C 4759 **(Pages : 2)** **Name.....**

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, JUNE 2016

(CUCSS)

Botany

BO 02C T05—CELL BIOLOGY, MOLECULAR BIOLOGY AND BIOPHYSICS

Time : Three Hours Maximum : 36 Weightage

Part A

I. Answer all *fourteen* questions. Each answer should be brief. Each question carries 1 weightage :

1 Differentiate between a consensus sequence and a conserved sequence.

2 What is the role of chapersons ?

3 What are oncogenes ?

4 What is c-value paradox ?

5 What is the function of euchromatin ?

6 Differentiate between spontaneous and induced mutations. Give *one* example each.

7 What are macrochromosomes ?

8 What is satellite DNA ?

9 Explain the significance of G_o phase.

10 Comment on telomerase.

11 What do you mean by a mutator gene ?

12 What is RIA ? Write the principle and application.

13 What is the role of a buffer solution ?

14 What is ion exchange chromatography ?

(14 x 1 = 14 weightage)

Part B

II. Answer any *seven* questions in not more than 100 words each. Each question carries 2 weightage :

15 Compare the chromosome mechanisms in mitosis and meiosis.

16 What is the relationship between telomerase and aging ?

17 Comment on different models of DNA replication.

18 With suitable examples explain physical and chemical mutagens.

Turn over

19 Describe the differences between the chemical reactions catalyzed by DNA polymerase and RNA polymerase.

20 What are mitotic inducers and inhibitors ? Give examples.

21 Describe the promoter sites for initiation of transcription in prokaryotes and eukaryotes.

22 How do you distinguish **heterochromatin** from **euchromatin ?**

23 Explain the method of separation and detection of macromolecules by electrophoresis.

24 Briefly explain the principle and application of spectroscopy.

(7 x 2 = 14 weightage)

Part C

III. Answer any *two* questions. Each answer not exceeding 300 words. Each question carries 4 weightage :

25 Write an essay on giant chromosomes. Mention their significance.

26 Give a detailed account of the different stages involved in the cell cycle.

27 Explain the mechanism of DNA replication in **Eukaryotes.**

28 Explain the principle, methods and application of **HPLC.**

(2 x 4 = 8 weightage)