P.Y-B.Sc (Biotech), Sem-I, Bot- Molecular Biology -II (Dec: 17)B1P-

QP Code:780601

(2½ Hours) [Total Marks : 75

N.B. : (1) Attempt all questions.
(2) **All** questions **carry equal** marks.
(3) Draw diagrams wherever **necessary.**

1. Do as directed:(Any **fifteen**) 15

(1) Name any one type of Transduction.
(2) One role of Reverse Transcriptase.
(3) One application of YAC as vector.
(4) What was the name coined by Griffith for genetic material?
(5) What is the full form of Hfr?
(6) Which is the marker gene present in pBR 322?
(7) Give one example of base modifying agent.
(8) State True or False. When purine pyrimidine base pair changes to another purine pyrimidine base pair it is called Transition Mutation.
(9) Fill in the blank. The name of the plasmid in *Saccharomyces cervisiae* is_____.
(10) In the _____model of replication, the progeny DNA has the parental and progeny DNA segments interspersed.
(11) The direction of synthesis of the new DNA chain is only from_____because of the properties of DNA polymerase.
(12) The removal of the RNA primer takes place by the _____activity of DNA polymerase I.
(13) In replication of DNA, the untwisting of the DNA strands is done by the enzyme_____.
(14) Supercoiled DNA is relaxed by the enzyme_____.
(15) The_____fragments on the lagging strand are joined by DNA polymerase I and DNA ligase.
(16) The stretch of DNA from the origin of replication to the two termini of replication on each side of the origin is called_____.
(17) _____enzyme is responsible for photoreactivation of DNA.
(18) Define Mutagen.
(19) Define Mutational Hotspots.
(20) Define Nonsense Mutation.

[Turn Over

2. (A) Explain in detail the Meselson and Stahl experiment. 8
(B) Elaborate on the enzymes involved in DNA replication in Prokaryotes. 7

OR

(C) Describe the initiation of DNA replication in Eukaryotes. 8
(D) What is Recombination? Explain the Holliday model of recombination. 7

3. (A) Define mutation and give its classification. 8
(B) Explain Base Excision Repair. 7

OR

(C) Explain Silent, Missense and Frame Shift Mutations. 8
(D) Discuss with examples the effect of any one physical mutagen on DNA. 7

4. (A) How would you use pUC ac a vector to introduce a gene of choice? 8
(B) Explain the isolation of plasmid DNA by a flow diagram. 7

OR

(C) Give an account on DNA ligase and terminal transferase. 8
(D) Give an account on Shuttle vectors. 7

5. Short notes: (Any **three**) 15
(a) SSB protiens.
(b) Bidirectional replication.
(c) Biological Mutagens.
(d) Photoreversal DNA Repair.
(e) Genetic Engineering in *E. coli*.
