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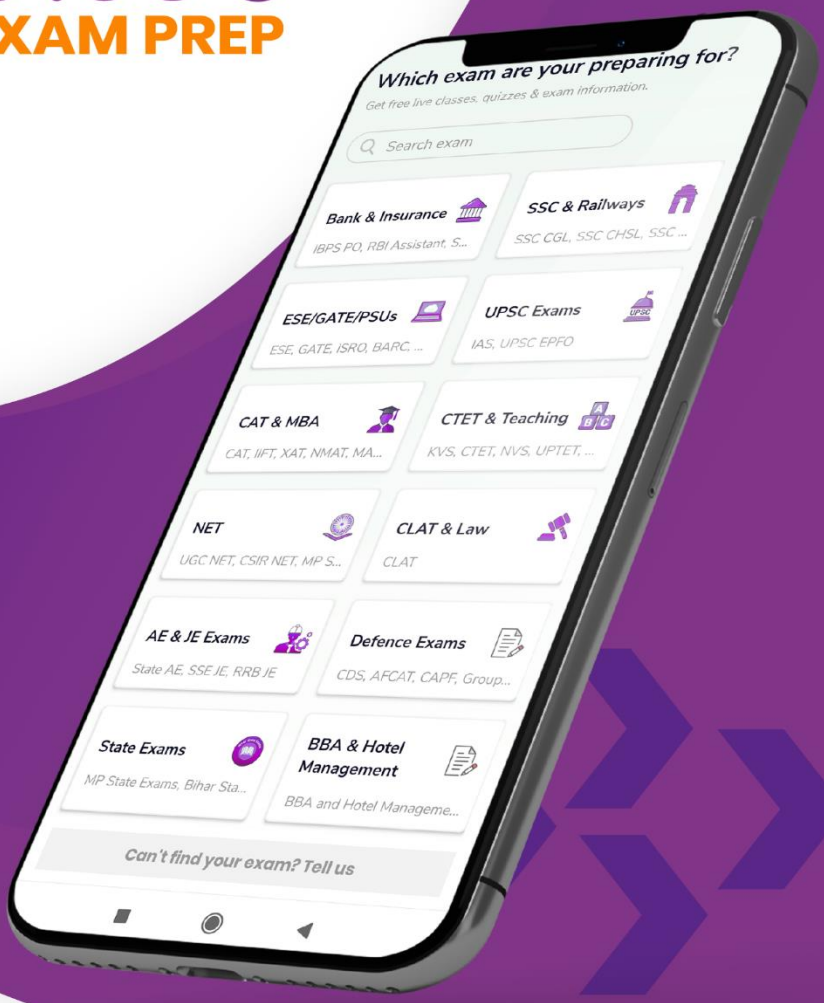

50+ Algebra Questions English PDF

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Algebra Questions for SSC Exams (English)

1.If a + b = 11 and ab = 35, then what is the value of ($a^4 + b^4$)?
A. 261
B. 102
C. 151
D. 124
Ans. C

2.Simplify the following $\frac{762\times762\times762+316\times316\times316}{762\times762-762\times316+316\times316}$
A. 1042
B. 1078
C. 1056
D. 1064
Ans. B

3.If $k^4+\frac{1}{k^4}=194$, then what is the value of $k^3+\frac{1}{k^3}$?
A. 18
B. 52
C. 42
D. 36
Ans. B

4.If a + b + c = 6, $a^2 + b^2 + c^2$ = 14 and ab + bc + ca = 11, then what is the value of $a^3 + b^3 + c^3 - 3abc$?
A. 42
B. 31
C. 18
D. 12
Ans. C

5.If $\frac{a^2+b^2+c^2-1024}{ab-bc-ca}=-2$ and a + b = 5c, where c > 0, then the value of c is
A. 12
B. 5
C. 4
D. 8
Ans. D

