$0 \leq n_i \leq 10 \qquad 1 \leq i \leq M$

∴ The maximum no. of players who can be sent without contradicting our condition is $(\underbrace{10+10+10+\ldots\ldots+10}_{M \text{ times}}) = 10M$.

But, given 10 flights, each having M sitting capacity and also one player taking a helicopter, we have actually sent $10M+1$ players.

∴ Our assumption that no whole team can be sent is contradicted.

So, one whole team will be surely sent for the game.

$\boxed{\text{Prob 7:}}$ Given 8 different natural numbers, none greater than 15, show that atleast 3 pairs of them have the same positive difference (the pairs need not be disjoint as sets).

The given natural numbers lie in the set $\{1, 2, 3, \ldots\ldots, 15\}$.

The difference between any two distinct natural numbers in the set lie in the set $\{1, 2, 3, \ldots\ldots, 14\}$.

No. of pairs which can be formed from 8 no.s $= {}^8C_2 = 28$.

Observe, $14 = (15-1)$ is the only possible way to get 14.

Suppose, one of the 28 differences is 14. Take it aside, and we have 27 differences left.

Observe $13 = 14-1 = 15-2$ are the only two possible ways to get 13.

Suppose, 2 of the remaining 27 differences is 13. Take it aside, and we have 25 differences left.

Now, we will give 3 possible ways to get the differences from $\{1, 2, \ldots\ldots, 12\}$, each

$1 = (2-1) = (3-2) = (4-3)$ $\quad 2 = (3-1) = (4-2) = (5-3)$ $\quad 3 = (4-1) = (5-2) = (6-3)$

$4 = (5-1) = (6-2) = (7-3)$ $\quad 5 = (6-1) = (7-2) = (8-3)$ $\quad 6 = (7-1) = (8-2) = (9-3)$

$7 = (8-1) = (9-2) = (10-3)$ $\quad 8 = (9-1) = (10-2) = (11-3)$ $\quad 9 = (10-1) = (11-2) = (12-3)$

$10 = (11-1) = (12-2) = (13-3)$ $\quad 11 = (12-1) = (13-2) = (14-3)$

$12 = (13-1) = (14-2) = (15-3)$