

**Avinashilingam Institute for Home Science and Higher Education for Women  
Coimbatore – 641 043**

**Master's Degree Examination – November 2017**

**III-Semester**

**Class : II PG  
Major : Biochemistry**

**Max. Marks: 60  
Time: 3 hours**

**12MBCC16 GENETIC ENGINEERING**

**Part A**

**(10x1/2= 5)**

**Choose the correct answer**

- DNA staining is done by  
a) Crystal violet b) EtBr c) Giemsa staining d) methylene blue
- Which of the following is not a Restriction endonuclease ?  
a) EcoR1 b) Hind III c) Bam HI d) DNA ligase
- Telomeric sequences are found in  
a) HAC b) BAC c) YAC d) PAC
- The fragment inserted in the place of the central portion of  $\lambda$  genome is known as  
a) Insertion fragment b) Substitution fragment c) Stuffer fragment  
d) Displacement fragment
- Introduction of r DNA into bacterial cell by using current is known as  
a) Transformation b) Electroporation c) transduction d) Transfection
- Which one of the following gene is involved in the transfer of plasmid from one bacterium to another during conjugation?  
a) Tra gene b) occ gene c) noc gene d) nos gene
- The technique of DNA finger printing was introduced by  
a) Alec Jeffrey b) Alfred Sanger c) Maxum and Gilbert d) Kary Mullis
- Tag polymerase is used in PCR because of its  
a) Low thermal stain b) High fidelity c) high speed d) high thermal stability
- The treatment of genetic diseases by introducing a remedial gene that prevents the expression of specific defective gene is known as  
a) Embryo therapy b) antisense therapy c) In vitro therapy d) Ex vivo therapy
- First genetically modified organism generated was  
a) Fish b) bacteria c) mice d) virus

**Part B**

**(5 x 4 = 20)**

**Answer ALL questions**

**Answer should not exceed 200 words or one page**

11. a) Explain the methods of labelling DNA?  
(Or)  
b) What are the steps in gene cloning ?.
12. a) Sketch a PUC<sup>8</sup> vector and explain.  
(Or)  
b) Add a note on SV 40.
13. a) Explain liposome fusion.  
(Or)  
b) How is microinjection performed? Write its limitations.
14. a) How is c DNA library constructed?  
(Or)  
b) How is DNA sequenced by Sanger's method?
15. a) Explain the Ex vivo gene therapy  
(Or)  
b) Discuss the applications of genetic engineering in medicine.

**Part C**

**(5 x 7 = 35)**

**Answer ALL questions**

**Answer should not exceed 600 words or three pages**

16. a) Explain the DNA manipulate enzymes.  
(Or)  
b) What are plasmids? How are they isolated and purified?.
17. a) Describe the structure and advantages of YAC.  
(Or)  
b) How can  $\lambda$  phage DNA act as a vector?.
18. a) Explain genetic engineering through Agrobacterium Tumefaciens.  
(Or)  
b) Explain the procedures for patenting.
19. a) Explain the techniques and applications of PCR.  
(Or)  
b) How is southern blotting performed? Write its applications.
20. a) Discuss the applications of genetic engineering in agriculture.  
(Or)  
b) Describe the methods of gene therapy.

\*\*\*\*\*