6.The value of $\frac{428\times428\times428+348\times348\times348}{428\times428-428\times348+348\times348}$ is:
A. 62080
B. 80
C. 776
D. 40
Ans. C

7.Simplify $\frac{x^2+2x+y^2}{x^3-5x^2}$ if $x+\frac{y^2}{x}=5$.
A. $\frac{5}{y^2}$
B. $-\frac{5}{y^2}$
C. $\frac{7}{y^2}$
D. $-\frac{7}{y^2}$
Ans. D

8.If a + b = 5 and ab = 6 , then find $3(a^2 + b^2)$.
A. 48
B. 39
C. 26
D. 13
Ans. B

9.A,B,C are three angles of a triangle. If A - B = 45° and B - C = 15° then ∠A = ?
A. 83°
B. 95°
C. 75°
D. 85°
Ans. B

10.If $8a^3 + 27b^3 = 16$ and $2a + 3b = 4$,then find the value of $16a^4 + 81b^4$.
A. 32
B. 28
C. 30
D. 26
Ans. A

11.A company employed 700 men and 300 women and the average wage was Rs.450 per day. If a man got Rs.50 more than a woman, then the daily wage of the woman is:
A. Rs.350
B. Rs.435
C. Rs.375
D. Rs.415
Ans. D

12.Find the value of the following expression.
$12^3 + (-8)^3 + (-4)^3$
A. 1052
B. 952
C. 1152
D. 852
Ans. C

13.The value of 95 × 105 is:
A. 9965
B. 9981
C. 9975
D. 9935
Ans. C

14.If $\left(4a+\frac{5}{a}+5\right)=14$, what is the value of $\left(16a^2+\frac{25}{a^2}\right)$?
A. 36
B. 25
C. 40
D. 41
Ans. D

15.The factors of $x^4 + x^2 + 25$ are :
A. $(x^2 + 3x + 5)(x^2 + 3x + 5)$
B. $(x^2 + 3x + 5)(x^2 - 3x + 5)$
C. $(x^2 + 3x - 5)(x^2 - 3x + 5)$
D. $(x^2 - 3x + 5)(x^2 - 3x + 5)$
Ans. B

16.If $x-\frac{1}{x}=13$, what will be the value of $x^4 + \frac{1}{x^4}$?
A. 29243
B. 28561
C. 27887
D. 29239
Ans. D

17.If x > 0, and $x^4 + \frac{1}{x^4} = 2207$, what is the value of $x^7 + \frac{1}{x^7}$?
A. 710654
B. 710649
C. 710661
D. 710647
Ans. D

18.If $x+\frac{1}{x}=8$, then find the value of $\frac{5}{x^2-8x+2}$.
A. 3
B. 4
C. 0
D. 5
Ans. D

19.Which of the following statement is correct?
I. The value of $100^2 - 99^2 + 98^2 - 97^2 + 96^2 - 95^2 + 94^2 - 93^2 + \ldots\ldots\ldots + 2^2 - 1^2$ is 5050.
II. If $8x+\frac{8}{x}=-16$ and x < 0, then the value of $x^{197} + x^{-197}$ is 2.
A. Only I
B. Both I and II
C. Only II
D. Neither I nor II
Ans. A

20.If $x = 3+2\sqrt{2}$, x > 0, then what is the value of $\sqrt{x}-\frac{1}{\sqrt{x}}$ is :
A. 1
B. 2
C. $2\sqrt{2}$
D. $\sqrt{2}$
Ans. B

21.If $x+\frac{1}{x}=-2$, then what is the value of $x^{17} + x^{-17} + x^{12} + x^{-12}$? ($x < 0$)
A. −1
B. 1
C. −2
D. 0
Ans. D

22.If $x - y = 1$ and $x^2 + y^2 = 41$ where $x, y \geq 0$, then the value of $x + y$ will be:
A. 6
B. 7
C. 9
D. 8
Ans. C

