Code No: RR212306 **Set No. 1**

II B.Tech I Semester Supplementary Examinations, November 2006
GENETICS
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. List all possible genotypes for the A, B, AB and O phenotypes. Is the mode of inheritance of ABO blood types representative of dominance? If YES/NO ?Explain? [4+12]
2. Write a note on role of internal and external environmental factors influencing the specific gene expression. [8+8]
3. What possible conclusions can be drawn from the observation that no synaptonemal complexes are observed in male *Drosophila*? Explain. [8+8]
4. Describe lysis and lysogeny. [8+8]
5. What are the types of histone? Write their association with DNA molecule. [8+8]
6. Attempt the classification of structural mutations of chromosomes. [6+10]
7. Contrast the fertility of an allotetraploid with an autotriploid and an autotetraploid. [8+8]
8. What do you mean by extra chromosomal inheritance? Write an example how it transfers to next generation. [4+12]

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Code No: RR212306 **Set No. 2**

II B.Tech I Semester Supplementary Examinations, November 2006
GENETICS
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Define the terms:
   (a) F1 generation
   (b) backcross
   (c) testcross
   (d) pleotropism
   (e) epistasis
   (f) multiple factor inheritance
   (g) give the genotypic ratios of a trihybrid cross using Fork method
   (h) criss cross inheritance. [2+2+2+2+3+2+3]
2. The function ascribed to the genetic material are replication, expression, storage, and mutation. What does each of these terms mean? [4x4]
3. Why is a 50% recovery of single crossover products the upper limit, even when crossing over always occurs between two linked genes? [4+12]
4. Describe the mechanism of transduction process. [4+12]
5. What are nucleosomes? Focus light on their structural organization. [4+12]
6. What are germinal or gametic mutations? Describe few examples. [5+8+3]
7. What evidence suggests that Down syndrome is more often the result of non-disjunction during oogenesis rather than spermatogenesis? [4+12]
8. How would you determine that a segregative petite mutant in yeast is controlled by a chromosomal gene? [4+12]

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Code No: RR212306 **Set No. 3**

II B.Tech I Semester Supplementary Examinations, November 2006
GENETICS
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Mendel crossed pea with Wrinkled, Yellow seeds. All F_1 plants had seeds that were Round and Yellow. Predict the results of test crossing them F_1plants. [8+8]
2. The function ascribed to the genetic material are replication, expression, storage, and mutation. What does each of these terms mean? [4x4]
3. Two genes can be coupling or repulsion phase on a parental chromosome. What is the difference between the two? [8+8]
4. Describe the conditions under which genetic recombination may occur in bacteriophage? [4+12]
5. Write a note on structure and organization of Lampbrush chromosomes. [4+12]
6. Contrast and compare the mutagenic effects of deaminating agents, alkylating agents and base analogous. [5+4+7]
7. Define lyon hypothesis. [3+13]
8. What is kappa in *Paramecium*? [4+12]

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Code No: RR212306 **Set No. 4**

II B.Tech I Semester Supplementary Examinations, November 2006
GENETICS
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. List all possible genotypes for the A, B, AB and O phenotypes. Is the mode of inheritance of ABO blood types representative of dominance? If YES/NO ?Explain? [4+12]
2. The function ascribed to the genetic material are replication, expression, storage, and mutation. What does each of these terms mean? [4x4]
3. What is the significance of genetic recombination to process of evolution? [4+12]
4. Distinguish among the three modes of recombination in bacteria. [5+5+6]
5. What are nucleosomes? Focus light on their structural organization. [4+12]
6. Describe the general approach utilized in site-directed mutagenesis? [3+13]
7. Write a note on Y-chromosome and male development. [8+8]
8. Describe the types of evidence that could be gathered to determine whether a trait in *E.coli* is controlled by chromosomal or plasmid genes. Explain about cytoplasmic inheritance. [6+8+2]

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