i) $^nc_r = {}^nc_{n-r}$

আমরা জানি, $^nc_r = \frac{n!}{r! \times (n-r)!} \ldots\ldots\ldots\ldots..(i)$

(i)নং সমীকরণে $r = n - r$ বসিয়ে পাই,

$$^nc_{n-r} = \frac{n!}{(n-r)! \times (n-n+r)!}$$

$$= \frac{n!}{(n-r)! \times (n-n+r)!}$$

$$= \frac{n!}{r! \times (n-r)!}$$

$$= {}^nc_r$$

$\therefore \quad {}^nc_r = {}^nc_{n-r}$

ii) $^{n}c_{r} + {^{n}c_{r-1}} = {^{n+1}c_{r}}$

L.H.S.

$^{n}c_{r} + {^{n}c_{r-1}}$

$$= \frac{n!}{r! \times (n-r)!} + \frac{n!}{(r-1)! \times (n-r+1)!}$$

$$= \frac{n!}{r\,(r-1)! \times (n-r)!} + \frac{n!}{(r-1)! \times (n-r+1)\ (n-r+1-1)!}$$

$$= \frac{n!}{r\,(r-1)! \times (n-r)!} + \frac{n!}{(r-1)! \times (n-r+1)\ (n-r)!}$$

$$= \frac{n!}{(r-1)! \times (n-r)!} \left[\frac{1}{r} + \frac{1}{n-r+1}\right]$$

$$= \frac{n!}{(r-1)! \times (n-r)!} \left[\frac{n-r+1+r}{r(n-r+1)}\right]$$

$$= \frac{n!\,(n+1)}{r(r-1)! \times (n-r)!(n-r+1)}$$

$$= \frac{(n+1)!}{r! \times (n-r+1)!}$$

$= {^{n+1}c_{r}}$

= R.H.S.

13) ${}^{n}c_{10} = {}^{n}c_{20}$ হলে n এর মান কত?

14) ${}^{n}c_{8} = {}^{n}c_{12}$ হলে n এর মান কত?