

VEER KUNWAR SINGH UNIVERSITY - ARA

B.Sc.

ZOOLOGY (HONOURS) -

PART - III

PAPER - VI

FROM

DR. RAJESH VERMA
ASSISTANT PROFESSOR

AND

HEAD - U.G. DEPARTMENT OF ZOOLOGY

D. K. COLLEGE - DUMRAON (BUXAR)

Mobile - NO: 094305-10473

email = dr rajesh verma 2020 @ gmail. com .

2.6.2020

CROSSING OVER

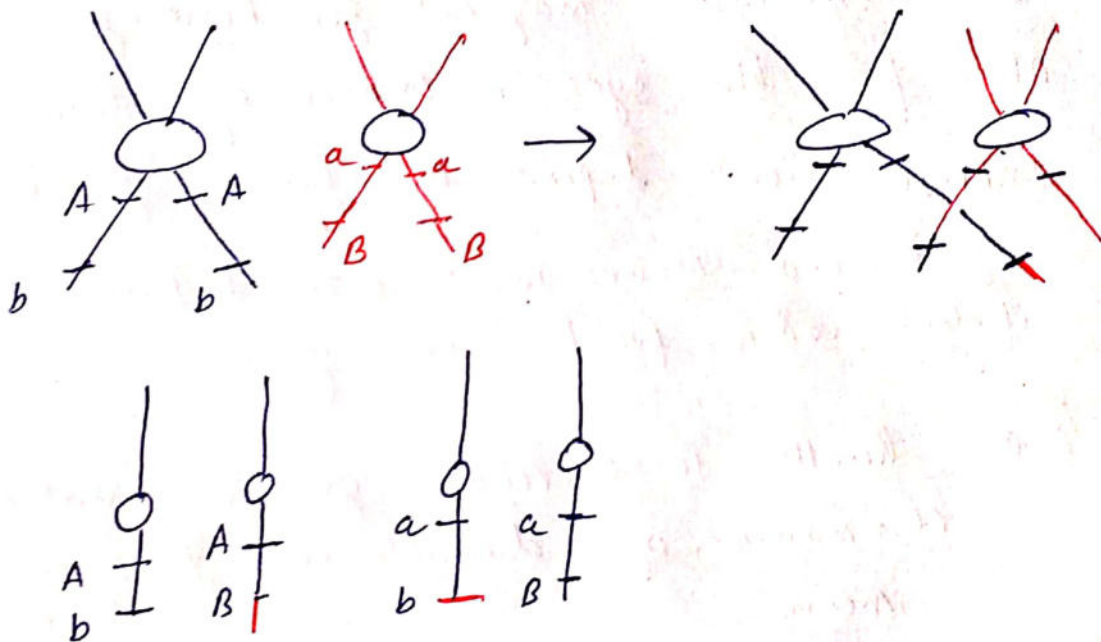
B.Sc. - PART - III

PAPER - VI

UNIT - 2(C)

(1)

- It's the exchange of chromosome segments between non-sister chromatids - during the production of gametes
- The effect is to assort (shuffle) the alleles on parental chromosomes, so that the gametes carry combination of genes different from either parent.



- It's essential for the normal segregation of chromosomes during meiosis
- It also accounts for genetic variation, because due to the swapping of genetic material, during crossing over, the chromatid held together by the centromere are no longer identicals

- It (C.O.) occurs during - Prophase I of meiosis - ⁽²⁾ before tetrads are aligned along the equator in metaphase-1.

By meiosis-II, only - sister chromatids remain and homologous chromosomes have been moved to separate cells.

- For example - A DNA segment on each chromosome may code for eye colour, although one chromosome may code for brown eyes and the other for - blue eyes. Which eye colour is expressed - will depend on which gene is dominant.

So, C.O. occurs most often between different alleles - coding for the same gene.

- C.O. = Results - in increased - genetic variation in the chromosome of - daughter cells that results from meiosis

C.O. Adv^s - \Rightarrow It maintain - genetic diversity within a population, allowing for - million of - diff: genetic combinations to be passed from parents to - offspring.

\Rightarrow Genetic variability is very important to the long-term survival of a species

(3)

o TYPES OF C.O -

Atc to the Number of chiasmata -
involved - C.O. may be - 3 type -

- ① Single
- ② Double
- ③ Multiple

o Steps of C.O -

- ① Synapsis -
- ② Duplication of - chromosomes.
- ③ Crossing over -
- ④ Termination

Next class - C.O, Mechanism