

## Mathematics ECAT Pre Engineering Chapter 21 Linear Inequalities and Linear Programming Online Test

Sr	Questions	Answers Choice
1	The graph of $y < 2$ is the	A. Left half plane B. upper half plane C. Right half plane D. Lower half plane
2	The feasible region which can be enclosed within a circle is called	A. Bounded region B. Convex region C. Unbounded region D. None
3	The maximum value of $Z = 3x + 4y$ subjected to the constraints $x + y \leq 40, x + 2y \leq 60, x \geq 0$ and $y \geq 0$ is	A. 120 B. 100 C. 140 D. 160
4	Maximum value of $z = 15x + 20y$ subject to $3x + 4y \leq 12, x, y \geq 0$ is given by	A. 46 B. 60 C. 50 D. 70
5	Sum of two quantities is at least 20 is denoted by	A. $x + y = 20$ B. $x + y \geq 20$ C. $x + y \neq 20$ D. $x + y \leq 20$
6	Which of the following is not a solution of system of inequalities $2x - 3y \leq 6, 2x + y \geq 2, x + 2y \leq 8, x \geq 0, y \geq 0$	A. (1,0) B. (0,4) C. (3,0) D. (8,0)
7	Corner point of the system $x - y \leq 2, x + y \leq 4, 2x - y \leq 6, x \geq 0, y \geq 0$	A. (1,4) B. (4,2) C. (3,1) D. (4,1)
8	A point where two of its boundary lines intersect is called	A. Corner point B. Feasible point C. Vertex D. Feasible solution
9	A point (x,y) which satisfy a linear inequality in two variables form its	A. Solution B. Domain C. Range D. None
10	Each point of the feasible region is called	A. Solution B. feasible solution C. Both a & b D. None
11	A function which is to be maximized or minimized is called an	A. Explicit function B. Implicit function C. Objective function D. None
12	Optimal solution is found by evaluation the objective function at	A. All point of feasible region B. Corner point C. Origin D. None
13	The point (1,3) is one solution of	A. $3x + 5y \geq 29$ B. $3x + 5y \leq 7$ C. $x + 2y \leq 4$ D. $x + 4y \geq 3$
14	$3x + 4 > 0$ is	A. equation B. identity C. inequality D. none of these
15	$3x + 4 \geq 0$ is	A. equation B. inequality C. identity D. none of these

		D. none of these
16	$3x + 4 < 0$ is	A. inequality B. equation C. identity D. not inequality
17	$3x + 4 \leq 0$ is	A. not inequality B. equation C. identity D. inequality
18	$3x + 4 = 0$ is	A. not inequality B. equation C. identity D. inequality
19	An expression involving any of the symbols $<$ , $>$ , $\leq$ or $\geq$ is called	A. equation B. inequality C. linear equation D. identity
20	$2x + 3y > 4$ is a linear inequality in	A. one variable B. two variables C. three variables D. none of these
21	$ax + by < c$ is linear inequality in	A. four variables B. three variables C. two variables D. one variable
22	The real numbers which satisfy an inequality form its	A. solution B. coefficient C. domain D. range
23	$x = 0$ is in the solution of the inequality	A. $x \geq 0$ B. $3x + 4 \leq 0$ C. $x + 3 \leq 0$ D. $x - 2 \leq 0$
24	$x = 1$ is in the solution of the inequality	A. $x + 1 \geq 0$ B. $x - 2 \geq 0$ C. $3x - 1 \leq 0$ D. $x + 2 \leq 0$
25	$x = -1$ is in the solution of the inequality	A. $x + 5 \leq 0$ B. $2x + 3 < 0$ C. $x \geq 0$ D. $2x + 3 \geq 0$
26	$x = \underline{\hspace{2cm}}$ is in the solution of $2x + 3 < 0$	A. 0 B. 2 C. -1 D. -2
27	$x = \underline{\hspace{2cm}}$ is in the solution of $2x + 3 \geq 0$	A. 1 B. -2 C. -3 D. -4
28	$x = \underline{\hspace{2cm}}$ is in the solution of $2x - 3 < 0$	A. 2 B. -2 C. 3 D. 4
29	$x = \underline{\hspace{2cm}}$ is in the solution of $2x - 5 > 0$	A. 0 B. 2 C. -2 D. 3
30	The points $(x, y)$ which satisfy a linear inequality in two variables $x$ and $y$ form its	A. domain B. range C. solution D. none of these
31	The solution set of the inequality $ax + by < c$ is	A. straight line B. half plane C. parabola D. none of these
32	$(1, 1)$ is in the solution of the inequality	A. $3x + 4y \geq 3$ B. $2x + 3y \leq 2$ C. $4x = 3y \geq 5$ D. $2c - 3y \geq 2$
		A. $3x + 2y \geq 8$ B. $2x - 3y \leq 4$

