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83714 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, JUNE 2015

(CUCSS)

Botany

BO 02 CT05—CELL BIOLOGY, MOLECULAR BIOLOGY AND BIOPHYSICS

me : Three Hours Maximum : 36 Weightage

Part A

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

1 Describe the inhibitors of prokaryotic and eukaryotic protein synthesis.

2 What are replisomes and primosomes ?

3 Write notes on fragile sites in chromosomes.

4 What is the significance of meiosis in generating genetic variations ?

5 Distinguish between repetitive DNA and unique DNA.

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

7 Comment on excision and post-replication repair mechanism of DNA.

8 What is chromosome banding ?

9 Describe the function and importance of the 3' to 5' exonuclease activity of DNA polymerases.

10 What is diakinesis ?

11 What do you mean by a mutator gene ?

12 What is density gradient centrifugation and what is its biological significance ?

13 Describe the advantages of lyophilization.

14 Briefly describe the structure of IgG.

(14 × 1 = 14 weightage)

Part B

II. Answer any *seven* questions. Each answer not exceeding 100 words. Each question carries 2 weightage :

15 Give an account of cell cycle regulation.

16 What do you understand by programmed cell death ?

17 What is the significance of telomerase ? What is its function ?

18 Describe the molecular structure of the centromere and telomere.

19 Briefly explain the initiation of translation in *E.coli* and eukaryotes.

20 Classify mutations based on mutagenic agents.

21 Explain the transcriptional control mechanisms seen in gene regulation in prokaryotes.

22 What are mitotic inducers and inhibitors ? Give examples.

23 Write brief notes on : (a) ELISA ; (b) Autoradiography.

24 Give an account of PAGE using SDS gel system.

(7 × 2 = 14 weightage)

Part C

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

25 Give a detailed account of the different stages involved in the cell cycle. Add a note on the relationship between cell cyle and cancer.

26 What are the causes of cancer ? Describe the different stages of cancer development. Add a note on its diagnosis and treatment.

27 Write an essay on the enzymes and proteins of DNA metabolism.

28 Explain different types of electrophoretic apparatus, technique and procedures.

(2 × 4 = 8 weightage)