

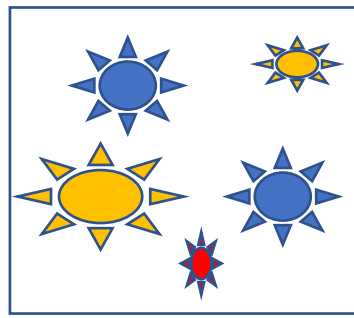


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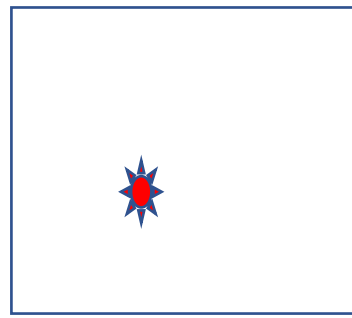
Introduction to Biology II

Part B - Evolution

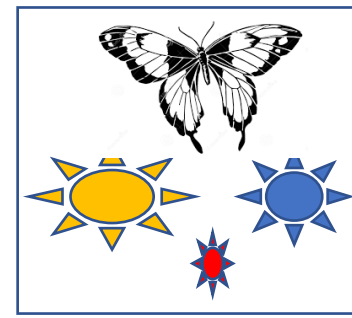
Prof. Sumana Annagiri
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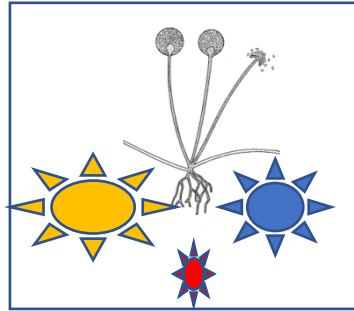
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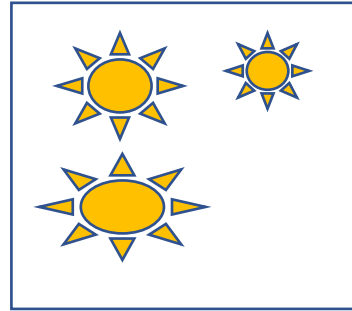
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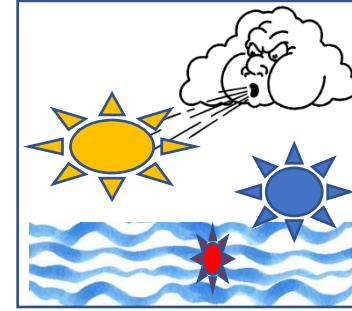
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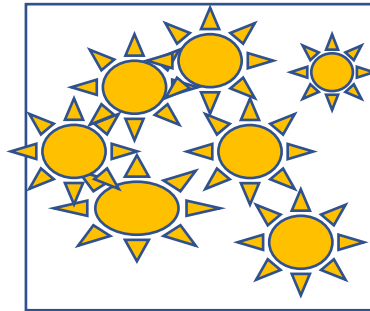
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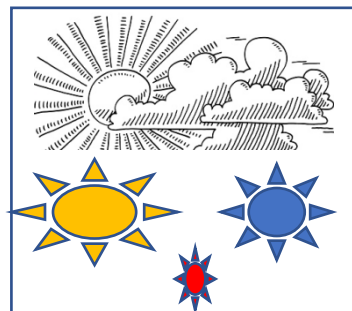
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6



7



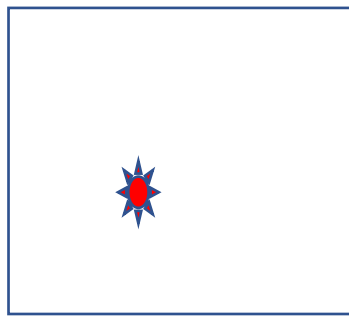
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Internal Assessment- 4

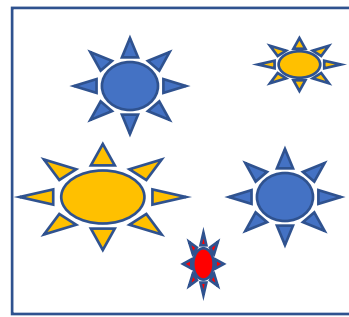
Consider the boxes in this slide carefully. Arrange them according to the postulates of the theory of natural selection and write one sentence against each number to explain the postulate it represents.

