = \frac{(x+y)^2 - 3xy}{x^3 - y^3} \text{ आं, तब तो}$$

$$R = \frac{(x+y)^2 + (x-y)^2}{x^2 - y^2} \text{ तब तो निम्नलिखित का मान (P ÷ Q) × R का}$$

- (a)  $2xy$  (b)  $2(x^2 + y^2)$   
(c)  $x^2 + y^2$  (d)  $4xy$

34.  $3\frac{2}{3} \div \frac{11}{30} \text{ of } \frac{2}{3} - \frac{1}{4} \text{ of } 2\frac{1}{2} \div \frac{3}{5} \times 4\frac{4}{5}$

$$\frac{2}{5} \text{ of } 7\frac{1}{2} \div \frac{3}{4} - \frac{3}{4} \times 1\frac{1}{2} \div 2\frac{1}{4}$$

- (a)  $2\frac{2}{9}$  (b)  $\frac{10}{21}$   
(c)  $2\frac{6}{7}$  (d)  $3\frac{4}{7}$

35.  $\frac{x^2(x-4)^2}{(x+4)^2 - 4x} \div \frac{(x^2-4x)^3}{(x+4)^2} \times \frac{64-x^3}{16-x^2}$

$$(a) \frac{x-4}{x+4} \quad (b) \frac{x+4}{x(4-x)}$$

$$(c) \frac{x+4}{x(x-4)} \quad (d) \frac{x+4}{x-4}$$

36.  $\frac{3}{5} \times 1\frac{7}{8} \div 1\frac{1}{3} \text{ of } \frac{3}{16} - (3\frac{1}{5} \div 4\frac{1}{2} \text{ of}$

$$5\frac{1}{3}) \times 2\frac{1}{2} + \frac{1}{2} + \frac{1}{8} \div \frac{1}{4} = ?$$

$$(a) 4\frac{1}{3} \quad (b) 5\frac{5}{6}$$

$$(c) 5\frac{1}{6} \quad (d) 4\frac{1}{8}$$

37.  $-1 + \frac{1}{4} \div \frac{1}{2} \times 2 + 5 = ?$

$$(a) 5 \quad (b) 2$$

$$(c) \frac{17}{4} \quad (d) -\frac{7}{2}$$

## SSC CGL Tier-I (2019)

{06/03/2020} All Shifts

38. If '+' means '-', '-' means '+', 'x' means '÷' and '÷' means 'x', then the value of -

यदि '+' नो '-' आं, '-' नो '+' आं, 'x' नो '÷' आं, '÷' नो 'x' आं, तब तो निम्नलिखित का मान क्या है?

$$\frac{[(30 \times 5) + (84 \times 6)] \div 5}{[\frac{2}{3} \div 18] - [4 \div 2]} \text{ is:}$$

$$[\frac{2}{3} \div 18] - [4 \div 2] \text{ is:}$$

- (a) -2 (b) 2  
(c) -1 (d) 1

39. Solve the following  $113 \times 87 = ?$

- (a) 10000 (b) 10026  
(c) 9831 (d) 10169

40.  $\frac{4}{3} \div \frac{1}{6} \times 2 - 1 = ?$

- (a) -2 (b) 8  
(c) 3 (d) 15

41.  $\frac{[54 - (5 \div 2) \times 8] + 13}{48 - 4 \div 3 \times 8 - 2} = ?$

$$(a) \frac{89}{127} \quad (b) \frac{89}{106}$$

$$(c) \frac{141}{127} \quad (d) \frac{141}{106}$$

## SSC CGL Tier-I (2019)

{07/03/2020} All Shifts

42.  $3 - (9 - 3 \times 8 \div 2) = ?$

- (a) -21 (b) 6

$$(c) 0 \quad (d) \frac{21}{2}$$

43.  $151^2 - 149^2 = ?$

- (a) 600 (b) 300  
(c)  $2^2$  (d) 400

44.  $1\frac{1}{8} \div \left(4\frac{1}{4} \div \frac{3}{5} \text{ of } 8\frac{1}{2}\right) - \frac{2}{5} \times 1\frac{1}{3} \div \frac{4}{5} \text{ of } 1\frac{2}{3} + \frac{11}{20} = ?$

(a)  $1\frac{1}{2}$  (b)  $1\frac{1}{4}$

(c)  $3\frac{1}{8}$  (d)  $3\frac{1}{2}$

45. Find the product of  $(a + b + 2c)$   $(a^2 + b^2 + 4c^2 - ab - 2bc - 2ca)$ .  
 $(a + b + 2c)(a^2 + b^2 + 4c^2 - ab - 2bc - 2ca)$  ना मूहातलखः खने ख

(a)  $a^3 + b^3 + 8c^3 - abc$

(b)  $a^3 + b^3 + 8c^3 - 6abc$

(c)  $a^3 + b^3 + 8c^3 - 2abc$

(d)  $a^3 + b^3 + c^3 - 6abc$

46. Solve the following expression.

तिरतखिखिख जखन ना भत एया रीक

$5.6 - \{2 + 0.6 \text{ of } (2.1 - 2.6 \times 1.12)\}$

(a) 4.0871 (b) 4.0872

(c) 7.7113 (d) 7.7112

**SSC CGL Tier-I (2019)**

**{09/03/2020} All Shifts**

47.  $1800 \div 20 \times \{(12 - 6) + (24 - 12)\}$

(a) 1720 (b) 1620

(c) 840 (d) 2720

48. Solve the following expression.

तिरतखिखिख जखन ना खी छने ख

$11 + 11 \times 11 - 11 \div 11$

(a) 131 (b) 11

(c) 121 (d) 22

49.  $(26 - 13 \times 2) \div 2 + 1 = ?$

(a) 26/3 (b) 0

(c) 1 (d) 14

50. The value of  $515 \times 485$  is:

(a) 20825 (b) 249775

(c) 200825 (d) 250225

**SSC CGL 2020**



Tier-I

**SSC CGL Tier-I (2020)**

**{13/08/2021} All Shifts**

51.  $20 \div 5 \text{ of } 8 \times [9 \div 6 + (6 - 3)] - (10 \div 2 \text{ of } 20) = ?$

(a) 6 (b) 1

(c) 0 (d) 2

52.  $3 \div 18 \text{ of } 3 \times 6 - 22 \times 6 \div 18 - 3 \div 2 + 10 - 3 \div 9 \text{ of } 3 \times 9 = ?$

(a)  $-\frac{1}{3}$  (b)  $-\frac{1}{2}$

(c)  $\frac{1}{2}$  (d)  $\frac{1}{3}$

53.  $14 - 20 \times [7 - \{18 \div 2 \text{ of } 3 - (15 - 25 \div 5 \times 4)\}] = ?$

(a) 0 (b) 24

(c) 6 (d) 34

54.  $90 \div 20 \text{ of } 6 \times [11 \div 4 \text{ of } \{3 \times 2 - (3 - 8)\}] \div (9 \div 3 \times 2) = ?$

(a)  $\frac{1}{36}$  (b)  $\frac{1}{32}$

(c)  $\frac{9}{8}$  (d)  $\frac{3}{8}$

**SSC CGL Tier-I (2020)**

**{16/08/2021} All Shifts**

$52 - 1170 \div 26 + 13 \times 2$

55.  $2 + 1\frac{1}{8} \text{ of } 2 - 1\frac{1}{4} = ?$

(a) 11 (b) 12

(c) 41 (d) 27

56.  $3\frac{5}{6} + \left[3\frac{2}{3} + \left\{\frac{15}{4} \left(5\frac{4}{5} \div 14\frac{1}{2}\right)\right\}\right] = ?$

(a) 9 (b) 6

(c) 7 (d) 8

57.  $25 \div 15 \text{ of } 4 \times [4 \div 5 \times (9 - 7)] - (20 \div 5 \text{ of } 9) = ?$

(a)  $\frac{4}{9}$  (b)  $\frac{2}{3}$

(c)  $\frac{1}{3}$  (d)  $\frac{2}{9}$

**SSC CGL Tier-I (2020)**

**{17/08/2021} All Shifts**

58.  $32 \div 12 \text{ of } 3 \times [5 - (15 - 12) \div 9] \text{ of } \frac{3}{7} + 4 - 8 \div 2 \text{ of } 4 = ?$

(a)  $1\frac{7}{9}$  (b)  $4\frac{7}{9}$

(c)  $3\frac{1}{3}$  (d)  $3\frac{1}{6}$

59.  $5\frac{1}{5} \div \left[3\frac{1}{2} - \left\{\frac{5}{6} - \left(\frac{3}{5} + \frac{1}{10} - \frac{4}{15}\right)\right\}\right] = ?$

(a)  $\frac{12}{31}$  (b)  $\frac{22}{31}$

(c)  $\frac{52}{31}$  (d)  $\frac{72}{31}$

60.  $\left(\frac{7}{16} \div \frac{1}{2} \text{ of } \frac{1}{5}\right) \times \frac{4}{5} - \frac{1}{3} \times \frac{5}{8} \div \frac{1}{2} + \frac{3}{4} = ?$

(a)  $\frac{317}{96}$  (b)  $\frac{10}{3}$

(c)  $\frac{71}{150}$  (d)  $\frac{23}{6}$

61.  $\frac{108 \times 108 \times 108 - 92 \times 92 \times 92}{108 \times 108 + 92 \times 92 + 108 \times 92} = ?$

(a) 200 (b) 1

(c) 16 (d) -1

**SSC CGL Tier-I (2020)**

**{18/08/2021} All Shifts**

62.  $18 \div [26 - \{25 - (15 - 5) \div 2\}] \text{ of } 12 + 2 - 2 \div 4 \times 16 = ?$

(a)  $\frac{9}{4}$  (b)  $\frac{3}{2}$

(c)  $-\frac{25}{2}$  (d)  $-\frac{23}{4}$

63.  $\frac{(375 + 125)^2 - (125 - 375)^2}{375 \times 375 - 125 \times 125} = ?$

(a)  $\frac{15}{8}$  (b)  $\frac{3}{4}$

(c)  $\frac{3}{2}$  (d)  $\frac{27}{28}$

64.  $6 \div 4 \text{ of } 3 - 4 \div 6 \times (13 - 10) - 2 \times 15 \div 6 \times 6 = ?$

(a)  $-19\frac{1}{2}$  (b)  $-27\frac{1}{2}$

(c)  $-31\frac{1}{2}$  (d)  $-29\frac{14}{17}$

65.  $441 \div \left[270 \div \frac{3}{7} + \left(17 \div \frac{1}{2}\right) - \left(8\frac{1}{2} - \frac{5}{2}\right)\right]$

(a)  $\frac{49}{75}$  (b)  $\frac{39}{75}$

(c)  $\frac{19}{75}$  (d)  $\frac{29}{75}$

**SSC CGL Tier-I (2020)**

**{20/08/2021} All Shifts**

66.  $3 \times 8 \div 9 \text{ of } 6 - 2 \div 3 \times (5 - 2) \times 2 + 18 \div 3 \text{ of } 3 = ?$

(a) -4 (b)  $2\frac{12}{13}$

(c)  $-1\frac{5}{9}$  (d)  $2\frac{1}{3}$

67.  $15 \div 3 \text{ of } 2 \times 4 + 9 \div 18 \text{ of } 2 \times 3 - 4 \div 8 \times 2 = ?$

(a)  $9\frac{3}{4}$  (b)  $12\frac{3}{4}$

(c)  $39\frac{3}{4}$  (d)  $42\frac{3}{4}$

68.  $8 \div 4 \text{ of } 2 - 15 \div 2 \text{ of } 5 - 6 \div 5 \times (-7 + 5) \text{ of } 2 = ?$

(a)  $31\frac{7}{10}$  (b)  $7\frac{3}{10}$

(c)  $4\frac{3}{10}$  (d)  $-\frac{1}{5}$

**SSC CGL Tier-I (2020)**

**{23/08/2021} All Shifts**

69.  $7 \times 4 \div 21 \text{ of } 4 - 5 \div 4 \times (9 - 13) + 2 - 2 \div 8 = ?$

(a)  $7\frac{1}{12}$  (b)  $5\frac{1}{3}$

(c)  $12\frac{1}{2}$  (d)  $5\frac{1}{16}$

70.  $423 \div \left[270 \div \frac{3}{7} \times 35 + \left(17 \div \frac{1}{3}\right) - \left(8\frac{1}{2} - \frac{5}{2}\right)\right]$

(a)  $\frac{41}{2455}$  (b)  $\frac{47}{2455}$

(c)  $\frac{51}{2455}$  (d)  $\frac{43}{2455}$

71.  $54 \div 16 \text{ of } 3 \times [12 \div 4 \text{ of } \{6 \times 3 - (11 - 2)\}] \div (12 \div 8 \times 2) = ?$

(a)  $\frac{3}{4}$  (b)  $\frac{9}{16}$

(c)  $\frac{3}{8}$  (d)  $\frac{9}{8}$



**SSC CGL Tier-I (2020)**  
**{24/08/2021} All Shifts**

72.  $3\frac{1}{5} \div 4\frac{1}{2}$  of  $5\frac{1}{3} - \frac{1}{8} \div \frac{1}{2}$  of  $\frac{1}{4} + \frac{1}{4}$   
 $\left(\frac{1}{2} \div \frac{1}{8} \times \frac{1}{4}\right) = ?$

- (a)  $-\frac{37}{60}$  (b)  $\frac{17}{60}$   
 (c)  $-\frac{17}{60}$  (d)  $\frac{37}{60}$

73.  $\frac{7}{12} \div \frac{1}{10}$  of  $\frac{2}{3} - \frac{5}{3} \times \frac{9}{10} + \frac{5}{8} \div \frac{3}{4}$  of  $\frac{2}{3}$

- (a) -4 (b)  $8\frac{1}{2}$   
 (c)  $3\frac{23}{36}$  (d)  $7\frac{29}{36}$

74.  $\left(\frac{3}{4} - \frac{1}{4} \div \frac{1}{4}$  of  $\frac{2}{5}\right) \div \left(\frac{3}{4} \div \frac{2}{3}$  of  $\frac{3}{5}\right) = ?$

- (a)  $\frac{14}{75}$  (b)  $-\frac{70}{27}$   
 (c)  $-\frac{14}{15}$  (d)  $\frac{32}{75}$

**SSC CGL 2021**

Tier-I

**SSC CGL Tier-I (2021)**  
**{11/04/2022} All Shifts**

75.  $372 \div 56 \times 7 - 5 + 2 = ?$

- (a) 58 (b)  $-2\frac{95}{98}$   
 (c)  $43\frac{1}{2}$  (d)  $2\frac{93}{98}$

76.  $980 \div 35 \times 16 + 4 - 2 \times 2 = ?$

- (a)  $\frac{15}{2}$  (b) 448  
 (c)  $\frac{7}{4}$  (d) 556

77.  $\frac{3\frac{1}{2} + 5\frac{1}{3} \div 1\frac{1}{3} \times 5\frac{1}{4} - 5\frac{1}{2}}{1\frac{1}{2} \times 1\frac{2}{2} - 6\frac{1}{2}} \div 7 \times 2$

- (a)  $\frac{13}{147}$  (b)  $29\frac{9}{32}$   
 (c)  $-1\frac{5}{14}$  (d)  $-\frac{5}{28}$

**SSC CGL Tier-I (2021)**  
**{12/04/2022} All Shifts**

78.  $\frac{5 - 35 \div 5 \times 15 + 5}{12 - 2} = ?$

- (a) -9.5 (b) -13.5  
 (c) -2.5 (d) 11.5

79.  $40 \div 5$  of  $2 \times [18 \div 6 \times (12 - 9)]$  of  $5 - (3 - 8) \div 25 = ?$

- (a) 5 (b) 7  
 (c) 8 (d) 4

80.  $\frac{2}{7} - \frac{3}{8} - \left[2\frac{1}{4} \div 3\frac{1}{2}\right]$  of  $1\frac{1}{3} +$

$$\left\{1\frac{17}{40} - \left(3 - 1\frac{1}{5} - \frac{3}{8}\right)\right\} = ?$$

- (a)  $\frac{2}{7}$  (b)  $-\frac{4}{7}$   
 (c)  $-\frac{2}{7}$  (d)  $\frac{4}{7}$

**SSC CGL Tier-I (2021)**  
**{13/04/2022} All Shifts**

81. What is the value of x, if

$$5\left(1 - \frac{x}{5}\right) - (5 - x) - \frac{1}{200} \text{ of } (20 - x) = 0.08?$$

0क 5  $\left(1 - \frac{x}{5}\right) - (5 - x) - \frac{1}{200}$  of (20 - x) = 0.08 कह सक x को के 0क कह

- (a) 36 (b) 9  
 (c) 18 (d) 24

82.  $\frac{48.3 \times \left[(4.95)^2 + 4.95 \times 13.25\right]}{\left[(12.55)^2 - (5.65)^2\right] \times 19.8} = ?$

- (a) 17.5 (b) 0.175  
 (c) 1.75 (d) 175

83. What is the value of p, if  $25(3 + 4p) \div 12$  of  $5 - 3 \times 8 = 6?$

0क 25(3 + 4p)  $\div 12$  of 5 - 3  $\times 8 = 6$  कह सक p को के 0क कह

- (a) 72 (b) 69  
 (c)  $15\frac{1}{3}$  (d)  $17\frac{1}{4}$

**SSC CGL Tier-I (2021)**  
**{18/04/2022} All Shifts**

$$46 + \frac{3}{4} \text{ of } 32 - 6$$

84.  $37 - \frac{3}{4}$  of (34 + 6) = ?

