22BTU207/18BTU07

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023
(Second Semester)

Branch - **BIOTECHNOLOGY**

GENETICS

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 Which of the following in the characteristics of pea plants which are not used by Mendel during experimentation?
(i) Seed Colour (ii) Seed Shape
(iii) Pod Length (iv) Flower Position

2 What is the genotype of the person suffering from Klinefelter's syndrome?
(i) 44+ XXY (ii) 42+ XXX
(iii) 44+ XXX (iv) 42+ XXY

3 A trisomic individual has
(i) An extra chromosome (ii) One less chromosome
(iii) Two extra chromosome (iv) One pair of extra chromosome

4 Choose the odd one out from
(i) Color blindness (ii) Haemophilia
(iii) Duchenne muscular dystrophy (iv) Faulty tooth enamel

5 The rediscovery of the research by _____ led to understanding that genes are the carriers of inherited traits.
(i) Wilhelm Weinberg (ii) Gregor Mendel
(iii) Reginald Punnett (iv) Charles Darwin

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a State the law of segregation.
OR
b Briefly explain the extrachromosomal inheritance.

7 a Classify the types of chromosomes.
OR
b Explain the structure of chromosomes w.r.t its stability.

8 a Differentiate aneuploidy and polyploidy conditions.
OR
b Explain the chloroplast variations in plant.

Cont...

9 a Explain briefly about the Albinism.

OR

b List out the complications of Sickle cell Anemia.

10 a State the principle of Hardy-Weinberg concept.

OR

b Explain the concept of genetic drift.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Explain the concept of Co-dominance.

OR

b Give an account on epistasis.

12 a Describe the symptoms and consequences of Down's syndrome.

OR

b Elaborate the impact and treatment of retinoblastoma.

13 a Describe in detail about cytoplasmic male sterility.

OR

b Write an essay about heterosis.

14 a Describe in detail about Autosomal inheritance.

OR

b Outline the germline errors of metabolism.

15 a Differentiate Assortive and non-assortative matings.

OR

b Write an essay about the population genetics.

Z-Z-Z END