LOGARITHMS

1. If $\log_7(x+1)+\log_7(x-5)=1$, then x is equal to

(A) 6 (B) -2 (C) -6 (D) 2

2. If $A=\log_2\log_2\log_4 256+2\log_{\sqrt{2}}2$, then A is equal to

(A) 2 (B) 3 (C) 5 (D) 7

3. $\left[(0.16)^{\log_{2.5}\left(\frac{1}{3}+\frac{1}{3^2}+\frac{1}{3^3}+\cdots\infty\right)}\right]^{1/2}$ is equal to

(A) 0 (B) 1 (C) -1 (D) 2

4. If $\log_7 2=m$, then $\log_{49}28$ is equal to

(A) $1+m$ (B) $2(1+2m)$ (C) $\frac{1}{2}(1+2m)$ (D) $\frac{1}{2}(1+m)$

5. If $3^x=4^{x-1}$, then x is equal to

(A) $\frac{2\log_3 2}{2\log_3 2-1}$ (B) $\frac{2}{2-\log_2 3}$ (C) $\frac{1}{1-\log_4 3}$ (D) $\frac{2\log_2 3}{2\log_2 3-1}$

COMPLEX NUMBERS

6. The smallest positive integer n such that $\left(\frac{1+i}{1-i}\right)^n=1$ is

(A) 16 (B) 12 (C) 8 (D) 4

7. If z_1, z_2 are two complex numbers such that $|z_1+z_2|=|z_1|+|z_2|$, then $\operatorname{amp}(z_1)-\operatorname{amp}(z_2)$ equals

(A) $\pi/2$ (B) $-\pi/2$ (C) 0 (D) π

8. If z_0 is the circumcentre of an equilateral triangle with vertices z_1, z_2, z_3, then $z_1{}^2+z_2{}^2+z_3{}^2$ is equal to

(A) z_0^2 (B) $z_0{}^2/3$ (C) $3z_0^2$ (D) $2z_0^2/3$

9. If α, β are two different complex numbers and $|\beta|=1$, then $\left|\frac{\beta-\alpha}{1-\bar{\alpha}\beta}\right|$ is equal to

(A) 0 (B) 1/2 (C) 1 (D) 2

10. If two complex numbers z_1, z_2 are such that $|z_1|=12$ and $|z_2-3-4i|=5$, then the least value of $|z_1-z_2|$ is

(A) 0 (B) 2 (C) 7 (D) 17

11. If $1, \omega, \omega^2, \ldots, \omega^{n-1}$ are nth roots of unity, then $(1-\omega)(1-\omega^2)\ldots(1-\omega^{n-1})$ is equal to

(A) 0 (B) 1 (C) n (D) n^2

12. If z is a complex number such that $|z| \geq 2$, then the minimum value of $|z + 1/2|$

(A) is strictly greater than $5/2$.

(B) is strictly greater than $3/2$ but less than $5/2$.

(C) is equal to $5/2$.

(D) lies in interval $(1,2)$.

QUADRATIC EQUATIONS

13. The number of real roots of the equation $e^{\sin x} - e^{-\sin x} - 4 = 0$ is

(1) 2 (2) 1 (3) infinite (4) none

14. If x be real then the maximum and minimum values of the expression $\frac{x^2-x+1}{x^2+x+1}$ are

(A) $3, -1/3$ (B) $-3, 1/3$

(C) $3, 1/3$ (D) $-3, -1/3$

15. If $a < b < c < d$, then roots of the equation $(x-a)(x-c) + 2(x-b)(x-d) = 0$ are

(A) real and equal (B) real and different

(C) imaginary (D) rational

16. If roots of the equation $x^2 - 2ax + a^2 + a - 3 = 0$ are real and less than 3, then

(A) $a < 2$ (B) $2 \leq a \leq 3$

(C) $3 < a \leq 4$ (D) $a > 4$

17. If $(1-p)$ is a root of the equation $x^2 + px + (1-p) = 0$, then its roots are

(A) $0, 1$ (B) $0, -1$ (C) $-1, 1$ (D) $-1, 2$

18. If $\tan P/2$ and $\tan Q/2$ are roots of the equation $ax^2 + bx + c = 0 (a \neq 0)$ and in

$\triangle PQR, \angle R = \pi/2$; then

(A) $a + b = c$ (B) $b + c = a$

(C) $c + a = b$ (D) $b = c$

19. If α, β are roots of the equation $x^2 - px + r = 0$ and $\alpha/2, \beta/2$ are roots of the equation $x^2 - qx + r = 0$, then r is equal to