23.If $x+\frac{1}{x}=2\cos\theta$, then $x^3+\frac{1}{x^3}=$?
A. $2\cos 2\theta$
B. $\cos 2\theta$
C. $2\cos 3\theta$
D. $\cos 3\theta$
Ans. C

24.What is the possible value of $(a + b + c) - 3$, if $a^2 + b^2 + c^2 = 9$ and $ab + bc + ca = 8$?
A. 2
B. 3
C. 5
D. 9
Ans. A

25.If $x + y + z = 0$, then what is the value of $\frac{x^2}{(yz)}+\frac{y^2}{(xz)}+\frac{z^2}{(xy)}$?
A. 2
B. 3
C. 0
D. 1
Ans. B

26.(mx + n) is a factor of:
A. $m^2 x^2 + 2mnx + n^2$
B. $m^2 x^2 + 2mx + n^2$
C. $m^2 x^2 + 2nx + n^2$
D. $m^2 x^2 + 2mn + n^2$
Ans. A

27.If $k^4 + \frac{1}{k^4} = 47$, then what is the value of $k^3 + \frac{1}{k^3}$?
A. 54
B. 4.5
C. 18
D. 9
Ans. C

28.The simplified form of $(x + 2y)^3 + (x - 2y)^3$ is:
A. $2x^3 + 24xy^2$
B. $x^3 + 8y^3$
C. $2x^3 - 24xy^2$
D. $x^3 - 8y^3$
Ans. A

29.If $x + \frac{1}{x} = -14$, and $x < -1$, what will be the value of $x^2 - \frac{1}{x^2}$?
A. $112\sqrt{3}$
B. $140\sqrt{2}$
C. $-112\sqrt{3}$
D. $-140\sqrt{2}$
Ans. A

30.Which of the following statements is correct?
I. The value of $100^2 - 99^2 + 98^2 - 97^2 + 96^2 - 95^2 + 94^2 - 93^2 + ... + 22^2 - 21^2$ is 4840
II. The value of $\left(k^2 + \frac{1}{k^2}\right)\left(k - \frac{1}{k}\right)\left(k^4 + \frac{1}{k^{-4}}\right)\left(k + \frac{1}{k}\right)\left(k^4 - \frac{1}{k^{-4}}\right)$ is $k^{16} - \frac{1}{k^{16}}$
A. Neither I nor II
B. Only I
C. Only II
D. Both I and II
Ans. B

31.If $\frac{1}{x^2+a^2} = x^2 - a^2$, then the value of x is:
A. $(a^4 + 1)^{1/4}$
B. $(a^4 - 1)^{1/4}$
C. a
D. $(1 - a^4)^{1/4}$
Ans. A

32.If $a - b = 2$ and $a^3 - b^3 = 80$, then what will be the value of ab?
A. 12
B. 24
C. −12
D. −24
Ans. A

33.Select the correct algebraic expression.
A. $ab - a - b + 1 = (1 - a)(b - 1)$
B. $ab + a - b + 1 = (1 - a)(1 - b)(1 - a)(1 + b)$
C. $ab - a - b + 1 = (a - 1)(1 - b)$
D. $ab - a - b + 1 = (a - 1)(b - 1)$
Ans. D

34.Simplify the following $25^3 - 75^3 + 50^3$
A. 271250
B. −281450
C. −281250
D. 281350
Ans. C

35.What is the value of
$100^2 - 99^2 + 98^2 - 97^2 + 96^2 - 95^2 + 94^2 - 93^2 + \ldots\ldots 12^2 - 11^2$?
A. 4985
B. 4950
C. 5050
D. 4995
Ans. D

36.The value of 97 × 103 is _____.
A. 9991
B. 9981
C. 7999
D. 8991
Ans. A

37.If $x+\frac{1}{x}=1,$ then the value of $x^{12} + x^9 + x^6 + x^3 + 1$ is:
A. −2
B. 0
C. −1
D. 1
Ans. D

