

KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(6 Pages)

Reg. No:

Question Code No: 25001604

Course Code: 25PEMB14

PG Degree - End Semester Examinations, November 2025

First Semester

M.Sc. MICROBIOLOGY

Herbal Technology and Cosmetic Microbiology

(For those who joined in July 2025 onwards)

Time: 3Hours

Maximum: 75 Marks

PART- A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer:

1. The Siddha system of medicine primarily originated in _____.
(a) Kerala (b) Tamil Nadu
(c) Maharashtra (d) Bengal
2. In Unani medicine, health is maintained by balancing _____.
(a) Doshas (b) Humours (Akhlat)

- (c) Chakras (d) Prana
3. Which plant is commonly known as Indian Gooseberry and is widely used for its antioxidant properties?
- (a) *Phyllanthus amarus* (b) *Emblica officinalis*
(c) *Tinospora cordifolia* (d) *Andrographis paniculata*
4. The hot method of extraction of medicinal plants is generally carried out using _____.
- (a) Maceration (b) Decoction
(c) Cold percolation (d) Refrigeration
5. The lowest concentration of a plant extract that inhibits visible microbial growth is called _____.
- (a) MBC (b) IC50
(c) MIC (d) LD50
6. Which of the following compounds in *Ocimum sanctum* contributes to its antiviral activity?
- (a) Curcumin (b) Eugenol
(c) Piperine (d) Allicin
7. Which microorganism is most commonly associated with spoilage of cosmetic products?
- (a) *Saccharomyces cerevisiae* (b) *Pseudomonas aeruginosa*

(c) *Escherichia coli*

(d) *Clostridium
botulinum*

8. In cosmetic microbiology, HACCP protocols are applied mainly to _____.
- (a) Enhance fragrance stability (b) Improve packaging design
- (c) Monitor microbial hazards during production (d) Increase product viscosity
9. Bioburden testing in cosmetic microbiology is used to _____.
- (a) Measure the load of microorganisms present before sterilization
- (b) Test viscosity of creams
- (c) Estimate heavy metal levels
- (d) Detect fragrance adulteration
10. Which preservative is most widely used in cosmetics for broad-spectrum antimicrobial activity?
- (a) Sodium chloride (b) Citric acid
- (c) Sodium bicarbonate (d) Parabens

PART - B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

11. (a) Name and explain any two Indian medicinal plants used to treat bacterial infections.

(OR)

- (b) Write the basic principle of Homeopathy.

12. (a) Mention the medicinal uses of *Tinospora cordifolia*.

(OR)

- (b) Differentiate between hot and cold methods of extraction.

13. (a) State the mechanism of antiviral activity of *Ocimum sanctum*.

(OR)

- (b) Discuss the antifungal activities of *Azadirachta indica*.

14. (a) Explain the role of microbes in cosmetic preparation.

(OR)

- (b) Write a note on the antimicrobial properties of any two natural cosmetic ingredients- Neem and Turmeric.

15. (a) What is antimicrobial preservative efficacy testing in cosmetics?

(OR)

- (b) Give examples of commonly used preservatives in cosmetics.

PART - C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 600 words.

16. (a) Write a brief note on Siddha and Unani systems of medicine.

(OR)

- (b) Explain the role of Ayurveda in treating diseases and its basic principles.

17. (a) Describe the collection, authentication and preparation of extracts of *Piper longum* Indian medicinal plant.

(OR)

- (b) Write an account on the medicinal importance of the following plants: *Ocimum sanctum*, *Azadirachta indica* and *Allium sativum*.

18. (a) Discuss the significance of studying antimicrobial activity of Indian medicinal plants in the present scenario.

(OR)

(b) Describe the procedure and applications of microdilution MIC method in testing medicinal plant extracts.

19. (a) What is HACCP and its significance in cosmetic microbiology?

(OR)

(b) Discuss the history and scope of cosmetic microbiology.

20. (a) What is the purpose of biological toxicological testing in cosmetics?

(OR)

(b) Explain validation methods in cosmetic microbiology with reference to bioburden and pharmacopeia microbial assays.