REAL NUMBERS

MCQs & A and R WORK SHEET

Test / Exam Name: Real Numbers   **Standard:** 10th   **Subject:** Mathematics

Student Name: ....   **Section:** ....   **Roll No.:** ....

| Questions: 45 | Time: 01:00 hh:mm | Negative Marks: 0 | Marks: 45 |

Instructions

1. MULTIPLE CHOICE QUESTIONS.

Q1. 20 is written as the product of primes as: **1 Mark**

A 2×5 **B** $2 \times 2 \times 3 \times 5$ **C** $2 \times 2 \times 5$ **D** $2 \times 2 \times 3$

Q2. The sum of the exponents of the prime factors in the prime factorisation of 196, is: **1 Mark**

A 1   **B** 2   **C** 4   **D** 6

Q3. The HCF of 256,442 and 940 is: **1 Mark**

A 2   **B** 14   **C** 142   **D** None of these

Q4. The LCM of two numbers is 1200. Which of the following cannot be their HCF?   **1 Mark**

A 600   **B** 500   **C** 400   **D** 200

Q5. The number of possible pairs of number, whose product is 5400 and the HCF is 30 is: **1 Mark**

A 1   **B** 2   **C** 3   **D** 4

Q6. Let $x = \dfrac{p}{q}$ be a rational number, such that the prime factorization of q is of the form 2n5m, where n,m are non-negative integers. Then x has a decimal expansion which terminates: **1 Mark**

A True   **B** False   **C** Neither   **D** Either

Q7. The exponent of 2 in the prime factorisation of 144, is: **1 Mark**

A 4   **B** 5   **C** 6   **D** 3

Q8. If $n = 2^3 \times 3^4 \times 5^4 \times 7$, then the number of consecutive zeroes in n, where n is a natural number, is: **1 Mark**

A 2   **B** 3   **C** 4   **D** 7

Q9. Two tankers contain 850 litres and 680 litres of petrol. The maximum capacity of a container which can measure the petrol of each tanker in exact number of times is: **1 Mark**

A 200 litres   **B** 180 litres   **C** 170 litres   **D** 190 litres

Q10. The smallest number by which $\sqrt{27}$ should be multiplied so as to get a rational number is: **1 Mark**

A $\sqrt{27}$ **B** $3\sqrt{3}$ **C** $\sqrt{3}$ **D** 3

Q11. The relationship between HCF and LCM of two natural numbers is   **1 Mark**

A HCF $\times$ LCM = a - b   **B** HCF $\times$ LCM = a $\times$ b   **C** HCF $\times$ LCM = a + b   **D** None of these

Q12. If the sum of LCM and HCF of two numbers is 1260 and their LCM is 900 more than their HCF, then the product of two numbers is: **1 Mark**

A 203400   **B** 194400   **C** 198400   **D** 205400

Q13. If two positive integers a and b are expressible in the form $a = pq^2$ and $b = p^2q$; p, q being prime numbers, then HCF (a, b) is: **1 Mark**

A pq   **B** p^3q^3 **C** p^3q^2 **D** p^2q^2

Q14. $\overline{3.27}$ is: **1 Mark**

A An integer.   **B** A rational number.   **C** A natural number.   **D** An irrational number.

Q15. The number $\dfrac{\sqrt{5}+\sqrt{2}}{\sqrt{5}-\sqrt{2}}$ **1 Mark**

A an integer   **B** not a real number   **C** an irrational number   **D** a rational number

Q16. If $a = 2^3 \times 3$, $b = 2 \times 3 \times 5$, $c = 3^n \times 5$ and LCM (a, b, c) = $2^3 \times 3^2 \times 5$, then n =   **1 Mark**

A 1   **B** 2   **C** 3   **D** 4

Q17. If two positive integers tn and n arc expressible in the form $m = pq^3$ and $n = p^3q^2$, where p, q are prime numbers, then HCF (m, n) =   **1 Mark**

A pq **B** pq^2 **C** p^3q^3 **D** p^2q^3

Q18. If p_1 and p_2 are two odd prime numbers such that $p_1 > p_2$, then $p_1^2 - p_2^2$ is: **1 Mark**

A An even number. **B** An odd number. **C** An odd prime number. **D** A prime number.

Q19. If 3 is the least prime factor of number a and 7 is the least prime factor of number b, then the least prime factor of a + b, is: **1 Mark**

A 2 **B** 3 **C** 5 **D** 10

Q20. The product of three consecutive positive integers is divisible by **1 Mark**

A 6 **B** 4 **C** 5 **D** 10

Q21. If the LCM of two numbers is 45 times their HCF and the sum of LCM and HCF is 1150, then HCF = **1 Mark**

A 25 **B** 1150 **C** 50 **D** 45

Q22. If p is a prime number, then $\sqrt{p}$ is **1 Mark**

A Irrational **B** Prime number **C** Rational **D** Integer

Q23. The LCM of two numbers $a^2b^3c^9d^6e^{11}$ and $g^5f^{21}a^3b^1c^{10}$ where a, b, c, d, e, f, g are prime numbers is: **1 Mark**

A a^2b^9 **B** $a^2bc^9g^5f^{21}$ **C** g^5f^{21} **D** $a^3b^3c^{10}d^6e^{11}f^{21}g^5$

Q24. The LCM of x and 18 is 36. The HCF of x and 18 is 2. What is the number x? **1 Mark**

A 2 **B** 1 **C** 4 **D** 3

Q25. The difference of a rational and an irrational number is always: **1 Mark**

A an irrational number **B** a rational number **C** None of these **D** an integer

Q26. 46 If the HCF of 65 and 117 is expressible in the form 65m – 117, then the value of 'm' is **1 Mark**

A 3 **B** 4 **C** 1 **D** 2

Q27. If HCF (a, b) = 12 and a × b = 1800, then LCM (a, b) is: **1 Mark**

A 90 **B** 1800 **C** 900 **D** 150

Q28. The total number of factors of a prime number is: **1 Mark**

A 1 **B** 0 **C** 2 **D** 3

Q29. If HCF (26, 169) = 13, then LCM (26, 169) = **1 Mark**

A 26. **B** 52. **C** 338. **D** 13.

