

**M. SC. (BIOTECHNOLOGY) SEM-III (2012
COURSE)(CHOICE BASED CREDIT SYSTEM) : SUMMER -
2018**

SUBJECT : HUMAN GENETICS

Day : **Saturday**
Date : **07/04/2018**

S-2018-1089

Time : **10.00 am to 01.00 pm**
Max. Marks : 60

N. B. :

- 1) **Q. No. 1 and Q. No. 6 are COMPULSORY.** Attempt **ANY TWO** questions from remaining questions in Section – I and Section – II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

- Q. 1** Attempt **ANY FIVE** of the following in brief: **(10)**
- a) What is a test cross?
 - b) What is complete and incomplete linkage?
 - c) State the cause and inheritance of Leber hereditary optic neuropathy (LHON) disease.
 - d) State the role of SRY gene.
 - e) What is Robertsonian translocation?
 - f) What is genetic heterogeneity?
- Q. 2** a) Describe mechanism of meiotic cell division with suitable diagram. **(05)**
b) Explain Mendel's law of independence assortment. **(05)**
- Q. 3** a) Explain classification of human chromosomes on the basis of position of centromere. **(05)**
b) Elucidate Hardy-Winberg equation giving suitable example. **(05)**
- Q. 4** Write short notes on **ANY TWO** of the following: **(10)**
- a) Maternal inheritance
 - b) Pleiotropy
 - c) ABO blood group system

SECTION - II

- Q. 5** Attempt **ANY TWO** of the following: **(10)**
- a) Describe various structural chromosomal abnormalities.
 - b) State the cause and symptoms of Klinefelter's syndrome.
 - c) Explain the principle and applications of Fluorescent In Situ Hybridization (FISH) technique.
- Q. 6** a) Explain the phenomenon of co-dominance giving suitable example. **(05)**
b) Explain various types of mutations giving suitable examples. **(05)**
- Q. 7** Write short notes on **ANY TWO** of the following: **(10)**
- a) X – inactivation
 - b) Genetic linkage
 - c) Karyotype Analysis
- Q. 8** Attempt **ANY ONE** of the following: **(10)**
- a) Describe inborn errors of protein metabolism.
 - b) Give an account on various techniques used for detection of fetal abnormalities.

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