Comprehensive Test Series-6

Linear Inequalities

TIME: 1.5 hr. **MM: 32**

General Instructions:

- All Questions are compulsory.
- Marks are given alongwith the questions individually.
- Use of calculator is not permitted.

Q.1 $2(2x + 3x) - 10 < 6(x - 2)$ (3)

Q.2 $\frac{1}{2}\left(\frac{3x}{5}+4\right) \geq \frac{1}{3}(x-6)$ (3)

Q.3. $\frac{(2x\_1)}{3} \geq \frac{(3x-2)}{4} - \frac{2-x}{5}$ (3)

Q.4. To receive 'grade A' in a course, one must obtain an average of 90 marks or more in five examinations (each of 100 marks.). If sunita's marks in first four examinations are 87, 92, 94 and 95, find minimum marks that Sunita must obtain in fifth examination to get grade 'A' in the course. (4)

Q.5 Find the pairs of consecutive odd positive integers both of which are smaller than 10, such that their sum is more than 11. (4)

Q.6 A man wants to cut three lengths from a single piece of board of length 91 cm. The second length is to be 3 cm longer than the shortest and the third length is to be twice as long as the shortest. What are the possible lengths for the shortest board if the third piece is to be at least 5 cm longer than the second? (4)

Q.7. Solve the system of inequalities graphically: (4)

(i) $x - 2y \leq 3$, $3x + 4y \geq 12$, $x \geq 0$, $y \geq 1$

(ii) $4x + 3y \leq 60$, $y \geq 2x$, $x \geq 3$, $x, y \geq 0$

(iii) $3x + 2y \leq 150$, $x + 4y \leq 80$, $x \leq 15$, $y \geq 0$

(iv) $x + 2y \leq 10$, $x + y \geq 1$, $x - y \leq 0$, $x \geq 0$, $y \geq 0$.