

Guess Paper – 2014
Class – X
Subject – Mathematics
Real Numbers

Multiple Choice Questions

1. $5 \times 11 \times 13 + 7$ is a

(a) Prime number	(b) composite number
(c) odd number	(d) none

2. Which of these numbers always ends with the digit 6.

(a) 4^n	(b) 2^n
(c) 6^n	(d) 8^n

Where n is a natural number.

3. For a, b ($a \neq b$) positive rational numbers $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$ is a _____

(a) Rational number	(b) irrational number
(c) $(\sqrt{a} - \sqrt{b})^2$	(d) 0

4. If p is a positive rational number which is not a perfect square then $-3\sqrt{p}$ is

(a) integer	(b) rational number
(c) irrational number	(d) none of the above.

5. All decimal numbers are –

(a) Rational number	(b) irrational number
(c) real numbers	(d) integers

6. In Euclid Division Lemma, when $a = bq + r$, where a, b are positive integers which one is correct

(a) $0 < r \leq b$	(b) $0 \leq r < b$
(c) $0 < r < b$	(d) $0 \leq r \leq b$

7. Which of the following numbers is irrational number

(a) 3.131131113...	(b) 4.46363636...
(c) 2.35	(d) b and c both

8. The decimal expansion of the rational number $\frac{21}{7 \times 2^2 \times 5^4}$ will terminate after _____ decimal places
 (a) 3 (b) 4
 (c) 5 (d) never
9. HCF is always-
 (a) multiple of L.C.M. (b) factor of L.C.M.
 (c) divisible by L.C.M. (d) a and c both
10. The product of two consecutive natural numbers is always.
 (a) an even number (b) an odd number
 (c) a prime number (d) none of these
11. Which of the following is an irrational number between 0 and 1
 (a) 0.11011011... (b) 0.90990999...
 (c) 1.010110111... (d) 0.3030303...
12. $p^n = (a \times 5)^n$. For p^n to end with the digit zero $a =$ ____ for natural number n
 (a) any natural number (b) even number
 (c) odd number (d) none
13. A terminating decimal when expressed in fractional form always has denominator in the form of -
 (a) $2^m 3^n$, $m, n > 0$ (b) $3^m 5^n$, $m, n > 0$
 (c) $5^n 7^m$, $m, n > 0$ (d) $2^m 5^n$, $m, n > 0$

Short Answer Type Questions

14. What will be the value of $0.\bar{3} + 0.\bar{4}$?
15. If unit's digit of 7^3 is 3 then what will be the unit's digit of 7^{11} .
16. Given that HCF (135, 225) = 45. Find LCM (135, 225).
17. Solve $\sqrt{18} \times \sqrt{50}$. What type of number is it, rational or irrational.
18. Find the H.C.F. of the smallest composite number and the smallest prime number.
19. If $a = 4q + r$ then what are the conditions for a and q . What are the values that r can take?
20. What is the smallest number by which $\sqrt{5} - \sqrt{3}$ be multiple to make it a rational number?
 Also find the number so obtained.
21. What is the digit at unit's place of 9^n ?

22. Find one rational and one irrational number between $\sqrt{3}$ and $\sqrt{5}$.
23. State Euclid's Division Lemma and hence find HCF of 16 and 28.
24. State fundamental theorem of Arithmetic and hence find the unique factorization of 120.
25. Prove that $\frac{1}{2-\sqrt{5}}$ is irrational number.
26. Prove that $5-\frac{2}{7}\sqrt{3}$ is irrational number.
27. Prove that $\sqrt{2}+\sqrt{7}$ is not rational number.
28. Find HCF and LCM of 56 and 112 by prime factorisation method.
29. Why $17+11\times 13\times 17\times 19$ is a composite number? Explain.
30. Check whether $5\times 6\times 2\times 3+3$ is a composite number.
31. Check whether 14^n can end with the digit zero for any natural number n.
32. If the HCF of 210 and 55 is expressible in the form $210\times 5+55y$ then find y.

Long answer type questions

33. Find HCF of 56, 96 and 324 by Euclid's algorithm.
34. Show that the square of any positive integer is either of the form $3m$ or $3m+1$ for some integer m.
35. Show that any positive odd integer is of the form $6q+1$, $6q+3$, and $6q+5$ where q is some integer.
36. Prove that the square of any positive integer is of the form $5q$, $5q+1$, $5q+4$ for some integer, q.
37. Prove that the one and only one of n, n+2, n+4 is divisible by 3.
38. Two milk containers contains 398 l and 436 l of milk. The milk is to be transferred to another container with the help of a drum. While transferring to another container 7 l and 11 l of milk is left in both the containers respectively. What will be the maximum capacity of the drum.

Answers

- | | | | |
|-----|---|-----|---|
| 1. | b | 2. | C |
| 3. | a | 4. | C |
| 5. | c | 6. | B |
| 7. | a | 8. | B |
| 9. | b | 10. | B |
| 11. | b | 12. | B |

- | | | | |
|-----|--|-----|----------------------------|
| 13. | d | 14. | $\frac{7}{9}$ |
| 15. | 3 | 16. | 675 |
| 17. | 30, rational | 18. | 2 |
| 19. | Opposite integer r, q whole number $0 \leq r <$ | 20. | $(\sqrt{5} + \sqrt{3}), 2$ |
| 21. | even power =1
Odd power =9 | 23. | 4 |
| 24. | $2 \times 2 \times 2 \times 3 \times 5$ | 28. | HCF=28, LCM=336 |
| 30. | yes | 31. | No |
| 32. | Find HCF (210,55) = 5,
$5 = 210 \times 5 + 55y \Rightarrow y = -19$ | 33. | H |
| 34. | $9 = 3q + r$ | 35. | $9 = 6q + r$ |
| 38. | $n = 3q + r$ | 39. | 17 |

To help in above questions may send E-mail ftcst78@yahoo.com

Other chapters will be submitted soon.

There is no substitute for hard work.
You must supplement reading by practising questions

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