2 marks

Internal assessment - 4 Results

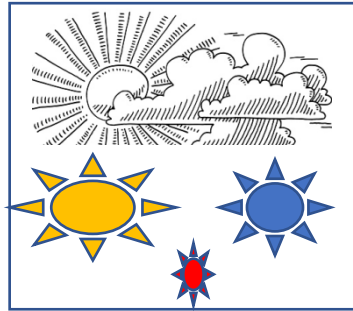


1

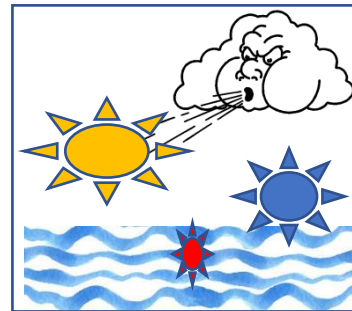


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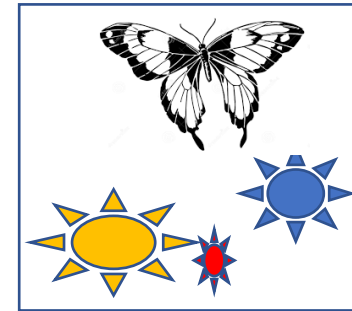
Over reproduction,
Variation



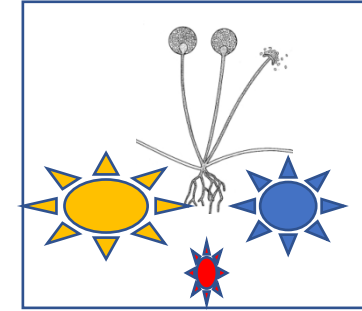
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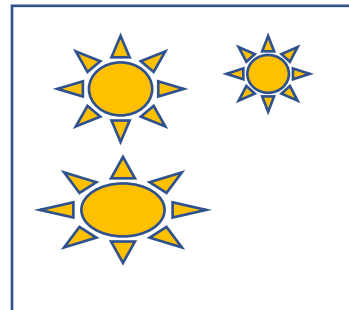
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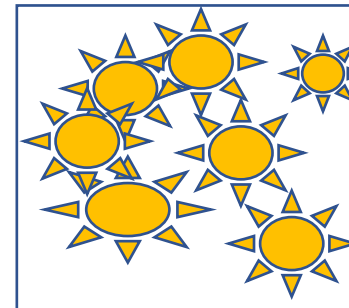
6

Struggle for existence – Abiotic and Biotic factors

Environmental
factors filter those
that are best
adapted and those
that are heritable



7



8

Best adapted will
reproduce and
populate the next
generation in larger
percentage

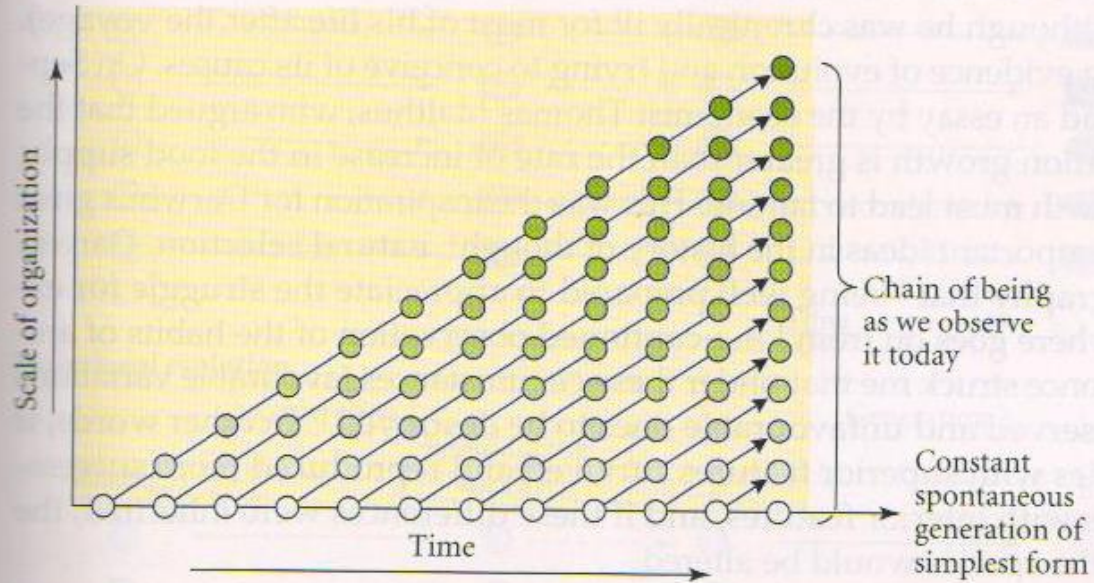
Origin of Species some features

- Individuals do not evolve – populations do
- Only heritable traits are amplified or diminished
- A favorable trait is not necessarily favored always
- Whole organism has to face selection. So, a combination of variations together will compete for survival and reproduction

