

B.Sc. DEGREE EXAMINATION - NOVEMBER 2014
BRANCH VI A – ADVANCED ZOOLOGY & BIOTECHNOLOGY
THIRD SEMESTER

COURSE : MAJOR CORE
PAPER : CELL AND MOLECULAR BIOLOGY
TIME : 3 HOURS

MAX. MARKS: 100

SECTION A

ANSWER **ALL** THE QUESTIONS.

(10 x 3 = 30)

1. What are the chemical substances that compose the plasma membrane?
2. What is the difference between smooth and rough endoplasmic reticulum?
3. What is the endosymbiotic hypothesis about the origin of mitochondria and chloroplast? What are the molecular facts that support the hypothesis?
4. Describe the events taking place during interphase.
5. What is the significance of meiosis?
6. Comment on gene therapy?
7. List the characteristics of cancer cells?
8. Discuss the functions of lampbrush chromosomes
9. Enlist the aims and objectives of Human Genome Project.
10. What is anti-sense RNA?

SECTION B

ANSWER **ANY FIVE** QUESTIONS.

(5 x 6 = 30)

11. Explain the post transcriptional modification of eukaryotic mRNA.
12. Explain RNA polymerases in prokaryotes and eukaryotes.
13. Explain the features and significance of DNA modifying enzymes.
14. List five differences between DNA and RNA.
15. DNA chains are antiparallel: what does this mean? What do you mean by DNA super coiling?
16. Explain the types of Ribosomes?
17. Explain the Sanger method of DNA sequencing.

SECTION C

ANSWER ANY TWO QUESTIONS.

(2 x 20 = 40)

18. Discuss in detail lac operon system and its regulatory components.
19. Explain the different stages in transcription. Add a note on regulation of transcription.
20. With suitable diagram explain the chemical structure of a polynucleotide polymer of DNA.
21. Explain the process of translation with suitable diagram.
