Definition of classification

A means of organising the variety of life based on relationships between organisms using differences and similarities in phenotypes and in genotypes.

Definition of niche

• the way an organism exploits (uses) its environment

• the role an organism plays in its environment

Note: Use both these definitions in an exam just in case.

Core practicals

CP 6 CP 7 CP 8 CP 9

Definition of molecular phylogeny

1. idea of molecular { differences / similarities } ;

2. in { DNA / RNA } ;

3. in proteins / proteomics ;

4. idea of (evolutionary) relationships between organisms ;

Answer: Molecular phylogeny is a scientific approach that explores the evolutionary relationships among organisms by analyzing their genetic material, such as DNA and RNA, and the variations in proteins. This method helps scientists understand the evolutionary relationships between organisms using a tree.

Index of biodiversity

$$D = \frac{N(N-1)}{\sum n(n-1)}$$

Note: N is the total number of organisms of all species and n is the number of organisms in a single species.

Heterozygosity index

$$H = \frac{\text{NUMBER OF HETEROZYGOTES}}{\text{TOTAL POPULATION}}$$

Note: The higher the number of heterozygotes, the higher the genetic diversity.

Hardy Weinburg equation

$$p^2 + 2pq + q^2 = 1$$

p^2 = Frequency of homozygous dominant

$2pq$ = Frequency of heterozygous

q^2 = Frequency of homozygous recessive

Note: Hardy Weinburg equation can be used to see whether a change in allele frequency is occurring in a population over time.

Structure of starch

• starch is a polysaccharide made from alpha glucose

• monomers in the chain are joined/linked together by 1-4 glycosidic bonds

• starch contains { unbranched chains / amylose } and { branched chains / amylopectin }

• branches are joined together by 1-6 glycosidic bonds

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