(A) $\frac{2}{9}(p-q)(2q-p)$
(B) $\frac{2}{9}(q-p)(2p-q)$
(C) $\frac{2}{9}(q-2p)(2q-p)$
(D) $\frac{2}{9}(2p-q)(2q-p)$

PROGRESSIONS

20. If the sum of p terms of an AP is q and the sum of its q terms is p, then the sum of its $(p+q)$ terms will be

(A) 0
(B) $p-q$
(C) $p+q$
(D) $-(p+q)$

21. If $\frac{1}{q+r}, \frac{1}{r+p}, \frac{1}{p+q}$ are in AP, then correct statement is

(A) p, q, r are in AP
(B) p^2, q^2, r^2 are in AP
(C) $1/p, 1/q, 1/$ are in AP
(D) $1/p^2, 1/q^2, 1/r^2$ are in AP

22. $2^{1/4} \cdot 4^{1/8} \cdot 8^{1/16} \cdot 16^{1/32} \cdot \ldots$ is equal to

(A) 1
(B) 2
(C) 3/2
(D) 5/2

23. If $x > 1, y > 1, z > 1$ are in GP, then $\frac{1}{1+\ln x}, \frac{1}{1+\ln y}, \frac{1}{1+\ln z}$ are in

(A) AP
(B) GP
(C) HP
(D) none of these

24. If $A_1, A_2; G_1, G_2$ and H_1, H_2 are respectively two AM S, two GM's and two HM's between two numbers, then $\frac{A_1+A_2}{H_1+H_2}$ equals

(A) $\frac{H_1H_2}{G_1G_2}$
(B) $\frac{G_1G_2}{H_1H_2}$
(C) $\frac{H_1H_2}{A_1A_2}$
(D) $\frac{G_1G_2}{A_1A_2}$

25. In a $\triangle PQR$ if $\sin P, \sin Q, \sin R$ are in AP, then its

(A) altitudes are in AP
(B) altitudes are in HP
(C) medians are in GP
(D) medians are in AP

26. Let $a_1, a_2, a_3, \ldots$ be terms of an AP. If $\frac{a_1+a_2+\cdots+a_p}{a_1+a_2+\cdots+a_q} = \frac{p^2}{q^2}, p \neq q$, then $\frac{a_6}{a_{21}}$ equals

(A) 2/7
(B) 7/2
(C) 11/41
(D) 41/11

PEMUTATIONS & COMBINATIONS

27. ${}^{47}C_4 + \sum_{r=1}^{5} {}^{52-r}C_3$ is equal to

(A) ${}^{51}C_4$ (B) ${}^{52}C_4$ (C) ${}^{53}C_4$ (D) none of these

28. The number of words from the letters of the word 'BHARAT' in which B and H will never come together, is

(A) 360 (B) 240 (C) 120 (D) none of these

29. The number of divisors of 9600 is

(A) 46 (B) 48 (C) 58 (D) 60

30. The sides AB, BC, CA of a triangle ABC have 3, 4 and 5 interior points respectively on them. The number of triangles that can be constructed using these points as vertices, is

(A) 220 (B) 210 (C) 205 (D) 200

31. A student is to answer 10 out of 13 questions in an examination such that he must choose at least 4 from the first 5 questions. The number of choices available to him is

(A) 346 (B) 140 (C) 196 (D) 280

32. A rectangle with sides $(2m-1)$ and $(2n-1)$ units is divided into squares of unit length by drawing parallel lines as shown in the diagram. The number of rectangles possible with odd side lengths is

(A) m^2n^2 (B) 4^{m+n-1}

(C) $mn(m+1)(n+1)$ (D) $(m+n+1)^2$

33. The total number of ways in which 5 balls of different colours can be distributed among 3 persons so that each person gets at least one ball is

(A) 75 (B) 150 (C) 210 (D) 243

BINOMIAL THEOREM

34. Given $r > 1, n > 2$ and the coefficients of (3r)th and $(r + 2)$ th terms in the expansion of $(1 + x)^{2n}$ are equal, then

(A) $n = 2r$ (B) $n = 2r - 1$
(C) $n = 2r + 1$ (D) none of these

35. In the expansion of $\left(\frac{x+1}{x^{2/3}-x^{1/3}+1} - \frac{x-1}{x-x^{1/2}}\right)^{10}$, the term independent of x is

