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Sample Paper – 2014 Class – X Subject – Mathematics

Marks: 45

TEST [REAL NUMBERS] TIME : 1 hr 30 min Instruction :

1. All questions are compulsory.

2. Question no 1 to 4 MCQ carrying 1 marks.

3. Question no 5 to 7 short answer type question carrying 2 marks.

4. Question no 8 to 12 short answer type question carrying 3 marks.

5. Question no 13 to 17 longanswer type question carrying 4 marks.

SECTION A

$15 \times 11 \times 13 + 7$ is	1	5	×11	$\times 1$.3+	-7	is
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(A)	prime number	(B)	composite number
(C)	odd number	(D)	none of these

2Which of these numbers always ends with the digit 6? Where n is a natural number.

(A)	4 ^{<i>n</i>}	(B)	6"
(C)	2 ^{<i>n</i>}	(D)	8 ^{<i>n</i>}

3Which of the following numbers is irrational number

(A) 3.131131113	(B)	4.46363636
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- (C) 2.35 (D) b and c both
- 4 The decimal expansion of the rational number $\frac{21}{7 \times 2^3 \times 5^4}$ will terminate after _____ decimal places.

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(A)	3	(B)	4
(C)	5	(D)	never

SECTION B

- 5 If the HCF of 54 and 336 is 6, find their LCM.
- 6 Express $0.3\overline{6}$ as a fraction in simplest form.
- 7 Use Euclid's division algorithm to find the HCF of 196 and 38220.

SECTION C

8 Show that $3\sqrt{2}$ is an irrational number.

- 9 Without actual division, state whether $\frac{17}{3125}$ will have terminating or non-terminating repeating decimal expansion.
- 10 Explain why $13 \times 11 \times 19 + 19 \times 7$ is a composite number?
- 11 Show that any positive odd integer is of the form 4q + 1 or 4q + 3, where q is some integer.
- 12 There is a circular path around a sports field. Sonia takes 18 minutes to drive one round of the field, while Ravi takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they meet again at the starting point?

SECTION D

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- 13 Use Euclid's division lemma to show that the square of any positive integer is either of the form 3m or 3m + 1 for some integer m.
- 14 A sweet seller has 420 kaju barfis and 130 badam barfis. She wants to stack them in such a way that each stack has the same number, and they take up the least area of the tray. What is the maximum number of barfis that can be placed in each stack for this purpose?
- 15 Prove that \sqrt{p} is an irrational if p is prime number.
- 16 Prove that $\sqrt{5} + \sqrt{3}$ is an irrational number.
- 17 Use Euclid's division lemma to show that the cube of any positive integer is of the form 9m, 9m + 1 or 9m + 8.



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