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3 (Sem-5/CBCS) ANT HC 1

2022

ANTHROPOLOGY

(Honours)

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. Answer **any seven** of the following questions : 1×7=7
 - (a) In which year was the Hardy-Weinberg law proposed ?
 - (b) Who propounded the 'Mutation theory' ?
 - (c) What is the genotype of sickle cell or haemoglobin S ?
 - (d) Who is regarded as the father of modern genetics ?

Contd.

- (e) If the genotype consists of only one type of allele, what is it called?
 - (f) What is genetic consanguinity also known as?
 - (g) The malaria parasite is transmitted to humans by which mosquito?
 - (h) Give an example of a sex-linked enzyme deficiency.
 - (i) Who first discovered that the actual number of human chromosomes is 46?
 - (j) Give an example of co-dominance.
 - (k) Give an example of holandric inheritance.
 - (l) By what term did Mendel refer to genes in his experiments?
2. Give short answer of **any four** of the following questions : $2 \times 4 = 8$
- (a) Differentiate between single factor and multifactorial inheritance.
 - (b) What is population genetics?
 - (c) What is meant by pleiotropy?
 - (d) What is point mutation?
 - (e) Define genetic polymorphism.

- (f) What are the phenotypes in the ABO blood group system?
- (g) What is gene flow?
- (h) Define Mendelian population.

3. Answer **any three** of the following questions : $5 \times 3 = 15$

- (a) Explain how continuous inbreeding affects a small population.
- (b) Write a note on penetrance and expressivity.
- (c) Write briefly about the chromosome theory of inheritance.
- (d) Write a note on positive and negative assertive mating.
- (e) Distinguish between sex-controlled trait and sex-limited trait.
- (f) Discuss the factors behind the inheritance of G6PD deficiency.
- (g) What is meant by 'balance polymorphism'?
- (h) Explain cytoplasmic inheritance in man.

4. Answer **any three** of the following questions : $10 \times 3 = 30$

- (a) State the Hardy-Weinberg Law. Explain the Hardy-Weinberg principles.
- (b) What is single-factor inheritance? Discuss the inheritance patterns with suitable examples.
- (c) What is genetic drift? Discuss genetic drift as a mechanism for dynamics in gene frequency.
- (d) Elaborate non-Mendelian inheritance in humans.
- (e) Explain how random and non-random mating influence population structure.
- (f) Write briefly about important landmarks in the history of genetics.
- (g) Discuss the association between blood groups and infectious diseases.
- (h) What is mutation? How it affect on gene frequencies of polymorphic markers?