

Class: X

Time: 1 Hour
Max. Marks: 25

Subject: Mathematics
Chapter: Real Numbers

General Instructions

1. All questions are compulsory.
2. Use Euclid's Division Algorithm where required.
3. Show all necessary steps for full marks.

Section A – MCQs (1 × 5 = 5 marks)

Q1. The HCF of 306 and 657 is: (a) 9 (b) 18 (c) 27 (d) 36

Q2. If the prime factorisation of the denominator of a rational number contains only 2 and 5, then its decimal expansion is:

(a) Non-terminating (b) Non-repeating (c) Terminating (d) Irrational

Q3. Which of the following is an irrational number? (a) 0.25 (b) $\sqrt{4}$ (c) $\sqrt{7}$ (d) $3/5$

Q4. If HCF = 12 and LCM = 180, then the product of two numbers is:

(a) 1920 (b) 2160 (c) 1800 (d) 1440

Q5. The decimal expansion of $13/125$ is:

(a) Non-terminating (b) Non-terminating recurring
(c) Terminating (d) Irrational

Section B – Very Short Answer (2 × 5 = 10 marks)

Q6. Use Euclid's Division Algorithm to find the HCF of 135 and 225.

Q7. Write the prime factorisation of 540.

Q8. Find whether the decimal expansion of $7/40$ will terminate or not. Give reason.

Q9. Find the LCM of 24 and 36 using prime factorisation.

Q10. Write one rational and one irrational number between 2 and 3.

Section C – Short Answer ($3 \times 2 = 6$ marks)

Q11. Prove that $\sqrt{5}$ is an irrational number.

Q12. Find the HCF and LCM of 72 and 120 and verify that:

$$\text{HCF} \times \text{LCM} = \text{Product of the numbers}$$

Section D – Long Answer ($4 \times 1 = 4$ marks)

Q13. Use Euclid's Division Algorithm to find the HCF of 867 and 255. Also find the LCM of the two numbers using the HCF obtained.