

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

FIRST SEMESTER 2016-17

Advances in Recombinant DNA Technology (BIOG561)

Mid Semester Test (Close book)

Duration: 1.5 Hrs

M. Marks: 60

Date: 08. 10. 2016

- [Q.1] Enlist the factors imparting heterogeneity to eukaryotic genomes describing one of them in detail. [6]
- [Q.2] Describe how CsCl density gradient led to the identification of satellite DNA. [6]
- [Q.3] (a) How are cosmids different from plasmids and phage vectors? (b) In what manners are BACs and PACs advantageous with respect to cosmids? [6]
- [Q.4] What are the advantages of circular YACs over classical YACs? [6]
- [Q.5] What is C-value paradox? Elaborate with one example. [6]
- [Q.6] In what aspects are plastid and mitochondrial genomes different from each other? Give a brief outline of each these aspects. [6]
- [Q.7] What features of eukaryotic genes are recognized by *in silico* gene-prediction programs? Enlist the factors that limit the usefulness of these features? [6]
- [Q.8] Justify
- (1) DNA purified from the phagemids can be used directly for sequencing. [3]
- (2) In genes that are related by evolution the exons are of similar size although the genes themselves may differ greatly in length. [3]
- [Q.9] Write short notes (100 words) on [3x2=6]
- (1) The ars elements
- (2) TAR cloning
- (3) Pyrosequencing
- [Q.10] Differentiate between [3x2=6]
- (1) Orthologs and paralogs
- (2) Needleman–Wunsch and Smith–Waterman algorithms
- (3) SWISS-PROT vs TrEMBL
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