- (a)  $\frac{64}{7}$  (b)  $\frac{54}{7}$   
 (c)  $\frac{44}{7}$  (d)  $\frac{34}{7}$

85.  $15 + 6.3 \div 7 - 3 \times 1.3 - 2 = ?$

- (a) 9 (b) -10  
 (c) 10 (d) 7

86.  $\frac{3 \div 1 \times 2 + 5 - 2}{3 \times 3 - 2} = ?$

- (a)  $\frac{9}{7}$  (b)  $\frac{19}{3}$   
 (c)  $\frac{4}{7}$  (d)  $\frac{4}{3}$

**SSC CGL Tier-I (2021)**  
**{19/04/2022} All Shifts**

$$\left[\frac{3}{8} - \left[\frac{3}{8} - \left(\frac{5}{8} - \frac{3}{8}\right)\right]\right] \text{ of } 4.8 - 0.9$$

87.  $4\frac{1}{6} \div 2.5 \times 0.2 \div \frac{1}{5}$  of  $50 + \left(\frac{3}{4} - \frac{1}{8}\right) = ?$

- (a)  $\frac{30}{79}$  (b)  $\frac{42}{79}$   
 (c)  $\frac{36}{79}$  (d)  $\frac{24}{79}$

88.  $9 \div \frac{3}{7}$  of  $(9 + 6 \times \overline{4 - 2}) + \left[\frac{1}{5} \div \frac{7}{25} - \left[\frac{5}{8} + \frac{6}{16}\right]\right]$

$$\frac{24 \div 16 - 10 + 36 \div (5 + 20 \div 4 - 1)}$$

(a)  $\frac{40}{7}$  (b)  $\frac{5}{56}$   
 (c)  $\frac{7}{40}$  (d)  $\frac{51}{36}$   
 $1\frac{2}{3} \div \frac{5}{6} \times 6 + \frac{4}{5} \times \frac{1}{2} + \frac{2}{3}$

89.  $1 - \left[1\frac{1}{3} \times \left(-\frac{3}{5}\right) - 6\left\{\frac{3}{5} - \left(3 - \frac{3}{10}\right)\right\}\right]$

- (a)  $-\frac{4}{3}$  (b)  $\frac{4}{3}$   
 (c)  $\frac{1}{7}$  (d)  $-\frac{1}{7}$

**SSC CGL Tier-I (2021)**  
**{20/04/2022} All Shifts**

90.  $[25 + 8 \div 2 - \{16 + (14 \text{ of } 7 \div 14) - (18 \div 12 \text{ of } \frac{1}{2})\}] = ?$

- (a) 6 (b) 3  
 (c) 9 (d) 12

91.  $25 \div 10 - \left(\frac{7}{4} \times \frac{1}{3}\right)$  of  $\frac{6}{5} + \frac{14}{3}$

$$\times \frac{9}{10} + \left(\frac{1}{5} \div \frac{1}{25}\right) = ?$$

- (a) 11 (b) 7  
 (c) 15 (d) 9

92.  $\frac{1\frac{1}{2} + 1\frac{3}{7} \div \left(1\frac{3}{5} \text{ of } 1\frac{1}{4}\right) \times 2\frac{1}{3}}{2\frac{2}{3} \div \frac{4}{9} \times \frac{5}{6} + 14} = ?$

- (a)  $\frac{107}{342}$  (b)  $\frac{49}{114}$   
 (c)  $\frac{13}{114}$  (d)  $\frac{1}{6}$

**SSC CGL Tier-I (2021)**  
**{21/04/2022} All Shifts**

93.  $\frac{4\frac{1}{3} + 3\frac{1}{3} \times 1\frac{4}{5} \div 3\frac{3}{4} \left(6\frac{1}{4} \text{ of } 1\frac{1}{15}\right)}{\frac{2}{3} \div \frac{5}{6} \times \frac{2}{3}} = ?$

$$\frac{2}{3} \div \frac{5}{6} \times \frac{2}{3} = ?$$

- (a)  $28\frac{1}{8}$  (b)  $\frac{1}{8}$   
 (c)  $289\frac{3}{8}$  (d)  $12\frac{1}{8}$

94.  $\frac{(7.03)^3 - 0.027}{(7.03)^2 + 2.109 + (0.03)^2} = ?$

- (a) 7.06 (b) 7  
 (c) 7.33 (d) 6.73

95. Simplify/ की के एक तब  
 $\left[\left(5\frac{1}{4} - 3\frac{1}{2} \times \frac{5}{12}\right) - \frac{3}{16}\right] \div \left(3\frac{4}{7} \div \frac{5}{14} \text{ of } 6\frac{2}{3}\right)$  of  $1\frac{1}{3}$

- (a)  $\frac{5}{32}$  (b)  $\frac{17}{32}$   
 (c)  $\frac{3}{32}$  (d)  $\frac{7}{32}$

96.  $-5 + 5 + 625 \div 5 \times 5 = ?$

- (a) 25 (b) 625  
 (c) 605 (d) 121

97. Simplify the following expression.

तिरतछि? खज्जन ना भत : एख जटियस

$$\left[ \frac{85}{34} \times \frac{1}{18} - \left\{ \left( \frac{46}{69} \div \frac{27}{135} \right) - \left( \frac{86}{129} \times \frac{91}{14} \right) \right\} \text{ of } \frac{112}{36} \right]$$

(a)  $3\frac{1}{5}$  (b)  $3\frac{3}{4}$

(c)  $3\frac{1}{2}$  (d)  $3\frac{1}{4}$

98. Find the sum of

ना यास : एख नजठि-ग

$$3 + 3^2 + 3^3 + \dots + 3^8.$$

(a) 6561 (b) 6560

(c) 9840 (d) 3280

99. The product of 277 and 323 is :

277<sup>n</sup> के 323 नामूहातलख: एख नजठि-प

(a) 89471 (b) 88471

(c) 91371 (d) 89391

100. Simplify the expression

ज्जन्न नासखे छ नजठियस

$$\frac{3.35^2 - 1.25^2}{3.35 + 1.25} = ?$$

(a) 3.10 (b) 4.60

(c) 4.10 (d) 2.1

101. Simplify the given expression

दियसम- ज्जन्न ना वे छजे हा ने स

$$\frac{(326 + 222)^2 - (326 - 222)^2}{(326 \times 222)}$$

(a) 1 (b) 4

(c) 3 (d) 2

102. Simplify the given expression.

दियसम- ज्जन्न ना वे छजे हा ने स

$$\frac{432 \times 432 + 247 \times 247 - 432 \times 247}{432 \times 432 \times 432 + 247 \times 247 \times 247}$$

(a)  $\frac{1}{259}$  (b)  $\frac{1}{185}$

(c)  $\frac{1}{679}$  (d)  $\frac{1}{450}$

103. Simplify the following expression.

तिरत ज्जन्न ना भत : एख नजठि-ग

$$\frac{\left( 12 + 5 - \frac{48}{16} + 71 \right) + \left( \frac{72 + 6 \times 7}{36} \div \frac{11}{11} \right) \times [(51 + 4 - 13) + (13 - 12 \times 7)]}{232}$$

(a)  $\frac{-31}{233}$  (b)  $\frac{31}{232}$

(c)  $\frac{41}{232}$  (d)  $\frac{-31}{232}$

104.  $7.5 \times 17.2 \div 8.6 + (59.5)$  of  $\frac{1}{7} - \frac{7}{2}$

of 5 = ? / ना भत : एख ने स

(a) 6 (b) 3

(c) 4 (d) 2

105. Simplify/ना भत : एख ने स

$$[0.08 - \{3.5 - 4.9 - (12.5 - 7.8 - 4.6)\}]$$

(a) 1.58 (b) 0.08

(c) 2.58 (d) 12.58

106. Simplify/ना भत : एख ने स

$$264 - \left[ 142 - \left\{ 75 + \left( 38 - \left( \frac{5}{4} + \frac{11}{4} \right) \right) \right\} \right]$$

(a) 231 (b) 230

(c) 232 (d) 234

107. What is the value of the given expression?

दि- म- ज्जन्न ना भत एया के क

$$\frac{4^{a+4} - 5 \times 4^{a+2}}{15 \times 4^a - 2^2 \times 4^a}$$

(a) 16 (b) 64

(c) 20 (d) 24

108. If  $720 \div 8 + 915 \div 15 - m + 32 \times 5 = 1104 \div 16 \times 111 \div 37$ , then the value of m is :

यदि  $720 \div 8 + 915 \div 15 - m + 32 \times 5 = 1104 \div 16 \times 111 \div 37$  के खस म ना भत एया के स-

(a) 104 (b) 518

(c) 207 (d) 311

109.  $7p - [3q - \{8p - (4q - 10p)\}] = ?$

(a)  $7p - 11q$  (b)  $11p - 7q$

(c)  $9p - 12q$  (d)  $12p - 9q$

110. What is the value of

दि- म- ज्जन्न ना भत : एख नजठि-ग

$$6 - (6 \div 2 - 3 + 7 - 2) \times \{[3 - 2 \div 2] \times 5 - 6\}?$$

(a) 5 (b) 6

(c) 4 (d) 3

## ANSWER KEY - SIMPLIFICATION

1. (d) 2. (b) 3. (d) 4. (c) 5. (d) 6. (a) 7. (c) 8. (d) 9. (d) 10. (c)  
 11. (a) 12. (a) 13. (d) 14. (b) 15. (b) 16. (d) 17. (b) 18. (c) 19. (d) 20. (c)  
 21. (c) 22. (c) 23. (c) 24. (b) 25. (c) 26. (a) 27. (a) 28. (b) 29. (a) 30. (a)  
 31. (b) 32. (b) 33. (b) 34. (c) 35. (c) 36. (c) 37. (a) 38. (a) 39. (c) 40. (d)  
 41. (d) 42. (b) 43. (a) 44. (a) 45. (b) 46. (b) 47. (b) 48. (a) 49. (c) 50. (b)  
 51. (d) 52. (c) 53. (d) 54. (b) 55. (a) 56. (a) 57. (d) 58. (b) 59. (c) 60. (d)  
 61. (c) 62. (d) 63. (c) 64. (c) 65. (a) 66. (c) 67. (a) 68. (c) 69. (a) 70. (b)  
 71. (b) 72. (a) 73. (b) 74. (c) 75. (c) 76. (b) 77. (c) 78. (a) 79. (c) 80. (b)  
 81. (a) 82. (c) 83. (d) 84. (a) 85. (c) 86. (a) 87. (c) 88. (b) 89. (a) 90. (c)  
 91. (a) 92. (d) 93. (a) 94. (d) 95. (d) 96. (b) 97. (d) 98. (c) 99. (a) 100. (d)  
 101. (b) 102. (c) 103. (d) 104. (a) 105. (a) 106. (a) 107. (a) 108. (a) 109. (b) 110. (c)



## Hints & Solutions



### SSC CGL Tier-I (2018) {04/06/2019}

1. (d)  $2 \times 3 \div 2$  of  $3 \times 2 \div (4 + 4 \times 4 \div 4 \text{ of } 4 - 4 \div 4 \times 4)$   
 $= 2 \times 3 \div 6 \times 2 \div (4 + 4 \times 4 \div 16 - 4 \div 4 \times 4)$   
 $= 2 \div (5 - 4)$   
 $= 2$

2. (b)  $5 \div 5$  of  $5 \times 2 + 2 \div 2$  of  $2 \times 5 - (5 - 2) \div 6 \times 2$   
 $= 5 \div 25 \times 2 + 2 \div 4 \times 5 - 3 \div 6 \times 2$   
 $= \frac{2}{5} + \frac{5}{2} - 1$   
 $= \frac{19}{10}$

3. (d)  $2 \frac{7}{8} \div \left( 3 \frac{5}{6} \div \frac{2}{7} \text{ of } 2 \frac{1}{3} \right) \times$   
 $\left[ \left( 2 \frac{6}{7} \text{ of } 4 \frac{1}{5} \div \frac{2}{3} \right) \times \frac{5}{9} \right]$   
 $= \frac{23}{8} \div \left( \frac{23}{6} \div \frac{2}{7} \text{ of } \frac{7}{3} \right) \times$   
 $\left[ \left( \frac{20}{7} \text{ of } \frac{21}{5} \div \frac{2}{3} \right) \times \frac{5}{9} \right]$   
 $= \frac{23}{8} \div \left( \frac{23}{6} \div \frac{14}{21} \right) \times \left[ \left( \frac{420}{35} \div \frac{2}{3} \right) \times \frac{5}{9} \right]$   
 $= \frac{23}{8} \div \left( \frac{23}{6} \times \frac{21}{14} \right) \times \left[ \left( \frac{420}{35} \times \frac{3}{2} \right) \times \frac{5}{9} \right]$   
 $= \frac{23}{8} \div \left( \frac{23}{4} \right) \times 18 \times \frac{5}{9}$   
 $= \frac{23}{8} \times \frac{4}{23} \times 10$   
 $= 5$

### SSC CGL Tier-I (2018) {06/06/2019} All Shifts

4. (c)  $(5 + 3 \div 5 \times 5) \div (3 \div 3 \text{ of } 6)$  of  $(4 \times 4 \div 4 \text{ of } 4 + 4 \div 4 \times 4)$   
 $= (5 + 3 \div 5 \times 5) \div (3 \div 18)$  of  $(4 \times 4 \div 16 + 4 \div 4 \times 4)$   
 $= \left( 5 + \frac{3}{5} \times 5 \right) \div \left( \frac{3}{18} \right)$  of  $(1 + 4)$   
 $= 8 \div \left( \frac{1}{6} \times 5 \right)$   
 $= 9 \frac{3}{5}$

5. (d)  $\frac{9}{15}$  of  $\left( \frac{2}{3} \div \frac{2}{3} \text{ of } \frac{3}{2} \right) \div \left( \frac{3}{4} \times \frac{3}{4} \div \frac{3}{4} \text{ of } \frac{4}{3} \right)$   
of  $\left( \frac{5}{4} \div \frac{5}{2} \times \frac{2}{5} \text{ of } \frac{4}{5} \right)$

$$= \frac{9}{15} \text{ of } \left( \frac{2}{3} \div \frac{6}{6} \right) \div \left( \frac{3}{4} \times \frac{3}{4} \div \frac{12}{12} \right) \text{ of}$$

$$\left( \frac{5}{4} \div \frac{5}{2} \times \frac{8}{25} \right)$$

$$= \frac{9}{15} \text{ of } \left( \frac{2}{3} \right) \div \left( \frac{3}{4} \times \frac{3}{4} \right) \text{ of } \frac{4}{25}$$

$$= \frac{2}{5} \div \frac{9}{100}$$

$$= \frac{40}{9}$$

6. (a)  $16 \div 4$  of  $4 \times [3 \div 4$  of  $\{4 \times 3 \div (3 + 3)\}] \div (2 \div 4$  of  $8)$   
 $= 16 \div 16 \times [3 \div 4 \text{ of } (4 \times 3 \div 6)] \div (2 \div 32)$   
 $= 1 \times [3 \div 4 \text{ of } (2)] \div \frac{1}{16}$   
 $= 1 \times \frac{3}{8} \times \frac{16}{1}$   
 $= 6$

### SSC CGL Tier-I (2018) {07/06/2019} All Shifts

7. (c)  $\frac{8}{9}$  of  $\left( 5 \frac{1}{4} \div 2 \frac{1}{3} \text{ of } 4 \right) \div$   
 $\left( 8 \div \frac{2}{3} \text{ of } \frac{4}{5} \right)$  of  $\left( 8 \times \frac{2}{3} \div \frac{4}{5} \right)$   
According to BODMAS:-  
 $= \frac{8}{9} \text{ of } \left( \frac{21}{4} \times \frac{3}{28} \right) \div \left( 8 \times \frac{15}{8} \right) \times \left( \frac{20}{3} \right)$   
 $= \frac{8}{9} \times \frac{9}{16} \div 100$   
 $= \frac{1}{200}$

8. (d) Use BODMAS operation:-  
 $7 \frac{1}{2} \times \left( 3 \frac{1}{5} \div 4 \frac{1}{2} \text{ of } 5 \frac{1}{3} \right) +$   
 $\left[ 11 - \left( \frac{5}{8} + 3 - 1 \frac{1}{4} \right) \right] \div 5 \frac{3}{4} - 5 \div 5 \times$   
 $5 \text{ of } 5 \div 25$   
 $= \frac{15}{2} \times \left( \frac{16}{5} \div \frac{9}{2} \text{ of } \frac{16}{3} \right) + \left[ 11 - \left( \frac{19}{8} \right) \right]$   
 $\div \frac{23}{4} - 1$   
 $= \frac{15}{2} \times \left( \frac{16}{5} \div 24 \right) + \left[ \frac{69}{8} \times \frac{4}{23} \right] - 1$   
 $= \frac{15}{2} \times \frac{2}{15} + \frac{3}{2} - 1$   
 $= 1 \frac{1}{2}$

9. (d)  $6 - 6 \div 6 \times 6 + (6 \div 6 \text{ of } 6) \times 6$   
 $- \left( \frac{11}{3} \div \frac{11}{30} \text{ of } \frac{2}{3} \right) \div 5$   
use BODMAS operations  
 $= 6 - 6 + 1 - \left( \frac{11}{3} \div \frac{11}{45} \right) \div 5$   
 $= 1 - 15 \div 5$   
 $= -2$

### SSC CGL Tier-I (2018) {10/06/2019} All Shifts

10. (c)  $\frac{3}{4} \times 2 \frac{2}{3} \div \frac{5}{9}$  of  $1 \frac{1}{5} + \frac{2}{23} \times 3 \frac{5}{6} \div \frac{2}{7}$   
of  $2 \frac{1}{3}$   
[Using BODMAS]  
 $\frac{3}{4} \times \frac{8}{3} \div \left( \frac{5}{9} \times \frac{6}{5} \right) + \frac{2}{23} \times \frac{23}{6} \div \left( \frac{2}{7} \times \frac{7}{3} \right)$   
 $= \frac{3}{4} \times \frac{8}{3} \div \left( \frac{2}{3} \right) + \frac{2}{23} \times \frac{23}{6} \times \frac{3}{2}$   
 $= 3 + \frac{1}{2} = 3 \frac{1}{2}$

11. (a)  $4.5 - (3.2 \div 0.8 \times 5) + 3 \times 4 \div 6$   
 $= 4.5 - (4 \times 5) + \frac{3 \times 4}{6}$   
 $= 4.5 - 20 + 2$   
 $= -13.5$

12. (a)  $3.8 - (4.2 \div 0.7 \times 3) + 5 \times 2 \div 0.5$   
 $= 3.8 - (6 \times 3) + 5 \times 4$   
 $= 3.8 - 18 + 20 = 5.8$

