

SARDAR PATEL UNIVERSITY
BSc (VI Sem.) Examination
2013
Monday, 8th April
3 - 6 pm
US06CBCH01 - Molecular Biology II

Total Marks: 70

Note: Figures to the right indicate full marks.

- Q.1 Select proper option from following. [10]
- (1) In the trp operon leader peptide has _____ a.a.
 (a) 14 (b) 24 (c) 164 (d) 264
 - (2) _____ chromatin is transcriptionally active.
 (a) Heterochromatin (b) euchromatin
 (c) a and b both (d) none of these
 - (3) Which one of the following is Base analogus?
 (a) DMS (b) EMS (c) EES (d) 5BU
 - (4) As a result of DNA repair mechanism _____% of lesions in DNA must be repaired.
 (a) 79.9% (b) 89.9% (c) 99.9% (d) 100%
 - (5) _____ detergent which forms an insoluble complex with nucleic acids.
 (a) GTC (b) SDS (c) EDTA (d) CTAB
 - (6) Less than _____ kb plasmid is desirable for cloning vehicles.
 (a) 10 (b) 20 (c) 100 (d) 110
 - (7) _____ Genetically engineers plant cells for its own purposes.
 (a) YAC (b) BAC (c) PBR 322 (d) Ti Plasmid
 - (8) _____ Enzymes are Thermostable.
 (a) Taq DNA polymerase
 (b) DNA directed DNA polymerase
 (c) DNA directed RNA polymerase
 (d) Reverse Transcriptase
 - (9) _____ can be used as a genetic marker in much the same way as any other phenotypic marker.
 (a) RFLP (b) PCR (c) VNTR (d) STR
 - (10) _____ can help to detect HIV at very early stages.
 (a) RFLP (b) PCR (c) VNTR (d) STR

- Q.2 Answer in very short (**any ten**): [20]
- (1) Explain Housekeeping Gene with example.
 - (2) What do you know about an Operon?
 - (3) Define heterochromatin and euchromatin.
 - (4) What do you know about Hotspots?
 - (5) Define mutation and mutant.
 - (6) Explain in brief Deletion.
 - (7) Define Vector and Shuttle Vector.
 - (8) Write use of EtBr.
 - (9) What do you know about use of CTAB?

- (10) What is gene probe? Write its use.
- (11) Give reason: DNA finger printing is more reliable compared to Thumb Printing.
- (12) Give reason: PCR is also known as people's choice reaction.

Q.3 Explain in detail Lac operon. [10]

OR

Q.3 Write function of different genes of trp operon and explain Repressor mechanism of trp operon.

Q.4 Write short note on:

(a) Base analogus [05]

(b) Thymine dimer [05]

OR

Q.4 Explain:

(a) Mismatch Repair [05]

(b) Base Excision Repair [05]

Q.5 Explain in brief:

(a) Preparation of plasmid DNA [06]

(b) Ti Plasmid [04]

OR

Q.5 Write short note on:

(a) PBR 322 [05]

(b) Restriction Endonuclease [05]

Q.6 Explain in detail:

(a) DNA finger printing [05]

(b) Southern blotting [05]

OR

Q.6 Explain in detail:

(a) Gene library [05]

(b) Sanger and Coulson method for DNA sequencing [05]

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