[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5688 **L**

Unique Paper Code : 3184000014

Name of the Paper : Genetic Basis of Diseases (NEP-UGCF) (Previously Named: Understanding Genetic Basis of Disease) (3184002005)

Name of the Course : **B.Sc. (H) Biomedical Science**

Semester : VI

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions.
3. Give illustrations and examples wherever required
4. Subparts of the questions should be attempted together.

Q 1. (a) Explain the following (**Any six**) (6 x 2 = 12)

(i) Histone
(ii) Variation
(iii) Oncogene
(iv) Uniparental Disomy
(v) Euploidy
(vi) Dominant inheritance
(vii)Hereditary mutation

(b) Match the following (6x 1=6)

1)	Rett Syndrome	A.	Polymorphism
2)	Klinefelter Syndrome	B.	2n-2
3)	Pallister-Killian Syndrome	C	Female
4)	Cri-du Chat Syndrome	D	5p-
5)	Nullisomy	E	X-Linked Dominant Inheritance
6)	SNP	F	Isochromosome 12p syndrome

P.T.O.

Q2. (a) Differentiate between (**Any three**) (3x3=9)

(i) Carcinoma and Sarcoma

(ii) Non-disjunction and Anaphase lagging

(iii) Type I and Type II diabetes mellitus

(iv) Phenylketonuria and Alkaptonuria

(b) What is genome? Give in detail the structure and the organization of human mitochondrial genome. (9)

Q3. (a) What are the laws of genetics proposed by Mendel? What experiments helped him to propose these laws? (9)

(b) Genome imprinting in conjunction with uniparental disomy can lead to complicated diseases. Justify with examples. (9)

Q4. (a) What is a multifactorial disorder? Explain in detail **any two** such disorders. (9)

(b) With the help of pedigree and suitable examples explain how sex-linked traits are different from sex-limited traits. (9)

Q5. (a) Elucidate the main components of a chromosome and illustrate its structural features with the help of a diagram. (9)

(b) Elaborate (**Any three**) (3x3 = 9)

(i) Genetic Counselling

(ii) Sickle cell anemia

(iii) Autosomal inheritance

(iv) Aneuploidy

Q6. (a) What is pleiotropy? Explain by taking the example of sickle-cell anaemia. (9)

(b) Write short notes on (**Any three**) (3x3 =9)

(i) Charcot-Marie Tooth Disease

(ii) Achondroplasia

(iii) Hunter Syndrome

(iv) Prader Willi Syndrome