38.If 2a + 3b = 10 and ab = 3, then find the value of $4a^2 + 9b^2$.
A. 64
B. 60
C. 66
D. 62
Ans. A

39.If (4x – 7y) = 11 and xy = 8, what is the value of $16x^2 + 49y^2$, given that x and y are positive numbers?
A. 448
B. 596
C. 569
D. 484
Ans. C

40.What is the value of $\left(k-\frac{1}{k}\right)\left(k^2+\frac{1}{k_2}\right)\left(k^4+\frac{1}{k^4}\right)\left(k^8+\frac{1}{k^8}\right)\left(k^{16}+\frac{1}{k^{16}}\right)\left(k^{32}+\frac{1}{k^{32}}\right)$?
A. $\frac{k^{64}-\frac{1}{k^{64}}}{k+\frac{1}{k}}$
B. $\frac{k^{32}-\frac{1}{k^{32}}}{k+\frac{1}{k}}$
C. $\frac{k^{32}-\frac{1}{k^{32}}}{k-\frac{1}{k}}$
D. $\frac{k^{32}+\frac{1}{k^{32}}}{k+\frac{1}{k}}$
Ans. A

41.If $mx^m - nx^n = 0$, then what is the value of $\frac{1}{x^m + x^n} + \frac{1}{x^m - x^n}$ Where x, m, n are > 0

A. $2mn/ (x^n(n^2 - m^2)$

B. $2mn/(x^n(m^2 - n^2)$

C. $2mn/(x^n (n^2 + m^2)$

D. $2mn/(x^n(m^2 + n^2)$

Ans. A

42.If, for a non-zero x, $5x^2 + 7x + 5 = 0$, then the value of $x^3 + \frac{1}{x^3}$ is:

A. $\frac{182}{125}$

B. $\frac{125}{532}$

C. $\frac{532}{343}$

D. $\frac{496}{125}$

Ans. A

43.If $x + \frac{1}{2x} = 3$, then evaluate $8x^3 + \frac{1}{x^3}$.

A. 180

B. 212

C. 196

D. 216

Ans. A

44.If $x^2 + y^2 + z^2 = xy + yz + zx$ and $x = 1$, then find the value of $\frac{10x^4 + 5y^4 + 7z^4}{13x^2y^2 + 6y^2z^2 + 3z^2x^2}$.

A. 1

B. 2

C. 0

D. −1

Ans. A

45.If $\frac{a}{b}+\frac{b}{a}=1$ and a + b = 2, then the value of $a^3 + b^3$ is:
A. 1
B. 0
C. 2
D. 3
Ans. B

46.If $4x^2 + y^2 = 40$ and xy = 6, find the positive value of 2x + y.
A. 5
B. 8
C. 4
D. 6
Ans. B

47.If $p = 7 + 4\sqrt{3}$ then what is the value of $\frac{p^6+p^4+p^2+1}{p^3}$?
A. 2716
B. 2617
C. 2176
D. 2167
Ans. A

48.If $x+\frac{1}{x}=2,$ then $x^3+\frac{1}{x^3}=?$
A. 2
B. 1
C. 8
D. 0
Ans. A

49. $3\left[a-\frac{1}{a}\right]+\left[a-\frac{1}{a}\right]^3=?$
A. $a^2-\frac{1}{a^3}$
B. $a^3-\frac{1}{a^3}$
C. $a^3+\frac{1}{a^3}$
D. $a^2-\frac{1}{a^2}$
Ans. B

50.If $K+\frac{1}{K}+2=0$ and K < 0, then what is the value of $K^{10}+\frac{1}{K^{11}}$?
A. –1
B. 0
C. 1
D. 2
Ans. B

51.Simplify the following equation. What is the difference between the two value of x?
$7x+4\{x^2\div(5x\div10)\}-3\left\{5\frac{1}{3}-x^3\div(3x^2\div x)\right\}=0$
A. 5
B. 8
C. 16
D. 17
Ans. D

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