



Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination – January 2021
V Semester

Class : III UG
Major : Biochemistry and Biotechnology

Time : 3 Hours
Max. Marks : 100

18BBTC12 rDNA and Nanobiotechnology

PART A
Choose the Correct Answer

10 x 1 = 10

- Molecular Scissors are also known as _____ enzymes
a. restriction
b. biozymes
c. subzymes
d. codon
- EcoR1 belongs to _____ restriction enzyme.
a. Type II
b. Type I
c. Type III
d. Type IV
- Torsion strain on DNA is released by _____
a. ligase
b. Topoisomerase
c. helicase
d. zymase
- YAC is a _____ plasmid.
a. circular
b. thick
c. delicate
d. bipolar
- _____ technique uses nucleic acid-coated particles propelled by a gene gun to transfect cells or organelles
a. Biolistics
b. gun spot
c. liposome
d. Neurosome
- _____ is a type of hybrid plasmid that contains a Lambda phage cos sequence.
a. phagemid
b. phagesage
c. lipophage
d. cosmid
- _____ is an example of herbicide tolerant plant.
a. Brinjal
b. soybeans
c. cucumber
d. papaya
- _____ is not used as viral vector
a. adenovirus
b. poxvirus
c. lentivirus
d. coronavirus
- The width of Carbon nanotube is _____ nm
a. 1
b. 1.3
c. 2.5
d. 10
- 1 meter = _____ nm.
a. $10^{(9)}$
b. $10^{(-9)}$
c. $10^{(10)}$
d. $10^{(-10)}$

Part B

5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

11. a. State the basic principles of rDNA technology.
(or)
11. b. Illustrate the pBR322 vector and explain the characteristics.
12. a. What are expression vectors. Elaborate with an example.
(or)
12. b. Explain any 2 gene transfer methods.
13. a. What is the theory of screening for recombinant cells.
(or)
13. b. Enumerate the construction of cDNA library.
14. a. What is the difference between cDNA and genomic library?
(or)
14. b. Give the basic concept of fusion proteins.
15. a. Write a note on patenting issues.
(or)
15. b. Report your understanding on nanobiotechnology.

Part C

5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

16. a. Elaborate on the type II restriction endonucleases.
(or)
16. b. Give an account on high capacity cloning vectors .
17. a. Summarize the different immunological screening methods.
(or)
17. b. Report on the different types of transformation techniques.
18. a. Highlight on expression of eukaryotic genes in bacteria.
(or)
18. b. Discuss the various blotting techniques.
19. a. Enumerate the findings of human genome project.
(or)
19. b. Discuss the importance of biosafety and bioethics.
20. a. Highlight on health and safety issues concerned with nano manufacturing.
(or)
20. b. Explain the bacterial cellulose and its polymeric nano composites.
