



**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

**Master's Degree Examination – June 2021**  
**IV Semester**

**Class : II M.Sc.**  
**Major : Biotechnology**

**Time: 3 Hours**  
**Max. Marks: 100**

**17MBTC22 Food Biotechnology and Nanobiotechnology**

**PART A**  
**Choose the Correct Answer**

**10 x 1 = 10**

1. What are man-made nanoscale crystals that can transport electrons? CO1K1  
a. Quantum dots    b. Nanobots    c. Nanoparticles    d. nanovesicles
2. Which of the following is incorrect about a microarray? CO1K2  
a. It is a slide attached with a high-density array of immobilized DNA oligomers representing the entire genome of the species under study.  
b. Array of immobilized DNA oligomers cannot be cDNAs  
c. Each oligomer is spotted on the slide and serves as a probe for binding to a unique complementary cDNA  
d. It is the most commonly used global gene expression profiling method
3. Measuring zeta potential is useful in determining which property of a liquid formulation? CO1K2  
a. Viscosity    b. Solubility    c. Stability    d. Particle size
4. XPS stands for CO2K4  
a. X-Ray Protein Spectroscopy    b. X-Ray Peptide Spectroscopy  
c. X-Ray Peptone Spectroscopy    d. X-Ray Photoelectron Spectroscopy
5. The extensively used nano particles as catalyst is \_\_\_\_\_ CO2K3  
a. Silver    b. Copper    c. Gold    d. Cerium
6. Which is a branch of nanoscience studying fundamental mechanical properties of physical systems at the nanometer scale CO2K2  
a. Molecular nanomechanics    b. Molecular dynamics  
c. Nanobiology    d. Nanobiotechnology
7. Sauerkraut is \_\_\_\_\_ CO2K3  
a. A cauliflower    b. A potato    c. A cabbage    d. A tomato
8. Streptomycin is produced by which of the following organisms? CO1K5  
a. *Streptomyces noursei*    b. *Streptomyces nodosus*  
c. *Streptomyces fradiae*    d. *Streptomyces griseus*
9. Which of these secondary metabolites is useful for human welfare? CO1K4  
a. Curcumin    b. Abrin    c. Ricin    d. Gums
10. Which government body regulates the food industry? CO1K2  
a. Food and Drug Administration    b. Department of Agriculture  
c. Urban Food Supply Board    d. Bureau of Food Standards

**Part B**  
**Answer ALL questions**  
**Each answer should not exceed 400 words or two pages**

**5 x 6 = 30**

- 11.a. Compare the 'Top-down' and 'bottom-up' approach for nanomaterial synthesis. CO1K4  
(or)
- 11.b. Explain in detail about Carbon nanotubes. CO1K1
- 12.a. Describe the principle and working of SEM. CO2K2  
(or)
- 12.b. Breakdown the applications of nanotechnology in textile industry. CO2K3
- 13.a. Illustrate the functioning of Nanosensors. CO1K3  
(or)
- 13.b. Explain nanodrugs with examples. CO2K4
- 14.a. Appraise the principles of food fermentation. CO1K5  
(or)
- 14.b. Differentiate Food spoilage and food preservation. CO1K4
- 15.a. Summarize the production of alcohols and alcoholic beverages. CO1K6  
(or)
- 15.b. Review the production of the antibiotic Streptomycin. CO1K5

**Part C**  
**Answer ALL questions**  
**Each answer should not exceed 800 words or four pages**

**5 x 12 = 60**

- 16.a. Point out the different DNA based nanostructures with examples. CO1K1  
(or)
- 16.b. Define DNA oligomers and discuss the use of DNA molecules in nanomechanics. CO1K3
- 17.a. Describe in detail about the principle and working of MALDI-TOF. CO1K4  
(or)
- 17.b. Demonstrate the principle, working and applications of TEM with a neat sketch. CO2K3
- 18.a. Outline the applications of nanotechnology in diagnostics and therapeutics. CO2K5  
(or)
- 18.b. Appraise the current status of nanobiotechnology highlighting the future perspectives of nanobiotechnology. CO1K4
- 19.a. Illustrate the application of enzymes in food industry with suitable examples. CO1K3  
(or)
- 19.b. List out the different regulatory aspects of modern biological methods in food industry. CO1K5
- 20.a. List the different steps involved in Penicillin production. CO2K6  
(or)
- 20.b. Appraise the production process of secondary metabolites with illustrations. CO2K6

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