33	(1,0) is in the solution of the inequality	<p><b>C. <math>2x + 3y \geq 3</math></b>  D. <math>x - 2y \leq -5</math></p>
34	(0,1) is in the solution of the inequality	<p>A. <math>3x + 2y \geq 8</math>  <b>B. <math>2x - 3y \leq 4</math></b>  C. <math>2x + 3y \geq 5</math>  D. <math>x - 2y \leq -5</math></p>
35	(0,0) is in the solution of the inequality	<p>A. <math>x + y \geq 3</math>  B. <math>x - y \geq 2</math>  C. <math>3x + 2y \geq 5</math>  <b>D. <math>3x - 2y \leq 2</math></b></p>
36	(1, 2) is in the solution of the inequality	<p>A. <math>2x + y \geq 8</math>  <b>B. <math>2x + y \leq 6</math></b>  C. <math>2x - y \geq 1</math>  D. <math>2x + 3y \leq 2</math></p>
37	The point _____ is in the solution of the inequality $2x + 3y < 5$	<p>A. (1,1)  B. (2,2)  <b>C. (0,1)</b>  D. (0,2)</p>
38	The point _____ is in the solution of the inequality $2x - 3y > 5$	<p>A. (1, -1)  B. (2,2)  C. (0,0)  <b>D. (3,0)</b></p>
39	The point _____ is in the solution of the inequality $4x - 3y < 2$	<p><b>A. (0,1)</b>  B. (2,1)  C. (2,2)  D. (3,3)</p>
40	(2, 1) is in the solution of the inequality	<p>A. <math>2x + y \leq 7</math>  B. <math>x - y \geq 2</math>  C. <math>3x + 5y \leq 6</math>  <b>D. <math>2x + y \leq 6</math></b></p>
41	The point _____ is in the solution of the inequality $2x - 3y < 4$	<p>A. (0, -2)  B. (1, -3)  <b>C. (2, 2)</b>  D. (3, 0)</p>
42	If $x < y$ , $2x = A$ , and $2y = B$ , then	<p>A. <math>A = B</math>  <b>B. <math>A \leq B</math></b>  C. <math>A \leq x</math>  D. <math>B \leq y</math></p>
43	If $ab > 0$ and $a < 0$ , which of the following is negative?	<p><b>A. b</b>  B. -b  C. -a  D. <math>(a - b)^2</math></p>
44	If $4 - x > 5$ , then	<p>A. <math>x \geq 1</math>  B. <math>x \geq -1</math>  C. <math>x \leq 1</math>  <b>D. <math>x \leq -1</math></b></p>
45	Which is not a half plane	<p>A. <math>ax + by \leq c</math>  B. <math>ax + by \geq c</math>  <b>C. Both A and B</b>  D. None</p>
46	A point of a solution region where two of its boundary lines intersect, is called	<p>A. Boundary  B. Inequality  C. Half plane  <b>D. Vertex</b></p>
47	A farmer possesses 100 hectometers of land and wants to grow corn and wheat. Cultivations of corn requires 3 hours per hectometer while cultivation of wheat requires 2 hours per hectometer. Working hours cannot exceed 240. If he gets a profit of Rs. 20 per hectometer for corn and Rs. 15 per hectometer for wheat. The profit function for the farmer is	<p><b>A. <math>P(x, y) = 20x + 15y</math></b>  B. <math>P(x, y) = 2x + 3y</math>  C. <math>P(x, y) = x + y</math>  D. <math>P(x, y) = 3x + 2y</math></p>
48	Which is in the solution set of $4x - 3y < 2$	<p>A. (3, 0)  B. (4, 1)  <b>C. (1, 3)</b>  D. None</p>
49	For which of the following ordered pairs (s, t) is $s + t > 2$ and $s - t < -3$ ?	<p>A. (3, 2)  B. (2, 3)  <b>C. (1, 8)</b>  D. (0, 3)</p>
50	If $-1 < x < 0$ , which of the following statements must be true?	<p>A. <math>x \leq x^2</math>  B. <math>x \leq x^3</math>  <b>C. <math>x^2 \leq x^3</math></b></p>

