Simplified note for MSc sem II exam 2018-19

Life table

a) It is tabular representation of natality and mortality rate and related vital statistics, age wise, about a cohort or specific group of organisms.

b) Life table is a special type of cohort analysis which takes into account the life history of a hypothetical group or cohort of people that decreases gradually by death till all members of the group passes away.

c) A complete picture of mortality rate in population having different age group is given by life table.

d) Separate tables for males and female are usually prepared.

e) Each table contains columns for

- age of individuals;
- member of individuals surviving to each age;
- The number of individuals dying in each age group.

- The proportion of individuals dying from the previous age category;
- Fertility rate;
- The number of young born by each age groups.

In 1921 Perl and Parker constructed a life table based on laboratory data. Then Deevey (1947 and 1950) life tables of many invertebrate and vertebrates. Along with laboratory animal population life table is also constructed for natural population.

Application and Uses

i. It is possible to estimate the growth or declined of a population.

ii. It indicates the net reproductive rate of the population.

iii. Life table is used to calculate the rate of population growth.

iv. It is used to calculate survival rate of organism at any stage or age of life.

v. It indicates Natality and mortality rate of a species

vi. It is used to find longevity of life at birth or any other age.

Example of a Life Table of a hypothetical animal having life span of 5 year. -

X Age	l_x *Number Surviving*	d_x *Number dying*	L_x $= \left(\frac{l_x + l_{x+1}}{2}\right)$	T_x $= (L_x + L_{x+1} + \cdots L_w)$	*Expectation of life* e_x $(= \frac{T_x}{l_x})$	*Mortality rate* $1000q_x$ $\left(q_x = \frac{d_x}{l_x}\right)$
1	1000	400	800	2240	2.24	0.40
2	600	100	550	1440	2.40	0.17
3	500	80	460	890	1.78	0.16
4	420	200	320	430	1.02	0.48
5	220	220	110	110	0.50	1.00

Details of the construction of the table and its explanation are beyond the scope of this short note. This has been explained in class room

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