



SmartKeeda

The Question Bank

Presents

TestZone

India's least priced Test Series platform

JOIN

12 Month Plan

2019-20 All Test Series

@ Just

₹ 499/-

300+ Full Length Tests

- Brilliant Test Analysis
- Excellent Content
- Unmatched Explanations

JOIN NOW

Surds and Indices Questions for CGL Tier 2, CGL Tier 1 and SSC 10+2

Surds and indices quiz 2

Direction: Study the following questions carefully and choose the right answer.

1. If $2^{2n-1} = \frac{1}{8^{n-3}}$, then the value of n is:

- A. 3
B. 2
C. 0
D. -2

2. If $\frac{9^n \times 3^5 \times (27)^3}{3 \times (81)^4} = 27$, then the value of n is:

- A. 0
B. 2
C. 3
D. 4

3. If $2^{n+4} - 2^{n+2} = 3$, then n is equal to:

- A. 0
B. 2
C. -1
D. -2

4. If $2^{n-1} + 2^{n+1} = 320$, then n is equal to:

- A. 6
B. 8
C. 5
D. 7

5. If $3^x - 3^{x-1} = 18$, then the value of x is:

- A. 3
B. 8
C. 27
D. 216

$$6. \frac{(7p^2q^9r^5)^2(4pqr)^3}{(56p^6q^{10}r^4)^2}$$

A. $p^{-5}qr^3$

B. $p^{-5}qr^5$

C. $p^{-3}qr^5$

D. $p^{-2}qr^3$

$$7. \frac{(5x^7)^3 \cdot (10x^2)^2}{(2x^6)^7}$$

A. $(5/2)5x-17$

B. $(5/2)3x-15$

C. $(5/2)x-17$

D. $(3/2)5x-14$

$$8. 5^x \times 25^{x-1} \div (5^{x-1} \times 25^{x-1})$$

A. 2

B. 5

C. 7

D. 9

$$9. 2^5 \times 15^0 + (-3)^3 - \left(\frac{2}{7}\right)^{-2}$$

A. $-21/5$

B. $-11/5$

C. $-29/4$

D. $-39/4$

$$10. \left(\frac{1}{4ab^2c}\right)^2 \div \left(\frac{3}{2a^2bc^2}\right)^4$$

A. $\frac{(ac)^2}{81}$

B. $\frac{(ac)^6}{81}$

C. $\frac{(ac)^4}{81}$

D. $\frac{(ac)^7}{81}$

Join us on Telegram for more PDFs

Click here



Correct answers:

1	2	3	4	5	6	7	8	9	10
B	C	D	D	C	B	A	B	C	B

Explanations:

$$\begin{aligned} 1). \quad & 2^{2n-1} \\ &= \frac{1}{8^{n-3}} \\ &= \frac{1}{(2^3)^{n-3}} \\ &= \frac{1}{2^{3(n-3)}} \\ &= \frac{1}{2^{(3n-9)}} \\ &= 2^{(9-3n)} \end{aligned}$$

Let's take power from the equation:

$$2n-1 = 9-3n$$

$$\Rightarrow 5n = 10$$

$$\Rightarrow n = 2.$$

Hence, option B is correct.

$$\begin{aligned} 2). \quad & \frac{9^n \times 3^5 \times (27)^3}{3 \times (81)^4} \\ &= 27 \Leftrightarrow \frac{(3^2)^n \times 3^5 \times (3^3)^3}{3 \times (3^4)^4} \\ &= 3^3 \Leftrightarrow \frac{3^{2n} \times 3^5 \times 3^{(3 \times 3)}}{3 \times 3^{(4 \times 4)}} = 3^3 \end{aligned}$$

$$\Leftrightarrow \frac{3^{2n+5+9}}{3 \times 3^{16}}$$

$$= 3^3 \Leftrightarrow \frac{3^{2n+14}}{3^{17}}$$

$$= 3^3 \Leftrightarrow 3^{(2n+14-17)} = 3^3$$

$$\Leftrightarrow 3^{2n-3} = 3^3$$

From the equation powers:

$$\Leftrightarrow 2n - 3 = 3 \Leftrightarrow 2n = 6 \Leftrightarrow n = 3.$$

Hence, option C is correct.

3). Given expression:

$$2^{n+4} - 2^{n+2} = 3 \Leftrightarrow 2^{n+2}(2^2 - 1) = 3 \Leftrightarrow 2^{n+2} = 1 = 2^0$$

[Bcz 2^0 is equal to 1]

From the equation power:

$$\Leftrightarrow n + 2 = 0 \Leftrightarrow n = -2$$

Hence, option D is correct.

