FUNDAMENTAL OF MATHEMATICS

YEAR LONG REVISION EXERCISE
Not To Be Discussed in Class

SECTION - 1 : SINGLE CHOICE CORRECT QUESTIONS

1. Number of positive integral solutions of the equation $\frac{1}{x}+\frac{2}{y}=\frac{1}{4}$:

(A) 4 (B) 6 (C) 8 (D) 10

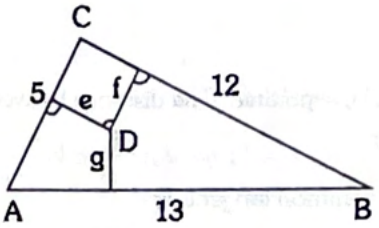
2. If in a ΔABC, $\sin^2A + \sin^2B + \sin^2C = 2$, then the triangle is always :

(A) isosceles triangle (B) right angled (C) acute angled (D) obtuse angled

3. Maximum value of the expression $2\sin x + 4\cos x + 3$ is :

(A) $2\sqrt{5}+3$ (B) $2\sqrt{5}-3$ (C) $\sqrt{5}+3$ (D) none of these

4. The sides of a triangle ABC are as shown in the given figure. Let D be any internal point of this triangle and let e, f, and g denote the distance between the point D and the sides of the triangle. The sum $(5e + 12f + 13g)$ is equal to :



(A) 120 (B) 90 (C) 60 (D) 30

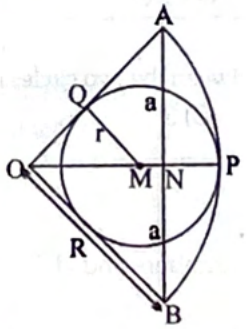
5. Which of the following expresses the circumference of a circle inscribed in a sector OAB with radius R and AB=2a?

(A) $2\pi\frac{Ra}{R+a}$

(B) $\frac{2\pi R^2}{9}$

(C) $2\pi(R-a)^2$

(D) $2\pi\frac{R}{R-a}$



6. Consider a right triangle with legs of length a and b and hypotenuse of length c. If k denotes the area of the triangle then the value of (a + b) equals :

(A) $c + 2\sqrt{k}$ (B) $\sqrt{c^2+4k}$ (C) $\frac{c^2}{4\sqrt{k}}$ (D) $\frac{4k}{c}$

SECTION - 2 : MULTIPLE CHOICE CORRECT QUESTIONS

7. In a triangle ABC, the angle B is greater than angle A . If the values of the angles A and B satisfy the equation, $3\sin x - 4\sin^3 x - k = 0$, $0 < k < 1$, then :

(A) $C=\frac{\pi}{3}$ (B) $A+B=\frac{\pi}{3}$ (C) $C=\frac{2\pi}{3}$ (D) $A+B=\frac{2\pi}{3}$

8. Value of $\theta(0 < \theta < 360°)$ satisfying $\operatorname{cosec}\theta + 2 = 0$ are :
(A) 210° (B) 240° (C) 240° (D) 330°

9. $2\sin^2 x + \sin^2(2x) = 2$, where $-\pi < x < \pi$, then $x =$
(A) $\pm\frac{\pi}{2}$ (B) $\frac{\pi}{4}$ (C) $\frac{3\pi}{4}$ (D) none of these

10. Let $t_n = \underbrace{11.....1}_{n \text{ times}}$ then :
(A) t_{102} is not prime (B) t_{951} is not prime (C) t_{540} is not prime (D) t_{91} is not prime

11. If 2576a456b is divisible by 15, then :
(A) a may take the value 5 (B) b may take the value 0
(C) a may take the value 4 (D) a may take the value 6

SECTION - 3 : COMPREHENSION BASED QUESTIONS

Comprehension-1

Two circles C_1 and C_2 are externally separated. The distance between the centres of C_1 and C_2 is 5 units and their radii are 1 and 2 respectively