Definition: Population– Group of interbreeding individuals of the same species in a geographic area

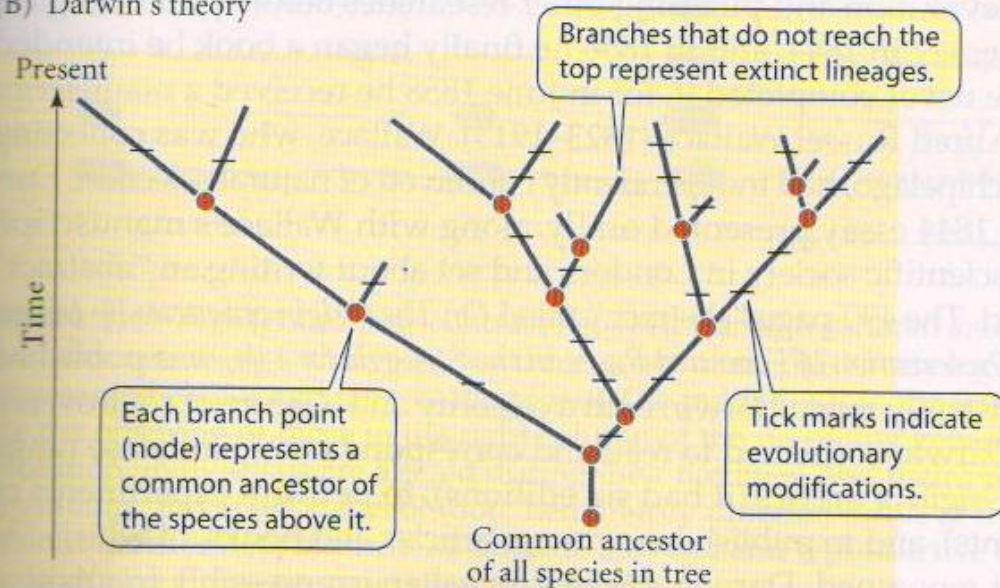
Evolutionary Change

(A) Lamarck's theory



Lamarckism
Organic progression

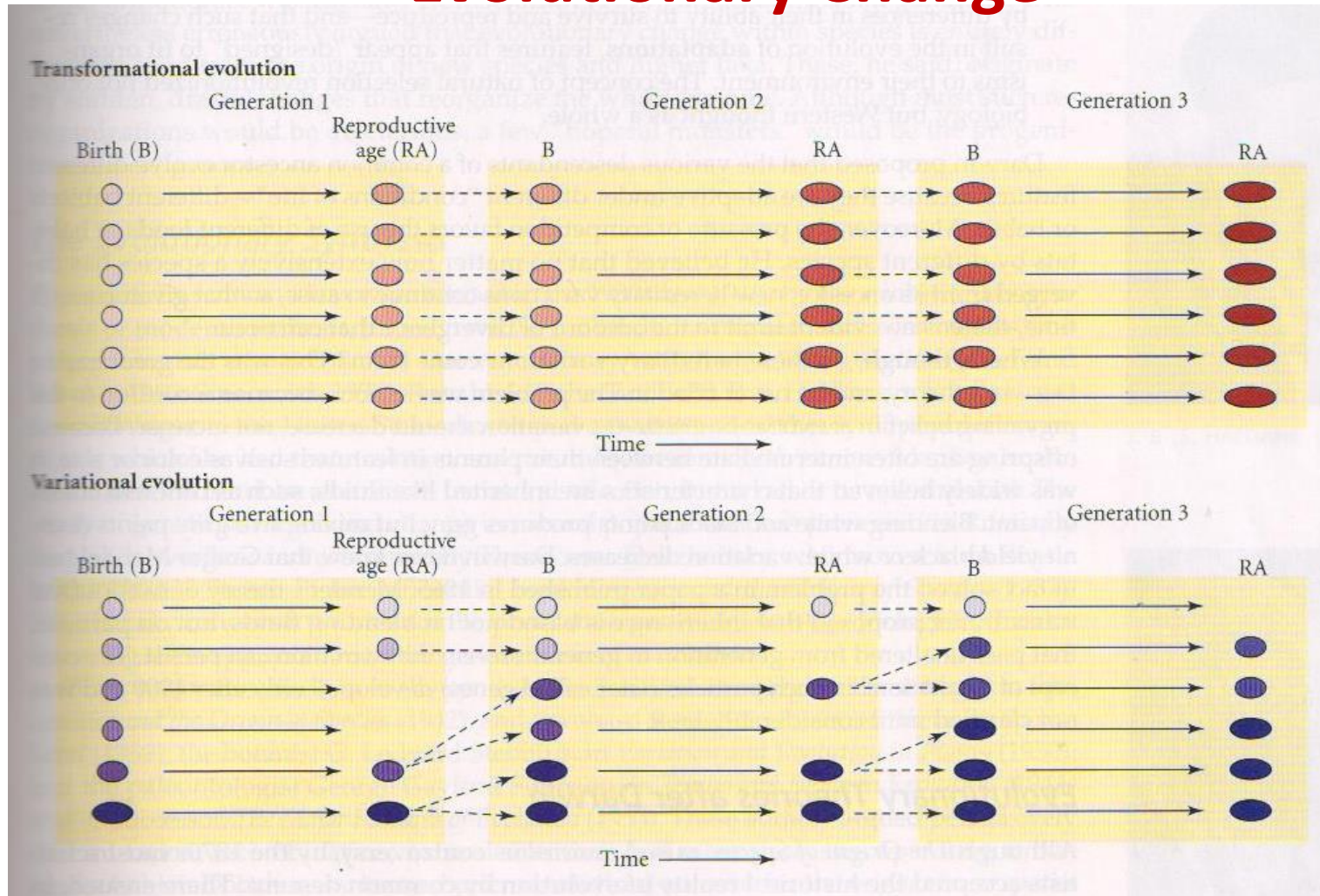
(B) Darwin's theory



Origin of Species
Descent with
modification

Evolutionary Change

Lamarckism



Origin of Species