4). Given equation:

$$2^{n-1} + 2^{n+1} = 320$$

$$\Leftrightarrow 2^{n-1}(1+2^2) = 320$$

$$\Leftrightarrow 5 \times 2^{n-1} = 320$$

$$\Leftrightarrow 2^{n-1} = 320 / 5$$

$$= 64 = 2^6$$

From the equation power:

$$\Leftrightarrow n-1 = 6 \Leftrightarrow n = 7.$$

Hence, option D is correct.

5). From the given expression:

$$3^x - 3^{x-1} = 18$$

$$\Leftrightarrow 3^{x-1} (3 - 1) = 18$$

$$\Leftrightarrow 3^{x-1} = 9 = 3^2$$

From the equation power:

$$\Leftrightarrow x - 1 = 2 \Leftrightarrow x = 3.$$

$$\therefore x^x = 3^3 = 27$$

Hence, option C is correct.

$$6). \frac{(7p^2q^9r^5)^2(4qpr)^3}{(56p^6q^{10}r^4)^2}$$

$$\frac{49 p^4 q^{18} r^{10} \times 64 p^3 q^3 r^3}{3136 p^{12} q^{20} r^8}$$

$$\frac{p^7 q^{21} r^{13}}{p^{12} q^{20} r^8} = p^{-5} q r^5.$$

Hence, option B is correct.

$$\begin{aligned}
 7). \quad & (5x^7)^3 \cdot \frac{(10x^2)^2}{(2x^6)^7} \\
 & \Rightarrow \frac{125x^{21} \cdot 100x^4}{4 \cdot 2^5 x^{42}} \\
 & \Rightarrow \frac{125 \times 25 \cdot x^{25-42}}{2^5} \\
 & \Rightarrow \frac{5^3 \cdot 5^2 x^{-17}}{2^5} \Rightarrow (5/2)^5 x^{-17}.
 \end{aligned}$$

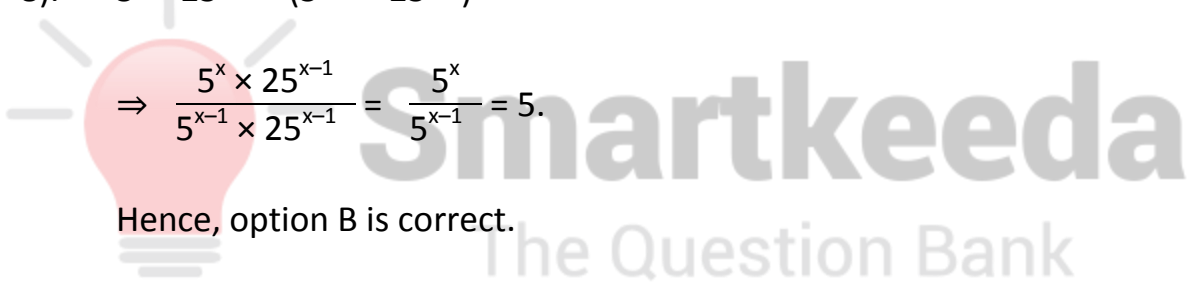
Hence, option A is correct.

$$\begin{aligned}
 8). \quad & 5^x \times 25^{x-1} \div (5^{x-1} \times 25^{x-1}) \\
 & \Rightarrow \frac{5^x \times 25^{x-1}}{5^{x-1} \times 25^{x-1}} = \frac{5^x}{5^{x-1}} = 5.
 \end{aligned}$$

Hence, option B is correct.

$$\begin{aligned}
 9). \quad & 2^5 \times 15^0 + (-3)^3 - \left(\frac{2}{7}\right)^{-2} \\
 & \Rightarrow 2^5 \times 1 + (-27) - \left(\frac{7}{2}\right)^2 \\
 & \Rightarrow 2^5 - 27 - \frac{49}{4} \\
 & \Rightarrow 32 - 27 - \frac{49}{4} \Rightarrow 5 - \frac{49}{4} \\
 & \Rightarrow \frac{20 - 49}{4} \Rightarrow \frac{-29}{4}.
 \end{aligned}$$

Hence, option C is correct.



$$10). \left(\frac{1}{4ab^2c}\right)^2 \div \left(\frac{3}{2a^2bc^2}\right)^4$$

$$\Rightarrow \frac{1}{16a^2b^4c^2} \times \frac{16a^8b^4c^8}{81}$$

$$\Rightarrow \frac{a^6c^6}{81} \Rightarrow \frac{(ac)^6}{81}$$

Hence, option B is correct.



Smartkeeda

The Question Bank

Join us on Telegram for more PDFs
Click here





SmartKeeda

The Question Bank

प्रस्तुत करते हैं

TestZone

भारत की सबसे किफायती टेस्ट सीरीज़

अभी
जुड़ें

12 Month Plan

2019-20 All Test Series

@ Just

₹ 499/-

300+ फुल लेन्थ टेस्ट

- श्रेष्ठ विश्लेषण
- उत्कृष्ट विषय सामग्री
- बेजोड़ व्याख्या

अभी जुड़ें