12. The length of internal /transverse common tangents is :
(A) 5 (B) $2\sqrt{6}$ (C) 4 (D) $3\sqrt{2}$

13. The length of external /direct common tangents is :
(A) 5 (B) $2\sqrt{6}$ (C) 4 (D) $3\sqrt{2}$

14. The mininum distance between the two circles is :
(A) 2 (B) 3 (C) 4 (D) 1

Comprehension-2

Let a, b, c are 3 natural numbers and HCF (b, c) = 1 Given $\lim_{x\to 0}\frac{a - b\cos 2x}{c\sin^2 x} = \frac{4}{3}$ then

On the basis of above information, answer the following questions :

15. The value of a + b + c is equal to :
(A) 6 (B) 4 (C) 7 (D) None of these

16. The value of abc is equal to :
(A) 6 (B) 12 (C) 18 (D) 36

17. The value of $a^2 + b^2 + c^2$ is equal to :
(A) 17 (B) 12 (C) 18 (D) 36

Comprehesion-3

P(x) is a polynomial of degree 5 with leading coefficient unity such that
P(1) = 1, P(2) = 4, P(3) = 9, P(4) = 16, P(5) = 25.

18. P(6) =
(A) 156 (B) 120 (C) 36 (D) 126

19. The constant term in the expression of P(x) is :
(A) 110 (B) –100 (C) –120 (D) 24

20. P(–1) =
(A) –120 (B) –721 (C) –719 (D) None of these

Comprehension–4

Consider the number N = 8 7 a 2 7 9 3 1 b, where b is a digit at unit's place and a is a digit at ten lakh's place. Answer the following questions.

21. The greatest value of b for which N is divisible by 8 is :
(A) 0 (B) 2 (C) 4 (D) 6

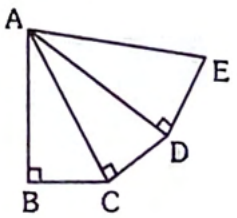
22. The least value of a for which N is divisible by 12 is :
(A) 0 (B) 2 (C) 4 (D) 6

23. Number of values of a + b for which N is divisible by 11 is :
(A) 0 (B) 1 (C) 2 (D) 3

SECTION - 4 : MATRIX - MATCH QUESTIONS

24. Match the following column

	Column–I		Column–II	
(A)	Number of integers satisfying $(x+3).(x-3) \le 0$	(P)	24
(B)	If $(n+1)(n+2)(n+3)(n+4)$ is always divisible by r for all $n \in I$, then maximum value of r must be necessarily	(Q)	12
(C)	If $a_n = \underbrace{999....9}_{n \text{ times}}$ then a_{24} is divisible by	(R)	7
(D)	In the following figure, ΔABC, ΔACD and ΔADE and right angled triangle. If $\frac{AB}{BC} = \frac{CD}{AC} = \frac{AD}{DE} = 2$ then find the value of $\left[\left(\frac{AE}{BC}\right)^2\right]$, where [·] represent G.I.F.	(S)	31



SECTION - 5 : NUMERICAL ANSWER BASED QUESTIONS

25. If $x\sin^3\alpha + y\cos^3\alpha = \sin\alpha.\cos\alpha$ and $x\sin\alpha - y\cos\alpha = 0$, then $x^2 + y^2$ is equal to :

26. $2\cos A + \sin(270° - A) + \cos(180° + A)$ is equal to :

27. If $\sin\theta + 2\cos\theta = 2$, $|\cos\theta - 2\sin\theta|$ is equal to :

28. If $\sin x + \sin^2 x = 1$, then value of $\cos^{12} x + 3\cos^{10} x + 3\cos^8 x + \cos^6 x$ is equal to :

29. If $\frac{1}{x} - \frac{1}{y} = 4$. Find the value of $\frac{2x + 4xy - 2y}{x - y - 2xy}$:

30. If $x = \frac{a}{b+c} = \frac{b}{c+a} = \frac{c}{a+b}$, then value of x is ?

SECTION - 6 : SUBJECTIVE QUESTIONS

31. A polynomial in x of degree three vanishes when $x = 1$ and $x = -2$, and has the values 4 and 28 when $x = -1$ and $x = 2$ respectively is