Text book - Biology
Campbell & Reece

Evolution in Action

Examples

What is behind a song?



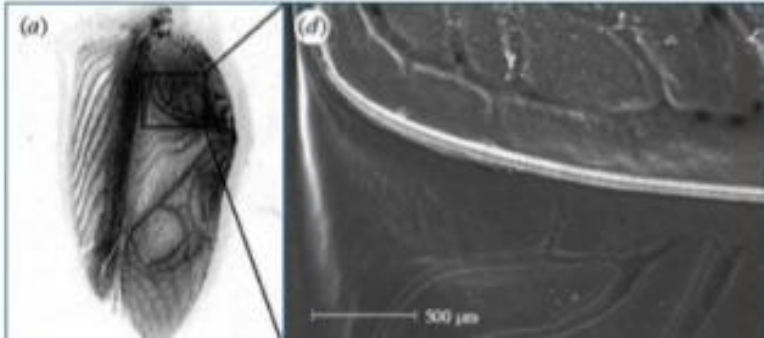
Where?



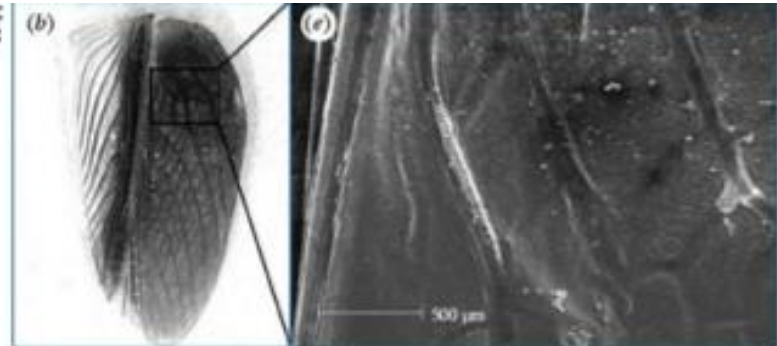
Bailey, N.W., McNabb, J.R., and Zuk, M. (2008). Pre-existing behavior facilitated the loss of a sexual signal in the field cricket *Teleogryllus oceanicus*. *Behavioral Ecology* 19:202-207.

How to make this song?

