1. (1) ${}^6C_2 = 15$

(2) ${}^7C_3$ $\quad \frac{7 \times 6 \times 5}{3 \times 2} = 35$

2. 4 Vowels, 10 Consonants

3C, 2V

${}^{10}C_3 \, {}^4C_2 \times 2 \times 4!$

or

$4 \times {}^3C_1 \, {}^{10}C_3 \, 4!$

Nishant Jindal

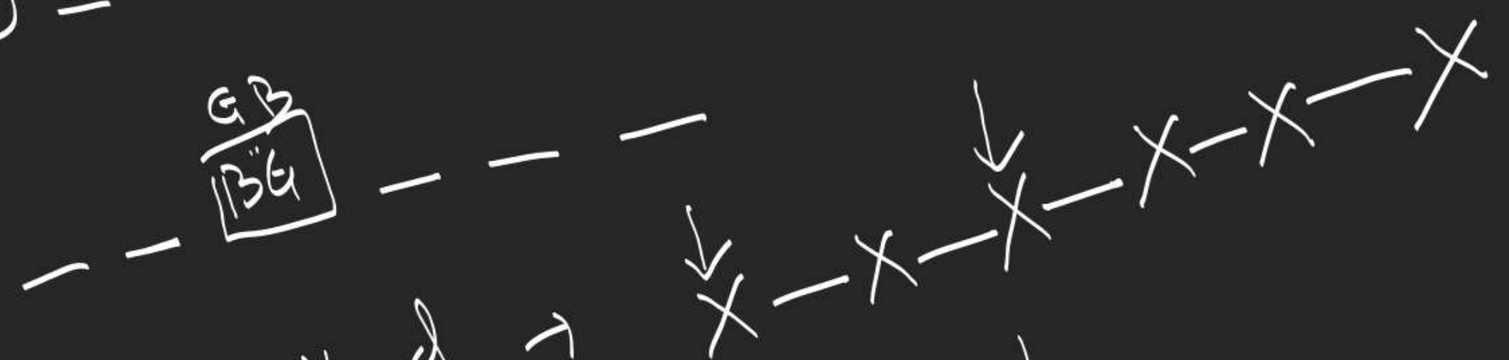
3.

$7! - 6! \times 2!$

BG V I Y O R , GB V I Y O R.

GB
BG

Gap Method →



$5! \; {}^{6}C_2 \; 2!$

or

$5! \; {}^{6}P_2$

Nishant Jindal

4. Find no of ways to arrange 'n' persons in 'r' seats ($r < n$) so that

(i) 's' particular persons are always present ($s < r$)

(ii) 's' particular persons are always present ($s < r$) together

(iii) 's' particular persons are always present ($s < r$) together in a definite order.

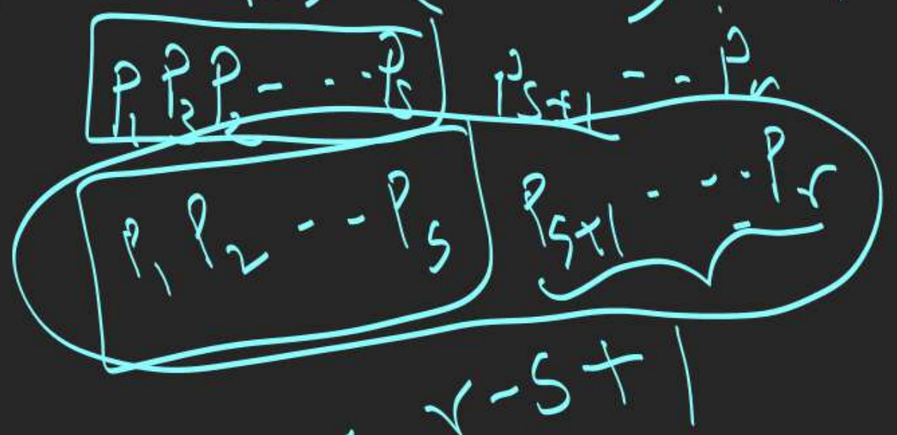
(i) ${}^{n-s}C_{r-s}\, r!$

or ${}^{n-s}P_{r-s}$

or ${}^{r}P_{s}$

(ii) ${}^{n-s}C_{r-s}\,(r-s+1)!\,s!$

or ${}^{n-s}P_{r-s}\,(r-s+1)!\,s!$



Nishant Jindal

5: (i) $\downarrow \times B \times B \times B \times B \times \downarrow$ $\quad 4!\ {}^5C_4\ 4!$

(ii) $8! - 5!\,4!$

(iii) $\begin{matrix} B & G & B & G & B & G & B \\ G & B & G & B & G & B & G \end{matrix} \longrightarrow 4!\,4!$

$2 \times 4! \times 4!$

B_1, G_1

B_1, G_1

(iv) $2 \times 4! \times 4! - 2 \times 3! \times 3! \times {}^7C_1$

B_1G_1

$\times B_2 \times G_3 \times B_4 \times G_4 \times B_3 \times G_2 \times$

(v) $4!\,(2!)^4$

21-30 (Test)

SC-(1-20)