

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Third Semester)

Branch – ZOOLOGY

GENETICS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- The contrasting characters of individuals are represented by unit factors which separate at the time of gamete formation is explained by Meddel's law of
 - Segregation
 - Independent Assortment
 - Dominance and Recessiveness
 - Recessiveness
- Chromosomal theory of inheritance was proposed by _____
 - Sutton in 1902
 - Boveri in 1902
 - Correns in 1909
 - Sutton and Boveri in 1902
- Traits which exhibit continuous phenotypic variation are typically determined by this inheritance form
 - incomplete dominance
 - multiple-allele inheritance
 - polygene inheritance
 - sex-linked inheritance
- When a gene for a given trait comes in alternative versions that specify different forms of the trait (for example, purple-flower and white-flower versions of a flower color gene), the versions of the gene are called
 - alleles
 - chromosomes
 - supergenes
 - loci
- Crossing-over takes place in the _____ stage
 - Diakinesis
 - Pachytene
 - Anaphase
 - Leptotene
- Pick out the reason from the following, why Mendel did not recognize linkage phenomenon in his experiments
 - he studied only pure plants
 - he did not have a powerful microscope
 - characters he studied were situated on different chromosomes
 - many chromosomes to handle
- Name the disorder arises due to changes in structure of chromosome is known as
 - structural disorder
 - numerical disorder
 - material disorder
 - substantive disorder
- Mental retardation in child is main the characteristics of
 - kline felter syndrome
 - Turner syndrome
 - down syndrome
 - cri-du-chat syndrome
- Skin colour inheritance in mammals is usually
 - Monogenic
 - Polygenic
 - Multiple allelism
 - Pseudoallelism

Cont...

- 10 Hereditary tyrosinemia is similar to neonatal tyrosinemia, except the large amount of _____ is present in the urine.
- a) P-hydroxyphenylpyruvic acid b) P-hydroxyphenyl lactic acid
c) Phenyl acetylglutamine d) Phenylalanine hydroxylase

SECTION - B (35 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 7 = 35)

- 11 a Explain about the tri-hybrid cross worked out by the forked line method.
OR
b Narrate the four types of dominance you have known.
- 12 a Explain about the Dominant Epistasis with an example.
OR
b Comment on Pleiotropy, Penetrance and Atavism.
- 13 a Summarise the Single and Double chromosomal crossing overs.
OR
b Narrate about the Extra-chromosomal inheritance due to Chloroplast.
- 14 a How do *Turner's syndrome* is being diagnosed?
OR
b State the a critical comment on Barr body.
- 15 a Give a brief note on the Urea cycle defects.
OR
b Write an account on Symptoms of sickle cell anemia.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Discuss about the Mendel's law of Incomplete dominance with suitable illustration.
- 17 The inheritance of comb types in fowls is a Gene Interaction- Justify this statement with your supportive illustration.
- 18 Explain about the X-linked recessive and dominant genes inheritance pattern in human.
- 19 Write an essay on the most important facts to know about chromosomal aberrations.
- 20 Enumerate the measures for adopting the negative eugenics attempts to eliminate The defective germplasm of the society.

Z-Z-Z

END