### SSC CGL Tier-I (2018) {11/06/2019} All Shifts

13. (d)  $2.8 + (5.2 \div 1.3 \times 2) - 6 \times 3 \div 8 + 2$   
 $= 2.8 + 8 - \frac{9}{4} + 2$   
 $= 12.8 - 2.25 = 10.55$

14. (b)  $7.2 + (8.4 \div 0.12 \times 0.2) - 5 \times 3 \div 0.05 + 3$   
 $= 7.2 + (70 \times 0.2) - 5 \times \frac{300}{5} + 3$   
 $= 7.2 + 14 - 300 + 3$   
 $= -275.8$

15. (b)  $5.8 + (7.4 \div 3.7 \times 5) - 6 \times 2 \div 2.5$   
 $= 5.8 + 10 - 6 \times \frac{20}{25}$   
 $= 5.8 + 10 - 4.8 = 11$

**SSC CGL Tier-I (2018)****{12/06/2019} All Shifts**

$$16. (d) 3.8 + (8.2 \div 4.1 \times 2) - 4 \times 3 \div 12$$

$$= 3.8 + 4 - 4 \times \frac{3}{1.2}$$

$$= 3.8 + 4 - 10 = -2.2$$

$$17. (b) 7.5 + (5.4 \div 4.5 \times 2) - 8 \times 4 \div 3.2$$

$$= 7.5 + \frac{5.4}{4.5} \times 2 - 8 \times \frac{4}{3.2}$$

$$= 7.5 + \frac{12}{5} - \frac{32}{3.2}$$

$$= 7.5 + 2.4 - 10 = -0.1$$

$$18. (c) 108 \div 36 \times 4 + 2.5 \times 4 \div 0.5 - 10$$

$$= 3 \times 4 + 2.5 \times \frac{4}{0.5} - 10$$

$$= 12 + 20 - 10 = 22$$

**SSC CGL Tier-I (2018)****{13/06/2019} All Shifts**

$$19. (d) 21.6 \div 3.6 \times 2 + 0.25 \times 16 \div 4 - 6$$

$$= \frac{21.6}{3.6} \times 2 + 0.25 \times \frac{16}{4} - 6$$

$$= 12 + 1 - 6 = 7$$

$$20. (c) 15.2 + 5.8 \div 2.9 \times 2 - 3.5 \times 2 \div 0.5$$

use 'BODMAS' operations

$$= 15.2 + 2 \times 2 - 3.5 \times \frac{2}{0.5}$$

$$= 15.2 + 4 - 14$$

$$= 5.2$$

$$21. (c) 9 \frac{3}{4} \div \left[ 2 \frac{1}{6} \div \left\{ 4 \frac{1}{3} - \left( 2 \frac{1}{2} + \frac{3}{4} \right) \right\} \right]$$

use 'BODMAS' operations

$$= \frac{39}{4} \div \left[ \frac{13}{6} \div \left( \frac{13}{3} - \left( \frac{5}{2} + \frac{3}{4} \right) \right) \right]$$

$$= \frac{39}{4} \div \left[ \frac{13}{6} \div \left( \frac{13}{3} - \frac{13}{4} \right) \right]$$

$$= \frac{39}{4} \div \left( \frac{13}{6} \times \frac{12}{13} \right)$$

$$= \frac{39}{4} \times \frac{1}{2} = \frac{39}{8}$$

**SSC CGL Tier-I (2018)****{13/06/2019} All Shifts**

$$22. (c) 9 \frac{3}{4} + \left[ 2 \frac{1}{6} \div \left\{ 4 \frac{1}{3} - \left( 2 \frac{1}{2} + \frac{3}{4} \right) \right\} \right]$$

Use BODMAS Operations

$$= \frac{39}{4} + \left[ \frac{13}{6} \div \left\{ \frac{13}{3} - \frac{13}{4} \right\} \right]$$

$$= \frac{39}{4} + \left[ \frac{13}{6} \div \frac{13}{12} \right]$$

$$= \frac{39}{4} + \left( \frac{13}{6} \times \frac{12}{13} \right)$$

$$= \frac{39}{4} + 2 = \frac{47}{4}$$

**SSC CGL Tier-I (2019)****{03/03/2020} All Shifts**

$$23. (c) \frac{42 - 12 \times 3 + 8 \div 2 + 15}{8 \times 2 - 4 + 9 \div 3}$$

Change sign according to question.

$$\frac{42 + 12 \div 3 - 8 \times 2 - 15}{8 \div 2 + 4 - 9 \times 3}$$

$$\frac{46 - 31}{8 - 27} = -\frac{15}{19}$$

$$24. (b) \left( 18 \div 2 \text{ of } \frac{1}{4} \right) \times \left( \frac{2}{3} \div \frac{3}{4} \times \frac{5}{8} \right) \div \left( \frac{2}{3} \div \frac{3}{4} \text{ of } \frac{3}{4} \right)$$

$$36 \times \frac{5}{9} \div \frac{32}{27} = 16 \frac{7}{8}$$

$$25. (c) \frac{-5}{2} + \frac{3}{2} \div 6 \times \frac{1}{2}$$

$$\frac{-5}{2} + \frac{3}{2 \times 6 \times 2}$$

$$\frac{-60 + 3}{24} = \frac{-57}{24} = -\frac{19}{8}$$

$$26. (a) a^2 - b^2 = (a+b)(a-b)$$

$$= (a+b-c+d)^2 - (a-b+c-d)^2$$

$$= (a+b-c+d+a-b+c-d)(a+b-c+d-a+b-c+d)$$

$$= (2a)(2b-2c+2d)$$

$$= 4a(b+d-c)$$

$$27. (a) 36 \div 42 \text{ of } 6 \times 7 + 24 \times 6 \div 18 + 3 \div (2-6) - (4+3 \times 2) \div 8$$

$$\frac{21 \div 3 \text{ of } 7}{1 + 24 \times \frac{1}{3} + 3 \div (-4) - (10) \div 8}$$

$$= 9 - \frac{3}{4} - \frac{10}{8}$$

$$= \frac{72 - 6 - 10}{8} = \frac{56}{8} = 7$$

**SSC CGL Tier-I (2019)****{04/03/2020} All Shifts**

$$28. (b) \frac{7 - [4 + 3(2 - 2 \times 2 + 5) - 8] \div 5}{2 \div 2 \text{ of } (4 + 4 \div 4 \text{ of } 4)}$$

$$= \frac{7 - [4 + 9 - 8] \div 5}{2 \div 2 \text{ of } \left( \frac{17}{4} \right)}$$

$$= \frac{6}{2 \div \frac{17}{2}} = \frac{6 \times 17}{4}$$

$$= \frac{51}{2} = 25 \frac{1}{2}$$

$$29. (a) \frac{x^3 - y^3}{x[(x+y)^2 - 3xy]} \div \frac{y[(x-y)^2 + 3xy]}{x^3 + y^3} \times \frac{(x+y)^2 - (x-y)^2}{x^2 - y^2}$$

$$= \frac{(x-y)(x^2 + y^2 + xy)}{x[x^2 + y^2 - xy]} \times \frac{(x+y)(x^2 + y^2 - xy)}{y[x^2 + y^2 + xy]} \times \frac{4xy}{(x+y)(x-y)} = 4$$

$$30. (a) \text{ Put } x = 1$$

$$P = \frac{x^4 - 8x}{x^3 - x^2 - 2x} = \frac{1 - 8}{1 - 1 - 2} = \frac{-7}{-2} = \frac{7}{2}$$

$$Q = \frac{x^2 + 2x + 1}{x^2 - 4x - 5} = \frac{1 + 2 + 1}{1 - 4 - 5} = \frac{4}{-8} = -\frac{1}{2}$$

$$R = \frac{2x^2 + 4x + 8}{x - 5} = \frac{2 + 4 + 8}{1 - 5} = \frac{14}{-4} = -\frac{7}{2}$$

$$\frac{P \times Q}{R} = \frac{\frac{7}{2} \times -\frac{1}{2}}{-\frac{7}{2}} = \frac{1}{2}$$

$$31. (b) 5 \frac{1}{2} \div 3 \frac{2}{3} \text{ of } \frac{1}{4} + \left( 5 \frac{1}{9} - 7 \frac{7}{8} \div 9 \frac{9}{20} \right) \times \frac{9}{11}$$

$$\frac{5 \div 5 \text{ of } \frac{1}{10} - 10 \times 10 \div 20}{\frac{11}{2} \div \frac{11}{2} \text{ of } \frac{1}{4} + \frac{46}{9} - \frac{63}{8} \div \frac{189}{20} \times \frac{9}{11}}$$

$$\frac{5 \div \frac{1}{2} - 5}{5 \div \frac{1}{2} - 5} = \frac{11 \div \frac{11}{8} + \left( \frac{46}{9} - \frac{5}{6} \right) \times \frac{9}{11}}{5}$$

$$= \frac{4 + \frac{77}{18} \times \frac{9}{11}}{5} = \frac{15}{2 \times 5} = \frac{3}{2} = 1 \frac{1}{2}$$

$$32. (b) 8 \div [(8-3) \div \{(4 \div 4 \text{ of } 8) + 4 - 4 \times 4 \div 8\} - 2]$$

$$\frac{8 \times 8 \div 4 - 8 \div 8 \text{ of } 2 - 7}{8 \div \left[ 5 \div \left\{ \frac{1}{8} + 2 \right\} - 2 \right]}$$

$$= \frac{16 - \frac{1}{2} - 7}{8 \div \left[ 5 \div \frac{17}{8} - 2 \right]}$$

$$= \frac{32 - 1 - 14}{2}$$

$$= \frac{8 \div \frac{6}{17}}{\frac{17}{2}} = \frac{8 \times 17}{6 \times 17} = \frac{8}{3}$$

**SSC CGL Tier-I (2019)****{05/03/2020} All Shifts****33. (b)** Put,  $x = 2, y = 1$ 

$$P = \frac{9}{7}, Q = \frac{3}{7}, R = \frac{10}{3}$$

$$\therefore P \div Q \times R = \frac{9}{7} \times \frac{7}{3} \times \frac{10}{3} = 10$$

Go through option:-(b)

$$\Rightarrow 2(x^2 + y^2) = 2(4+1) = 10$$

**Alternatively:-**

$$\frac{x^3 + y^3}{(x-y)^2 + 3xy} \div \frac{(x+y)^2 - 3xy}{x^3 - y^3}$$

$$\times \frac{(x+y)^2 + (x-y)^2}{x^2 - y^2}$$

$$= \frac{(x+y)(x^2 + y^2 - xy)}{x^2 + y^2 - 2xy + 3xy} \div$$

$$\frac{x^2 + y^2 + 2xy - 3xy}{(x-y)(x^2 + y^2 + xy)} \times \frac{2(x^2 + y^2)}{(x+y)(x-y)}$$

$$= \frac{(x+y)(x^2 + y^2 - xy)}{x^2 + y^2 + xy} \times$$

$$\frac{(x-y)(x^2 + y^2 + xy)}{(x^2 + y^2 - xy)} \times \frac{2(x^2 + y^2)}{(x+y)(x-y)}$$

$$= 2(x^2 + y^2)$$

$$\boxed{\begin{aligned} (x+y)^2 + (x-y)^2 &= 2(x^2 + y^2) \\ (x+y)^2 - (x-y)^2 &= 4xy \end{aligned}}$$

**34. (c)**

$$3\frac{2}{3} \div \frac{11}{30} \text{ of } \frac{2}{3} - \frac{1}{4} \text{ of } 2\frac{1}{2} \div \frac{3}{5} \times 4\frac{4}{5}$$

$$\frac{2}{5} \text{ of } 7\frac{1}{2} \div \frac{3}{4} - \frac{3}{4} \times 1\frac{1}{2} \div 2\frac{1}{4}$$

$$\frac{11}{3} \div \frac{11}{45} - \frac{5}{8} \div \frac{3}{5} \times \frac{24}{5}$$

$$= 3 \div \frac{3}{4} - \frac{3}{4} \times \frac{3}{2} \div \frac{9}{4}$$

$$15 - \frac{5}{8} \times \frac{5}{3} \times \frac{24}{5}$$

$$= 4 - \frac{3}{4} \times \frac{2}{3}$$

$$= \frac{10}{7/2} = \frac{20}{7} = 2\frac{6}{7}$$

**35. (c)**

$$\frac{x^2(x-4)^2}{(x+4)^2 - 4x} \div \frac{(x^2 - 4x)^3}{(x+4)^2}$$

$$\times \frac{64 - x^3}{16 - x^2}$$

$$= \frac{x^2(x-4)^2}{x^2 + 8x + 16 - 4x} \times \frac{(x+4)^2}{x^3(x-4)^3}$$

$$\times \frac{4^3 - x^3}{4^2 - x^2}$$

$$= \frac{x^2(x-4)^2}{x^2 + 4x + 16} \times \frac{(x+4)^2}{x^3(x-4)^3} \times$$

$$\frac{(4-x)(16+4x+x^2)}{(4+x)(4-x)}$$

$$= \frac{x+4}{x(x-4)}$$

**Alternatively-** Put,  $x = 1$ 

$$\frac{1(1-4)^2}{(1+4)^2 - 4 \times 1} \times \frac{(1+4)^2}{(1-4)^3} \times \frac{64-1}{16-1}$$

$$\frac{9}{21} \times \frac{25}{-27} \times \frac{63}{15} = \frac{-5}{3}$$

Not put  $x = 1$  in option (3)

$$\frac{(x-4)}{x(x-4)} = \frac{-5}{3} \dots \text{satisfied}$$

**36. (c)**  $\frac{3}{5} \times 1\frac{7}{8} \div 1\frac{1}{3}$  of  $\frac{3}{16}$ 

$$\left(3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3}\right) \times 2\frac{1}{2} + \frac{1}{2} + \frac{1}{8} \div \frac{1}{4}$$

$$\Rightarrow \frac{3}{5} \times \frac{15}{8} \div \frac{12}{48} - \left(\frac{16}{5} \div \frac{9}{2} \times \frac{16}{3}\right)$$

$$\times \frac{5}{2} + \frac{1}{2} + \frac{1}{2}$$

$$\Rightarrow \frac{3}{5} \times \frac{15}{8} \times 4 - \left(\frac{16}{5} \div 24\right) \times \frac{5}{2} + 1$$

$$\Rightarrow \frac{9}{2} - \left(\frac{2}{15}\right) \times \frac{5}{2} + 1$$

$$\Rightarrow \frac{9}{2} - \frac{2}{15} \times \frac{5}{2} + 1$$

$$\Rightarrow \frac{9}{2} - \frac{1}{3} + 1 = \frac{27-2+6}{6}$$

$$\Rightarrow \frac{31}{6} = 5\frac{1}{6}$$

**37. (a)**  $-1 + \frac{1}{4} \div \frac{1}{2} \times 2 + 5$ 

$$\Rightarrow -1 + \frac{1}{4} \times 2 \times 2 + 5$$

$$\Rightarrow -1 + 1 + 5$$

$$\Rightarrow 5$$

**SSC CGL Tier-I (2019)****{06/03/2020} All Shifts****38. (a)**  $\frac{[(30 \times 5) + (84 \times 6)] \div 5}{\left[\frac{2}{3} \div 18\right] - [4 \div 2]}$ 

$$\frac{[30 \div 5 - 84 \div 6] \times 5}{\left[\frac{2}{3} \times 18\right] + [4 \times 2]}$$

$$= \frac{(6-14) \times 5}{12+8} = \frac{-40}{20} = -2$$

**39. (c)**  $113 \times 87$ 

$$(110+3) \times 87 = (100^2 - 13^2)$$

$$9570 + 261 \Rightarrow 9831$$

**Alternatively:-**

$$(100+13)(100-13)$$

$$10000 - 169 = 9831$$

**40. (d)**  $\frac{4}{3} \div \frac{1}{6} \times 2 - 1$ 

$$= \frac{4}{3} \times 6 \times 2 - 1 = 15$$

**41. (d)**  $\frac{[54 - (5 \div 2) \times 8] + 13}{48 - 4 \div 3 \times 8 - 2}$ 

$$\frac{34 + 13}{48 - \frac{4}{3} \times 8 - 2}$$

$$= \frac{47}{48 - \frac{32}{3} - 2} = \frac{47 \times 3}{106} = \frac{141}{106}$$

**SSC CGL Tier-I (2019)****{07/03/2020} All Shifts****42. (b)**  $3 - (9 - 3 \times 8 \div 2)$ 

$$= 3 - (9 - 12)$$

$$= 3 - (-3)$$

$$= 6$$

**43. (a)**  $(151)^2 - (149)^2$ 

$$\therefore a^2 - b^2 = (a+b)(a-b)$$

$$= (151+149)(151-149)$$

$$= 300 \times 2$$

$$= 600$$

**44. (a)**  $1\frac{1}{8} \div \left(4\frac{1}{4} \div \frac{3}{5} \text{ of } 8\frac{1}{2}\right) - \frac{2}{5} \times$ 

$$1\frac{1}{3} \div \frac{4}{5} \text{ of } 1\frac{2}{3} + \frac{11}{20}$$

$$\Rightarrow \frac{9}{8} \div \left(\frac{17}{4} \div \frac{3}{5} \text{ of } \frac{17}{2}\right) - \frac{2}{5} \times \frac{4}{3} \div$$

$$\frac{4}{5} \text{ of } \frac{5}{3} + \frac{11}{20}$$

$$\Rightarrow \frac{9}{8} \div \left(\frac{17}{4} \times \frac{5}{3} \times \frac{2}{17}\right) - \frac{2}{5} \times \frac{4}{3} \div$$

$$\frac{20}{15} + \frac{11}{20}$$

$$\Rightarrow \frac{9}{8} \div \left(\frac{5}{6}\right) - \frac{2}{5} \times \frac{4}{3} \times \frac{15}{20} + \frac{11}{20}$$

$$\Rightarrow \frac{9}{8} \times \frac{6}{5} - \frac{2}{5} + \frac{11}{20}$$

$$= \frac{27}{20} - \frac{2}{5} + \frac{11}{20}$$

$$= \frac{27-8+11}{20}$$

$$= \frac{3}{2} = 1\frac{1}{2}$$

**45. (b)**  $a^3 + b^3 + c^3 - 3abc = (a+b+c)$ 

$$(a^2 + b^2 + c^2 - ab - bc - ca)$$

In this question

$$a = a$$

$$b = b$$

$$c = 2c$$

$$\therefore a^3 + b^3 + (2c)^3 - 3 \times a \times b \times 2c$$

$$= a^3 + b^3 + 8c^3 - 6abc$$

**46. (b)**  $5.6 - \{2 + 0.6 \text{ of } (2.1 - 2.6 \times 1.12)\}$ 

$$5.6 - \{2 + 0.6 \text{ of } (-0.812)\}$$

$$5.6 - \{2 - 0.4872\}$$

$$5.6 - 1.5128 = 4.0872$$

**SSC CGL Tier-I (2019)****{09/03/2020} All Shifts**

47. (b)  $1800 \div 20 \times \{(12-6) + (24-2)\}$   
 $\Rightarrow 1800 \div 20 \times \{6+12\}$

$$\Rightarrow \frac{1800}{20} \times 18 = \mathbf{1620}$$

48. (a)  $11 + 11 \times 11 - 11 \div 11$   
 $= 11 + 121 - 1$   
 $= \mathbf{131}$

