Chapter - 1

Real Number

(Assertion and Reasoning Questions)

In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

Q.1. Assertion (A) : $\frac{13}{3125}$ is a terminating decimal fraction.

Reason (R) : If $q = 2^m 5^n$ where m n, are non-negative integers, then $\frac{p}{q}$ is a terminating decimal fraction.

Q.2. Assertion (A) : 34.12345 is a terminating decimal fraction.

Reason (R) : Denominator of 34.12345, when expressed in the form $\frac{p}{q}$, $q \neq 0$, is of the form $2^m \times 5^n$, where m and n are non-negative integers.

Q.3. Assertion (A) : The HCF of two numbers is 5 and their product is 150, then their LCM is 30

Reason (R) : For any two positive integers a and b, HCF (a,b) + LCM (a,b) = a × b.

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ANSWER KEY

Q.1 : (a)

We have $3125 = 5^5 = 5^5 \times 2^0$

Since the factors of the denominator 3125 is of the form $2^0 \times 5^5$, $\frac{13}{3125}$ is a terminating decimal

Q.2 : (a)

$$34.12345 = \frac{3412345}{100000} = \frac{682469}{20000} = \frac{682469}{2^5 \times 5^4}$$

Its denominator is of the form $2^m \times 5^n$, where $m = 5$ and $n = 4$ which are non-negative integers.

Q.3 : (c)

We have,

$$\begin{aligned} \text{LCM}(a, b) \times \text{HCF}(a, b) &= a \times b \\ \text{LCM} \times 5 &= 150 \\ \text{LCM} &= \frac{150}{5} = 30 \end{aligned}$$