(A) ${}^{10}C_7$ (B) ${}^{10}C_4$ (C) ${}^{10}C_5$ (D) does not exist

36. If the sum of the coefficients in the expansion of $(x + y)^n$ is 4096, then in this expansion the greatest binomial coefficient is

(A) 930 (B) 925 (C) 924 (D) none of these

37. If $(1 + x)^n = C_0 + C_1x + C_2x^2 + \cdots + C_nx^n$, then $C_0 + \frac{C_1}{2} + \frac{C_2}{3} + \frac{C_3}{4} + \cdots + \frac{C_n}{n+1}$ is equal to

(A) $\frac{2^{n-1}-1}{n+1}$ (B) $\frac{2^{n+1}-1}{n+1}$ (C) $\frac{2^{n-1}}{n-1}$ (D) $\frac{2^n-1}{n+1}$

38. If n is a positive integer, then integral part of $(3 + \sqrt{7})^n$ is

(A) an even number (B) an odd number
(C) a prime number (D) none of these

39. The greatest integer which divides $101^{100} - 1$ is

(A) 100 (B) 1000 (C) 10,000 (D) 100,000

40. The number of integral terms in the expansion of $(\sqrt{3} + \sqrt[8]{5})^{256}$ is

(A) 35 (B) 34 (C) 33 (D) 32

TRIGONOMETRICAL FUNCTIONS

41. If $\text{cosec}A + \cot A = 11/2$, then $\tan A$ is

(A) 21/12 (B) 15/16 (C) 44/17 (D) 117/43

42. $\sin 47^\circ + \sin 61^\circ - \sin 11^\circ - \sin 25^\circ$ equals

(A) $\sin 36^\circ$ (B) $\sin 7^\circ$ (C) $\cos 36^\circ$ (D) $\cos 7^\circ$

43. If $\sqrt{3}\cos\theta + \sin\theta = \sqrt{2}$, then general solution of θ is

(A) $n\pi + (-1)^n \frac{\pi}{4}$

(B) $(-1)^n \frac{\pi}{4} - \frac{\pi}{3}$

(C) $n\pi + \frac{\pi}{4} - \frac{\pi}{3}$

(D) $n\pi + (-1)^n \frac{\pi}{4} - \frac{\pi}{3}$

44. If $x\cos\theta = y\cos(\theta + 2\pi/3) = z\cos(\theta + 4\pi/3)$, then $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ is equal to

(A) 1 (B) 2 (C) 0 (D) $3\cos\theta$

45. $\sin\frac{\pi}{14} \cdot \sin\frac{3\pi}{14} \cdot \sin\frac{5\pi}{14} \cdot \sin\frac{7\pi}{14} \cdot \sin\frac{9\pi}{14} \cdot \sin\frac{11\pi}{14} \cdot \sin\frac{13\pi}{14}$ is equal to

(A) 1/64 (B) 1/32 (C) 1/16 (D) 1/8

46. If $\cos\left(\frac{\pi}{4} - x\right)\cos 2x + \sin x \sin 2x \sec x = \cos x \sin 2x \sec x + \cos(\pi/4 + x)\cos 2x$, then possible value(s) of $\sec x$ is(are)

(A) 1 (B) 2 (C) $\sqrt{2}$ (D) $\sqrt{3}$

PROPERTIES AND SOLUTIONS OF A TRIANGLE

47. In triangle ABC, if $\frac{\cos A}{a} = \frac{\cos B}{b} = \frac{\cos C}{c}$ and $a = 2$, then area of this triangle is

(A) 1 (B) 2 (C) $\sqrt{3}/2$ (D) $\sqrt{3}$

48. In triangle ABC, $\cos A + \cos B + \cos C$ is equal to

(A) $1 + R/r$ (B) $1 + r/R$ (C) $1 - R/r$ (D) $1 - r/R$

49. In a triangle ABC, $\frac{b-c}{r_1} + \frac{c-a}{r_2} + \frac{a-b}{r_3}$ is equal to

(A) 1 (B) 0 (C) abc (D) $r_1 r_2 r_3$

50. In a triangle ABC, if $3a = b + c$, then $\cot\frac{B}{2}\cot\frac{C}{2}$ is equal to

(A) $\sqrt{2}$ (B) $\sqrt{3}$ (C) 1 (D) 2

51. In a triangle ABC, if $\angle A = 45°$, $\angle B = 75°$, then $a + c\sqrt{2}$ is equal to

(A) 1 (B) 0 (C) b (D) $2b$

52. In a triangle ABC, if $a\cos^2 C/2 + c\cos^2 A/2 = 3b/2$, then a, b, c are in

(A) AP (B) GP (C) HP (D) none of these

53. In a triangle ABC, if $\Delta = a^2 - (b-c)^2$, then $\tan A$ is equal to.

(A) 1/2 (B) 8/15 (C) 15/16 (D) 8/17

HEIGHT & DISTANCE

54. A man from the top of a 100m high tower sees a car moving towards the tower at an angle of depression of 30°. After some time, the angle of depression becomes 60°. The distance (in meters) travelled by the car during this time is