		$x^3$ &lt; $x^2$ &lt; $x$ $x^2$ &lt; $x$ &lt; $x^3$
51	Question Image	A. $p \leq r$ B. $p \geq r$ C. $p + r \leq 0$ D. $p - r \leq 0$
52	The total cost of 2 apples and 3 oranges is \$1.70, which of the following is true	A. The cost of one apple B. The cost of one orange C. Both have equal cost per item D. Cost of each single item can not be determined
53	$x$ is a member of the set $[-1, 0, 3, 5]$ $y$ is a member of the set $\{-2, 1, 2, 4\}$ which is possible?	A. $x - y = -6$ B. $x - y \leq -6$ C. $x - y \geq -6$ D. None
54	$r + 3 > 5$ then which is true	A. $r + 2 \geq 4$ B. $r + 2 \leq 4$ C. $r + 2 = 4$ D. None
55	$ab > 0$ and $a > 0$ then	A. $a \geq b$ B. $a \leq b$ C. $a = b$ D. None
56	$s > t$ then	A. $(s - t)^2 \geq (t - s)^2$ B. $(s - t)^2 \leq (t - s)^2$ C. $(s - t)^2 = (t - s)^2$ D. None
57	Optimize means _____ a quantity under certain constraints	A. Minimize B. Maximize C. Maximize or minimize D. None of these
58	There may be _____ feasible solution in the feasible region	A. Infinite B. Finite C. Defined D. None of above
59	Inequalities have _____ symbol	A. 2 B. 3 C. 4 D. 1
60	The graph of linear equation $2x + 3y = 10$	A. Parabola B. Circle C. Hyperbola D. Straight line
61	The solution set of $x < 4$ is	A. $-\infty < x < 4$ B. $-\infty < x \leq 4$ C. $-\infty < x < 2$ D. $-\infty < x \leq 2$
62	Order (or sense) of an inequality is changed by multiplying or dividing its each side by a:	A. Zero B. one C. negative constant D. Non negative constant
		A. Not effect B. Change the sign

63	Multiplying each side of an inequality by (-1) will:	B. Change the sign C. Become zero D. Not defined
64	The graph of the linear equation of the form $ax + by = c$ is a line which divided the plane into:	A. Two similar regions B. Two disjoint regions C. Four equal parts D. One region
65	The set of ordered pairs (x,y) such that $ax + by < c$ , and (x,y) such that $ax + by > 0$ , are called	A. Half planes B. Boundary C. Linear Inequalities D. Feasible regions
66	A _____ divides the plane into left and right half planes.	A. Vertical line B. Horizontal line C. Non vertical line D. Inequality
67	The liner equation $ax + by = c$ is called _____ of the inequality $ax + by > c$ .	A. Associated equation B. Non-associated equation C. disjoint equation D. Feasible equation
68	Which of the following ordered pair is a solution of the inequality $x + 2y < 6$ ?	A. (2,3) B. (2,2) C. (6,0) D. (1,1)
69	For graphing a linear inequality, solid line is drawn if the inequality involves the symbols:	A. $>$ or $<$ ; B. $\geq$ or $\leq$ C. $=$ or $\neq$ D. $=$ or $>$
70	A point of a solution regions where two of its boundary lines intersect, is called:	A. Vertex of the solution B. Feasible point C. Point of inequality D. Null point of the solution region
71	The corner point of the boundary lines, $x - 2y + 2x + y = 2$ is:	A. (2,6) B. (6,2) C. (-2,2) D. (2,-2)
72	The corner point of the boundary lines, $x - 2x + 2y = 10$ is:	A. (8,1) B. (1,8) C. (6,10) D. (3,5)
73	The graph of $y > 0$ is the upper - half of:	A. y-axis B. x-axis C. 1st and 4th quadrant D. 2nd and 3rd quadrant