



Test / Exam Name: Maths - Real Numbers

Standard: 10th

Subject: Mathematics

Student Name:

Section:

Roll No.:

Questions: 22 Time: 01:15 hh:mm Marks: 40

Instructions

1. Rough work at the last page should be in proper manner too
2. Make sure to write in the point formation. Your handwriting should be neat and clean
3. New section on new page
4. Honesty is the best policy.

SECTION-A

- Q1.** The exponent of 2 in the prime factorization of 144, is: **1 Mark**
- A 2 B 4 C 1 D 6
- Q2.** The total number of factors of a prime number is: **1 Mark**
- A 1 B 0 C 2 D 3
- Q3.** The HCF of 135 and 225 is: **1 Mark**
- A 15 B 75 C 45 D 5
- Q4.** The sum of exponents of prime factors in the prime-factorisation of 196 is: **1 Mark**
- A 3 B 4 C 5 D 2
- Q5.** The HCF and the LCM of 12, 21, 15 respectively are: **1 Mark**
- A 3, 140 B 12, 420 C 3, 420 D 420, 3
- Q6.** The HCF of 256, 442 and 940 is: **1 Mark**
- A 2 B 14 C 142 D None of these
- Q7.** The LCM of two numbers is 182 and their HCF is 13. If one of the numbers is 26, find the other. **1 Mark**
- Q8.** How many two digits numbers are divisible by 3? **1 Mark**
- Q9.** Find the LCM and HCF of the following integers by applying the prime factorisation method. **1 Mark**
17, 23 and 29
- Q10.** Express each number as a product of its prime factors: **1 Mark**
140
- Q11.** Very-Short-Answer Questions: **1 Mark**
State Euclid's division lemma.
- Q12.** Express each number as a product of its prime factors: **1 Mark**
156

SECTION-B

- Q13.** How many natural numbers are there between 1 and 1000 which are divisible by 5 but not by 2? **2 Marks**
- Q14.** Use Euclid's division algorithm to find the HCF of 255 and 867. **2 Marks**
- Q15.** Prove that the following are irrational: **2 Marks**
 $7\sqrt{5}$
- Q16.** Prove that $(\sqrt{2} + \sqrt{5})$ is irrational. **2 Marks**
- Q17.** Find HCF and LCM of 404 and 96 and verify that $\text{HCF} \times \text{LCM} = \text{Product of the two given numbers}$. **3 Marks**
- Q18.** Show that $\frac{2+3\sqrt{2}}{7}$ is not a rational number, given that $\sqrt{2}$ is an irrational number. **3 Marks**
- Q19.** Express the following as a fraction in simplest form: **3 Marks**
0.24
- Q20.** Find the least number which when divided by 20, 25, 35 and 40 leaves remainders 14, 19, 29 and 34 respectively. **3 Marks**

SECTION-C

- Q21.** Sum of the areas of two squares is 544m^2 . If the difference of their perimeters is 32m, find the sides of the two squares. **4 Marks**
- Q22.** Without actually performing the long division, find if $\frac{987}{10500}$ will have terminating or non-terminating (repeating) decimal expansion. Give reasons for your answer. **4 Marks**