Q30. If n is any natural number, then $6^n - 5^n$ always ends with: **1 Mark**

A 1 **B** 3 **C** 5 **D** 7

Q31. $3 + 2\sqrt{5}$ is a/ an: **1 Mark**

A irrational number **B** rational number **C** integer **D** natural Number

Q32. $(+ \sqrt{2}) + (- 1\sqrt{2})$ is **1 Mark**

A a non-terminating decimal **B** none of these **C** an irrational number **D** a rational number

Q33. The LCM of two co-prime numbers is **1 Mark**

A Their sum **B** 0 **C** Their difference **D** Their product

Q34. The HCF of two consecutive even numbers is **1 Mark**

A 0 **B** 3 **C** 2 **D** 1

Q35. The HCF of the smallest prime number and the smallest composite number is: **1 Mark**

A 2 **B** 0 **C** 1 **D** 4

Q36. An army contingent of 616 members is to march behind an army band of 32 members in a parade on the occasion of Republic Day. The two groups are to march in the same number of the column. The maximum number of column in which they can march is: **1 Mark**

A 8　　　　　　　　　　**B** 16　　　　　　　　　　**C** 12　　　　　　　　　　**D** 6

Q37.48 Which of the following statement is false?　　　　　　　　　　　　　　　　　**1 Mark**
1. H.C.F (p, q, r) × LCM (p, q, r) = p × q × r
2. LCM (p, q, r) = p × q × r; if p, q, r are prime numbers
3. HCF (p, q, r) = 1; if p, q, r are prime numbers
4. HCF(a, b) × LCM (a, b) = a × b

A (C)　　　　　　　　　　**B** (A)　　　　　　　　　　**C** (B)　　　　　　　　　　**D** (D)

Q38.Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read　　**1 Mark**
both the statements carefully and choose the correct alternative from the following:

Assertion: $3 + 2\sqrt{5}$ is a rational number.

Reason: Sum of rational and irrational number is always irraational.

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion
(A).
B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion
(A).
C Assertion (A) is true but reason (R) is false.　　　　**D** Assertion (A) is false but reason (R) is true.

Q39.Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read　　**1 Mark**
both the statements carefully and choose the correct alternative from the following:

Assertion: Every real number is either rational or irrational.

Reason: Rational and irrational number taken together form the set of real number.

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion
(A).
B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion
(A).
C Assertion (A) is true but reason (R) is false.　　　　**D** Assertion (A) is false but reason (R) is true.

Q40.Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read　　**1 Mark**
both the statements carefully and choose the correct alternative from the following:

Assertion: The given pair of no. 231, 396 are coprime to each other.

Reason: 231, 396 have only 1 common factor.

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion
(A).
B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion
(A).
C Assertion (A) is true but reason (R) is false.　　　　**D** Assertion (A) is false but reason (R) is true.

Q41.Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read　　**1 Mark**
both the statements carefully and choose the correct alternative from the following:

Assertion: Denominator of 34.12345. When expressed in the form $\frac{p}{q}$, q ≠ 0 is of the form $2^m \times 5^n$, where m,
n are non-negative integers

Reason: 34.12345 is a terminating decimal fraction

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion
(A).
B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion
(A).
C Assertion (A) is true but reason (R) is false.　　　　**D** Assertion (A) is false but reason (R) is true.

Q42.Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read　　**1 Mark**
both the statements carefully and choose the correct alternative from the following:

Assertion: 6^n ends with the digit zero, where n is natural number

Reason: Any number ends with digit zero, if its prime factor is of the form $2^m \times 5^n$, where m, n are natural
numbers

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion
(A).
B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion
(A).
C Assertion (A) is true but reason (R) is false.　　　　**D** Assertion (A) is false but reason (R) is true.

Q43.Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read　　**1 Mark**
both the statements carefully and choose the correct alternative from the following:

Assertion: The largest number that divide 70 and 125 which leaves remainder 5 and 8 is 13.
Reason: HCF (65, 117) = 13.

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

C Assertion (A) is true but reason (R) is false. D Assertion (A) is false but reason (R) is true.

Q44.Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following: **1 Mark**

Assertion: For any two positive integers a and b H.C.F. (a, b) × L.C.M. (a, b) = a × 6.

Reason: The H.C.F. of two numbers is 5 and their product is 150. Then their L.C.M. is 40.

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

C Assertion (A) is true but reason (R) is false. D Assertion (A) is false but reason (R) is true.

Q45.Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following: **1 Mark**

Assertion: If P is prime then $\sqrt{p}$ is irrational so $\sqrt{7}$ is irrational number

Reason: $\sqrt{7}$ is not expressed in the form of $\frac{p}{q}$ so it is irrational no.

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

C Assertion (A) is true but reason (R) is false. D Assertion (A) is false but reason (R) is true.