D 6730 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2016

(CUCSS)

Zoology

ZO3 CT 07—CELL AND MOLECULAR BIOLOGY

Time : Three Hours Maximum : 36 Weightage

I. Answer all *fourteen* of the following :—

1 What are proto-oncogenes ?

2 Why mitochondrial DNA is used as powerful tool for tracking ancestry of many species ?

3 What is transfection ?

4 Define homologous recombination.

5 What are retrotransposons ?

6 Define evolutionary clock.

7 What is Junk DNA ?

8 What is the role of *rho* factor ?

9 What is meant by degeneracy of genetic code ?

10 What is operator sequence in an operon ?

11 What is promoter ?

12 What are *Okazaki* fragments ?

13 What are replicons ?

14 What is reverse transcription ?

(14 × 1 = 14 weightage)

II. Give short accounts on any *seven* of the following :—

15 SOS repair of DNA.

16 Characteristics of genetic code.

17 Biogenesis of ribosome.

18 Translational inhibitors and mode of action.

19 Re-association kinetics.

20 Organization of rRNA gene in *Xenopus*.

Turn over

21 IS elements and transposition.

22 Concept of evolutionary clock.

23 Transformation in bacteria.

24 Apoptosis

(7 × 2 = 14 weightage)

III. Answer any *two* of the following :—

25 What is semi-discontinuous DNA replication? Give a detailed account on various enzymes involved prokaryotic DNA replication.

26 Give detailed account of structural organization of eukaryotic mRNA and its post transcriptional modifications.

27 With suitable examples explain the regulation of gene expression in bacteria.

28 Explain the molecular mechanisms involved in DNA recombination.

(2 × 4 = 8 weightage)