



**Progressive Education Society's**  
**Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16**  
**(Autonomous)**  
**End Semester Examination: OCT/NOV 2024**  
**Faculty: Science and Technology**

**Program: B. Sc. Biotech (04)**  
**Program (Specific): Biotechnology**  
**Class: T. Y. B. Sc.**  
**Name of the Course: Applied Biotechnology**  
**Course Code: 24 BBT 505**

**Semester: V**

**SET: A**  
**Course Type: Core**  
**Max. Marks: 35**  
  
**Time: 2 Hr**

**Instructions to the candidate:**

- 1. There are 4 sections in the question paper. Write each section on separate page.*
- 2. All Sections are compulsory.*
- 3. Figures to the right indicate full marks.*
- 4. Draw a well labelled diagram wherever necessary.*

**SECTION: A**

**Q1) Answer any Five of the following (Attempt any 5/6)**

**5**

1. What is top-down approach of nanoparticle synthesis?
2. Define: Composting.
3. Enlist any two applications of barophilic organisms.
4. What are the common agro residues used for biomass briquetting?
5. What are DNA reporters?
6. Give two applications of chitosan.

**SECTION: B**

**Q2) Answer any FIVE of the following (Attempt any 5/6)**

**10**

1. Why molecular diagnostics is significant in modern medicine?
2. Differentiate between open and closed photo-bioreactors used for microalgae production.
3. What is nanomedicine? State its importance.
4. What are different methods used for compost application.
5. State the factors which influence the vermicomposting process.
6. UV-VIS spectrophotometer is used for characterization of nanoparticles. Justify.

### **SECTION: C**

**Q3) Answer TWO of the following (Attempt any 2/4)**

**8**

1. Discuss the role of DNA-based probes in detecting specific pathogens.
2. What is biomass briquetting, and how does it contribute to waste management and energy production?
3. Discuss with suitable example use of marine proteins and lipids in the development of pharmaceutical products?
4. Write a short note on- Applications of nanomaterial in drug delivery.

### **SECTION: D**

**Q4) Answer the TWO of the following (Attempt any 2/4)**

**12**

1. Discuss the different types of biomarkers (e.g., genetic, protein, metabolite) and their applications in diagnostics.
2. With the help of diagram summarize on open and closed photobioreactors for production of microalgae.
3. Give an overview on principles of nanoparticles synthesis using living organisms.
4. Explain in detail the process of vermicomposting.