Number System and Operations

MATHEMATICS Comprehensive Book

QUESTIONS

1.	Which one among the following statements is not true?		
	(a) $-16 \div [4 \div (-8)] = 32$		
	(b) $-75 \div 15$ is not equal to $15 \div -75$		
	(c) -6 lies between -13 and -7		
	(d) $-13 \times (+14) - (-182)$ is equal to	0	
	(e) None of these		
2.	If A is an operation such that for	integers m and n, we get	
	$\mathbf{m} \Delta \mathbf{n} = \mathbf{m} \times \mathbf{m} \times \mathbf{m} + \mathbf{n} \times \mathbf{n} \times \mathbf{n} - 3 \times \mathbf{r}$	$\mathbf{n} imes \mathbf{n}$, , then find $ig(-4) \ \Delta \ 5$.	
	(a) - 111	(b) 121	
	(c) 131	(d) - 141	
	(e) None of these		
3.	The next number in the pattern -	34, - 21, - 8, 5, is	
	(a) 17	(b) 18	
	(c) 19	(d) 20	
	(e) None of these		
4.	Which of the following does not represent an integer?		
	(a) $0 \div (-4)$	(b) $-35 \div 15$	
	(c) $75 \div (-25)$	(d) $105 \div 7$	
	(e) None of these		
5.	If $m + 1$ and $n - 1$ are integers then which of the following may not be an integer?		
	(a) $(m+n)$	(b) $(m+5)-(n+2)$	
	(c) $(m-3) \div (n+4)$	(d) $(m+2) \times (n-3)$	
	(e) None of these		
6.	Which one among the following is not a correct statement?		
	(a) The multiplicative inverse of zero does not exist.		
	(b) The product of a proper and improper fraction is always less than the improper fraction.		
	(c) All rational numbers cannot be represented on the number line.		
	and the sum of two proper tractions m		

- (d) The sum of two proper fractions may be an improper fraction.
- (e) None of these

7. The LCM and HCF of two numbers are 196 and 20 respectively. How many such pair(s) of numbers is possible?

(a) 0	(b) 1
(c) 2	(d) 3
(e) None of these	

8. Find the greatest four-digit number which when divided by 20, 30, 35 and 45 leaves remainder 12 in each case.

(a) 8442	(b) 8242
(c) 8832	(d) 9892
(e) None of these	

9. The product of two proper fractions is _____.

- (a) not less than one
- (b) less than each of the two fractions $% \left({{{\mathbf{b}}_{\mathbf{b}}}^{\mathbf{b}}} \right)$
- (c) more than one
- (d) more than each of the two fractions
- (e) None of these

10. If we multiply a fraction by its reciprocal and add the product to its additive inverse, we get the

fraction $2\frac{1}{11}$. Find the original fraction.

(a) $-2\frac{1}{11}$	(b) $-1\frac{1}{11}$
(c) $1\frac{1}{11}$	(d) $2\frac{1}{11}$

(e) None of these

11. The smallest possible decimal up to four decimal places is_____.

(a) 0.1000	(b) 0.0001
(c) 0.0010	(d) 0.0100

(e) None of these

12. The HCF and LCM of two numbers are 140 and 29400. If one of the numbers is 840, then find the other number.

(a) 8100	(b) 4700
(c) 4850	(d) 4900
(e) None of these	

13. The greatest number which can divide 251 and 284 by leaving remainders 13 and 12 respectively is

(a) 18	(b) 17
(c) 34	(d) 36

(e) None of these

is

14. The descending order of $\frac{11}{13}, \frac{10}{11}, \frac{12}{17}, \frac{3}{7}, \frac{4}{5}$

(a) $\frac{12}{12} > \frac{11}{12} > \frac{4}{12} > \frac{3}{12} > \frac{10}{12}$	(b) $\frac{12}{12} < \frac{11}{12} < \frac{4}{12} < \frac{3}{12} < \frac{10}{12}$
17 13 5 7 11	17 13 5 7 12
(c) $\frac{10}{11} \ge \frac{11}{4} \ge \frac{12}{12} \ge \frac{3}{4}$	(d) $\frac{10}{10} = \frac{11}{11} = \frac{4}{4} = \frac{12}{12} = \frac{3}{4}$
(0) $\frac{11}{11}$ $\frac{13}{13}$ $\frac{5}{5}$ $\frac{17}{17}$ $\frac{7}{7}$	$(\mathbf{u}) \overline{11} \overline{13} \overline{5} \overline{17} \overline{7}$

(e) None of these

15. Which one of the following is the correct interpretation of expression 13 - 15?

(a) Start at 13 on the number line and move 15 on the right.

