

Total number of printed pages-7
3 (Sem-5/CBCS) ANT HC 1

2023

ANTHROPOLOGY

(Honours Core)

Paper : ANT-HC-5016

(Human Population Genetics)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer : 1×7=7

- (a) Who propounded the theory of 'inheritance of acquired characters'?
- (i) Darwin
 - (ii) Galton
 - (iii) Lamarck
 - (iv) Mendel

Contd.

(b) If both genotype and phenotype shows the same ratios of 1:2:1 in the F₂ generations of Mendel's experiment, it shows

- (i) incomplete dominance in monohybrid cross
- (ii) complete dominance in monohybrid cross
- (iii) dihybrid cross
- (iv) co-dominance

(c) Which of the following focuses on the study of patterns of inheritance?

- (i) Genetics
- (ii) Immunology
- (iii) Evolution
- (iv) Ecology

3 (Sem-5/CBCS) ANT HC 1/G 2

(d) Which of the following human disease is transmitted from the vector *Anopheles* mosquito?

- (i) Dengue
- (ii) Malaria
- (iii) Filariasis
- (iv) Encephalitis

(e) Hardy-Weinberg equilibrium can be

- (i) disrupted by presence of all except
- (ii) random mating
- (iii) non-random mating
- (iv) mutations

3 (Sem-5/CBCS) ANT HC 1/G 3 Contd.

(f) Which of the following is incorrect with respect to mutation?

- (i) Change in chromosomes and genes
 - (ii) Sudden change in genetic materials
 - (iii) Continuous changes in genetic materials
 - (iv) Leads to variation in DNA
- (g) Genetic drift is change of
- (i) gene frequency from one generation to next
 - (ii) appearance of recessive genes
 - (iii) gene frequency in same generation
 - (iv) None of the above

3 (Sem-5/CBCS) ANT HC 1/G 4

2. Give short answer of the following questions :
2×4=8

- (a) What is multiple allelism?
 - (b) Write about sex controlled traits.
 - (c) What do you mean by epistasis? Write briefly.
 - (d) Write briefly about X-linked polymorphism.
- 5×3=15
- (a) How random mating differ from non-random mating? Explain with suitable example.
- (b) How mutation effects gene frequency in human population? Write briefly.
- (c) Write the relationship between sickle cell and malaria.

3 (Sem-5/CBCS) ANT HC 1/G 5

(d) Write the difference between sex-linked and sex-limited traits.

(e) Mention the basic concept of segregation and independent assortment.

4. Answer **any three** of the following questions :
10×3=30

(a) Discuss the major landmarks in the history of Human Genetics.

(b) Discuss the Hardy-Weinberg principle with its application in population genetics.

(c) How gene flow and genetic drift can change the gene frequency of a population? Discuss.

(d) What do you mean by polymorphism? Write about the phenotypic and genotypic polymorphism, transient polymorphism and balanced polymorphism.

3 (Sem-5/CBCS) ANT HC 1/G 6

(e) Discuss the single locus and multilocus inheritance with suitable example.

(f) Explain the process of Mendelian single factor inheritance pattern with suitable examples.

3 (Sem-5/CBCS) ANT HC 1/G 7

1500