AAH-003-001632 Seat No. _____

B. Sc. (CBCS) (Sem. VI) Examination

April / May – 2016

Microbiology : MB - 602

(Molecular Bio & Genetic Engg.) (New Course)

Faculty Code : 003
Subject Code : 001632

Time : **3** Hours] [Total Marks : **70**

Instructions : (1) There are two sections. Both are compulsory.

(2) Answers of Q.1 M.C.Q. are to written in main answer sheet only.

(3) Right side figures indicate marks of the questions.

SECTION - I

1 Multiple choice questions : **20**

(1) In chemical nature of Genetic Material was detected by

(A) Avery, Macleod & McCarty

(B) Harshey and Chase

(C) Frankel and Coural

(D) F. Gnffith

(2) Rephsome is an multienzyme complex made of

(A) DNA Polymerases (B) RNA Premase

(C) Helicases (D) All of above

(3) DNA premase enzyme helps in -

(A) To make short strads of RNA at side replication initiation

(B) Unwind double helical DNA

(C) Introduce nicks in supercoiled DNA to release tension

(D) To supply energy required for unwinding of DNA

(4) In _____ the sequence of bases in genome is not colinear to sequence of amino acid in protein.

(A) Prokaryotes (B) Eukaryotes

(C) Akaryotes (D) None of above

(5) Ara C protein acts as _____ in arabinose operon.

(A) Repressor (B) Activator

(C) Judicier (D) Both A & B

(6) Promoter in DNA helps to identify.

(A) Site of initiation of transcription

(B) Which DNA strand services as sense strand

(C) Both (A) & (B)

(D) None of above

(7) Rate of transcription is slower than replication.

(A) True

(B) False

(C) Can't say

(D) Depends on size of genome

(8) If percentage of Adenine in DNA is 22% what is percentage of cytosine ?

(A) 22% (B) 23%

(C) 17% (D 21%

(9) The repressor protein binds at

(A) Promotor (B) Operator

(C) Leader sequence (D) Structural gene.

(10) Transposons were first discovered in

(A) Bacteria (B) Animals

(C) Humans (D) Plants

(11) Transformation does not occur normally in

(A) E-coli (B) Bacillus

(C) Streptococuss (D) Salomonella

(12) _____ acts as initiator codon in absence of AUG.

(A) AUC (B) GUG

(C) CUC (D) CUG

(13) Synthesis of C-DNA is carried out by

(A) DNA polymerase I (B) RNA polymerase

(C) Reverse Transcriptase (D) All of above

(14) Gene therapy can be used for the treatment of

(A) Thalassemia (B) Sickle cell anemia

(C) Haemophilia (D) All of above

(15) The main source of ligase used in cloning is

(A) Bacliricophages (B) T_2 phage

(C) T_4 phage (D) Bacteria

(16) PBR322 has been constructed for naturally occurring plasmid.

(A) Col E_1 (B) F-plasmid

(C) R-plasmid (D) None of above

(17) The most powerful method of introducing point mutation is

(A) U.V. rays

(B) Insertion

(C) Deletion

(D) Oligonucleotide directed mutagenesis

(18) Which of following protein plays an important role in repair mechanism.

(A) Rec A (B) Rec B

(C) Rec C (D) Rec D

(19) U.V. rays of _____ wavelength are absorbed by pyrimidines.

(A) $2650^{\circ} A$ (B) $2560^{\circ} A$

(C) $150^{\circ} A$ (D) $3900^{\circ} A$

(20) First amino acid incorporated during translation in prokaryotes is

(A) Methionie (B) Formyl methionine

(C) Valine (D) Glyeine

SECTION - II

2 (a) Answer specifically (Any 3 out of 6) : **06**

(1) Define overlapping and nested genes.

(2) What is RNA primer ?

(3) Define : Complementation test.

(4) Define : Translocation.

(5) What is Catabolite Repression ?

(6) What is Wobble pairing ?

(b) Answer in short : (Any 3 out of 6) **09**

(1) What is difference between Test cross and Back cross ?

(2) Enlist the various properties of Genetic Material.

(3) Give structure and function of RNA polymerase enzyme.

(4) Give the role of t-RNA in translation.

(5) What is role of mesosomes in transformation ?

(6) What is Abortive Transduction ?

(c) Short notes on : (2 out of 5) **10**

(1) Replication of single standard DNA.

(2) Proof - "DNA replicates semiconservatively".

(3) Tryptophan operon.

(4) Post - transcriptional control.

(5) Discovery of conjugation.

3 (a) Answer specifically (Any 3 our of 6) : **06**

(1) Define : Illegitiamate recombination.

(2) Define : Simple and Complex Transposons.

(3) What is Photoreactivation ?

(4) What are Auxotrophs ?

(5) What are molecular chaperons ?

(6) What are Restriction Endonucleases. Give egs.

(b) Answer in short : (Any 3 out of 6) **09**

(1) What is Base Analogue ? How it brings about change in DNA ?

(2) What is Ames Test ? Give its significance.

(3) What is Fluctuation analysis ?

(4) What are the advantages of using yeast in gene cloning ?

(5) Define & explain : Site directed Mutageneses.

(6) What are limitations of bacteria in gene cloning ?

(c) Short notes on : (2 out of 5) **10**

(1) Homologus recombination.

(2) SOS repair mechanism.

(3) Spontaneous mutagenesis.

(4) Applications of Genetic Engineering.

(5) Plasmids as cloning vectors.