FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL/MAY 2015

(UG—CCSS)

Complementary Course—Zoology

ZO 4C 07—GENETICS AND IMMUNOLOGY

(2013 Admissions)

Time : Three Hours   Maximum 30 Weightage

I. Answer all *twelve* questions. Each question carries ¼ weightage.

A Objective type questions :

1 "Molecular Scissors" are :

    (a) DNA polymerases.   (b) Restriction endonucleases.

    (c) RNA polymerases.   (d) DNA ligases.

2 · An antiviral protein is :

    (a) Endorphin.   (b) Enkephalin.

    (c) Interferon.   (d) Rhodopsin.

3 Small pox vaccine was introduced by :

    (a) Edward Jenner.   (b) Alexander Flemming.

    (c) Robert Hook.   (d) Robert Koch.

4 An example of Polygenic inheritance is :

    (a) Colour blindness in man. (b) Haemophilia in man.

    (c) Baldness in man.   (d) Diabetes mellitus.

B Name the following :

5 The inactive and condensed X chromosome of a human female.

6 Diagramatic representation of Karyotype of an organism.

7 Scientist who proposed "One gene one polypeptide hypothesis ".

8 Blotting technique used for the analysis of RNA.

C Fill in the blanks :

9 Cancer of epithelial cells is called _____

10 Gene for colour blindness is located on _____

Turn over

11 **T – lymphocytes are produced in** _____

12 **Extrachromosomal circular DNA found in bacteria are called ————**

<div align="right">(12 x 1/4 = 3 weightage)</div>

II. Answer all *nine* questions :

13 **What are Overlapping genes ?**

14 **Explain One Gene – One Enzyme hypothesis .**

15 **Write the name of two Prenatal diagnostic techniques.**

16 **Explain Holandric genes.**

17 **What are Macrophages ?**

18 **Define Euthenics.**

19 **Explain Passive immunity.**

20 **Define an Antigen.**

21 **What is Western Blotting ?**

<div align="right">(9 x 1 = 9 weightage)</div>

III. Answer any *five* questions :

22 **Explain Split genes.**

23 **Distinguish between Benign tumour and Malignant tumour.**

24 **Explain the inheritance pattern of Colour blindness in man.**

25 **Explain Hybridoma technology.**

26 **Write a note on DNA finger priniting.**

27 **Describe Humoral immunity and Cell mediated immunity.**

28 **Explain Major Histocompatibility Complex.**

<div align="right">(5 x 2 = 10 weightage)</div>

IV. Answer any *two* questions :

29 **What are the characteristics of Cancer cells ?** Add a note on Theories of origin of cancer.

30 **What is r DNA technology ? Explain various steps involved in it.**

31 **Explain various Chromosomal mechanisms of Sex determination.**

<div align="right">(2 x 4 = 8 weightage)</div>