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MHT-CET

Triumph Biology

Based on Maharashtra State Board Syllabus

STD. XII Sci.

Salient Features

- Exhaustive subtopic wise coverage of MCQs.
- Memory Maps provided for each chapter.
- Hints included for relevant questions.
- Exhaustive coverage of various competitive exam questions.
- Includes solved MCQs from MHT CET, NEET (UG) 2015, 2016, 2017.
- Evaluation test provided at the end of each chapter.
- Two Model Question Papers with answers at the end of the book.

Solutions/hints to Evaluation Test available in downloadable PDF format at
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Note: Questions of standard XI are indicated by ‘**’ in each Model Question Paper.

01 Genetic Basis of Inheritance

Syllabus

- 1.0 Introduction
- 1.1 Mendelian inheritance
- 1.2 Deviations from Mendelian ratios

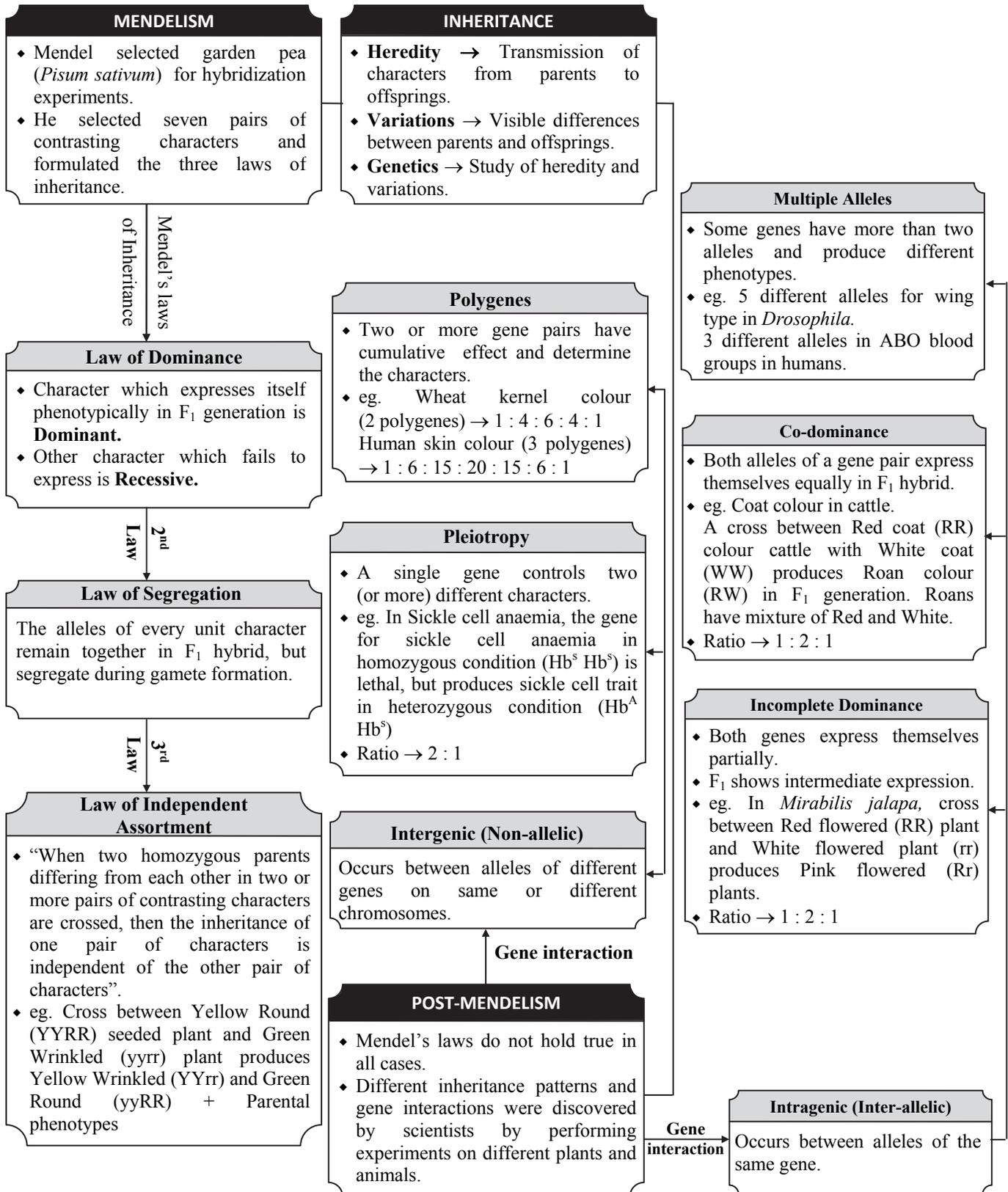
Gregor Johann Mendel (1822 – 1884)



*Gregor Mendel was the first to give the hypothesis of existence of a factor (Mendelian factor; gene) which shows continuity and variation. He conducted several hybridization experiments on Garden pea plant (*Pisum sativum*). His work of experiments and their results were published in the Natural History Society of Bruno in 1866.*



