2007

ANTHROPOLOGY

PAPER-VIII (Group-A)

Full Marks : 100

Time : 4 hours

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

Write the answers to Questions of each Half **in separate books**

FIRST HALF

GROup-A

(Growth, Development, Constitution and Senescence)

Answer Q. No. 1 and any two from the rest

Answer in brief any *six* from the following : 3 x 6

(a) What is a longitudinal growth study?

(b) What is meant by juvenile growth spurt?

(c) What is velocity come of growth?

(d) Differentiate between growth **and maturation.**

(e) What is meant by `catch-up' growth ?

(f) What are Common Growth Curves ?

(g) Briefly mention **the hormones influencing human** growth.

(h) Differentiate **between neonates and infants.**

(i) What is meant by Z-score?

2. Human growth is controlled by environmental factors. Justify this statement by citing appropriate evidences. 16

3. (a) What-is meant by Menardre? 2

(b) Discuss the factors which influence age at Menardre. 7

(c) Outline human variation in age at menardre. 7

4. (a) Differentiate between stunting, underweight and wasting. .6

(b) The height and weight of a girl are 112.3 cm and 31.9 kg, respectively. The median height and weight of girls of the same age in the reference population are 1147 and 32.6 kg. respectively. The corresponding standard deviations and 2.3 and 1.7 respectively. Determine the nutritional status of the subject. Show all your working clearly. 10

5. **Mean height** (cm) bfgirls and boys aged 6-15 years of Amritsar **are given below :**

Age (Yr)	*Girls*	*Boys*
6	.;Illi 7	120.0
7	122.8	124.8
8	128.1	130.0
9	133.6	134.8
10	'-1`39.0	141.0
11	145.9	147.4
12	150.6	152.9
13	153·7	159.9
14	t56 2 `	163.8`
15	..157.1	1664

(a) Draw a suitable diagram which highlights age and sex variations in height. Comment on the important findings. of this diagrm.

(b) Mention the ages at which the mean **sex difference in height is the highest and the lowest.**

(c) Mention the age at which the greatest increase in mean height occurs in the two sexes. 10+3+3

6. Secular tend has been observed worldwide in human growth. Validate this statement citing specific examples

in (a)	height
(b)	age at menardre. 8

SECOND HALF

GRoup-A

(Population Genetics)

Answer Q. No. 1 and any two from the rest

1. Answer any *six* of the following : 3 x 6

   (a) Define Cline.

   (b) What is Sewall Wright effect?

   (c) What is founder principle

   (d) Define random and non-random mating.

   (e) What is inbreeding coefficient?

   (f) What is **meant by admixture ?**

   (g) What do you mean by eugenics?

   (h) Define selection coefficient.

   (i) What is **a mutant allele ?**

2. (a) Define population genetics and discuss its use-**fulness in** anthropology. 3+7

(b) **The frequency *of ABO* types in a group of about 300 American Indians was 81 percent 0 ; 19 percent A, and no *B* or AB. Estimate the frequencies of the *A*, B and 0 alleles in the population.** 6

3. **(a) What do you mean by the term polymorphism? Explain balanced and transient polymorphisms with examples.** 3+7

(b) **Let the frequencies of a pair of alleles be *per*, and *q,,,* in males and *pj. and* of in females. If *pr* 0.6 and *qm= 0-2,* determine the equilibrium frequencies of these alleles after one generation of random mating.** 6

4. **(a.) What do you know about `selective mating' and 'assortative mating'? How are they different from 'inbreeding'? Write about the effects of `inbreeding' on population structure.** 3+2+5

(b } Using pedigree diagrams , find the probability of homozygosity by descent of the offspring of :

(/) first **cousin marriage**
(//) aunt-nephew and uncle niece mating. 3+3

5. ***(a)*** **Explain** how migration **limits the long** term effect of ioslation between **populations.**

(b) What are the different models and principles that explain the different situations of migration ? 7

(c) Population A has an effective breeding size of 18,000 whereas that of population B is 20,000. What is the probability of loss of variability per generation in populations A and B, respectively. 4

6. **(a) Consider a recessive allele in two equal sized populations. In population 1, the allele** frequency of the recessive allel is 0.20, while in population 2 it is 0.02. What is the frequency of homocygous recessive **condition in population 1 and also in population 2 ? What is the average frequency of homocygous recessives ? If the two populations were to fuse and undergo random mating, what would be the frequency of homozygous recessive condition in the fused population ?** **8**

(b) Consider a population of 100 individuals whose number and genotypes are 37AA,.52Aa and 11 aa. **Calculate are the frequencies of A and a alleles.** **4**

(c) In a sample of 2400 births at an area hospital, 6 babies died shortly after birth from the effects of chronic obstruction, an autosomal recessive lethal disorder.

(i) What is the frequency of the recessive CO **allele in the population?** 1

(ii) What proportion of the **population** is heterozygous for the CO allele? 2

(iii) What proportion of the **population** is homozygyous for the normal CO' allele ?