32. An equilateral triangle and a regular hexagon have the same perimeter, find the ratio of their areas.

SECTION - 7 : ASSERTION–REASON QUESTIONS

33. Statement-I : $2^{2^n} + 1$ is divisible by 2 but not by 4, $n \in N$

Becuase

Statement-II : $2^{2^n} + 1$ is an odd number., $n \in N$

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

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ANSWER KEY

YEAR LONG REVISION EXERCISE

SECTION-1

Que.	1	2	3	4	5	6
Ans.	B	B	A	C	A	B

SECTION-2

Que.	7	8	9	10	11
Ans.	BC	AD	ABC	ABCD	ABC

SECTION-3

Que.	12	13	14	15	16	17	18	19	20	21
Ans.	C	B	A	C	B	A	A	C	C	B
Que.	22	23								
Ans.	A	C								

SECTION-4

24. (A) → (r), (B) → (p), (C) → (r), (D) → (s)

SECTION-5

Que.	25	26	27	28	29	30
Ans.	1	0	1	1	2/3	1/2 OR –1

SECTION-6

31. $(x-1)(x+2)(3x+1)$

32. 2 : 3

SECTION-7

Que.	33
Ans.	D

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SETS, RELATION AND FUNCTION

YEAR LONG REVISION EXERCISE
Not To Be Discussed in Class

SECTION - 1 : SINGLE CHOICE CORRECT QUESTIONS

1. Consider the following statements :

$S_1 : x = \sqrt{\log_{11} 7}$ and $y = \sqrt{\log_7 11}$, then $e^{y \ln 7 - x \ln 11}$ is equal to 1.

S_2 : For real values of x : $x^2 - |x| = 0$ has 3 distinct solutions.

State, in order, whether S_1, S_2 are true or false

(A) T F (B) F F (C) F T (D) T T

2. Consider the following statements :

$S_1 : \log_{10}\alpha, \log_3\alpha, \log_e\alpha, \log_2\alpha$ $(\alpha > 1)$ are in increasing order

$S_2 : \log 1 + \log 2 + \log 3 = \log(1 \times 2 \times 3)$

State, in order, whether S_1, S_2 are true or false

(A) T F (B) F F (C) F T (D) T T

3. If a, b, c are integers such that $|a-b|^{19} + |c-a|^{19} = 1$, find the value of $|c-a| + |a-b| + |b-c|$

(A) 2 (B) 3 (C) 1 (D) 4

4. The minimum value of the expression

$y = |x-1| + |x-2| + |x-3| + |x-4| + |x-5| + |x-6| + |x-7| + |x-8|$ is

(A) 12 (B) 14 (C) 16 (D) 18

5. Given that log (2) = 0.3010....., number of digits in the number 2000^{2000} is

(A) 6601 (B) 6602 (C) 6603 (D) 6604

6. Let $a = (\log_3\pi)(\log_2 3)(\log_\pi 2)$, $b = \dfrac{\log 576}{3\log 2 + \log 3}$ the base of the logarithm being 10,

$c = 2\left(\text{sum of the solution of the equation } (3)^{4x} - (3)^{(2x+\log_3(12))} + 27 = 0\right)$ and $d = 7^{(\log_7 2 + \log_7 3)}$

then $(a+b+c+d)$ simplifies to

(A) rational which is not natural. (B) natural but not prime.

(C) irrational (D) even but not composite

7. If $a^4 \cdot b^5 = 1$ then the value of $\log_a(a^5b^4)$ equals

(A) $\frac{9}{5}$ (B) 4 (C) 5 (D) $\frac{8}{5}$

8. Let B, C, P and L be positive real numbers such that

$\log(B \cdot L) + \log(B \cdot P) = 2$;

$\log(P \cdot L) + \log(P \cdot C) = 3$;

$\log(C \cdot B) + \log(C \cdot L) = 4$.

