Code No: R09222303 **R09** **Set No. 2**

II B.Tech II Semester Examinations,April/May 2012
MOLECULAR BIOLOGY AND GENETICS
Bio-Technology

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. Discuss the mechanism of mutagenic effects of UV rays & briefly describe the mechanism of repair of UV damaged DNA. [15]
2. Describe translational termination in eukaryotes & how does it differ from prokaryotes. [15]
3. Write short notes on:
   (a) Heterochromatin.
   (b) Euchromatin. [8+7]
4. Describe the cytoplasmic maternal transmission giving example of geranium & Iojap strain of maize. [15]
5. Explain the methods used for determining positions of genes in relation to each other & for mapping distances between genes giving examples. [15]
6. Describe the properties of F plasmid & F mediated transfer of other plasmids. [15]
7. Describe the various methods used to define promoter elements. [15]
8. Briefly explain the organization of replicon, & describe the different variations in the generalized model for DNA replication. [15]

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Code No: R09222303 **R09** **Set No. 4**

II B.Tech II Semester Examinations,April/May 2012
MOLECULAR BIOLOGY AND GENETICS
Bio-Technology

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. Discuss grafting experiment in Acetabularia & genetic basis of incompatibility in Mosquitoes. [15]
2. Write short notes on:
   (a) Significance & strength of linkage & crossing over.
   (b) Factors affecting linkage & crossing over. [8+7]
3. Write in detail specialized transduction mediated by phage lambda. [15]
4. Explain the phenocopy effect with the help of a suitable example how can you demonstrate that a phenocopy effect is not due to a gene mutation. [15]
5. (a) What are DNA topoisomerases what is the role of these enzyme in transcription?
   (b) How does transcription machinery shift from initiation to elongation mode? [8+7]
6. What is second genetic code? What role does second genetic code play in accurate translation of a transcript? [15]
7. Briefly describe the mode of origin of some allopolyploid crops. [15]
8. Describe the various methods used for detection of covalently closed circular DNA molecules. [15]

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Code No: R09222303 **R09** **Set No. 1**

II B.Tech II Semester Examinations,April/May 2012
MOLECULAR BIOLOGY AND GENETICS
Bio-Technology

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. What is the procedure for detection and estimation of linkage in a two point test cross and F2 progeny in a plant system? [15]
2. Describe the various classifications of mutations. [15]
3. Explain the properties of polymerases I & III. [15]
4. How is repressor synthesis established in lysogenic cycle. [15]
5. Comment on:
   (a) Spliceosome.
   (b) Autosplice. [8+7]
6. (a) What are unmixed & mixed families of codons?
   (b) Define the terms reading frames, universality of code, degenerate code & ambiguous code. [6+9]
7. (a) What do you understand by reverse genetics? How has reverse genetics been applied to mendel's wrinkled characters?
   (b) Describe cellular basis of mendel's first principle. [8+7]
8. Write in detail the organization of DNA in plastids. [15]

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Code No: R09222303 **R09** **Set No. 3**

II B.Tech II Semester Examinations,April/May 2012
MOLECULAR BIOLOGY AND GENETICS
Bio-Technology

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Write about the various forms of DNA.
   (b) Make a comparison between DNA & RNA. [9+6]
2. Describe the various classes of non mendelian inheritance. [15]
3. Write short notes on:
   (a) Properties of nonsense mutation.
   (b) Chain termination codon. [7+8]
4. Explain the primary & secondary structure of t RNA & its functions. [15]
5. Describe in detail natural transformation by plasmids & role of donor cell in transformation. [15]
6. (a) Discuss transformation experiment that proved DNA as genetic material.
   (b) Explain briefly about Blender experiment. [8+7]
7. Explain the two sorts of mutations that arise from chemical modification of nucleotide structure. [15]
8. Describe emerson's method, product ratio method for estimation of linkage in F2 plant population. [15]

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