PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Fourth Semester)

Branch – **BIOTECHNOLOGY**

RECOMIBINANT DNA TECHNOLOGY

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 x 1 = 10)

1 Single stranded unpaired extensions formed by restriction enzyme upon cleavage is called as
(i) Blunt ends (ii) Flush ends
(iii) sticky ends (iv) none of these

2 Which of the following ions are required for the activity of Type II restriction enzymes
(i) Ca2+ (ii) Mg2+
(iii) Cl2- (iv) Mn2+

3 The first engineered plasmid vector is
(i) pBR 322 (ii) pUC vectors
(iii) pUC101 (iv) pUC19

4 Vectors designed to replicate in cells of two different species are called
(i) Phasmids (ii) transfer vectors
(iii) shuttle vectors (iv) phagemids

5 Plasmids which are maintained as multiple copy number per cell are known as
(i) Stringent plasmids (ii) relaxed plasmids
(iii) cryptic plasmids (iv) none of these

6 Cosmid vectors are
(i) plasmids that contain fragment of lambda DNA including the cos site
(ii) Phages that lack cos site
(iii) Plasmids that have no selection marker
(iv) cryptic plasmids

7 PCR is used in
(i) site specific recombination (ii) site directed mutagenesis
(iii) both (i) and (ii) (iv) site specific translocation

8 Pfu and Vent polymerase are more efficient tan Taq polymerase because
(i) of more efficient polymerase activity (ii) of proof reading activity
(iii) both (i) and (ii) (iv) none of these

9 Which of the following properties is improved by site directed mutagenesis?
(i) Physical property (ii) Chemical property
(iii) kinetic property (iv) integrity

10 Which phage is used in oligonucleotide directed mutagenesis?
(i) M13 (ii) Cosmid
(iii) Phagemid (iv) Lambda Phage

Cont...

SECTION - B (25 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 5 = 25)

11 a Write a short notes on DNA methyltransferase.

OR

b Describe about End modifications process

12 a Brief about lambda phage cloning vector.

OR

b What are the criteria of an ideal vector?

13 a Elaborate on bacterial expression system.

OR

b How the recombinants can be selected by blue white screening?

14 a Write about Maxum – Gilbert method of DNA sequencing.

OR

b Discuss about RT – PCR.

15 a Explain about site directed mutagenesis.

OR

b Elaborate on site specific mutagenesis.

SECTION -C (40 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 8 = 40)

16 a Elucidate the origin and types of restriction enzymes.

OR

b How the genes can be cloned in recombinant DNA technology.

17 a With a neat diagram explain the cloning vectors.

OR

b Write in detail about the types of vectors.

18 a Distinguish between genomic library and cDNA libraray.

OR

b Explain in detail about invitropackaging.

19 a Illustrate the methods of nucleic acid sequencing.

OR

b Describe in detail about the applications of PCR.

20 a Describe about PCR based mutagenesis.

OR

b Explain the process of production of glucagon through recombinant DNA technology.

Z-Z-Z END