The value of the product (BCPL) equals (base of the log is 10)

(A) 10^2 (B) 10^3 (C) 10^4 (D) 10^9

9. The real x and y satisfy simultaneously $\log_8 x + \log_4 y^2 = 5$ and $\log_8 y + \log_4 x^2 = 7$ then the value of xy is equal to :

(A) 2^9 (B) 2^{12} (C) 2^{18} (D) 2^{24}

10. If $\log_2(4+\log_3(x)) = 3$, then sum of digits of x is :
(A) 3 (B) 6 (C) 9 (D) 18

11. Given $\log_{10}2 = a$ and $\log_{10}3 = b$. If $3^{x+2} = 45$. The value of x in terms of a and b is :
(A) $\frac{a-1}{b}$ (B) $\frac{1-a}{b}$ (C) $\frac{1+a}{b}$ (D) $\frac{b}{1-a}$

12. Suppose that, $\log_{10}(x-2) + \log_{10}y = 0$ and $\sqrt{x}+\sqrt{y-2} = \sqrt{x+y}$. Then the value of $(x + y)$, is :
(A) 2 (B) $2\sqrt{2}$ (C) $2 + 2\sqrt{2}$ (D) $4 + 2\sqrt{2}$

13. If $\log_c 2 \cdot \log_b 625 = \log_{10}16 \cdot \log_c 10$ where $c > 0$; $c \neq 1$; $b > 1$; $b \neq 1$ determine b :
(A) 25 (B) 5 (C) 625 (D) 16

14. The sum of all the solutions to the equation $2\log x - \log(2x - 75) = 2$
(A) 30 (B) 350 (C) 75 (D) 200

15. The sum of the solutions of the equation $9^x - 6 \cdot 3^x + 8 = 0$ is
(A) $\log_3 2$ (B) $\log_3 6$ (C) $\log_3 8$ (D) $\log_3 4$

16. If $\log_3(x) = p$ and $\log_7(x) = q$, which of the following yields $\log_{21}(x)$?
(A) pq (B) $\frac{1}{p+q}$ (C) $\frac{1}{p^{-1}+q^{-1}}$ (D) $\frac{pq}{p^{-1}+q^{-1}}$

17. Number of integers satisfying the inequality $\log_{1/2} | x-3 | > -1$ is
(A) 5 (B) 3 (C) 2 (D) infinite

18. The solution of $2^x + 2^{|x|} \geq 2\sqrt{2}$ is
(A) $\left(-\infty, \log_2(\sqrt{2}+1)\right)$ (B) $(0, \infty)$
(C) $\left(\frac{1}{2}, \log_2(\sqrt{2}-1)\right)$ (D) $\left(-\infty, \log_2(\sqrt{2}-1)\right] \cup \left[\frac{1}{2}, \infty\right)$

19. Number of integral solution of the equation, $4\log_{x/2}\left(\sqrt{x}\right) + 2\log_{4x}\left(x^2\right) = 3\log_{2x}\left(x^3\right)$. is :
(A) 0 (B) 1 (C) 2 (D) None of these

SECTION - 2 : MULTIPLE CHOICE CORRECT QUESTIONS

20. If x_1 and x_2 are the solutions of the equation $x^{3\log_{10}^3 x - \frac{2}{3}\log_{10} x} = 100\sqrt[3]{10}$ then -
(A) $x_1x_2 = 1$ (B) $x_1 \cdot x_2 = x_1 + x_2$
(C) $\log_{x_2} x_1 = -1$ (D) $\log(x_1 \cdot x_2) = 0$

21. Consider the number $N = 24^{25}$. Also, $\log_{10} 2 \approx 0.3010$ & $\log_{10} 3 \approx 0.4771$. Then,
(A) Last digit of N is 4 (B) Last digit of N is 6
(C) No of digits in N are 34 (D) No of digits in N are 35

22. The expression, $\log_p \log_p \underbrace{\sqrt[p]{p\sqrt[p]{p\sqrt[p]{.....\sqrt[p]{p}}}}}_{\text{n radical sign}}$ where $p \geq 2$, $p \in N$, when simplified is

(A) independent of p, but dependent on n
(B) independent of n, but dependent on p
(C) dependent on both p & n
(D) negative.