(A) $100\sqrt{3}m$ (B) $(200\sqrt{3})/3m$

(C) $(100\sqrt{3})/3m$ (D) $200\sqrt{3}m$

55. The angle of elevation of the top of a tower from the top and bottom of a building of height a are 30° and 45° respectively. If the tower and the building stand at the same level, the height of the tower is.

(A) $a(\sqrt{3}+1)$ (B) $\left(\frac{a}{2}\right)(3+\sqrt{3})$

(C) $a(\sqrt{3}-1)$ (D) $a\sqrt{3}$

56. The angles of elevation of the top of a tower at two points which are at distances a and b from the foot in the same horizontal line and on the same sides of the tower, are complementary. The height of the tower is

(A) ab (B) $\sqrt{ab}$ (C) $\sqrt{a/b}$ (D) $\sqrt{b/a}$

57. ABC is a triangular area where $AB = AC = 100$ m. A TV tower is standing at the mid-point of BC. If angles of elevation of the top of the tower with respect to A, B, C are 45°, 60°, 60°, then the height of the tower is

(A) 50 m (B) $50\sqrt{3}m$ (C) $50/\sqrt{3}$ m (D) none of these

THE POINT

58. Points $(0,8/3)$, $(1,3)$ and $(82,30)$ are vertices of a

(A) right angled triangle

(C) obtuse angled triangle

(B) acute angled triangle

(D) none of these

59. If the points $\left(x_1 + t(x_2 - x_1), y_1 + t(y_2 - y_1)\right)$ divides the line joining (x_1, y_1) and (x_2, y_2) internally, then

(A) $t < 0$

(B) $0 < t < 1$

(C) $t > 1$

(D) $t = 1$

60. The point $(4,1)$ undergoes the following three transformations successively :

(i) Reflection about the line $y = x$.

(ii) Transformation through a distance 2 units along the positive direction of x-axis.

(iii) Rotation through an angle $\pi/4$ about the origin in the counter clockwise direction.

The final position of the point is given by the coordinates :

(A) $(7/\sqrt{2}, -1/\sqrt{2})$

(B) $(7/\sqrt{2}, 1/\sqrt{2})$

(C) $(-1/\sqrt{2}, 7\sqrt{2})$

(D) none of these

61. If a vertex of a triangle is $(1,1)$ and the midpoints of two sides through this vertex are $(-1,2)$ and $(3,2)$, then the centroid of the triangle is

(A) $(1/3, 7/3)$ (B) $(1, 7/3)$ (C) $(-1/3, 7/3)$ (D) $(-1, 7/3)$

62. Let $A(h,k)$, $B(1,1)$ and $C(2,1)$ be vertices of a right-angled triangle with AC as the hypotenuse. If the area of the triangle is 1, then the set of values which k can take is given by

(A) $\{1,3\}$ (B) $\{0,2\}$ (C) $\{-1,3\}$ (D) $\{-3,-2\}$

STRAIGHT LINE

63. The system of lines $ax + by + c = 0$ where $3a + 2b + 4c = 0$, passes through the point

(A) $(0,0)$

(B) $(1/2, 3/4)$

(C) $(3/4, 1/2)$

(D) none of these

64. A straight-line segment of length l moves with its ends on the coordinate axes. The locus of the point which divides the line in the ratio $1:2$ is

(A) $9x^2 + 36y^2 = l^2$

(B) $36x^2 + 9y^2 = l^2$

(C) $36x^2 + 9y^2 = 4l^2$

(D) $9x^2 + 36y^2 = 4l^2$

65. If the sum of the distances of a point from two perpendicular coplanar lines is 1, then the locus of this point is a

(A) line (B) pair of lines (C) square (D) circle

66. Two consecutive sides of a parallelogram are $4x + 5y = 0$ and $7x + 2y = 0$. If the equation to one diagonal is $11x + 7y = 9$, then equation of the other diagonal is