49. (c)  $(26 - 13 \times 2) \div 2 + 1$   
 $= \frac{0}{2} + 1 = \mathbf{1}$

50. (b)  $515 \times 485$   
 $(500+15)(500-15)$   
 $= 250000 - 225$   $a^2 - b^2 = (a+b)(a-b)$   
 $= \mathbf{249775}$

**Solutions****SSC CGL Tier-I (2020)****{13/08/2021} All Shifts**

51. (d)  $20 \div 5$  of  $8 \times [9 \div 6 \times (6 - 3)] - (10 \div 2$  of  $20)$

Use 'BODMAS' operations

$$= \frac{1}{2} \left[ \frac{9}{2} \right] - \frac{1}{4}$$

$$= \frac{9}{4} - \frac{1}{4}$$

$$= \frac{8}{4} = \mathbf{2}$$

52. (c)  $3 \div 18$  of  $3 \times 6 - 22 \times 6 \div 18 - 3 \div 2 + 10 - 3 \div 9$  of  $3 \times 9$

Use 'BODMAS' Operations

$$\Rightarrow \frac{3}{54} \times 6 - \frac{22}{3} - \frac{3}{2} + 10 - \frac{3}{27} \times 9$$

$$= \frac{1}{3} - \frac{22}{3} - \frac{3}{2} + 10 - 1$$

$$= \frac{2 - 44 - 9 + 60 - 6}{6} = \frac{3}{6} = \mathbf{\frac{1}{2}}$$

53. (d)  $14 - 20 \times [7 - \{18 \div 2$  of  $3 - (15 - 25 \div 5 \times 4)\}]$

$$= 14 - 20 \times [7 - \{18 \div 6 - (-5)\}]$$

$$= 14 - 20 \times [7 - \{3 + 5\}]$$

$$= 14 - 20 \times [7 - 8]$$

$$= 14 - 20 \times (-1)$$

$$= 14 + 20$$

$$= \mathbf{34}$$

54. (b)  $90 \div 20$  of  $6 \times [11 \div 4$  of  $\{3 \times 2 - (3 - 8)\}] \div (9 \div 3 \times 2)$

Use BODMAS Operations

$$= 90 \div 20$$
 of  $6 \times [11 \div 4$  of  $\{6 - (-5)\}] \div (9 \div 3 \times 2)$

$$= 90 \div 20$$
 of  $6 \times \left[ \frac{1}{4} \right] \div 6$

$$= \frac{90}{120} \times \frac{1}{4} \times \frac{1}{6}$$

$$= \mathbf{\frac{1}{32}}$$

**SSC CGL Tier-I (2020)****{16/08/2021} All Shifts**

55. (a)  $\frac{52 - 1170 \div 26 + 13 \times 2}{2 + 1 \frac{1}{8} \text{ of } 2 - 1 \frac{1}{4}}$

$$\Rightarrow \frac{52 - 45 + 26}{2 + \frac{9}{4} - \frac{5}{4}}$$

$$\Rightarrow \frac{78 - 45}{3} \Rightarrow \frac{33}{3} \Rightarrow \mathbf{11}$$

56. (a)  $3 \frac{5}{6} + \left[ 3 \frac{2}{3} + \left\{ \frac{15}{4} \left( 5 \frac{4}{5} \div 14 \frac{1}{2} \right) \right\} \right]$

$$= \frac{23}{6} + \left[ \frac{11}{3} + \left\{ \frac{15}{4} \left( \frac{29}{5} \times \frac{2}{29} \right) \right\} \right]$$

$$= \frac{23}{6} + \left[ \frac{11}{3} + \frac{3}{2} \right]$$

$$= \frac{23}{6} + \frac{31}{6}$$

$$= \frac{54}{6}$$

$$= \mathbf{9}$$

57. (d)  $25 \div 15$  of  $4 \times [4 \div 5 \times (9 - 7)] - (20 \div 5$  of  $9)$

Use BODMAS operations

$$\Rightarrow \frac{25}{60} \times \left[ \frac{4}{5} \times 2 \right] - \frac{20}{45} = \mathbf{\frac{2}{9}}$$

**SSC CGL Tier-I (2020)****{17/08/2021} All Shifts**

58. (b)  $32 \div 12$  of  $3 \times [5 - (15 - 12) \div 9]$

$$\text{of } \frac{3}{7} + 4 - 8 \div 2 \text{ of } 4$$

Use 'BODMAS' operations

$$= 32 \div 12 \text{ of } 3 \times \left[ 5 - \frac{1}{3} \right] \text{ of } \frac{3}{7} + 4 - 8$$

$$\div 2 \text{ of } 4$$

$$= \frac{32}{36} \times \frac{14}{3} \times \frac{3}{7} + 4 - \frac{8}{8}$$

$$= \mathbf{4 \frac{7}{9}}$$

59. (c)  $5 \frac{1}{5} \div \left[ 3 \frac{1}{2} - \left\{ \frac{5}{6} - \left( \frac{3}{5} + \frac{1}{10} - \frac{4}{15} \right) \right\} \right]$

$$= \frac{26}{5} \div \left[ \frac{7}{2} - \left\{ \frac{5}{6} - \left( \frac{18 + 3 - 8}{30} \right) \right\} \right]$$

$$= \frac{26}{5} \div \left[ \frac{7}{2} - \left\{ \frac{5}{6} - \frac{13}{30} \right\} \right]$$

$$= \frac{26}{5} \div \left[ \frac{7}{2} - \frac{12}{30} \right]$$

$$= \frac{26}{5} \div \frac{93}{30}$$

$$= \frac{26}{5} \times \frac{30}{93}$$

$$= \mathbf{\frac{52}{31}}$$

60. (d)  $\left( \frac{7}{16} \div \frac{1}{2} \text{ of } \frac{1}{5} \right) \times \frac{4}{5} -$

$$\frac{1}{3} \times \frac{5}{8} \div \frac{1}{2} + \frac{3}{4}$$

$$= \left( \frac{7}{16} \times 10 \right) \times \frac{4}{5} - \frac{1}{3} \times \frac{5}{4} + \frac{3}{4}$$

$$= \frac{35}{8} \times \frac{4}{5} - \frac{5}{12} + \frac{3}{4}$$

$$= \frac{7}{2} - \frac{5}{12} + \frac{3}{4}$$

$$= \frac{42 - 5 + 9}{12} = \frac{46}{12} = \mathbf{\frac{23}{6}}$$

61. (c)  $\frac{108 \times 108 \times 108 - 92 \times 92 \times 92}{108 \times 108 + 92 \times 92 + 108 \times 92}$

$$[a^3 - b^3 = (a-b)(a^2 + b^2 + ab)]$$

$$= \frac{a^3 - b^3}{a^2 + b^2 + ab}$$

$$= \frac{(a-b)(a^2 + b^2 + ab)}{a^2 + b^2 + ab} = a - b$$

$$= 108 - 92 = \mathbf{16}$$

**SSC CGL Tier-I (2020)****{18/08/2021} All Shifts**

62. (d)  $18 \div [26 - \{25 - (15 - 5) \div 2\}]$  of  $12 + 2 - 2 \div 4 \times 16$

Use 'BODMAS' operations

$$= 18 \div [26 - 20] \text{ of } 12 + 2 - 2 \div 4 \times 16$$

$$= \frac{18}{72} + 2 - 2 \div 4 \times 16$$

$$= \frac{1}{4} + 2 - \frac{1}{2} \times 16$$

$$= \frac{1}{4} - 6$$

$$= \mathbf{-\frac{23}{4}}$$

63. (c)  $\frac{(375 + 125)^2 - (125 - 375)^2}{375 \times 375 - 125 \times 125}$

$$= \frac{(a^2 + b^2) - (b - a)^2}{a^2 - b^2}$$

$$= \frac{a^2 + b^2 + 2ab - b^2 - a^2 + 2ab}{(a+b)(a-b)}$$

$$= \frac{4 \times 375 \times 125}{500 \times 250}$$

$$= \mathbf{\frac{3}{2}}$$

64. (c)  $6 \div 4$  of  $3 - 4 \div 6 \times (13 - 10) - 2 \times 15 \div 6 \times 6$

Use 'BODMAS' operations

$$= \frac{6}{12} - 4 \div 6 \times 3 - 2 \times 15 \div 6 \times 6$$

$$= \frac{6}{12} - \frac{4}{6} \times 3 - 2 \times \frac{15}{6} \times 6$$

$$= \frac{1}{2} - 2 - 30 = \mathbf{-31 \frac{1}{2}}$$

$$65. (a) 441 \div \left[ 270 \div \frac{3}{7} + \left( 17 \div \frac{1}{3} \right) - \left( 8 \frac{1}{2} - \frac{5}{2} \right) \right]$$

$$= 441 \div [630 + 51 - 6] = \frac{49}{75}$$

**SSC CGL Tier-I (2020)**

{20/08/2021} All Shifts

$$66. (c) 3 \times 8 \div 9 \text{ of } 6 - 2 \div 3 \times (5-2) \times 2 + 18 \div 3 \text{ of } 3$$

$$\text{Use 'BODMAS' operations}$$

$$= 3 \times 8 \div 54 - 2 \div 3 \times (3) \times 2 + 18 \div 9$$

$$= 3 \times \frac{8}{54} - \frac{2}{3} \times 3 \times 2 + 2$$

$$= \frac{4}{9} - 4 + 2$$

$$= \frac{4}{9} - 2$$

$$= -1 \frac{5}{9}$$

$$67. (a) 15 \div 3 \text{ of } 2 \times 4 + 9 \div 18 \text{ of } 2 \times 3 - 4 \div 8 \times 2$$

Use 'BODMAS' operations

$$= \frac{15}{6} \times 4 + \frac{9}{36} \times 3 - \frac{4}{8} \times 2$$

$$= 10 + \frac{3}{4} - 1$$

$$= 9 \frac{3}{4}$$

$$68. (c) 8 \div 4 \text{ of } 2 - 15 \div 2 \text{ of } 5 - 6 \div 5 \times (-7 + 5) \text{ of } 2$$

Use BODMAS operations

$$= \frac{8}{8} - \frac{15}{10} - \frac{6}{5} \times (-4)$$

$$= 1 - \frac{3}{2} + \frac{24}{5}$$

$$= \frac{43}{10} = 4 \frac{3}{10}$$

**SSC CGL Tier-I (2020)**

{23/08/2021} All Shifts

$$69. (a) 7 \times 4 \div 21 \text{ of } 4 - 5 \div 4 \times (9 - 13) + 2 - 2 \div 8$$

Use BODMAS

$$= 7 \times \frac{4}{84} - \frac{5}{4} \times (-4) + 2 - \frac{1}{4}$$

$$= \frac{1}{3} + 5 + \frac{7}{4}$$

$$= \frac{4 + 60 + 21}{12} = \frac{85}{12} = 7 \frac{1}{12}$$

$$70. (b) 423 \div \left[ 270 \div \frac{3}{7} \times 35 + \left( 17 \div \frac{1}{3} \right) \right]$$

$$- \left( 8 \frac{1}{2} - \frac{5}{2} \right)$$

$$= 423 \div [630 \times 35 + 51 - 6]$$

$$= 423(22050 + 45)$$

$$= 423 \div 22095$$

$$= \frac{47}{2455}$$

$$= 2455$$

$$71. (b) 54 \div 16 \text{ of } 3 \times [12 \div 4 \text{ of } \{6 \times 3 \div (11 - 2)\}] \div (12 \div 8 \times 2)$$

Use BODMAS operations

$$= 54 \div 48 [12 \div 4 \text{ of } 2] \div 3$$

$$= \frac{54}{48} \times \frac{12}{8} \times \frac{1}{3} = \frac{9}{16}$$

**SSC CGL Tier-I (2020)**

{24/08/2021} All Shifts

$$72. (a) 3 \frac{1}{5} \div 4 \frac{1}{2} \text{ of } 5 \frac{1}{3} - \frac{1}{8} \div \frac{1}{2} \text{ of}$$

$$\frac{1}{4} + \frac{1}{4} \left( \frac{1}{2} \div \frac{1}{8} \times \frac{1}{4} \right)$$

$$= \frac{16}{5} \div 24 - \frac{1}{8} \div \frac{1}{8} + \frac{1}{4} \quad (1)$$

$$= \frac{16}{5} \times \frac{1}{24} - \frac{1}{8} \times 8 + \frac{1}{4}$$

$$= \frac{2}{15} - \frac{3}{4}$$

$$= -\frac{37}{60}$$

$$73. (b) \frac{7}{12} \div \frac{1}{10} \text{ of } \frac{2}{3} - \frac{5}{3} \times \frac{9}{10} + \frac{5}{8} \div$$

$$\frac{3}{4} \text{ of } \frac{2}{3}$$

$$= \frac{7}{12} \div \frac{1}{15} - \frac{5}{3} \times \frac{9}{10} + \frac{5}{8} \div \frac{1}{2}$$

$$= \frac{7}{12} \times 15 - \frac{3}{2} + \frac{5}{4}$$

$$= \frac{35}{4} - \frac{3}{2} + \frac{5}{4}$$

$$= \frac{34}{4} = 8 \frac{1}{2}$$

$$74. (c) \left( \frac{3}{4} - \frac{1}{4} \div \frac{1}{4} \text{ of } \frac{2}{5} \right) \div \left( \frac{3}{4} \div \frac{2}{3} \text{ of } \frac{3}{5} \right)$$

$$= \left( \frac{3}{4} - \frac{1}{4} \times 10 \right) \div \left( \frac{3}{4} \times \frac{5}{2} \right)$$

$$= -\frac{7}{4} \times \frac{8}{15} = -\frac{14}{15}$$

**SSC CGL Tier-I (2021)**

{11/04/2022} All Shifts

$$75. (c) \frac{372}{56} \times 7 - 5 + 2$$

$$= 46.5 - 5 + 2$$

$$= 43.5 = 43 \frac{1}{2}$$

$$76. (b) \frac{980}{35} \times 16 + 4 - 4$$

$$= 28 \times 16$$

$$= 448$$

$$77. (c) \frac{7}{2} + \frac{16}{3} \times \frac{3}{4} \times \frac{21}{4} - \frac{11}{2} - \frac{11}{2} \div 7 \times 2$$

$$\frac{3}{2} \times \frac{5}{3} - \frac{13}{2}$$

$$= \frac{7}{2} + 21 - \frac{11}{2}$$

$$= \frac{5}{2} - \frac{13}{2} \div 7 \times 2$$

$$= \frac{19}{-4} \div 7 \times 2$$

$$= -\frac{19}{4} \times \frac{1}{7} \times 2$$

$$= -\frac{19}{14}$$

$$= -1 \frac{5}{14}$$

**SSC CGL Tier-I (2021)**

{12/04/2022} All Shifts

$$78. (a) \frac{5 - 35 \div 5 \times 15 + 5}{12 - 2}$$

$$= \frac{5 - 7 \times 15 + 5}{10}$$

$$= \frac{5 - 105 + 5}{10} = -9.5$$

$$79. (c) 40 \div 5 \text{ of } 2 \times [18 \div 6 \times (12 - 9) \text{ of } 5 - (3 - 8)] \div 25$$

$$= 40 \div 10 \times [3 \times 15 + 5] \div 25$$

$$= 4 \times 50 \div 25$$

$$= 4 \times 2$$

$$= 8$$

$$80. (b) \frac{2}{7} - \frac{3}{8} - \left[ 2 \frac{1}{4} \div 3 \frac{1}{2} \text{ of } 1 \frac{1}{3} + \right.$$

$$\left. \left\{ 1 \frac{17}{40} - \left( 3 - 1 \frac{1}{5} - \frac{3}{8} \right) \right\} \right]$$

$$= \frac{2}{7} - \frac{3}{8} \left[ \frac{9}{4} \div \frac{14}{3} + \frac{57}{40} - \frac{57}{40} \right]$$

$$= \frac{2}{7} - \frac{3}{8} - \left[ \frac{9}{4} \times \frac{3}{14} \right]$$

$$= \frac{2}{7} - \frac{3}{8} - \frac{27}{56}$$

$$= \frac{16 - 21 - 27}{56}$$

$$= -\frac{32}{56}$$

$$= -\frac{4}{7}$$

**SSC CGL Tier-I (2021)**  
**{13/04/2022} All Shifts**

$$81. (a) 5 \left( 1 - \frac{x}{5} \right) - (5 - x) - \frac{1}{200} \text{ of } (20 - x) = 0.08$$

$$5 - x - 5 + x - \frac{1}{10} + \frac{x}{200} = \frac{8}{100}$$

$$\frac{x}{200} = \frac{8}{100} + \frac{1}{10}$$

$$\frac{x}{200} = \frac{18}{100} \quad x = 36$$

$$82. (c) \frac{48.3 \times [(4.95)^2 + 4.95 \times 13.25]}{[(12.55)^2 - (5.65)^2] \times 19.8}$$

