Q1
Answer :

(b) 1

If a number is exactly divisible by 3, the sum of the digits must also be divisible by 3.
$5 + x + 6 = 11 + x$ must be divisible by 3.
The smallest value of x is 1.
$x = 1$
$\Rightarrow x + 11 = 12$ is divisible by 3.

Q2
Answer :

(a) 0

If a number is divisible by 3, then the sum of the digits is also divisible by 3.
$6 + 4 + y + 8 = 18 + y$
This is divisible by 3 as y is equal to 0.

Q3
Answer :

(c) 3

If a number is exactly divisible by 9, the sum of the digits must also be divisible by 9.
$7 + x + 8 = 15 + x$
18 is divisible by 9.
$\therefore 15 + x = 18 \Rightarrow x = 3$

Q4

Answer :

(d) 4

A number is divisible by 9 if the sum of the digits is divisible by 9.

$3 + 7 + y + 4 = 14 + y$
For this sum to be divisible by 9:
$14 + y = 18 \Rightarrow y = 4$

Q5
Answer :

(a) 1
If a number is divisible by 3, the sum of the digits is also divisible by 3.
$4 + x + y + 7 = 11 + (x + y)$
For the sum to be divisible by 3:
$11 + (x + y) = 12 \Rightarrow (x + y) = 1$

Q6

Answer :

(d) 3

When a number is divisible by 3, the sum of the digits must also be divisible by 3.

$$x + 7 + y + 5 = (x + y) + 12$$

This sum is divisible by 3 if x+y+12 is 12 or 15.

For x+y+12 = 12:

x+y=0

But x+y cannot be 0 because then x and y both will have to be 0.

Since x is the first digit, it cannot be 0.

∴ x+y+12 = 15

or x+y = 15-12=3

Q7

Answer :

(c) 9

A number is divisible by 9 if the sum of the digits is divisible by 9.

$$x + 4 + y + 5 + z = 9 + (x + y + z)$$

The lowest value of $(x + y + z)$ is equal to 0 for the number x4y5z to be divisible by 9.

In this case, all x, y and z will be 0.

But x is the first digit, so it cannot be 0.

∴ x+4+y+5+z = 18

or x+y+z+9 = 18

or x+y+z = 9

Q8

Answer :

(b) 1

For a number to be divisible by 9, the sum of the digits must also be divisible by 9.

1+A+2+B+5=(A+B)+8

The number will be divisible by 9 if (A+B) =1.

Q9

Answer :

(d) 9

If a number is divisible by 9, then the sum of the digits is divisible by 9.

$$x + 2 + 7 + y = (x + y) + 9$$

For this to be divisible by 9, the least value of $(x + y)$ is 0.

But for x+y = 0, x and y both will be zero.

Since x is the first digit, it can never be 0.

∴ x + y + 9 = 18

or x + y = 9