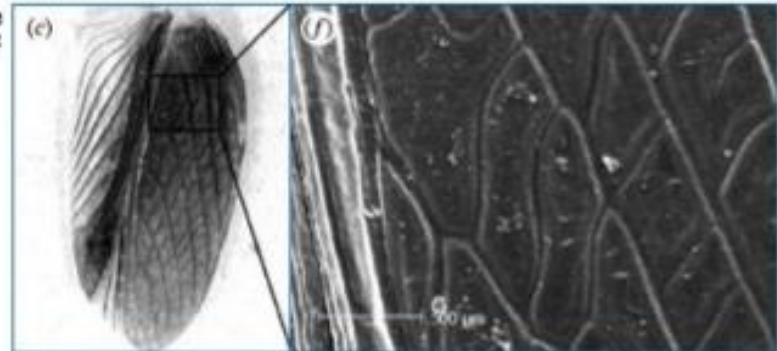
normal
male wing:



mutant
male wing:



female
wing:



What is behind a song?

- Crickets sing to attract females of their species in order to mate
- Maggots listen to this song to find the male and lay eggs on him
- 1991 30% singing crickets were infected
- Infected males die within a week



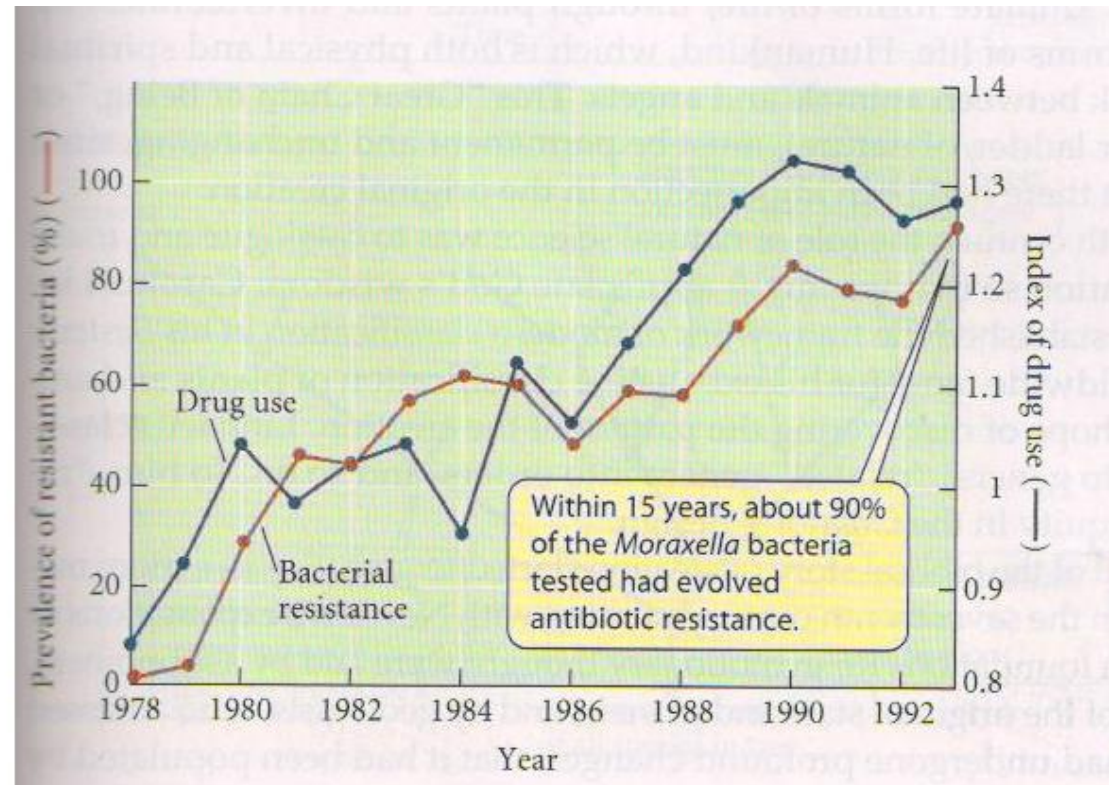
- Silent males survive better
- Had more offspring as compared to singing males
- Single gene mutation in their X chromosome, that led to loss of singing
- % Silent males in the population increases

Natural selection in action

Example 2

Development of drug resistance

Bacteria
causes
middle ear
infection in
children



Amount
of
Penicillin
like drugs
used