6TH CLASS WS-5 SOLUTIONS

Integers

Teaching Task

1. Absolute value of $|-a|+|-2a|$

   $a+2a=3a$
2. Conceptual

   0 is greater than -ve integer.
3. 42 < 65
4. – 32 < 32
5. $2+|-12|=2+12=14$

   $2+|-3|=2+3=5$

   $\therefore 2+|-12|>2+|-3|$
6. $|-7|-|-6|+|-8|=7-6+8=9$
7. Conceptual
8. Conceptual
9. Conceptual
10. If n = 3, 2n + 1 = 2(3) +1= 6 + 1 = 7 7 is prime

    If n = 4, 2(4) + 1 = 9 9 is not a prime

    If n = 5, 2(5) + 1 = 11 11 is a prime

    If n = 1, 2(1) + 1 = 3 3 is a prime

    Key – B
11. From option D)

    If n = 0, 2n – 1 = 2(0) – 1= -1 (-ve number)
12. If x is an integer greater than 10

    (x – 10) is positive.

    $\therefore$ absolute value of (x – 10) is x – 10
13. Descending order 6 > 3 > -3 > -6 > -36 > -61
14. As in problem 12.
15. Ascending order (in question '0' is missed)

    -9 < -3 < -1 < 0 < 3 < 10

    Consider option C) correction as above
16. Conceptual
17. Conceptual
18. Conceptual
19. Conceptual
20. Conceptual
21. Conceptual
22. $|-5|\cdot|+11|=5(11)=55$
23. 1
24. – 1
25. 0
26. Conceptual
27. Conceptual

LEARNER'S TASK

1. Absolute value of '31' is +31
2. Absolute value of – 203 is 203.
3. $4+1-1+|-1|=4+1=5$

4. $|a+b|=a+b$ if a + b is +ve.
5. $|11|+|-11|=11+11=22$
6. Conceptual
7. The smallest value of 'n' for (2n + 1) which is not a prime number.
   Repeated TT – Q NO 10
8. Conceptual
9. $|a|-|-a|=a-a=0$
10. $|-x|+|-y|=x+y$

JEE MAINS LEVEL

1. Descending order 10 > 3 > 0 > -1 > -3 > -9
2. $|-3|-|+3|+|0|=3-3=0$

   $|+2|+|+4|+|-3|=2+4+3=9$

   $\therefore 0<9$
3. Conceptual
4. $|a|=-b \quad a>0$

   Then a = - b

   $\therefore$ b = - a
5. If $|a+b+c|=-(a+b+c)$ then $a+b+c<0$
6. $a=|-2|+|2|+|-1|=2+2+1=5$

   $b=|-3|+|3|+|1|=3+3+1=7$

   a + b = 12
7. $|a+b|=-(a+b)\rightarrow -ve$

   $|x+y|=(y+x)\rightarrow +ve \qquad \because +ve>-ve$

   $\therefore x+y>a+b$
8. $|x+1|=(x+1)$ and $|y+1|=-(y+1)$

   $x+1>y+1$

   $\therefore x>y$
9. $l+m>0, \qquad |l+m|=a+b$

   $l+m=a+b$

   $l=a, m=b$

   Or $l=b, m=a$

   $\therefore$ Key - D
10. If $|x|=-y, |y|=-x$

    $-|x|=+y, -|y|=+x$

    $x+y=-|y|+(-|x|)=-(|x|+|y|)$
11. $|a+b|=+5, |b+c|=-10, |c+a|=-15$ then

    $|a+b|+|b+c|+|c+a|=5-10-15=-20<0$

12. Conceptual, check from options
13. $|x-a|=x-a, |x-a|=a-x$

    $\therefore |x-a|+|x-a|=x-a+a-x$

    $\Rightarrow 2|x-a|=0$

14. $|a|=|b-c|=b-c$

$\therefore a=b-c$

$\therefore b-a=c$

ADVANCED LEVEL QUESTIONS

Multiple correct answer type

1. Conceptual
2. Conceptual
3. Conceptual
4. $|-1|+|+1|+|-1|+.....(111 times)$

$1+1+1+..(111 times)=111$

$=3(37)=37(3)$

i.e., multiples of 3and 37

5. Consider in statement I – if a – b < 0

In statement II – If a – b > 0

Then Key – B correct

6. Conceptual

Comprehension type – I , let $|x-y|=-(x-y)$

7. $|x^2-y^2|=|(x+y)(x-y)|=|x+y||x-y|$

$=(x+y)(-(x-y))=-(x^2-y^2)=y^2-x^2$

8. Let a + b < 0 , a - b > 0

$|a^2-b^2|=|(a+b)(a-b)|=|a+b||a-b|$

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

9. $|m^2-n^2|=|(m+n)(m-n)|=|m+n||m-n|$

$=(m+n)(m-n)=m^2-n^2$

Comprehension II

10. $|x-y|=-(x-y)$ if x < y

$=y-x$ $x-y<0$

11. $|l-m|=l-m$

12. $|p-q|=-(p-q)=q-p$ If $q>p$

$q-p>0$

$\therefore p-q<0$

13. Greatest four digit number = 9999

14. Consider $\frac{|-100|+|-200|+|-300|+|-400|}{|-1|+|-2|+|-3|+|-4|}$

$=\frac{100+200+300+400}{1+2+3+4}=\frac{1000}{10}=100$

15. $\left|1+\frac{1}{2}+\frac{1}{3}+\frac{1}{6}\right|=\left|\frac{6+3+2+1}{6}\right|=\left|\frac{12}{6}\right|=2$

16. By applying the conditions in column – I match with column II

17. Similar. Apply conditions to get absolute values.