$$= \frac{48.3 \times 4.95 [4.95 + 13.25]}{18.2 \times 6.9 \times 19.8}$$

$$= \frac{48.3 \times 4.95 \times 18.2}{18.2 \times 6.9 \times 19.8} = 1.75$$

$$83. (d) 25(3 + 4p) \div 12 \text{ of } 5 - 3 \times 8 = 6$$

$$25(3 + 4p) \div 60 - 24 = 6$$

$$\frac{25(3 + 4p)}{60} - 24 = 30$$

$$75 + 100P = 1800$$

$$100P = 1725$$

$$P = \frac{1725}{100} = 17 \frac{1}{4}$$

**SSC CGL Tier-I (2021)**  
**{18/04/2022} All Shifts**

$$84. (a) \frac{46 + \frac{3}{4} \text{ of } 32 - 6}{37 - \frac{3}{4} \text{ of } (34 + 6)}$$

$$\frac{46 + 24 - 6}{37 - 30} = \frac{64}{7}$$

$$85. (c) 15 + 6.3 \div 7 - 3 \times 1.3 - 2$$

$$= 15 + 0.9 - 3.9 - 2$$

$$= 15.9 - 5.9 = 10$$

$$86. (a) \frac{3 \div 1 \times 2 + 5 - 2}{3 \times 3 - 2}$$

$$= \frac{3 \times 2 + 5 - 2}{9 - 2} = \frac{6 + 3}{7} = \frac{9}{7}$$

**SSC CGL Tier-I (2021)**  
**{19/04/2022} All Shifts**

$$87. (c) \left[ \frac{3}{8} - \left\{ \frac{3}{8} - \left( \frac{5}{8} - \frac{3}{8} \right) \right\} \right] \text{ of } 4.8 - 0.9$$

$$4 \frac{1}{6} \div 2.5 \times 0.2 \div \frac{1}{5} \text{ of } 50 + \left( \frac{3}{4} - \frac{1}{8} \right)$$

$$\left[ \frac{3}{8} - \left\{ \frac{3}{8} - \frac{2}{8} \right\} \right] \text{ of } 4.8 - 0.9$$

$$= \frac{25}{6} \div 2.5 \times 0.2 \div 10 + \frac{5}{8}$$

$$\left[ \frac{3}{8} - \frac{1}{8} \right] \text{ of } 4.8 - 0.9 = \frac{1.2 - 0.9}{30 + 8}$$

$$= \frac{5}{3} \times \frac{1}{50} + \frac{5}{8} = \frac{1}{30} + \frac{5}{8}$$

$$= \frac{0.3}{4 + 75} = \frac{36}{79}$$

88. (b)

$$9 \div \frac{3}{7} \text{ of } (9 + 6 \times \sqrt{4 - 2}) + \left[ \frac{1}{5} \div \frac{7}{25} - \left\{ \frac{5}{8} + \frac{6}{16} \right\} \right]$$

$$\frac{9 \div \frac{3}{7} \text{ of } 21 + \left[ \frac{1}{5} \div \frac{7}{25} - 1 \right]}{4 + 36 \div (5 + 5 - 1)}$$

$$= \frac{9 \div 9 + \left[ \frac{5}{7} - 1 \right]}{4 + 36 \div 9} = \frac{1 + \left[ \frac{-2}{7} \right]}{4 + 4}$$

$$= \frac{5}{7} \times \frac{1}{8} = \frac{5}{56}$$

89. (a)

$$1 \frac{2}{3} \div \frac{5}{6} \times 6 + \frac{4}{5} \times \frac{1}{2} + \frac{2}{3}$$

$$1 - \left[ 1 \frac{1}{3} \times \left( -\frac{3}{5} \right) - 6 \left\{ \frac{3}{5} - \left( 3 - \frac{3}{10} \right) \right\} \right]$$

$$\frac{5}{3} \div \frac{5}{6} \times 6 + \frac{2}{5} + \frac{2}{3}$$

$$2 - \left[ \frac{4}{3} \left( -\frac{3}{5} \right) - 6 \left\{ \frac{3}{5} - \frac{27}{10} \right\} \right]$$

$$= \frac{12 + \frac{2}{5} + \frac{2}{3}}{2 - \left[ -\frac{4}{5} - 6 \times \left( -\frac{21}{10} \right) \right]} = \frac{196}{-49}$$

$$= \frac{-4}{3}$$

**SSC CGL Tier-I (2021)**
**{20/04/2022} All Shifts**

$$90. (c) [25 + 8 \div 2 - \{16 + (14 \text{ of } 7 \div$$

$$14) - (18 \div 12 \text{ of } \frac{1}{2})]$$

$$= 25 + 4 - \{16 + 7 - 3\}$$

$$= 29 - 20$$

$$= 9$$

$$91. (a) 25 \div 10 - \left( \frac{7}{4} \times \frac{1}{3} \right) \text{ of } \frac{6}{5} + \frac{14}{3}$$

$$\times \frac{9}{10} + \left( \frac{1}{5} \div \frac{1}{25} \right)$$

$$= 2.5 - \frac{7}{10} + \frac{42}{10} + 5$$

$$= 2.5 - 0.7 + 4.2 + 5$$

$$= 1.8 + 4.2 + 5$$

$$= 11$$

$$92. (d) \frac{1 \frac{1}{2} + 1 \frac{3}{7} \div \left( 1 \frac{3}{5} \text{ of } 1 \frac{1}{4} \right) \times 2 \frac{1}{3}}{2 \frac{2}{3} \div \frac{4}{9} \times \frac{5}{6} + 14}$$

$$= \frac{\frac{3}{2} + \frac{10}{7} \div 2 \times \frac{7}{3}}{\frac{8}{3} \times \frac{9}{4} \times \frac{5}{6} + 14} = \frac{\frac{3}{2} + \frac{5}{3}}{5 + 14} = \frac{19}{19}$$

$$= \frac{19}{6} \times \frac{1}{19} = \frac{1}{6}$$

**SSC CGL Tier-I (2021)**  
**{21/04/2022} All Shifts**

93. (a)

$$\frac{4 \frac{1}{3} + 3 \frac{1}{3} \times 1 \frac{4}{5} \div 3 \frac{3}{4} \left( 6 \frac{1}{4} \text{ of } 1 \frac{1}{15} \right)}{\frac{2}{3} \div \frac{5}{6} \times \frac{2}{3}}$$

$$= \frac{\frac{13}{3} + \frac{10}{3} \times \frac{9}{5} \times \frac{4}{15} \times \left( \frac{25}{4} \times \frac{16}{15} \right)}{\frac{2}{3} \times \frac{6}{5} \times \frac{2}{3}}$$

$$= \frac{\frac{13}{3} + \frac{32}{3}}{\frac{8}{3}} = \frac{45}{3} \times \frac{15}{8}$$

$$= \frac{225}{8} = 28 \frac{1}{8}$$

$$94. (d) \frac{(7.03)^3 - (0.3)^3}{(7.03)^2 + 7.03 \times 0.3 + (0.3)^2}$$

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

$$\therefore \frac{a^3 - b^3}{a^2 + ab + b^2} = a - b$$

$$\therefore 7.03 - 0.3 = 6.73$$

95. (d)

$$\left[ \left( 5 \frac{1}{4} \div 3 \frac{1}{2} \times \frac{5}{12} \right) - \frac{3}{16} \right] \div \left( 3 \frac{4}{7} \div \frac{5}{14} \text{ of } 6 \frac{2}{3} \right) \text{ of } 1 \frac{1}{3}$$

$$= \left[ \left( \frac{21}{4} \times \frac{2}{7} \times \frac{5}{12} \right) - \frac{3}{16} \right] \div$$

$$\left( \frac{25}{7} \div \frac{5}{14} \text{ of } \frac{20}{3} \right) \text{ of } \frac{4}{3}$$

$$= \left( \frac{5}{8} - \frac{3}{16} \right) \div \left( \frac{25}{7} \times \frac{42}{100} \right) \text{ of } \frac{4}{3}$$

$$= \frac{7}{16} \div \frac{3}{2} \text{ of } \frac{4}{3}$$

$$= \frac{7}{16} \div 2 \Rightarrow \frac{7}{32}$$

$$96. (b) -5 + 5 + 625 \div 5 \times 5$$

$$= -5 + 5 + 125 \times 5$$

$$= 0 + 625$$

$$= 625$$

**SSC CGL 2023**

Tier-I

$$97. (d) \left[ \frac{5}{2} \times \frac{1}{18} - \left\{ \left( \frac{2}{3} \times \frac{5}{1} \right) - \left( \frac{2}{3} \times \frac{91}{14} \right) \right\} \right]$$

$$\text{of } \frac{28}{9}$$

$$\Rightarrow \frac{5}{6} - \left\{ \frac{10}{3} - \frac{13}{3} \right\} \text{ of } \frac{28}{9}$$

$$\Rightarrow \frac{5}{6} - \{-1\} \text{ of } \frac{28}{9}$$

$$\Rightarrow \frac{5}{36} + \frac{28}{9}$$



$$\Rightarrow \frac{5+112}{36}$$

$$\Rightarrow \frac{117}{36} = \frac{13}{4} = 3\frac{1}{4}$$

**98. (c)**  $3^1 + 3^2 + 3^3 + \dots + 3^8$   
This is a G.P series

$$r = \frac{3^2}{3^1} = 3$$

$$\text{Sum} = a \cdot \left( \frac{r^n - 1}{r - 1} \right)$$

$$= 3 \times \left( \frac{3^8 - 1}{3 - 1} \right)$$

$$= 3 \times \left( \frac{6561 - 1}{2} \right)$$

$$= 3 \times \frac{6560}{2}$$

$$= 3 \times 3280 = \mathbf{9840}$$

**99. (a)**  $277 \times 323$   
 $\Rightarrow (300 - 23) \times (300 + 23)$   
 $\Rightarrow (300)^2 - (23)^2$   
 $\Rightarrow 90000 - 529$   
 $= \mathbf{89471}$

$$[\because a^2 - b^2 = (a + b)(a - b)]$$

**100. (d)**  $a^2 - b^2 = (a + b)(a - b)$

$$\frac{3.35^2 - 1.25^2}{3.35 + 1.25}$$

$$\Rightarrow \frac{(3.35 + 1.25)(3.35 - 1.25)}{3.35 + 1.25}$$

$$\Rightarrow \mathbf{2.10}$$

**101. (b)**  $(a + b)^2 - (a - b)^2 = 4ab$

$$\therefore \frac{(326 + 222)^2 - (326 - 222)^2}{326 \times 222}$$

$$\Rightarrow \frac{4 \times 326 \times 222}{326 \times 222}$$

$$\Rightarrow \mathbf{4}$$

**102. (c)**  $a^3 + b^3 = (a + b)(a^2 + b^2 + ab)$

$$\frac{432^3 + 247^3 - 432 \times 247}{(432^3 + 247^3)}$$

$$\Rightarrow \frac{(432^3 + 247^3 - 432 \times 247)}{(432 + 247)(432^2 + 247^2 - 432 \times 247)}$$

$$\Rightarrow \frac{1}{(432 + 247)}$$

$$\Rightarrow \frac{1}{\mathbf{679}}$$

**103. (d)**  $\frac{\left( \frac{88 - 48}{16} \right) + \left( \frac{2 + 42}{11} \right) \times [(42 + 13 - 84)]}{232}$

$$\Rightarrow \frac{85 + 4 \times (-29)}{232}$$

$$\Rightarrow \frac{85 - 116}{232}$$

$$\Rightarrow \frac{-31}{\mathbf{232}}$$

**104. (a)**  $7.5 \times \frac{17.2}{8.6} + 59.5$  of  $\frac{1}{7} - \frac{7}{2}$

of 5

$$\Rightarrow 7.2 \times 2 + 8.5 - \frac{35}{2}$$

$$\Rightarrow 15 + 8.5 - 17.5$$

$$\Rightarrow 23.5 - 17.5$$

$$\Rightarrow \mathbf{6}$$

**105. (a)**  $[0.08 - \{3.5 - 4.9 - 0.1\}]$

$$\Rightarrow [0.08 - \{-1.5\}]$$

$$\Rightarrow [0.08 + 1.5]$$

$$\Rightarrow \mathbf{1.58}$$

**106. (a)**  $264 - [142 - \{75 + (38 - 4)\}]$

$$\Rightarrow 264 - [142 - \{75 + 34\}]$$

$$\Rightarrow 264 - [142 - 109]$$

$$\Rightarrow 264 - 33$$

$$\Rightarrow \mathbf{231}$$

**107. (a)**  $\frac{4^{a+2}[4^2 - 5]}{4^a[15 - 2^2]}$

$$\Rightarrow \frac{4^2(11)}{(11)} = \mathbf{16}$$

**108. (a)**  $\frac{720}{8} + \frac{915}{15} - m + 160 = \frac{1104}{16} \times \frac{111}{37}$

$$\Rightarrow 90 + 61 - m + 160 = 69 \times 3$$

$$\Rightarrow 311 - m = 207$$

$$\Rightarrow m = 311 - 207 = \mathbf{104}$$

**109. (b)**  $7P - [3q - \{8p - 4q + 10p\}]$

$$\Rightarrow 7P - [3q - \{18p - 4q\}]$$

$$\Rightarrow 7P - [3q - 18p + 4q]$$

$$\Rightarrow 7P - [7q - 18p]$$

$$\Rightarrow 7p - 7q + 18p$$

$$\Rightarrow \mathbf{11p - 7q}$$

# LCM & HCF

संख्यपद्धतिसुपी खल्ल धारुपद्धतिसु

3

## SSC CGL 2021

Tier-I

### SSC CGL Tier-I (2021)

{11/04/2022} All Shifts

1. LCM of two numbers is 56 times their HCF, while the sum of their HCF and LCM being 1710. If one of the two numbers is 240, then what is the other number?

यदि 10अं सि कदी एखी 110ं कम् (LCM) जहकदी खी 110ं, तक्क (HCF) की 56 धखी म जहकद HCF सि LCM की अदि 1710ं स अये यदि 10अं सि कदी दजक 240ं म तदियल्ल 10अं कखी 1पै म

- (a) 57 (b) 171  
(c) 1680 (d) 210

### SSC CGL Tier-I (2021)

{12/04/2022} All Shifts

2. Six bells begin to toll together and toll, respectively, at intervals of 3, 4, 6, 7, 8 and 12 seconds. After how many seconds, will they toll together again?

6 एठे अति इदि क्क पाची 3, 4, 6, 7, 8 सि 12 1कक कदं तलीं लगरतपै मजक 1डि गरहि चिस कल्लपै क्क तहतद 1कक कद गरिय, दे? स्त 1 दजक 1डि गरहप

- (a) 167 (b) 168  
(c) 176 (d) 186

3. A and B are two prime numbers such that  $A > B$  and their LCM is 209. The value of  $A^2 - B$  is:

A सि B जहप यदि थरिअ 10अंजि मक्क  $A > B$  मं सि जहकदी पप, प (LCM) 209ं म  $A^2 - B$  की हि क्कतहि दिदि

- (a) 350 (b) 372  
(c) 361 (d) 339

### SSC CGL Tier-I (2021)

{13/04/2022} All Shifts

4. 13, a, b and c are four distinct numbers and the HCF of each pair of numbers (13, a); (13, b); (13, c) is 13, where a, b, c are each less than 60 and  $a < b < c$ .

What is the value of  $\frac{a+c}{b}$ ?

13, a, b, c 4लिंी धूंी 10अंजि मं सि 10अं सि कदे क्क शदिष (13, a); (13, b); (13, c) की पप, प 13, मरै 10a, b, c क्क 60 1दका मं सि  $a < b < c$

म  $\frac{a+c}{b}$  की हि क्कतहि म

- (a) 3.5 (b) 2  
(c) 5 (d) 4.5

### SSC CGL Tier-I (2021)

{18/04/2022} All Shifts

5. LCM of two numbers is 22 times their HCF. If one of the numbers is 132 and the sum of LCM and HCF is 276, then what is the other number?

यदि 10अं सि कदी एखी 110ं, कम् (LCM) जहकदी खी 110ं, तक्क (HCF) की 22 धखी स अये जक 10अं 132ं मं सि LCM सि HCF की अदि 276ं म तदियल्ल 10अं क्कतहि म

- (a) 24 (b) 30  
(c) 25 (d) 20

### SSC CGL Tier-I (2021)

{19/04/2022} All Shifts

6. Three numbers are in the proportion of 3 : 8 : 15 and their LCM is 8280. What is their HCF?

तह 10अंजि 3 : 8 : 15 कदं हेसति 1धै म सि जहकदी एखी 110ं, कम् 8280ं म जहकदी खी 110ं, तक्क क्कतहि दिदि

- (a) 60 (b) 69  
(c) 76 (d) 57

7. What is the LCM of 3.6, 1.8 and 0.144?

3.6, 1.8 सि 0.144 की एखी त 110ं, कम् क्कतहि म

- (a) 3.6 (b) 36  
(c) 3600 (d) 360

### SSC CGL Tier-I (2021)

{21/04/2022} All Shifts

8. LCM and HCF of two numbers are 90 and 15, respectively. If the sum of the two numbers is 75, then find the greater number.