23. Select the correct statement.

(A) $\log_3 19 \cdot \log_{1/7} 3 \cdot \log_4\left(\frac{1}{7}\right) < 2$

(B) The equation $\log_{1/3}(x^2 + 8) = -2$ has two real solutions.

(C) Let $N = \log_2 15 \cdot \log_{1/6} 2 \cdot \log_3\left(\frac{1}{6}\right)$. The greatest integer which is less than or equal to N is 3.

(D) The equation $\log_4 x + \log_4(x + 2) = \log_4(3x)$ has no prime solution.

24. If $\log_4 5 = x$ and $\log_5 6 = y$ then

(A) $\log_4 6 = xy$ (B) $\log_6 4 = xy$

(C) $\log_3 2 = \frac{1}{2xy - 1}$ (D) $\log_2 3 = \frac{1}{2xy - 1}$

25. For the equation $\log_{3\sqrt{x}} x + \log_{3x} \sqrt{x} = 0$, which of the following do not hold good?

(A) no real solution (B) one prime solution
(C) one integral solution (D) no irrational solution

SECTION - 3 : MATRIX - MATCH QUESTIONS

26. **Column-I** and **column-II** contains **four** entries each. Entry of column-I are to be uniquely matched with only one entry of column-II.

	Column-I		**Column-II**	
(A)	$\frac{1}{\sqrt{2}+1} + \frac{1}{\sqrt{3}+\sqrt{2}} + \frac{1}{\sqrt{4}+\sqrt{3}} + ... + \frac{1}{\sqrt{49}+\sqrt{48}}$	(P)	3
(B)	Let $A = \log_{\sqrt{3}} 8 \cdot \log_4 81$; $B = \log_{\sqrt{6}} 3 \cdot \log_3 36$. Then the value of (A – B) equals	(Q)	6
(C)	Let $A = \log^2_{\sqrt{2}}\left(\frac{1}{4}\right)$; $B = \log^3_{2\sqrt{2}}(8)$; $C = -\log_5 \log_3 \sqrt{\sqrt[5]{9}}$. Then the value of $\left(\frac{A}{B} + C\right)$ equals	(R)	7
(D)	$\left(\sqrt[3]{4} - \sqrt[3]{10} + \sqrt[3]{25}\right)\left(\sqrt[3]{2} + \sqrt[3]{5}\right)$	(S)	8

27. Match the Column-I with Column-II

	Column-I	Column-II
(A)	When the repeating decimal 0.363636..... is written as a rational fraction in the simplest form, the sum of the numerator and denominator is	(P) 4
(B)	Given integer p, q and r with $p = 3^q \cdot 2^r$ and $100 < p < 1000$. The difference between maximum and minimum values of $(q + r)$, is	(Q) 8
(C)	If $\log_8 a + \log_8 b = (\log_8 a)(\log_8 b)$ and $\log_a b = 3$, then the value of 'a' is	(R) 15
(D)	Let $N = (2 + 1)(2^2 + 1)(2^4 + 1) \ldots\ldots (2^{32} + 1) + 1$ then $\log_{256} N$ equals	(S) 16

28. Let $\log_{10} 2 = a$ and $\log_{10} 3 = b$ then

	Column-I	Column-II
(A)	$\log_{10}\left(\sin^2 \frac{5\pi}{3}\right)$ equals	(P) $\frac{4(2a+b)}{1-a+2b}$
(B)	$\log_{100} 4 + 2\log_{100} 27$ equals	(Q) $\frac{2b^2+3a^2}{ab}$
(C)	$\log_2 9 + \log_3 8$ equals	(R) $a + 3b$
(D)	$\log_{\sqrt{45}} 144$ equals	(S) $b - 2a$

