

CLASS TEST ON EXPONENTS & POWERS

F.M-15

Time : 30 mins

A Choose the correct answer for the following questions (Q1 to Q6) :

[6 × 1 = 6]

1. What would be the product of powers of prime factors of

$$2197 \times 784$$

(a) $7^2 \times 2^4 \times 13^3$

(b) $7^2 \times 2^4 \times 13^2$

(c) $7^2 \times 2^4 \times 2197$

(d) $7^2 \times 2^3 \times 13^3$

2. Choose the number which is in the Standard form :

(a) 0.3906×10^4

(b) 10.132569×10^5

(c) 5×10^{-20}

(d) 3925×10^6

3. Simplify : $\left(\frac{12^0 - 6^0 + 4^0}{9^0 + 2^0 - 6^0} \right)^0$

(a) -1

(b) 0

(c) 2

(d) 1

4. Which one of the following is a true statement?

(a) $2^4 \times 3^4 = 6^8$

(b) $\frac{27^3}{3^3} = 3^3$

(c) $20^2 \times 20^{18} = 400^{20}$

(d) $2^4 \times 3^8 \times 2^6 \times 3^2 = 6^{10}$

5. Assertion: $9^6 \times 9^4 = 9^{6+4}$

Reason: $a^m \times b^m = (ab)^m$

(a) A ✓ R ✓ E ✓

(b) A ✓ R ✓ E X

(c) A ✓ R X

(d) A X R ✓

6. Assertion: An exponent refers to the number of times a number is multiplied by itself

Reason: 0.005 is equal to 5×10^{-2}

(a) A ✓ R ✓ E ✓

(b) A ✓ R ✓ E X

(c) A ✓ R X

(d) A X R ✓

7. Express the below numbers

(i) 5930902 (in expanded form)

(ii) 3906.407×10^{-16} (in standard form)

[1+1]

8. Simplify :

$$\frac{(2^8)^2 \times 25^3 \times 36^4}{64^2 \times 5^6 \times 3^7}$$

[2]

9. Find y if

$$6^{2y} \times 3^{\frac{12y}{3}} \times 2^{\frac{16y}{4}} = 216 \quad [2]$$

10. Simplify and find the value of

$$\left(\frac{5n}{12}\right)^{\frac{2n}{6}} \quad \text{if}$$

$$5^{2002} + 5^{2000} - 5^{1999} - 45 \times 5^{1998} = 5^{2000} \times n \quad [3]$$