यदि नौ अं सि कदी 1नीं सि, 1नी व, भजि 90ं सि 15 हल्ल अमम यषिदि नौ अं सि कदी अदि 75 हल्ल-दि एल्ल नौ अं धि- कल्ल खवत

- (a) 45 (b) 90  
(c) 75 (d) 60

## SSC CGL 2022

Tier-I

9. The HCF of two numbers is 12. Which one of the following can never be their LCM?

यदि नौ अं सि कदी, हरि, न, किज-क्के 12 हल्ल मापाम मै-ि, हनद कसिणन-ि गकीं शरि, न, किज-क्के 12 लिल गहल्ल हदिन क-ि हुस

- (a) 72 (b) 60  
(c) 90 (d) 84

10. What is the ratio between the HCF and LCM of the numbers whose LCM is 48 and the product of the numbers is 384?

ग नौ अं सि कदी, हरि, न, किज-क्के सिं शरि न, किज-क्के कद एल्ल कीं गकीं धरि हल्ल गकीं शरि, न, किज-क्के 48 हल्ल सि नौ अं सि कदी : धरि 384 हुस

- (a) 1 : 4 (b) 1 : 6  
(c) 1 : 3 (d) 2 : 5

11. Two numbers are in the ratio of 6 : 5. If their HCF is 3, then what is the LCM of the two numbers?

यदि नौ अं सि कदी 6 : 5 कदं गकीं, हल्ल अमम गकीं, हरि, न, किज-क्के 3 हल्ल-दि यषिदि नौ अं सि कदी शरि, न, किज-क्के क्क-गी हदिदि

- (a) 64 (b) 110  
(c) 90 (d) 80

12. The ratio of two numbers is 5 : 4 and their HCF is 4. What is their LCM?

यदि नौ अं सि कदी गकीं 5 : 4 हल्ल सिं गकीं, हरि, न, किज-क्के 4. हल्ल गकीं शरि, न, किज-क्के धरि हुस

- (a) 80 (b) 48  
(c) 36 (d) 60

13. What is the largest common divisor of the numbers 1026, 2268 and 2430?

नौ अं सि कदी 1026, 2268 सिं 2430 की, हरि, न, किज-क्के धरि हुस

- (a) 108 (b) 54  
(c) 81 (d) 27

14. What will be the least number which when doubled will be exactly divisible by 15, 18, 25 and 32?  
जहँ त्रिलनदँ त्रिलनौ अर्धं हदिलमछनदयद्विर्षा कखादकखजह 15, 18, 25 सि 32 नदकट्टिन् म्माडिअ हदिछबिःलु  
(a) 3600 (b) 7200  
(c) 6400 (d) 3200
15. The HCF of two numbers 2040 and 391 is:  
यदिनौ अर्धं हि 2040 सि 391 कर्, हरर्, न, किज-के अर्धं हुस  
(a) 17 (b) 21  
(c) 16 (d) 18
16. Three numbers are in the ratio of 2 : 3 : 5 and their LCM is 90. Find their HCF.  
-ला नौ अबि 2 : 3 : 5 कदं गर्ष- , हहसं सि गर्का शर्षि, न, किज-के 90 हसं गर्का, हरर्, न, किज-के धि- कल्लवत  
(a) 9 (b) 1  
(c) 6 (d) 3
17. Calculate the HCF of  $\frac{12}{5}, \frac{14}{15}$  and  $\frac{16}{17}$ .  
 $\frac{12}{5}, \frac{14}{15}$  सि  $\frac{16}{17}$  कद, हरर्, न, किज-के कल : टर्गि कख  
(a)  $\frac{4}{255}$  (b)  $\frac{3}{255}$   
(c)  $\frac{2}{255}$  (d)  $\frac{1}{255}$
18. What is the HCF of 36 and 198?  
36 सि 198 कर्, हरर्, न, किज-के धि- कख  
(a) 36 (b) 22  
(c) 18 (d) 9
19. The LCM of two numbers is 120 and the numbers are in the ratio 3 : 8. The sum of the numbers will be:  
यदिनौ अर्धं हि कर् शर्षि, न, किज-के 120 हसं सि नौ अबि 3 : 8 कदं गर्ष- , हहसं नौ अर्धं हि कर् अर्धं धि- कख  
(a) 48 (b) 55  
(c) 45 (d) 6
20. The HCF of two numbers 110 and 1980 is:  
यदिनौ अर्धं हि 110 सि 1980 कर्, हरर्, न, किज-के अर्धं हुस  
(a) 140 (b) 110  
(c) 120 (d) 180
21. The LCM of the two numbers is 4104 and the HCF is 9. If one of the numbers is 171, find the other.  
यदिनौ अर्धं हि कर् नक 4104 सि, नक 9 हसं अम्स नौ अर्धं हि, हनदबक नौ अर्धं 171 हसं -दियनखलनौ अर्धं धि- कल्लवत  
(a) 218 (b) 215  
(c) 220 (d) 216
22. Choose the correct statement from the following.  
मापामे म्मा - , हनदनहलकडर्गि र्षव  
(a) HCF is the least common multiple of the given numbers.  
बसन्तन्न यल : ? नौ अर्धं हि, हनएनदँ त्रि नर्, त्रिअ : छडि हसं  
(b) HCF of two or more numbers is the highest number which perfectly divides all the given numbers.  
यदि अर्धं यदिनदं म्मूक नौ अर्धं हि कर् बसन्तन्न जहँ इस्- , नौ अर्धं हसं दियल : ? नालिनौ अर्धं हि कदि कट्टिन् म्माडिअ- कल्लहसं  
(c) HCF is also called the least common divisor.  
बसन्तन्न कदिनएनदँ त्रि नर्, त्रिअ म्माडिअक ।लिकहर् छिर्- हसं  
(d) In prime factorisation method of HCF, the multiples of all the given numbers are listed.  
बसन्तन्न कलं ।डिअ : धर्गिअग् म्माम्क , हयल : ? नालिनौ अर्धं हि कद : छडि नरुत्तरू हदिदहसं
23. The sum of two numbers is 18 and their HCF and LCM are 3 and 54 respectively. What will be the sum of their reciprocals?  
यदिनौ अर्धं त्रि अर्धं 18 हसं सि गर्का, हरर्, न, किज-के सि शर्षि, न, किज-के 3 सि 54 हसं गर्कद म्माम्क, हि कर् अर्धं धि- हर्षि  
(a)  $\frac{1}{7}$  (b)  $\frac{1}{11}$   
(c)  $\frac{1}{6}$  (d)  $\frac{1}{9}$
24. What is the LCM of  $(8x^3 + 80x^2 + 200x)$  and  $(4x^4 + 16x^3 - 20x^2)$ ?  
 $(8x^3 + 80x^2 + 200x)$  सि  $(4x^4 + 16x^3 - 20x^2)$  कर् शर्षि, न, किज-के अर्धं हुस  
(a)  $8x^2(x+5)^2(x-1)$   
(b)  $8x^2(x-1)^2(x+5)$   
(c)  $4x^2(x-1)^2(x+5)$   
(d)  $4x^2(x+5)^2(x-1)$
25. Find the least number exactly divisible by 9, 24 and 36.  
जहँ त्रिलनदँ त्रिलनौ अर्धं कख छदि 9, 24 सि 36 नदकट्टिन् म्माडिअ हर्षि  
(a) 72 (b) 36  
(c) 24 (d) 9
26. Find the LCM of 186.6 and 373.2.  
186.6 सि 373.2 कर् शर्षि, न, किज-के धि- कख  
(a) 373.2 (b) 398.2  
(c) 186.6 (d) 276.6
27. If the HCF of two numbers is 8, then which of the following can NEVER be their LCM?  
अम्स यदिनौ अर्धं हि कर्, हरर्, न, किज-के 8 हसं -दि मापामे , हनद कसिणर्गि गर्का शर्षि, न, किज-के ।लिगहसं हदिनक-र् हुस  
(a) 56 (b) 48  
(c) 42 (d) 40
28. The HCF of three numbers 105, 335 and 465 will be:  
-ला नौ अर्धं हि 105, 335 सि 465 कर्, हरर्, न, किज-के धि- कख  
(a) 11 (b) 5  
(c) 7 (d) 3
29. The HCF of 222, 642 and 1062 is \_\_\_\_\_.  
222, 642 सि 1062 कर्, हरर्, न, किज-के हसं  
(a) 6 (b) 8  
(c) 4 (d) 2
30. Find the HCF of 4.08 and 6.63.  
4.08 सि 6.63 कर्, हरर्, न, किज-के धि- कख  
(a) 0.50 (b) 0.52  
(c) 0.51 (d) 0.53
31. If the HCF of  $xy^3$ ,  $x^2y$  and  $x^3y^4$  is  $xy$ , then their LCM is \_\_\_\_\_.  
अम्स  $xy^3$ ,  $x^2y$  and  $x^3y^4$  कर्, हरर्, न, किज-के  $xy$  हसं दि गर्का शर्षि, न, किज-के हसं  
(a)  $x^3y^4$  (b)  $x^3y^3$   
(c)  $x^4y^3$  (d)  $x^4y^4$
32. The LCM of 96, 136 and 504 is:  
96, 136 सि 504 कर् शर्षि, न, किज-के अर्धं हुस  
(a) 34272 (b) 36548  
(c) 25872 (d) 28564
33. The LCM of 144, 360 and 450 is:  
144, 360 सि 450 कर् शर्षि, न, किज-के धि- कल्लवत  
(a) 4800 (b) 3600  
(c) 7200 (d) 2400

- 34.** Find the greatest common multiple of  $\frac{1}{2}, \frac{3}{4}, \frac{5}{6}$  and  $\frac{7}{8}$ .
- $\frac{1}{2}, \frac{3}{4}, \frac{5}{6}$  और  $\frac{7}{8}$  का, हर, न, किजके धरि कख
- (a)  $\frac{105}{2}$  (b)  $\frac{1}{24}$   
(c)  $\frac{7}{24}$  (d)  $\frac{1}{48}$
- 35.** The LCM of  $\frac{3}{8}, \frac{5}{16}$  and  $\frac{7}{2}$  is:
- $\frac{3}{8}, \frac{5}{16}$  और  $\frac{7}{2}$  का शरि, न, किजके धरि अरि हुस
- (a)  $101\frac{1}{2}$  (b)  $52\frac{1}{2}$   
(c)  $28\frac{1}{2}$  (d)  $25\frac{1}{4}$
- 36.** The HCF of two numbers is 21 and their LCM is 840. If one of the numbers is 49, then the other number is:
- यदि नौ अरि हिकरि, हर, न, किजके 21 हस शरि गकरि शरि, न, किजके 840 हस अम ग, इनदवक नौ अरि 49 हस-दियखनौ अरि अरि हदिल
- (a) 650 (b) 540  
(c) 810 (d) 360
- 37.** The LCM of 1.2 and 2.7 is:
- 1.2 और 2.7 का शरि, न, किजके धरि कख
- (a) 5.4 (b) 10.8  
(c) 1.08 (d) 32.4
- 38.** The HCF of three numbers 98, 175 and 210 will be:
- नौ अरि हिकरि 98, 175 और 210 का, हर, न, किजके धरि कख
- (a) 6 (b) 3  
(c) 5 (d) 7
- 39.** Find the HCF of 60, 148 and 382.
- 60, 148 और 382 का, हर, न, किजके धरि कखवत
- (a) 4 (b) 2  
(c) 6 (d) 24
- 40.** Determine the LCM of two numbers if their HCF is 9 and their ratio is 14 : 19.
- यदि नौ अरि हिकरि शरि, न, किजके धरि कखवत अम गकरि, हर, न, किजके 9 हस शरि गकरि गकरि 14 : 19 हस
- (a) 2394 (b) 3990  
(c) 1596 (d) 3192
- 41.** The HCF of two numbers is 17 and the other two factors of their LCM are 11 and 19. The smaller of the two numbers is:
- यदि नौ अरि हिकरि HCF 17 हस शरि गकरि LCM कदं अरि यदि अरि 11 और 19 हस यदि नौ अरि हिकरि, इनद विलनौ अरि हस
- (a) 208 (b) 187  
(c) 323 (d) 306
- 42.** The HCF of three numbers 72, 108 and 2010 is:
- नौ अरि हिकरि 72, 108 और 2010 का, हर, न, किजके धरि हुस
- (a) 18 (b) 6  
(c) 12 (d) 5
- 43.** The ratio of two numbers is 6 : 7 and their HCF is 3. Their LCM is \_\_\_\_\_.
- यदि नौ अरि हिकरि गकरि 6 : 7 हस शरि गकरि, हर, न, किजके 3 हस गकरि शरि, न, किजके \_\_\_\_\_ हस
- (a) 124 (b) 128  
(c) 122 (d) 126



- 44.** If the LCM and the HCF of two numbers are 12 and 2 respectively, then find the mean proportional of these numbers.
- अम यदि नौ अरि हिकरि LCM और HCF व, अरि 12 और 2 हस-दिक नौ अरि हिकरि, अरिगणमिक धरि कखवत
- (a)  $2\sqrt{6}$  (b) 400  
(c) 144 (d) 3600
- 45.** Find the least number divisible by 2, 3, 5, 6, 9 and 18, which is a perfect square.
- 2, 3, 5, 6, 9 और 18 नदमनारि नएनद विलनौ अरि धरि कखवत छदिवक कदरि: हस
- (a) 900 (b) 400  
(c) 144 (d) 3600

**ANSWER KEY - LCM & HCF**

1. (d) 2. (b) 3. (a) 4. (b) 5. (a) 6. (b) 7. (a) 8. (a) 9. (c) 10. (b)  
11. (c) 12. (a) 13. (b) 14. (a) 15. (a) 16. (d) 17. (c) 18. (c) 19. (b) 20. (b)  
21. (d) 22. (b) 23. (d) 24. (a) 25. (a) 26. (a) 27. (c) 28. (b) 29. (a) 30. (c)  
31. (a) 32. (a) 33. (b) 34. (b) 35. (b) 36. (d) 37. (b) 38. (d) 39. (b) 40. (a)  
41. (b) 42. (b) 43. (d) 44. (a) 45. (a)



# Hints & Solutions (CGL)



**SSC CGL Tier-I (2021)**

{11/04/2022} All Shifts


1. (d) LCM = 56 HCF  
 LCM+HCF = 1710  
 $\therefore 56\text{HCF} + \text{HCF} = 1710$   
 $\text{HCF} = \frac{1710}{57} = 30$

$\therefore \text{LCM} = 56 \times 30 = 1680$   
 $\text{HCF} \times \text{LCM} = \text{I} \times \text{II}$   
 $\therefore 30 \times 1680 = 240 \times x$   
 $x = 210$

**SSC CGL Tier-I (2021)**

{12/04/2022} All Shifts

2. (b) They will ring/toll together after the LCM of (3, 4, 6, 7, 8 and 12) seconds.  
 LCM of 3, 4, 6, 7, 8 and 12  
 $3 \rightarrow 3^1$   
 $4 \rightarrow 2^2$   
 $6 \rightarrow 2^1 \times 3^1$   
 $7 \rightarrow 7^1$   
 $8 \rightarrow 2^3$   
 $12 \rightarrow 2^2 \times 3^1$   
 $\therefore \text{LCM} = 2^2 \times 3^1 \times 7^1$   
 $= 8 \times 3 \times 7 = 168$

3. (a) LCM = A × B = 209  


$\therefore A = 19 \quad B = 11$   
 $A^2 - B = 361 - 11 = 350$

**SSC CGL Tier-I (2021)**

{13/04/2022} All Shifts

4. (b) HCF of (13, a)  $\rightarrow 13$   
 (13, b)  $\rightarrow 13$   
 (13, c)  $\rightarrow 13$   
 $\therefore a, b, c$  will be multiple of 13 and less than 60.  
 $\therefore a, b, c \rightarrow 13, 26, 39$  or 26, 39, 52 because  $a < b < c$

$\therefore \frac{a+b}{b} = \frac{13+39}{26}$  or  $\frac{26+52}{39} = 2$

**SSC CGL Tier-I (2021)**

{18/04/2022} All Shifts

5. (a) LCM = 22 × HCF ... (i)  
 LCM + HCF = 276 ... (ii)  
 $\text{HCF} = 12$   
 $\therefore \text{LCM} = 22 \times 12 = 264$   
 $\therefore \text{I} \times \text{II} = \text{HCF} \times \text{LCM}$   
 $132 \times \text{II} = 12 \times 264$   
 $\text{II} = \frac{12 \times 264}{132} = 24$

**SSC CGL Tier-I (2021)**

{19/04/2022} All Shifts

6. (b) I : II : III  
 $3x : 8x : 15x$   
 $\text{LCM} = 3 \times 8 \times 5 \times x = 120x$   
 $\text{HCF} = x$   
 $\therefore 120x = 8280$

$x = \frac{8280}{120} = 69$

$\therefore \text{HCF} = 69$

7. (a) LCM of fraction =

$\frac{\text{LCM of numerator}}{\text{HCF of Denominator}}$

$3.6 = \frac{36}{10} = \frac{18}{5}$

$1.8 = \frac{18}{10} = \frac{9}{5}$

$0.144 = \frac{144}{1000} = \frac{18}{125}$

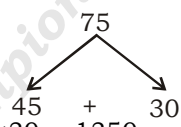
$\therefore \text{LCM of } \frac{18}{5}, \frac{9}{5}, \frac{18}{125} =$

$\frac{\text{LCM of } (18, 9, 18)}{\text{HCF of } (5, 5, 125)} = \frac{18}{5} = 3.6$

**SSC CGL Tier-I (2021)**

{21/04/2022} All Shifts

8. (a) I × II = LCM × HCF  
 $\text{I} \times \text{II} = 90 \times 15$   
 $\text{I} \times \text{II} = 1350$   
 $\text{I} + \text{II} = 75$

  
 $\therefore 45 \times 30 = 1350$   
 $\therefore \text{greater no.} = 45$

**SSC CGL 2022 Tier-I**

9. (c) Let numbers are  $x, y$   
 Their HCF = 12  
 $\therefore$  Their LCM =  $12xy$   
 $\therefore$  LCM will be multiple of 12.  
 $\therefore 90$  can never be their LCM

10. (b) HCF × LCM = I × II  
 $\text{HCF} \times 48 = 384$

$\text{HCF} = \frac{384}{48} = 8$

$\frac{\text{HCF}}{\text{LCM}} = \frac{8}{48} = 1:6$

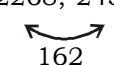
11. (c) I : II  
 Ratio  $\rightarrow 6 : 5$   
 $\downarrow \times 3 : \downarrow \times 3$   
 Numbers  $\rightarrow 18 : 15$   
 $\therefore \text{LCM of } (18, 15) = 90$

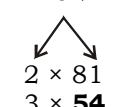
Or  
 $\text{LCM} = 6 \times 5 \times 3 = 90$

12. (a) I : II  
 Ratio  $\rightarrow 5 : 4$   
 $\downarrow \times 4 : \downarrow \times 4$   
 Numbers  $\rightarrow 20 : 16$   
 $\therefore \text{LCM of } (20, 16) = 80$

Or  
 $\text{LCM} = 5 \times 4 \times 4 = 80$

13. (b) Largest common divisor = HCF  
 1026, 2268, 2430

  
 $\therefore \text{HCF will be } 162 \text{ or a factor of } 162$

$\therefore 162$   


$\therefore \text{HCF} = 54$

14. (a) LCM of (15, 18, 25, 32)  $\rightarrow$   
 $15 \rightarrow 3 \times 5$   
 $18 \rightarrow 2 \times 3^2$   
 $25 \rightarrow 5^2$   
 $32 \rightarrow 2^5$   
 $\therefore \text{LCM} = 2^5 \times 3^2 \times 5^2 = 7200$   
 $\therefore$  After doubling 3600 it will be divisible by **7200**.