SECTION - 4 : NUMERICAL ANSWER BASED QUESTIONS

29. If $\log_2(\log_2(\log_3 x)) = \log_2(\log_3(\log_2 y)) = 0$ then find the value of $(x + y)$.

30. If $\log_{10} 2 = 0.3010$ and $\log_{10} 3 = 0.4771$, then find :
(a) the number of integers in 6^{15}
(b) the number of zeros immediately after the decimal in 3^{-100}

SECTION - 5 : SUBJECTIVE QUESTIONS

31. The solution set of the equation $x^{\log_a x} = \left(a^x\right)^{\log_a^2 x}$ is_____, (where $a > 0$ & $a \neq 1$) .

32. If $\log_7 2 = m$, then $\log_{49} 28$ in terms of m has the value equal to _____.

33. What can be said about the numbers, $a_1, a_2, \ldots\ldots, a_n$ if it is known that,
$|a_1| + |a_2| + |a_3| + \ldots\ldots + |a_n| = 0$.

34. Solve the simultaneous equations $|x + 2| + y = 5$, $x - |y| = 1$

35. If $\frac{\log a}{b-c} = \frac{\log b}{c-a} = \frac{\log c}{a-b}$, show that $a^a . b^b . c^c = 1$.

36. Which is greater
(a) $\log_2 3$ or $\log_{1/2} 5$ (b) $\log_7 11$ or $\log_8 5$

37. $2\log_4 (4 - x) = 4 - \log_2 (-2 - x)$.

38. Prove that $\frac{\log_a N}{\log_{ab} N} = 1 + \log_a b$ & indicate the permissible values of the letters :

39. Compute the following : (a) $\log_{1/3} \sqrt[4]{729.\sqrt[3]{9^{-1}.27^{-4/3}}}$ (b) $a^{\frac{\log_b(\log_b N)}{\log_b a}}$

40. Prove the identity ; $\log_a N.\log_b N + \log_b N.\log_c N + \log_c N.\log_a N = \frac{\log_a N.\log_b N.\log_c N}{\log_{abc} N}$

41. Which is smaller ? 2 or $(\log_{e-1} 2 + \log_2 e - 1)$.

42. Prove that $a^x - b^y = 0$ where $x = \sqrt{\log_a b}$ & $y = \sqrt{\log_b a}$, $a > 0$, $b > 0$ & $a , b \neq 1$.

43. If $\frac{\log_a N}{\log_c N} = \frac{\log_a N - \log_b N}{\log_b N - \log_c N}$ where $N > 0$ & $N \neq 1$, a, b, c > 0 & not equal to 1, then prove that $b^2 = ac$.

44. Solve the system of the equations $(ax)^{\log a} = (by)^{\log b}$; $b^{\log x} = a^{\log y}$ where $a > 0, b > 0$ and $a \neq b$, $ab \neq 1$

45. Find the real solutions to the system of equations
$\log_{10}(2000xy) - \log_{10}x . \log_{10}y = 4$
$\log_{10}(2yz) - \log_{10}y . \log_{10}z = 1$
and $\log_{10}(zx) - \log_{10}z . \log_{10}x = 0$

46. Find x satisfying the equation $\log^2\left(1+\frac{4}{x}\right)+\log^2\left(1-\frac{4}{x+4}\right)=2\log^2\left(\frac{2}{x-1}-1\right)$.