Memory Map





Classical Thinking



1.0 Introduction

1. The phenomenon of 'like begets like' is due to
(A) genetics (B) heredity
(C) germplasm (D) variation
2. Transmission of characters from one generation to the next or from parents to offsprings is called
(A) heredity (B) variation
(C) recombination (D) mutation
3. Variation is
(A) differences between parents and offsprings.
(B) differences between individuals of same species.
(C) differences among the offsprings of the same parents.
(D) all of the above.
4. The term "genetics" was coined by
(A) Morgan
(B) William Bateson
(C) Johannsen
(D) Karl Correns
5. The greek word which means 'to grow into' is
(A) genetics (B) genesis
(C) inheritance (D) factor
6. The first scientific explanation regarding inheritance was given by
(A) William Bateson
(B) Gregor Johann Mendel
(C) Griffith
(D) Johannsen
7. Who is known as "Father of Genetics"?
(A) Theophrastus (B) Stephen Hales
(C) Mendel (D) Aristotle



1.1 Mendelian inheritance

8. Organisms produced by asexual reproduction are called
(A) clones
(B) offsprings
(C) factors
(D) both (A) and (B)
9. Organisms produced by sexual reproduction are called
(A) offsprings (B) clones
(C) characters (D) genes

10. Offsprings are
(A) exactly identical to either of their parents.
(B) not exactly identical to either of their parents.
(C) show intermediate characters inherited from both the parents.
(D) both (B) and (C)
11. The term "factor" for gene was coined by
(A) William Bateson
(B) Johann Mendel
(C) Johannsen
(D) F. Griffith
12. Gregor Mendel was born in
(A) U.K (B) Austria
(C) Russia (D) Czechoslovakia
13. Mendel was a
(A) physiologist (B) mathematician
(C) cytologist (D) taxonomist
14. The first scientific study leading to the formulation of laws of inheritance was carried out by
(A) Darwin (B) Hugo De Vries
(C) Lemarck (D) Mendel
15. Under which title was Mendel's work published in Natural History Society of Brunn?
(A) Mendel's Laws of Inheritance
(B) Experiments in Plant Hybridization
(C) Experiment on Heredity and Variation
(D) Origin of Species
16. Mendel's laws were first published in the year
(A) 1875 (B) 1890
(C) 1928 (D) 1866
17. The year 1900 A.D. is highly significant for geneticists due to
(A) chromosome theory of heredity
(B) discovery of genes
(C) rediscovery of Mendelism
(D) principle of linkage
18. The Mendelian principles of inheritance were rediscovered by
(A) Sutton and Boveri
(B) Hugo de Vries, Tschermak and Correns
(C) Lederberg and Tatum
(D) Morgan



19. Mendel's work was rediscovered by three biologists from which of the following countries?
(A) Holland, France and England
(B) Holland, England and Austria
(C) Germany, France and England
(D) Austria, Holland and Germany
20. Mendel selected pea plant because of
(A) its short life span.
(B) it produced many seeds and large flowers.
(C) many contrasting characters.
(D) all of these
21. The botanical name of garden pea is
(A) *Pisum sativum*
(B) *Lathyrus odoratus*
(C) *Mangifera indica*
(D) *Solanum tuberosum*
22. Which of the following is a dominant character in pea?
(A) Wrinkled seeds
(B) Inflated pod
(C) Terminal flower
(D) Dwarf plant
23. Which of the following character was not considered by Mendel?
(A) Seed coat colour
(B) Wrinkled or round leaves
(C) Tallness or dwarfness
(D) Position of flower
24. An inherited character and its detectable variant is called
(A) allele
(B) trait
(C) gene
(D) both (A) and (B)
25. Which one of the following best describes a gene?
(A) A triplet of nucleotide bases.
(B) A specific length of DNA responsible for the inheritance and expression of the character.
(C) A specific length of single stranded RNA.
(D) Both (B) and (C)
26. Mendel's "factors" are in fact
(A) units (B) chromosomes
(C) genes (D) none of these
27. Who coined the term 'gene' for 'factor'?
(A) Mendel (B) Morgan
(C) Johannsen (D) Punnett
28. Alleles or allelomorphs occupy
(A) same position on homologous chromosomes.
(B) same position on heterozygous chromosomes.
(C) different position on homologous chromosomes.
(D) different position on heterozygous chromosomes.
29. Who proposed the term 'Allelomorph'?
(A) Hugo De Vries (B) Morgan
(C) Tschermak (D) Bateson
30. Dominant allele means
(A) an allele whose effect is masked by another allele.
(B) an allele that prevents the expression of the other allele.
(C) an allele without any effect.
(D) an allele which cannot express in presence of other.
31. The external appearance of an individual for any trait is called as
(A) phenotype (B) karyotype
(C) morphology (D) physique
32. Genotype is
(A) genetic constitution of an organism.
(B) genetic constitution of somatic cells.
(C) genetic constitution of plastids.
(D) genetic constitution of germ cells.
33. Homozygous individuals
(A) breed true to the trait.
(B) does not breed true to the trait.
(C) produce only one type of gamete.
(D) both (A) and (C)
34. Which of the following term indicates a pair of dissimilar alleles?
(A) Homozygous
(B) Heterozygous
(C) Homologous
(D) All of these
35. A cross between two pure individuals, differing in atleast one set of characters, is called
(A) monohybrid (B) polyploid
(C) mutant (D) variant