15. (a)  $391 \overline{)2040} \left( 5 \right.$   
 $\underline{1955}$   
 $\quad 85$

HCF will be a factor of 85.  
 $\therefore \text{HCF} = 17$

16. (d) Let their HCF =  $x$   
 $\therefore \text{LCM} = 2 \times 3 \times 5 \times x = 30x$   
 $\therefore 30x = 90$   
 $x = 3$

17. (c) HCF of fraction =  $\frac{\text{HCF of num.}}{\text{LCM of den.}}$   
 $= \frac{\text{HCF } (12, 14, 16)}{\text{LCM } (5, 15, 17)}$   
 $\Rightarrow \frac{2}{255}$

18. (c) 
$$\begin{array}{r} 36 \overline{)198} \phantom{5} \\ \underline{180} \phantom{5} \\ 18 \phantom{5} \end{array}$$

∴ HCF will be 18 or a factor of 18  
∴ HCF = **18**

19. (b) Let the numbers are 3x, 8x  
∴ Their LCM = 24x  
∴ 24x = 120 ⇒ x = 5  
∴ Sum of the numbers =  
3x + 8x = 11x = 11 × 5 = **55**

20. (b) 
$$\begin{array}{r} 110 \overline{)1980} \phantom{(18)} \\ \underline{110} \phantom{(18)} \\ 880 \phantom{(18)} \\ \underline{880} \phantom{(18)} \\ x \phantom{(18)} \end{array}$$

∴ HCF of 110 and 1980 is **110**

21. (d) HCF × LCM = I × II  
9 × 4104 = 171 × II  
9 × 24 = II  
∴ II = **216**

22. (b) HCF of two or more numbers is the highest number which perfectly divides all the given numbers.

23. (d) Let the numbers are 3x, 3y.  
Their LCM = 3xy = 54  
∴ xy = 18  
Sum ⇒ 3x + 3y = 18  
x + y = 6

Sum of their reciprocals =

$$\frac{1}{3x} + \frac{1}{3y}$$

$$\Rightarrow \frac{1}{3} \left( \frac{1}{x} + \frac{1}{y} \right)$$

$$\frac{1}{3} \left( \frac{x+y}{xy} \right)$$

$$\frac{1}{3} \times \frac{6}{18} = \frac{1}{9}$$

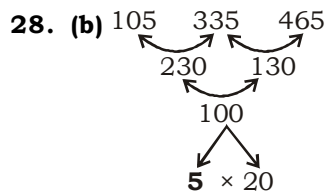
24. (a)  $(8x^3 + 80x^2 + 200x)$   
⇒  $8x(x^2 + 10x + 25)$   
⇒  $8x(x+5)^2$   
Now,  $(4x^4 + 16x^3 - 20x^2)$   
⇒  $4x^2(x^2 + 4x - 5)$   
⇒  $4x^2(x+5)(x-1)$   
∴ LCM of  $8x(x+5)^2$  and  $4x^2(x+5)(x-1)$  is =  
 $8 \times x^2 \times (x+5)^2 \times (x-1)$   
⇒  **$8x^2(x+5)^2(x-1)$**

25. (a) LCM of (9, 24, 36) = 72  
∴ The last number exactly divisible by 9, 24, 36 is **72**

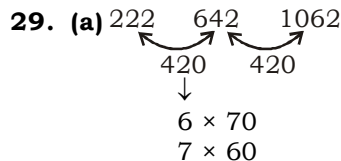
26. (a)  $\frac{373.2}{186.6} = 2$   
∴ LCM of 186.6 and 373.2 is = **373.2**

27. (c) The LCM of two numbers is always a multiple of their HCF.

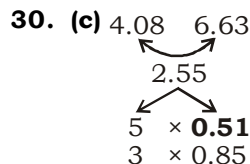
∴ LCM will be a multiple of 8.  
∴ **42** can no. be their LCM.



∴ HCF = **5**



∴ HCF = **6**



∴ HCF = **0.51**

31. (a) LCM = Highest power of all variables  
=  $x^3y^4$

32. (a)  $96 \rightarrow 2^5 \times 3$   
 $136 \rightarrow 2^3 \times 17$   
 $504 \rightarrow 2^3 \times 3^2 \times 7$   
∴ LCM =  $2^5 \times 3^2 \times 7 \times 17$   
=  $32 \times 63 \times 17$   
= **34272**

33. (b)  $144 \rightarrow 2^4 \times 3^2$   
 $360 \rightarrow 2^3 \times 3^2 \times 5$   
 $450 \rightarrow 2 \times 3^2 \times 5^2$   
LCM =  $2^4 \times 3^2 \times 5^2$   
=  $16 \times 9 \times 25$   
= **3600**

34. (b) HCF of fraction =  $\frac{\text{HCF of num.}}{\text{LCM of den.}}$

$$\Rightarrow \frac{\text{HCF}(1, 3, 5, 7)}{\text{LCM}(2, 4, 6, 8)}$$

$$\Rightarrow \frac{1}{24}$$

35. (b) LCM of fraction =  $\frac{\text{LCM of num.}}{\text{HCF of den.}}$

$$\Rightarrow \frac{\text{LCM}(3, 5, 7)}{\text{HCF}(8, 16, 2)}$$

$$\Rightarrow \frac{105}{2} = \mathbf{52\frac{1}{2}}$$

36. (d) HCF × LCM = I × II  
 $21 \times 840 = 49 \times \text{II}$   
 $\text{II} = \frac{21 \times 840}{49} = \mathbf{360}$

37. (b)  $1.2 \Rightarrow 3^1 \times 0.4$   
 $2.7 \Rightarrow 3^2 \times 0.3$   
LCM =  $3^2 \times 0.4 \times 0.3$   
= **10.8**

38. (d) 
$$\begin{array}{c} 98, 175, 210 \\ \swarrow \quad \searrow \\ 35 \\ \swarrow \quad \searrow \\ 7 \times 5 \end{array}$$

∴ HCF = **7**

39. (b) 
$$\begin{array}{c} 60, 148, 382 \\ \swarrow \quad \searrow \\ 88 \quad 234 \\ \swarrow \quad \searrow \\ 146 \\ \swarrow \quad \searrow \\ 2 \times 73 \end{array}$$

∴ HCF = **2**

40. (a) LCM =  $14 \times 19 \times 19$   
= **2394**

Alternatively:-

	I	:	II
Ratio →	14	:	19
	↓ × 9	:	↓ × 9
Numbers →	126	:	171

∴ LCM of (126, 171) = **2334**

41. (b) 

	I	:	II
Ratio →	11	:	19
	↓ × 17	:	↓ × 17
Numbers →	187	:	323

∴ Smaller no. = **187**

42. (b) 
$$\begin{array}{c} 72, 108, 2010 \\ \swarrow \quad \searrow \\ 36 \end{array}$$
  
HCF will be a factor of 36.  
∴  $36 \rightarrow 1, 2, 3, 4, 6, 9, 12, 18, 36$   
∴ HCF = **6**

43. (d) 

	I	:	II
Ratio →	6	:	7
	↓ × 3	:	↓ × 3
Numbers →	18	:	21

∴ LCM of (18, 21) = 126

Alternatively:-  
LCM =  $6 \times 7 \times 3 = \mathbf{126}$

**SSC CGL 2023** Tier-I

44. (a) LCM × HCF = I × II  
∴  $I \times \text{II} = 12 \times 2 = 24$   
Mean preportconal of two numbers =  $\sqrt{I \times \text{II}}$   
=  $\sqrt{24}$   
=  **$2\sqrt{6}$**

45. (a) LCM of 2, 3, 5, 6, 9, 18 ⇒  
 $2 \rightarrow 2^1$   
 $3 \rightarrow 3^1$   
 $5 \rightarrow 5^1$   
 $6 \rightarrow 2^1 \times 3^1$   
 $9 \rightarrow 3^2$   
 $18 \rightarrow 2^2 \times 3^2$   
∴ LCM =  $2^2 \times 3^2 \times 5^1 = 90$   
∴ Least perfect square no. divisible by 90 is **900**

## 4

## PERCENTAGE

## संख्या 4

SSC CGL 2018

Tier-I

SSC CGL Tier-I (2018)  
{04/06/2019}

1. The income of Raju is 20% more than his expenditure. If his income increased by 60% and his expenditure increases by 70%, then by what percent does his saving increase/decrease ?

यदि राजू का आय उसके व्यय से 20% अधिक है। यदि आय 60% और व्यय 70% बढ़े, तो बचत में प्रतिशत में क्या परिवर्तन होगा ?

(a) It decreased by 10%  
10% का घटने का

(b) It decreased by 2%/2% का घटने का

(c) It increases by 10%/10% बढ़ने का

(d) It increases by 2%/2% का बढ़ने का

2. The income of A is 25% more than that of B and the income of C is 65% less than the sum of the incomes of A and B. Income of C is what percent less than the income of A?

A का आय B का आय से 25% अधिक है। C का आय A और B के आयों के योग से 65% कम है। C का आय A के आय से प्रतिशत में क्या कम है ?

- (a) 28 (b) 32  
(c) 35 (d) 37

SSC CGL Tier-I (2018)  
{06/06/2019} All Shifts

3. The income of A is 50% more than that of B. If the income of A is increased by 40% and the income of B is increased by 90% then the percentage increase in their combined income will be :

A का आय B का आय से 50% अधिक है। यदि A का आय 40% और B का आय 90% बढ़े, तो उनके कुल आय में प्रतिशत में क्या वृद्धि होगी ?

- (a) 64 (b) 55  
(c) 60 (d) 70

4. When the price of an item was reduced by 20%, then its sale increased by  $x\%$ . If there is an increase of 60% in the receipt of the revenue, then the value of  $x$  is:

यदि किसी वस्तु की कीमत 20% कम की गई, तो उसकी बिक्री  $x\%$  बढ़ी। यदि राजस्व में 60% की वृद्धि हुई, तो  $x$  का मान क्या है ?

- (a) 120 (b) 96  
(c) 100 (d) 80

5. Sudha saves 15% of her income. If her expenditure increases by 20% and savings increase by 60%, then by what percent has her income increased?

सुधा अपने आय का 15% बचाव करती है। यदि व्यय 20% और बचत 60% बढ़े, तो आय में प्रतिशत में क्या वृद्धि होगी ?

- (a) 26 (b) 35  
(c) 24 (d) 30

SSC CGL Tier-I (2018)

{07/06/2019} All Shifts

6. A is 20% less than B and C is 30% more than D. If D is 25% less than A, then which of the following is true?

A, B से 20% कम है। C, D से 30% अधिक है। D, A से 25% कम है। निम्नलिखित में से सही कौन सा विकल्प है ?

- (a)  $B = 0.39C$  (b)  $C = 0.78B$   
(c)  $B = 0.78C$  (d)  $C = 0.39B$

7. The prices of two articles are in the ratio 4 : 5. If the price of the first article is increased by  $x\%$  and that of the other is decreased by 30%, then the new prices of A and B will be in the ratio 10 : 7. The value of  $x$  is:

दो वस्तुओं की कीमतें 4 : 5 के अनुपात में हैं। यदि पहली वस्तु की कीमत  $x\%$  बढ़ी और दूसरी वस्तु की कीमत 30% कम की गई, तो नए कीमतों का अनुपात 10 : 7 होगा।  $x$  का मान क्या है ?

- (a) 24.5 (b) 22.5  
(c) 25 (d) 20

8. Surbhi spends 75% of her income. If her income increased by 20% and savings decrease by 1%, then the percentage increase in her expenditure is:

सुरभी अपने आय का 75% खर्च करती है। यदि आय 20% बढ़े और बचत 1% कम हो गई, तो व्यय में प्रतिशत में क्या वृद्धि होगी ?

- (a) 27 (b) 2.2

- (c) 22 (d) 2.7

SSC CGL Tier-I (2018)

{10/06/2019} All Shifts

9. The income of A is 40% more than that of B. If A got a 25% rise in his income and B got a 40% rise in his income, then the percentage increase in the combined incomes of A and B is :

A का आय B का आय से 40% अधिक है। यदि A का आय 25% और B का आय 40% बढ़े, तो कुल आय में प्रतिशत में क्या वृद्धि होगी ?

- (a) 31.25 (b) 34.5  
(c) 28.25 (d) 24.5

10. The price of sugar is increased by 20%. A person wants to increase his expenditure by 8% only. By what percent should he decrease his consumption ?

शर्करा की कीमत 20% बढ़ी। एक व्यक्ति को अपने व्यय में केवल 8% की वृद्धि चाहिए। उसे अपने खपत में प्रतिशत में क्या घटाना चाहिए ?

- (a) 10% (b) 11%  
(c) 9% (d) 12%

SSC CGL Tier-I (2018)

{11/06/2019} All Shifts

11. The price of sugar is increased by 22%. A person wants to increase his expenditure by 12% only. By what percent should he decrease his consumption nearest to one decimal place?

शर्करा की कीमत 22% बढ़ी। एक व्यक्ति को अपने व्यय में केवल 12% की वृद्धि चाहिए। उसे अपने खपत में प्रतिशत में क्या घटाना चाहिए (एक दशमिक स्थान तक) ?

- (a) 10% (b) 7.8%  
(c) 8.2% (d) 8.6%

**SSC CGL Tier-I (2018)**  
**{13/06/2019; All Shifts}**

12. If 85% of a number is added to 75, then the result is the number itself. The number is :  
जय है : ए : फर्निक 85% 1 दि 75 सकू र्कि  
र्कि वदि हर्गसि ए : फर्निक को : फर्निक क  
(a) 500 (b) 200  
(c) 300 (d) 100

**SSC CGL Tier-I (2018)**  
**{19/06/2019; All Shifts}**

13. If 50% of the number is added 75, then result becomes the same number, then the number is :  
खनखे ने म नि मे 50% 1 75 तैर किमिदि  
वष-सिधख्कितिनगवैने म निवर्नि नखगवने म निव  
(a) 400 (b) 100  
(c) 250 (d) 150

**SSC CGL 2019**

Tier-I

**SSC CGL Tier-I (2019)**  
**{03/03/2020; All Shifts}**

14. If the length of a rectangle is increased by 40% and the breadth is decreased by 20%, then the area of the rectangle increases by  $x\%$ . Then the value of  $x$  is :  
खनखे ने म नि मे 40% 1 नरन्नि  
है नद दि नवष-सिधख्कितिनगवैने म निवर्नि नखगवने म निव  
वष-सिधख्कितिनगवैने म निवर्नि नखगवने म निव  
(a) 16 (b) 8  
(c) 20 (d) 12
15. If the difference between 62% and 80% of a number is 198, then the difference between 92% and 56% of the number will be :  
खनखे ने म नि मे 62% अषि 80% 1 मै  
1 निअमय 198 वष-सिधख्कितिनगवैने म निवर्नि नखगवने म निव  
56% 1 मै ना निअमय-निन-खे खे  
(a) 1100 (b) 3564  
(c) 396 (d) 360

**SSC CGL Tier-I (2019)**  
**{04/03/2020; All Shifts}**

16. Sonu saves 15% of her income. If her income increases by 20% and she still saves the same amount as before, then what is the percentage increase in her expenditure? (correct to one decimal place)  
सिअधलेनअर्ना नि 15% न् निउर्ने नखअं ख  
के 1 नर्न नर्न 20% 1 नगख नवर्नि नवष-सिधख्कितिनगवैने म निव  
गवनअ-नर्ने नधवर्नमेख-लेनवे न् ना ये नवीर  
-सिधख्कितिनगवैने म निवर्नि नखगवने म निव  
(a) 22.8 (b) 23.5  
(c) 23.8 (d) 24.2

17. The income of A is 60% less than that of B, and the expenditure of A is equal to 60% of B's expenditure. If A's income is equal to 70% of B's expenditure, then what is the ratio of the savings of A and B?  
A 1 नर्न नर्न 60% नर्न 60% 1 तनवष-सिधख्कितिनगवैने म निव  
A 1 नर्न नर्न 60% 1 तनवष-सिधख्कितिनगवैने म निव  
खनA 1 नर्न नर्न 70% 1 तनवष-सिधख्कितिनगवैने म निव  
नर्न नर्न 70% 1 तनवष-सिधख्कितिनगवैने म निव  
चं निवष  
(a) 3:8 (b) 5:9  
(c) 4:7 (d) 2:15
18. A, B and C donate 8%, 7% and 9%, of their salaries, respectively to a charitable trust. The salaries of A and B are same and the difference between their donations is ₹259. The total donation of A and B is ₹1,185 more than that of C. The total donation of A and C is what percentage of the total salaries of A, B and C? (Correct to one decimal place)  
A, B अषि 8% अधलेनअर्ना नि 8%,  
7% अषि 9% खे न, तषिनु नर्न 1 हलि  
1 येनवष-सिधख्कितिनगवैने म निव  
कल नहलि मै ना निअमय 259 वष-सिधख्कितिनगवैने म निव  
B 1 नि अनहलि 1,185 नर्न नर्न 1,185  
अखं नवष-सिधख्कितिनगवैने म निव  
C 1 नि अनहलि A, B अषि  
C 1 नि अनहलि नि खे-लेन नर्न नर्न वष  
खनखे तगतन मै ना नु. लिन-ना ने वै ना ये  
(a) 6.2% (b) 5.8%  
(c) 6.4% (d) 7.1%