47. Solve for x : $\log^2(4-x)+\log(4-x).\log\left(x+\frac{1}{2}\right)-2\log^2\left(x+\frac{1}{2}\right)=0$.

48. Find the value of the expression $\frac{2}{\log_4 (2000)^6} + \frac{3}{\log_5 (2000)^6}$

49. Solve the system of equations :
$\log_a x \log_a (xyz) = 48$
$\log_a y \log_a (xyz) = 12, a > 0, a \neq 1$
$\log_a z \log_a (xyz) = 84$

50. Solve for x :
(a) $5^{\log x} + 5x^{\log 5} = 3$ (a > 0) ; where base of log is a (b) $\log_x 2.\log_{2x} 2 = \log_{4x} 2$

51. Solve for x :
$\log_{x+1}(x^2+x-6)^2 = 4$

52. Solve for x : $\log_{3/4} \log_8 (x^2 + 7) + \log_{1/2} \log_{1/4} (x^2 + 7)^{-1} = -2$.

SECTION - 6 : ASSERTION-REASON QUESTIONS

These questions contains, Statement I (assertion) and Statement II (reason).

(A) Statement-I is true, Statement-II is true ; Statement-II is correct explanation for Statement-I.

(B) Statement-I is true, Statement-II is true ; Statement-II is NOT a correct explanation for statement-I.

(C) Statement-I is true, Statement-II is false.

(D) Statement-I is false, Statement-II is true.

53. **Statement-I** : If $a = y^2$, $b = z^2$, $c = x^2$, then $8\log_a x^3 . \log_b y^3 . \log_c z^3 = 27$

Becuase

Statement-II : $\log_b a . \log_c b = \log_c a$, also $\log_b a = \dfrac{1}{\log_a b}$

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

54. **Statement-I** : If $\log_{(\log_5 x)} 5 = 2$, then $x = 5^{\sqrt{5}}$

Becuase

Statement-II : $\log_x a = b$, if $a > 0$, then $x = a^{1/b}$

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

55. **Statement-I** : The equation $\log_{\frac{1}{2+|x|}} (5+x^2) = \log_{(3+x^2)}(15+\sqrt{x})$ has real solutions.

Becuase

Statement-II : $\log_{1/b} a = -\log_b a$ (where $a,b > 0$ and $b \neq 1$) and if number and base both are greater than unity then the logarithm is positive.

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

56. **Statement-I** : $|x + 1| = |x| + 1$ Possible only when $x \in [0, \infty]$

Becuase

Statement-II : $|x_1 + x_2| = |x_1| + |x_2| \Rightarrow x_1 x_2 \geq 0$.

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

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ANSWER KEY

YEAR LONG REVISION EXERCISE

SECTION-1

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	D	D	A	C	C	A	A	B	A	C
Que.	11	12	13	14	15	16	17	18	19	
Ans.	B	C	B	D	C	C	C	D	B	

SECTION-2

Que.	20	21	22	23	24	25
Ans.	ACD	AD	AD	BD	AC	ABD

SECTION-3

26. (A)→ Q; (B)→ S; (C)→ P; (D)→ R
27. (A)→ R; (B)→ P; (C)→ S; (D)→ Q
28. (A)→ S; (B)→ R; (C)→ Q; (D)→ P

SECTION-4

Que.	29	30	
Ans.	17	(a) 12	(b) 47

SECTION-5

31. $x = a^{\frac{1}{x}}, 1$ 32. $\frac{1}{2} + m$ 33. $a_1 = a_2 = a_3 .... = a_n = 0$

39. (a) – 1, (b) $\log_a N$ 41. 2 44. $x = \frac{1}{a}, y = \frac{1}{b}$

45. $(x, y, z) = (1, 5, 1), (100, 5, 100)$ 46. $\sqrt{2}, \sqrt{6}$

47. $x = 0, \frac{7}{4}, \frac{3 \pm \sqrt{24}}{2}$ 48. $\frac{1}{6}$ 49. $(x, y, z) = (a^4, a,$

50. (a) $a^{-\log_6 2}$, (b) $2^{\pm\sqrt{2}}$ 51. $x = 1$ 52. $x = \pm 3$

SECTION-6

Ans.	A	A	D	A

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