(A) $x - y = 0$
(B) $x + 2y = 0$
(C) $2x + y = 0$
(D) none of these

67. Orthocenter of the triangle with vertices (0,0); (3,4) and (4,0) is

(A) (3,5/4)
(B) (3,12)
(C) (3,3/4)
(D) (3,9)

68. The locus of the mid-point of the intercept of the variable line $x\cos\alpha + y\sin\alpha = p$ (p constant) between coordinate axes is

(A) $x^{-2} + y^{-2} = p^{-2}$
(B) $x^{-2} + y^{-2} = 2p^{-2}$
(C) $x^{-2} + y^{-2} = 4p^{-2}$
(D) none of these

69. For $a > b > c > 0$, the distance between (1,1) and the point of intersection of the lines

$ax + by + c = 0$ and $bx + ay + c = 0$ is less than $2\sqrt{2}$. Then

(A) $a + b - c > 0$
(B) $a - b + c < 0$
(C) $a - b + c > 0$
(D) $a + b - c < 0$

CIRCLE

70. The equation of the circle passing through the origin and cutting intercepts a, b from coordinate axes, is

(A) $x^2 + y^2 + ax + by = 0$
(B) $x^2 + y^2 - ax - by = 0$
(C) $x^2 + y^2 + bx + ay = 0$
(D) none of these

71. A tangent to the circle $x^2 + y^2 = a^2$ meets the axes at point A and B. The locus of the midpoint of AB is

(A) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{a^2}$
(B) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{4}{a^2}$
(C) $\frac{1}{x^2} + \frac{1}{y^2} = 4a^2$
(D) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{a^2}{4}$

72. If a circle with centre $(-1,1)$ touches the line $x+2y+12=0$, then its point of contact is

(A) $(-7/2,-4)$ (B) $(-18/5,-21/5)$

(C) $(2,-7)$ (D) $(-2,-5)$

73. If the angle between tangents drawn from a point P on the circle

$x^2+y^2+4x-6y+9\sin^2\alpha+13\cos^2\alpha=0$ is 2α, then locus of P is

(A) $x^2+y^2+4x-6y-4=0$ (C) $x^2+y^2+4x-6y-9=0$

(B) $x^2+y^2+4x-6y+4=0$ (D) $x^2+y^2+4x-6y+9=0$

74. If the tangent at a point P of the circle $x^2+y^2+6x+6y-2=0$ meets the line

$5x-2y+6=0$ at point Q which lies on y-axis, then length PQ is equal to

(A) 4 (B) $2\sqrt{5}$ (C) 5 (D) $3\sqrt{5}$

75. The centre of the circle inscribed in the square formed by lines $x^2-8x+12=0$ and

$y^2-14y+45=0$ is

(A) $(4,7)$ (B) $(7,4)$ (C) $(9,4)$ (D) $(4,9)$

76. A circle passes through (a,b) and cuts the circle $x^2+y^2=k^2$ orthogonally. The locus of its centre is

(A) $2ax+2by-(a^2-b^2+k^2)=0$

(B) $2ax+2by-(a^2+b^2+k^2)=0$

(C) $x^2+y^2-3ax-4by+(a^2+b^2-k^2)=0$

(D) $x^2+y^2-2ax-3by+(a^2-b^2-k^2)=0$

PARABOLA

77. The axis of the parabola $9y^2-16x-12y-57=0$ is

(A) $3y=2$ (B) $x+3y=3$ (C) $2x=3$ (D) $y=3$

78. If $lx+my+n=0$ is a tangent to the parabola $x^2=y$, then

(A) $l=4m^2n^2$ (B) $P^2=4mn$

(C) $l^2=2mn$ (D) none of these

79. The length of a focal chord of the parabola $y^2 = 4ax$ which makes α angle with x-axis is

(A) $4a\sin^2\alpha$
(C) $4a\cos\alpha\operatorname{cosec}^2\alpha$
(B) $4a\operatorname{cosec}^2\alpha$
(D) $4a\cos\alpha\operatorname{cosec}\alpha$

80. Two tangents of the parabola $y^2 = 8x$ meet its tangent at vertex at points P and Q. If $PQ = 4$, then the locus of the point of intersection of these two tangents is

(A) $y^2 = 8(x-2)$
(B) $y^2 = 8(x+2)$
(C) $x^2 = 8(y-2)$
(D) $x^2 = 8(y+2)$

81. If $x - 1 = 0$ is the directrix of the parabola $y^2 - kx + 8 = 0$, then one value of k is

(A) 1/8 (B) 8 (C) 4 (D) ¼

82. The locus of the midpoint of the line segment joining a variable point on the parabola $y^2 = 4ax$ to its focus is a parabola. The directrix of this second parabola is