(b) Start at 13 on the number line and move 15 on the left.

- (c) Start at 15 on the number line and move 13 on the right.
- (d) Start at 15 on the number line and move 13 on the left.
- (e) None of these

16. 34.678678678 is a/an

(a) integer	(b) whole number
(c) rational number	(d) irrational number

(e) None of these

17. Anil has $\frac{2}{3}$ of a cake. He ate $\frac{4}{7}$ of it. What part of the cake has he eaten?

(a) $\frac{2}{7}$	(b) $\frac{2}{21}$
(c) $\frac{5}{21}$	(d) $\frac{3}{5}$

(e) None of these

18.	The second least value o	f the fraction among $\frac{17}{19}, \frac{10}{13}, \frac{13}{15}, \frac{2}{9}, \frac{3}{8}$ is
	(a) $\frac{3}{8}$	(b) $\frac{10}{13}$

(13)	(1) 2
$\frac{(c)}{15}$	(a) <u>-</u>

(e) None of these $3 - \frac{2}{1 + \frac{1}{2 + \frac{1}{3 + \frac{1}{4}}}}$ The value of (a) $1\frac{26}{43}$ (b) $2\frac{26}{43}$ (c) $1\frac{17}{37}$ (d) $\frac{17}{37}$

(e) None of these

19.

20. The least number which when decreased by 19 is exactly divisible by 24, 26, 28 and 32 is _____

(a) 4095	(b) 8736
(c) 8755	(d) 4076

(e) None of these

21. The smallest number by which 294 must be multiplied so that the product becomes a perfect square

is		
(a) 7		(b) 2
(c) 3		(d) 6
() NT	6.11	

(e) None of these

22. The smallest number of four digits exactly divisible by 12, 16, 18 and 22 is

(a) 3064	(b) 3168
(c) 1584	(d) 144

(e) None of these

23. Find the smallest number by which 2340 must be multiplied so that the product is a perfect cube.

(a) 23350	(b) 25350
(c) 6580	(d) 11780
(e) None of these	

24. The least perfect square exactly divisible by each of the numbers 3, 7, 9,12 and 15 is _____

(a) 78400	(b) 44100
(c) 19600	(d) 12600
(e) None of these	

25. The sum of two numbers is 40 and their product is 3680. The sum of their reciprocals is _____.

(a) $\frac{2}{77}$	(b) $\frac{2}{47}$
(c) $\frac{1}{84}$	(d) $\frac{1}{92}$

(e) None of these

26.	$\sqrt{28\frac{4}{9}}$ - $\sqrt{30\frac{1}{4}}$ is equal to	
	(a) $\frac{1}{2}$	(b) $\frac{-1}{6}$
	(c) $\frac{1}{6}$	(d) $\frac{1}{3}$

(e) None of these

27. $0.\overline{3} + 0.\overline{4}$ is equal to _____.

(a) 0.777	(b) 0.7777
(c) $\frac{7}{9}$	(d) both (b) and (c)

(e) None of these

28. The least number which when divided by 24, 28 and 32 leaves zero as its remainder, is _____

(a) 784	(b) 568
(c) 720	(d) 672

(e) None of these

29. Which one among the following is true?

(a) $\sqrt{m} + \sqrt{n} = \sqrt{m+n}$	(b) $\sqrt{(m+1)} + \sqrt{(n+1)} = \sqrt{(m+1)(n+1)}$
(c) $\sqrt{m} - \sqrt{n} = \sqrt{m-n}$	(d) $\frac{1}{\sqrt{m}+\sqrt{n}}=\sqrt{m}-\sqrt{n}$

(e) None of these

30. $3.\overline{2} + 2.\overline{3} + 5.\overline{7} =$ _____.

