

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 chaperons ?
- 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 G₀ 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)