

CHAPTER END TEST

REAL NUMBERS

TIME: 1 HOUR

MAXIMUM MARKS: 32

General instructions:

- (i) All the questions are compulsory.
- (ii) The question paper consists of 16 questions. Question number 1-7 are of 1 mark each, question number 8-12 are of 2 marks each, question number 13-15 are of 3 marks each and question number 16 is of 6 marks.
- (iii) Write down the serial number before attempting the question.
- (iv) Use of a calculator is not permitted.

SECTION - A

1. State the fundamental theorem of arithmetic.
2. Is $0.120120012000120000\dots$ a rational or an irrational number?
3. Give an example of two irrational numbers whose sum is a rational and product is irrational.
4. Apply Euclid's division lemma to p and q where $p < q$.
5. Find the H.C.F. of 86, 98 and 108 by the prime factorisation method.
6. What will be the nature of decimal expansion of rational number $\frac{p}{q}$, if q is not in the form of $2^n 5^m$, where n and m are non-negative integers?
7. What is last digit of product of first 100 prime numbers?

SECTION - B

8. Check whether there is any value of n for which 4^n ends with the digit zero. Justify your answer.
9. Given that $\text{HCF}(306, 657) = 9$, find $\text{LCM}(306, 657)$.
10. An army contingent of 616 members is to march behind an army band of 32 members in a parade. The two groups are to march in the same number of columns. What is the maximum number of columns in which they can march?
11. Use Euclid's division algorithm to find H.C.F of 26 and 91.

12. Explain why the following are composite numbers:

$$7 \times 8 \times 15 + 15 \text{ and } 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 7$$

SECTION – C

13. Express 0.232323.... as a rational number in the form $\frac{a}{b}$, where a and b are co-prime.
14. Show that $7 - \sqrt{3}$ is irrational.
15. Use Euclid's division lemma to show that cube of any positive integer is of the form $9k$, $9k + 1$ or $9k + 8$.

SECTION – D

16. There are 876 boys and 1533 girls in a school. The boys and girls are to be arranged in the ground for an assembly in such a manner that no boy and no girl are together in a column. It is also to be taken care that number of students in each column are equal. What is the minimum number of columns required to arrange the complete strength of the school?