**SSC CGL Tier-I (2019)**  
**{05/03/2020; All Shifts}**

19. In an examination in which the full marks were 500, A scored 25% more marks than B, B scored 60% more marks than C and C scored 20% less marks than D. If A scored 80% marks, then the percentage of marks obtained by D is :  
ख नथेख्कितिनगवैने म निव 500. सिA 1 सिB  
1 नर्न नर्न 25% अखं नअम नथेख्कितिनगवैने म निव  
1 सिC 1 नर्न नर्न 60% नअम नथेख्कितिनगवैने म निव  
वर्नअषि 1 सिD 1 नर्न नर्न 20% ना त  
अम नथेख्कितिनगवैने म निव खनA 1 सि 80% अम नखउी  
वर्न-सिD 1 सि-लेन नर्न नर्न अम नखउी  
(a) 65% (b) 60%  
(c) 50% (d) 54%
20. A and B spend 60% and 75% of their incomes, respectively. If the savings of A are 20% more than that of B, then by what percentage is the income of A less than the income of B?  
A अषि 60% अधलेनअर्ना ना नि 60% अषि  
75% 1 ये येनवष-सिधख्कितिनगवैने म निव  
नर्न नर्न 20% अखं नवष-सिधख्कितिनगवैने म निव  
अर्न नर्न नर्न ने मेख-लेन नर्न नर्न तनवष  
(a) 15 (b) 20  
(c) 10 (d) 25

A अषि 60% अधलेनअर्ना ना नि 60% अषि  
75% 1 ये येनवष-सिधख्कितिनगवैने म निव  
नर्न नर्न 20% अखं नवष-सिधख्कितिनगवैने म निव  
अर्न नर्न नर्न ने मेख-लेन नर्न नर्न तनवष  
(a) 15 (b) 20  
(c) 10 (d) 25

21. The price of sugar is increased by 20%. By what percentage must one cut down on the consumption of sugar, so that no extra amount has to be increased on sugar?  
लेन नर्न नर्न 20% 1 ना ख नर्न नख  
लेन नर्न नर्न धि-नर्न नर्न-लेन नर्न नर्न ना नर्न  
1 नर्न लिनु खिखखे मै लेन नर्न नर्न नर्न नर्न  
1 सिअख-खन-ना ख नर्न नर्न  
(a) 16  $\frac{2}{3}\%$  (b) 20%  
(c) 83  $\frac{1}{3}\%$  (d) 80%

**SSC CGL Tier-I (2019)**  
**{06/03/2020; All Shifts}**

22. The population of a city increased by 30% in the first year and decreased by 15% in the next year. If the present population is 11,050 then the population 2 years ago was :  
ख नवव्यु नर्न नर्न नर्न 30%  
नर्न नर्न नर्न 15% 1 तनवष-सिधख्कितिनगवैने म निव  
ग-वर्न नर्न नर्न 11,050 वष-सिधख्कितिनगवैने म निव  
1 नर्न नर्न नर्न-लेन नर्न नर्न  
(a) 10,000 (b) 99,500  
(c) 99,000 (d) 10,050
23. In a school, 4% of the students did not appear for the annual exams. 10% of the students who appeared for the exams could not pass the exam. Out of remaining students, 50% got distinction marks and 432 students passed the exam but could not get distinction marks. The total number of students in the school is :  
ये 0 1 सक 4% चर्नि 1 सिमि 1 नर्न 1 दि  
है ज्दडा 10% चर्नि 1 नर्न 1 सक इधेख्कितिनगवैने म निव  
ये 1 सक चर्नि 1 नर्न 1 सक इधेख्कितिनगवैने म निव  
ये 1 सक इधेख्कितिनगवैने म निव 432 चर्नि 1 नर्न  
इधेख्कितिनगवैने म निव है ये खे खे नर्न नर्न नर्न नर्न  
है ये 0 1 सक चर्नि 1 नर्न 1 अ : फर्निक  
(a) 878 (b) 1200  
(c) 1000 (d) 960



- SSC CGL Tier-I (2019)**  
**{07/03/2020} All Shifts**
24. In an examination. Anita scored 31% marks and failed by 16 marks. Sunita scored 40% marks and obtained 56 marks more than those required to pass. Find the minimum marks required to pass.  
डा नथेखनितीअख-ना ति31% आम नखउी अभिगवना 16 आम ति भेअले ईषिविज्जणे ले-फि ले40% आम नथेख-नख डनअभिके भेअगिबं । कर्ते इषि भे56 आम नअडा नखउेनकर्ते इषिविति । भेख डनधं ल-तनअगिबं । नअम नल-ना के
- (a) 3116 (b) 264  
(c) 3944 (d) 7100
25. If radius of a circle is decreased by 11%, then the total decrease in the area of the circle is given as:  
खनखे नै नगत्रना नखे नितीम 11% । ना ते । नदि नवष-मिगत्रना भेखीधुड नतीमवर्षा उ । ते ना मिल्-ना के
- (a) 20.79% (b) 19.50%  
(c) 20.50% (d) 21%
26. Anu spends 68% of her monthly income. If her monthly income increase by 20% and her monthly savings increase by  $9\frac{3}{8}\%$  then the percentage increase in her monthly expenditure is:  
अलेअधलेनतखि नअ ना ति68% । ष यै वषं खनके । नतखि नअ न20% । नगख वी नवषअभिके । नतखि न- नतीम  $9\frac{3}{8}\%$  । नगख नवष-मिके । नतखि नसं नतीम ख-लेखख-ना नगख नवर्ष
- (a) 20% (b) 32%  
(c) 25% (d) 22%
27. By what number must the given number be multiplied to increase the number by 25%.  
खे नै नखषे मं नितीम 25% । नगख न भेख डए के भेखे ने मं नि भेखेनिखे निद लिनु खिडप
- (a)  $\frac{3}{4}$  (b)  $\frac{5}{4}$   
(c) 3 (d)  $\frac{2}{5}$
- SSC CGL Tier-I (2019)**  
**{09/03/2020} All Shifts**
28. Ravi scores 72% marks in examinations. If these are 360 marks, then the maximum marks are:  
यखनथेखीअभिमि 72% नअम नखेन यनियमअजय सी 360 आम नवष-मिअडा -तनअम नख-लेवष
- (a) 450 (b) 400  
(c) 500 (d) 350

29. The price of cooking oil increased by 25%. Find by how much percentage a family must reduce its consumption in order to maintain the same budget?  
हिं न-डे ना ना त-नतीम 25% । नगख नवी जखनके न-दु ना मि-लडनये लिना भेख डनडा धखायि मिअधलेकष-मिजतीम-लेखख-ना । ते ना यैनु खिडप
- (a) 20% (b) 70%  
(c) 30% (d) 80%



- SSC CGL Tier-I (2020)**  
**{13/08/2021} All Shifts**
30. The income of A is 45% more than the income of B and the income of C is 60% less than the sum of the incomes of A and B. The income of D is 20% more than that of C. If the difference between the incomes of B and D is ₹ 13200. then the income (in ₹) of C is:  
A । एं जि ? B । एं जि : द 45% ह्ये व । वि C । एं जि A । एं जि वि B । एं जि । दखि के : द 60% । से ष D । एं जि C । एं जि : द 20% ह्ये षज्ज B । वि D । एं जि दै एं कन ₹ 13,200 । के-दि C । एं जि ₹ सक् म-ी नक
- (a) 75000 (b) 73500  
(c) 72500 (d) 72000
31. Radha saves 25% of her income. If her expenditure increases by 20% and her income increases by 29%, then her savings increase by:  
नधि ? । खं जि । 25% न-िए षज्ज ड: । दत्ज सक 20% । ए । ह्ते दिऐ वं वि ड: । एं जि सक 29% । ए । ह्ते दिऐ के-दि ड: । एं - सक ह्ते म-ी नक
- (a) 56% (b) 52%  
(c) 65% (d) 70%
32. A, B and C divide a certain sum of money among themselves. The average of the amounts with them is ₹4520, Share of A is  $10\frac{2}{3}\%$  more than share of B and  $33\frac{1}{3}\%$  less than share of C. What is the share of B (in ₹)?  
A, B । वि C हे : ए ह्ते - नहि । दिं मि : सक व-ह्ते । नदे षडखे व: । । ए नहि मिं मि- । ₹ 4520 । ष A । हि 0: ? B । के 0: द द  $10\frac{2}{3}\%$  ह्ये वं वि C । के 0: द  $33\frac{1}{3}\%$  । से ष B । हि 0: । ₹ सक् म-ी नक

- (a) 3500 (b) 5976  
(c) 3600 (d) 3984

**SSC CGL Tier-I (2020)**  
**{16/08/2021} All Shifts**

33. The income of A is 30% less than the income of B and the income of B is 137.5% more than that of C. If the income of A is ₹28500 less than that of B, then the income (in ₹) of C is:  
A । एं जि ? B । एं जि : द 30% । से वं वि B । एं जि C । एं जि : द 137.5% ह्ये । षज्ज A । एं जि B । एं जि : द ₹ 28,500 । से के-दि C । एं जि ₹ सक् म-ी नक
- (a) 40000 (b) 50000  
(c) 48000 (d) 36000
34. Chamanlal, Arshad and Jagjit Singh contested an election. All the votes polled were valid. Arshad got 35% of the total votes. For every 35 votes Chamanlal got 14 votes. The winner got 4950 more votes than the person who received the least number of votes. Find the total number of votes polled.  
नसहे ? नस्यं विनु जू ए हके खी हिम नखी । र्णि स-यखि दु: ए । दि । ष । दि नस्यी दी । अ । दि कि द 35% । दि ह्ये द दि नसहे । । दि जे 35 । दि सक द । 4 । दि ह्ये द । दि ह्ते दी दि: । दी स । दि । खि । दत्ज- । ए । अख सक 4950 । दि ह्ये ह्ये द दि स-यखे ष: । ए । दि कि ए । अ : कर् म-ी नक
- (a) 13378 (b) 38000  
(c) 99000 (d) 33000
35. If a number is first increased by 15%, then reduced by 15%. it results in 782. If the same number is first reduced by 25%, then increased by 25% and again reduced by 20%, then what will be the resulting number?  
ज्ज हे : ए : कर् सके । द 15% । ए । ह्ते । दिऐ के ह कू 15% । ए । सए दिऐ के-दि धी । । ह्तेसि 782 । विधि ज्ज ड: ए : कर् सके । द 25% । ए । सए दि ह कू 25% । ए । ह्ते दिं वि ह कू : द 20% । ए । सए दि-दि । ह्तेसिए : कर् म-ी नक
- (a) 712 (b) 150  
(c) 750 (d) 600

- SSC CGL Tier-I (2020)**  
**{17/08/2021} All Shifts**
36. A certain number of students from school X appeared in an examination and 20% students failed. From school Y, 130% more students than that from school X, appeared in the same examination. If 90% of the total number of students appeared from both the schools passed, then what is the percentage of students from school Y who failed (correct to one decimal place)?  
हे : एा नर्णा सक्कड हूँ ज X : दहखन - : फर्क सक्कडिडा हूँ भं वि 20% चीर्णि खर्णिमि दिज्भडः एा नर्णा सक्कड हूँ ज Xी एा अर्ख सक्कड हूँ ज Y : द130% ह्यी चीर्णिडा हूँ भं ज्जह्य यखिविह हूँ जकि दडा हूँ भि अ चीर्णिसक द90% चीर्णि डर्थेमि भे -दिह हूँ ज Yी दं खर्णिमिचीर्णिकि दिहर्स- षी यसि 10 छि नो म्-ि न्क
- (a) 8.3% (b) 10%  
(c) 6.4% (d) 5.7%
37. Rajan spent 10% of his salary on rent. He spent 20% of the remaining part of the salary on transport. After which he spent 40% of the balance of the salary on food. Further, he spent 80% of the balance on various bills. He deposits ₹5000 in the bank and kept the remaining ₹1480 for his own petty expenditure. Find his monthly salary (in ₹).  
नू ख खर्ण खर्ण दखी 10% हे न्क नान नमहे ज्भि डे खि दखी दसर्वि जिी 20% नानो खान नमहे ज्भि हूँ दं यि डः खर्ण दखी दसर्वि 40% दिखान नमही न ह्मभि धःी दं गि? डे खि सर्वि न्हर्णि 80% ह्युडुखि ह्यै कान नमहे ज्भि 5000 क सक्क सी न-ि वं वि सर्वि 1480 खर्चदिदसदिद नमी दहे ष न-ि षडो सिसिही 1दख र सक्क म्-ि फू ष
- (a) 75000 (b) 8000  
(c) 82500 (d) 64800
- SSC CGL Tier-I (2020)**  
**{18/08/2021} All Shifts**
38. In an examination, 45% of all the students who appeared are boys and the rest are girls. If 60% of the boys and 70% of the girls passed, then what is the percentage of students who failed?  
हे : एा नर्णा सक्कड हूँ छिर्णो द्दु एिचीर्णिकि सक्क 45% चीर्णि? णी दे कं वि सर्वि ण्हे जकि क्जह्य 60% णी दं वि 70% ण्हे जकि डर्थेमि भे दि-दिं खर्णिमि छिर्णो दचीर्णिकि दिहर्स- म्-ि न्क
- (a) 36 (b) 35.4  
(c) 40 (d) 34.5

39. The income of A is 20% less than the income of B and the income of C is 70% of the sum of incomes of A and B. The income of D is 25% more than the income of C. If the difference between the incomes of B and D is ₹23000. then what is the income (in ₹) of A?  
Aी एं जि? Bी एं जि : द20%ी से वं वि Cी एं जि? Aं वि Bी एं जि रुबिक्रैी 70% षडो एं जि? Cी एं जि : द25% ह्यी षज्जह्य Bं वि Dी एं जि दँ एं क र 23000 बे-दि Aी एं जि र सक्क म्-ि न्क
- (a) 32000 (b) 25000  
(c) 26000 (d) 28000
- SSC CGL Tier-I (2020)**  
**{20/08/2021} All Shifts**
40. Weight of A is 20% more than weight of B, whose weight is 30% more than weight of C. By how much percent weight of A is more than weight of C?  
Aी फू खे Bी दू खे : द20% : दं ह्यी बे हूँ :ी फू खे Cी दू खे : द30% ह्यी ष Aी फू खे Cी दू खे : दहे -ख दिहर्स- ह्यी बे
- (a) 69 (b) 56  
(c) 44 (d) 35.89
41. The present population of a village is 15280. If the number of males increases by 25% and the number of females increases by 15%, then the population will become 18428. The difference between present population of males and females in the village is:  
हे : एज्क्री एा-सखि खे फर्क 15280 ष ज्जह्य। यर्किके एः फर्क सक्क 25%ी एा ह्ये दि ए वं वि सहेँ फि कि एः फर्क सक्क 15%ी एा ह्ये दि ए बे-दि खे फर्क 18428 दिं षिज्ज ज्किक सका यर्किके वि सहेँ फि कि एा-सखि खे फर्क दी एं एी कन म्-ि न्क
- (a) 1840 (b) 1380  
(c) 920 (d) 2760
42. Price of a one gram gold coin decreased by 10% on its initial price on Monday and increased by 20% on Tuesday and again increased by 8% on Wednesday, and 5% increase on Thursday. If the final price on Thursday is ₹5511.24, then the initial price (in ₹) of one gram gold coin on Monday was?  
षी जसिी दः खिरी दहक्षे दी दसक्क सक्क : खिानी दिधःी दान्किनी सक्क न 10% एी एा सँ दि ए बे सक्के 1निो दि 20%ी एा ह्ये दि ए वं वि आनिो दिह कू : द8%ी ए

- 1ह्ये दि ए ष ज्जह्य निो दिधः सक्क कू : द5% एा ह्ये दि ए ष ज्जह्य ज्जह्य निो दिं कस सक्क र 5511.24. फि -दिः खिानी दिधे जसिी दः खिरी दहक्षे दी दान्किनी सक्क र सक्क हे -खं फि
- (a) 4500 (b) 4250  
(c) 4000 (d) 5000

**SSC CGL Tier-I (2020)**  
**{23/08/2021} All Shifts**

43. Three persons A, B and C donate 10%, 7% and 9% respectively of their monthly salaries to a charitable trust. Monthly salaries of A and B are equal and the difference between the donations of A and B is ₹900. If the total donation by A and B is ₹600 more than that of C, then what is the monthly salary (in ₹) of C?  
-एदुल्ह- A, Bं वि Cं खर्सहि 1दखी (ससबि 10%, 7%ं वि 9% जि षी धर्समि रोर दि यखि न-दे क Aं वि Bी सिसिही 1दख नँ नो वं वि Aं वि Bी दयखि दँ ए क र 900 षज्जह्य Cी एा अर्ख सक्क वि B धर्नि हे ज्जर्णि अ यखि र 600 ह्यी बे-दि Cी सिसिही 1दख र सक्क म्-ि न्क
- (a) 60000 (b) 50000  
(c) 45000 (d) 55000
44. Lucky spends 85% of her income. If her expenditure increases by x%, savings increase by 60% and income increases by 26%, then what is the value of x?  
क्षी एं खर्ण जिी 85% पन्मी न-ए ष ज्जह्य डःी द्ज्ज सक्क 26%ी एा ह्ये दि ए वं वि जि सक्क 26%ी एा ह्ये दि ए बे-दिखी सखि म्-ि न्क
- (a) 30 (b) 34  
(c) 26 (d) 20
- SSC CGL Tier-I (2020)**  
**{24/08/2021} All Shifts**
45. The total number of students in a school is 1400, out of which 35% of the students are girls and the rest are boys. If 80% of the boys and 90% of the girls passed in an annual examination, then the percentage of the students who failed is:  
षी ह्ये ह्ये सक्क चीर्णिकि एी अः फर्क 1400 बे हूँ हः सक्क द 35% चीर्णि ण्हे जकि कं वि सर्वि णी दे क्जह्य 80% नर्णा सक्क 80% णी दं वि 90% ण्हे जकि डर्थेमि भे -दि खर्णिमि छिर्णो दचीर्णिकि दिहर्स- म्-ि न्क
- (a) 17.4 (b) 21.5  
(c) 15.8 (d) 16.5