COURSE CODE (CREDITS): 18B11BT311(4)   MAX. MARKS: 35

COURSE NAME: Genetics

COURSE INSTRUCTOR: Prof. Sudhir Kumar   MAX. TIME: 2 Hours

Note: (a)All questions are compulsory.

(b)Marks are indicated against each question in square brackets. Calculator is allowed.

Q1 a): If parents are not suffering from a genetic disease, does this mean that children in a family will not develop the disease? Support your answer with adequate reasoning.

b): What are the causes of Huntington's disease and ways to eliminate it from the human population? Are there any ethical issues linked in this process?   COVI   [3+2]

Q2: a) Why do ageing mothers have more chances to give birth to children suffering with Down's Syndrome?

b) What is the probability in a family of 06 children that 03 will be transgender? Support your answer with suitable reasons.   COI   [3+2]

Q3: Write the cause and symptoms of Hemophilia and Sickle-Cell Anemia in humans. Explain, how the inheritance patterns of the two diseases differ from each other.   COIII   [5]

Q4: Name the diseases occurring due to trisomy of chromosome and explain the cause of abnormality. How do humans with 'XXY' abnormality suffer? Explain   COV

[5]

Q5: a) A couple (one homozygous and other heterozygous), (both husband and wife) is suffering from autosomal dominant disorder have 03 children, what is the probability that 01 will be normal?

b) What is the inference of Fisher's theorem.   COIV   [3+2]

Q6: a) A 6 ft tall plant was crossed with 3 ft. dwarf plant. In F1 generation plants attained the following heights - 6 ft., 3ft, 5.7 ft., 2.8 ft, 5.9 ft, 2.9 ft. What could be the probable reason and elaborate the underlying principle and pattern of inheritance?

b) What is the role of 'H' substance in formation of various blood groups in humans.   COII   [3+2]

Q7: Differentiate between – a) Interference and Coefficient of Coincidence
                              b) Crossing over and Translocation   COIV   [2.5+2.5]