

10
Q. Write a note on scope of human genetics.

Ans: The scope of human genetics is vast. It has two aspects – fundamental or theoretical and applied.

As a fundamental science it studies the laws of heredity, interaction between hereditary factors and environment, development and function of different parts of the human body, evolutionary mechanism, molecular structure and the like.

Knowledge of human genetics could fruitfully and meaningfully be applied for betterment of different aspects of mankind. Scope of applied aspect is unlimited. With the acquisition of new knowledge by collection of large data and also experiments in laboratory, the horizon of applied aspect of human genetics is expanding in recent years. Knowledge acquired by advanced research in chromosome and molecular biology are utilized for human welfare. Again, practical application of human genetics has encouraged the researches to do more work of fundamental nature.

The inheritance and genetic background of diseases and abnormal traits if known to the physicians, then it will be of immense help in treatment. They should know about the hereditary factors underlying behaviour in health and disease. Reaction between genetic materials and drugs, mechanism of normal and abnormal development, nature of association between human chromosomes and health, disease and abnormality, etc. helps the physicians in diagnosis and treatment. In other words, medical genetics plays a very important role in diagnosis, prognosis and treatment of diseases having genetic background. Everybody wants to lead a healthy normal life. Medical genetics can provide help in this regard.

It is necessary for everybody to have some knowledge about the genetic aspects of his or her partner. That will give indication about the possible kinds of children they may expect. Genetic counseling plays its role in this sphere. Longevity, physical and mental well-being, etc. are also determined by genetic factors. Knowledge of human genetics can through some light on these aspects also.

It is said that man is the product of interaction between genetic factors and environment. Human genetics deals with the relative influence of heredity and environment on physical and mental traits. Environment encompasses a

large number of variables. Society is closely connected with environment. Hence for human welfare social activities are responsible to a great extent. The study of these related facts is part of human genetics.

Knowledge of population genetics also serves several useful purposes in human welfare. It explains the nature and causes of population variation and thereby contributes its share in removing misunderstanding among various population groups. Environment plays a very important role in shaping biological qualities of mankind. With the rapid change of environment in the present time what will be the future trends in the biological evolution? Knowledge of population genetics is useful to estimate the genetic damage caused by environmental factors and to suggest measure to prevent or minimize this type of harm. Epidemiology of genetic diseases could be understood by analyzing the data on population genetics.

Q. Write a note on the Anthropologists' interest in human genetics.

Ans: Physical Anthropology deals with the study of the human evolution and variation. Human evolution and variation is directly related to the human genetics. Anatomy is essential for studying different human forms especially in the study of racial differences and no one can specialize physical anthropology without prior training in anatomy. All man have some common characteristics and belong to the species –Homo sapiens. However, it is generally found that the common hereditary features which one group of people exhibits do not resemble those of other groups in various ways. Each of these groups is designated as race. Racial classifications are made on the basis of certain genetic traits. Physical anthropologists are interested to human genetics to study the different hereditary characteristics of human being.

The methodology of physical anthropology has now changed. The days of descriptive stage are gone and the analytical stage has taken its place. The classical physical anthropology was mainly interested in the classification and not in the interpretation. In recent times the attention of physical anthropologist has been diverted to genetics. The physical anthropologists study the blood types, difference in musculature etc. They also study the group differences in time of sexual maturation, in growth rates, and various disease immunities. These studies have practical value and the results may be used in various ways.

Knowledge of human genetics could fruitfully and meaningfully be applied for betterment of different aspects of mankind. Scope of applied aspect is unlimited. Ethics and legal aspects are very much related with genetic counseling, genetic screening and treatment of genetic diseases. These vary from society to society, individual to individual. Now physical anthropology gives maximum interest to study the genetic disorder of the different society. This knowledge of human genetics is applicable in different spheres.