Graph Theory

Homework due Wed 15 Apr 87

1 A. For fixed $k \geq 1$, Suppose each k-element subset of $\mathbb{N}$ is colored from the finite choices $\{c_1, \ldots c_m\}$. Prove there is a color c_i and an infinite subset $A \subseteq \mathbb{N}$ so that each k-element subset of A has color c_i.

B. Given $\mathcal{C} = \{c_1, \ldots c_m\}$ is a finite sequence of colors and each finite subset of $\mathbb{N}$ is colored from one of the choices in $\mathcal{C}$; Then there is a strictly increasing sequence $(n(i))$ of integers and a sequence $(c(i))$ of colors from $\mathcal{C}$ so that for each $k \geq 1$, the k-element subsets of $\{n(i) : i \geq k\}$ all have color $c(k)$.

2. 6.2.5 in text.

3 7.1.1 in text.