(a) 11.323232	(b) 11.333333
(c) 10.323232	(d) 11.3333
(e) None of these	

31. If $\mathbf{m} = (-28) + 26 + (-28) + 26 +$ (40 terms) and $\mathbf{n} = 39 + (-35) + 39 +$ (-35) + (40 terms) then $\mathbf{m} - \mathbf{n}$ is equal to. (a) -120 (b) 40 (c) -40 (d) 120 (e) None of these **32.** If $A = (-1)^1 + (-1)^2 + (-1)^3 +$ $+ (-1)^{1001}$ and $B = (-1)^1 - (-1)^2 + (-1)^3 - (-1)^4 +$ $- (-1)^{1001}$, then find $\mathbf{A} - \mathbf{B}$. (a) -1002 (b) 1000 (c) -1001 (d) 1001

33. The LCM of two numbers is 1800. Which of the following cannot be the HCF of two numbers?

(a) 45			(b) 225
(c) 400			(d) 200

(e) None of these

(e) None of these

34. Which among the following has the least value?

$\frac{36}{0.005}$, $\frac{0.360}{50}$, $\frac{3.6}{0.05}$,	$\frac{0.36}{500}$	
(a) $\frac{36}{0.005}$		(b) $\frac{0.360}{50}$
(c) $\frac{3.6}{0.05}$		(d) $\frac{0.36}{500}$

(e) None of these

35. How many $\frac{3}{5}$ kg pieces can be cut from a cake of weight 6 kg?

(a) 12	(b) 10
(c) 8	(d) 9

(e) None of these

36. Solve:
$$\frac{1}{3\frac{4}{5}} + \frac{1}{5\frac{3}{7}} + \frac{1}{3\frac{9}{16}} - \frac{1}{5\frac{5}{18}}$$

(a) $\frac{303}{470}$ (b) $\frac{307}{570}$
(c) $\frac{209}{470}$ (d) $\frac{323}{570}$

(e) None of these

- 37. Taking today as zero on the number line, if the day before yesterday is 11 May, what is the date 2 days after day after tomorrow?
 - (a) 17th May (b) 16th May
 - (c) 18th May (d) 19th May
 - (e) None of these

38. Isha and Angelina participated in a hurdle race. The race was conducted in 7 parts. In the first part, Isha lost by 10 seconds. In the second part she won by $1\frac{1}{2}$ minutes. In the third part Angelina won by 25 seconds but she lost it by 15 seconds in fourth part and won it by 1 minute in fifth part. In the sixth part Isha won by 8 seconds and in the last part of the race, Angelina won it by 20 seconds. Who won the race finally and by how much time?

- (a) Isha, by 2 seconds (b) Angelina, by 3 seconds
- (c) Isha, by 3 seconds (d) Angelina, by 2 seconds
- (e) None of these

39. A multistory building has 38 floors above the ground level each of height 7m. It also has 4 floors in the basement each of height 6m. A lift in building moves at a rate of 2m/sec. If a man starts from 170m above the ground, how long will it take him to reach at 3rd floor of basement?

- (a) 1 minute 34 seconds (b) 1 minute 24 seconds
- (c) 1 minute 38 seconds (d) 1 minute 20 seconds
- (e) None of these

40. In a test, + 4 marks are given for every correct answer and - 1 mark for every incorrect answer and 0 for not choosing any answer. If Yashika secured 110 marks in the test having 40 questions, then which one among the following can be a possibility of marking a correct or incorrect answer by her?

(a) 28 correct, 2 incorrect

(b) 29 correct, 6 incorrect

- (c) 30 correct, 10 incorrect
- (d) All the above

(e) None of these

ANSWER - KEY					
1. (C)	2. (B)	3. (B)	4. (B)	5. (C)	
6. (C)	7. (A)	8. (C)	9. (B)	10. (B)	
11. (B)	12. (D)	13. (C)	14. (C)	15. (B)	
16. (C)	17. (B)	18. (A)	19. (A)	20. (C)	
21. (D)	22. (C)	23. (B)	24. (B)	25. (D)	
26. (B)	27. (D)	28. (D)	29. (B)	30. (B)	
31. (A)	32. (B)	33. (C)	34. (D)	35. (B)	
36. (B)	37. (A)	38. (D)	39. (A)	40. (D)	