(A) $x = -a$
(B) $x = -a/2$
(C) $x = 0$
(D) $x = a/2$

83. A focal chord of $y^2 = 16x$ is a tangent to $(x-6)^2 + y^2 = 2$. Then the possible values of the slope of this chord are

(A) $\{-I, 1\}$
(B) $\{-2,2\}$
(C) $\{-2,1/2\}$
(D) $\{2,-1/2\}$

ELLIPSE & HYPERBOLA

84. Equation of the ellipse whose eccentricity is 1/2 and foci are $(\pm 1,0)$ will be

(A) $\frac{x^2}{3} + \frac{y^2}{4} = 1$
(B) $\frac{x^2}{4} + \frac{y^2}{3} = 1$
(C) $\frac{x^2}{4} + \frac{y^2}{3} = \frac{4}{3}$
(D) none of these

85. If LR of an ellipse is half of its minor axis, then its eccentricity is

(A) 3/2 (B) 2/3 (C) $\sqrt{3}/2$ (D) $\sqrt{2}/3$

86. Area of the greatest rectangle that can be inscribed in the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is

(A) a/b (B) $\sqrt{ab}$ (C) ab (D) $2ab$

87. The eccentricity of the hyperbola $4x^2 - 9y^2 - 8x = 32$ is

(A) $\sqrt{5}/3$ (B) $\sqrt{13}/3$ (C) $\sqrt{13}/2$ (D) 3/2

88. Slopes of the common tangent to the hyperbola $\frac{x^2}{9}-\frac{y^2}{16}=1$ and $\frac{y^2}{9}-\frac{x^2}{16}=1$ are

(A) $2,-2$ (B) $1,-1$ (C) $1,2$ (D) $-1,-2$

89. If α,β are eccentric angles of end points of a focal chord of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$, then $\tan\frac{\alpha}{2}\cdot\tan\frac{\beta}{2}$ is equal to

(A) $\frac{e-1}{e+1}$ (B) $\frac{1-e}{1+e}$ (C) $\frac{e+1}{e-1}$ (D) e

90. If the sum of the intercepts made by the tangent to the ellipse $x^2/27+y^2=1$ at its point $(3\sqrt{3}\cos\theta,\sin\theta)$, $\theta\in(0,\pi/2)$ is minimum, then θ is equal to

(A) $\pi/3$ (B) $\pi/6$ (C) $\pi/8$ (D) $\pi/4$

ANSWER KEY

1.	(A)	**2.**	(C)	**3.**	(D)	**4.**	(C)	**5.**	(A,B,C)	**6.**	(D)	**7.**	(C)
8.	(C)	**9.**	(C)	**10.**	(B)	**11.**	(C)	**12.**	(D)	**13.**	(D)	**14.**	(C)
15.	(B)	**16.**	(A)	**17.**	(B)	**18.**	(A)	**19.**	(D)	**20.**	(D)	**21.**	(B)
22.	(B)	**23.**	(C)	**24.**	(B)	**25.**	(B)	**26.**	(C)	**27.**	(B)	**28.**	(B)
29.	(B)	**30.**	(C)	**31.**	(C)	**32.**	(A)	**33.**	()	**34.**	(A)	**35.**	(B)
36.	(C)	**37.**	(B)	**38.**	(B)	**39.**	(C)	**40.**	(C)	**41.**	(C)	**42.**	(D)
43.	(D)	**44.**	(C)	**45.**	(A)	**46.**	(A,C)	**47.**	(D)	**48.**	(B)	**49.**	(B)
50.	(D)	**51.**	(D)	**52.**	(A)	**53.**	(B)	**54.**	(B)	**55.**	(B)	**56.**	(B)
57.	(B)	**58.**	(D)	**59.**	(B)	**60.**	(B)	**61.**	(B)	**62.**	(C)	**63.**	(C)
64.	(D)	**65.**	(C)	**66.**	(A)	**67.**	(C)	**68.**	(C)	**69.**	(A,C)	**70.**	(B)
71.	(B)	**72.**	(B)	**73.**	(D)	**74.**	(C)	**75.**	(A)	**76.**	(B)	**77.**	(A)
78.	(B)	**79.**	(B)	**80.**	(B)	**81.**	(C)	**82.**	(C)	**83.**	(A)	**84.**	(B)
85.	(C)	**86.**	(D)	**87.**	(B)	**88.**	(B)	**89.**	(A)	**90.**	(B)		