

KAMARAJ COLLEGE (Autonomous)

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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(6 Pages)

Reg. No:

Question Code No : 25001615

Course Code: 24PEMB14

PG Degree - End Semester Examinations, November 2025

First Semester

M.Sc. MICROBIOLOGY

Herbal Technology and Cosmetic Microbiology

(For those who joined in July 2024 onwards)

Time : 3 Hours

Maximum : 75 Marks

PART - A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer:

1. Which Indian medicinal plant is known for its antiviral properties?
(a) *Terminalia chebula* (b) *Allium sativum*
(c) *Ocimum sanctum* (d) *Piper longum*
2. Which system of medicine is primarily based on the concept of Tridosha?

- (a) Unani (b) Homeopathy
(c) Siddha (d) Ayurveda
3. Which method involves heating the plant material with solvent for extraction?
(a) Cold percolation (b) Soxhlet extraction
(c) Maceration (d) Infusion
4. Which plant is commonly called Indian Gooseberry?
(a) *Withania somnifera* (b) *Emblica officinalis*
(c) *Phyllanthus amarus* (d) *Azadirachta indica*
5. Which technique is commonly used to determine the Minimum Inhibitory Concentration (MIC)?
(a) Agar well diffusion (b) Pour plate method
(c) Macro and micro dilution (d) Spread plate method methods
6. Which type of effect is used to measure antiviral activity in cell lines?
(a) Cytotoxic effect (b) Cytopathic effect
(c) Osmotic effect (d) Thermal effect
7. Which microorganism is most commonly associated with contamination of cosmetic products?
(a) *Lactobacillus acidophilus* (b) *Bacillus subtilis*

(c) *Pseudomonas aeruginosa* (d) *Escherichia coli*

8. Which natural product is widely used for its antimicrobial property in cosmetics?

(a) Aloe vera (b) Turmeric

(c) Honey (d) Tulsi

9. Which test evaluates the ability of a cosmetic preservative to inhibit microbial growth over time?

(a) Preservative efficacy test (b) Bioburden test

(c) Cytotoxicity test (d) Endotoxin test

10. Pharmacopeial microbial assays are mainly used to

(a) Determine microbial load and safety (b) Measure antiviral activity

(c) Test solubility of cosmetic ingredients (d) Identify heavy metals in products

PART - B (5 X 5 = 25 Marks)

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

Answer should not exceed 250 words.

11. (a) Compare the principles of Ayurveda and Siddha systems of medicine.

(OR)

(b) Explain the scope of Indian medicinal plants in treating microbial infections.

12. (a) Mention the medicinal properties of *Emblica officinalis*.

(OR)

(b) Differentiate between hot and cold extraction methods for herbal bioactives.

13. (a) Write a short note on well-diffusion method for testing antibacterial activity.

(OR)

(b) Explain the principle of MIC determination using dilution techniques.

14. (a) Mention the role of microorganisms in cosmetic preparations with examples.

(OR)

(b) What are HACCP protocols and their relevance in cosmetic microbiology?

15. (a) Describe the steps involved in microbial content testing of cosmetic products.

(OR)

(b) Write a note on bioburden testing and its significance.

PART - C (5 X 8 = 40 Marks)

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

Answer should not exceed 600 words.

16. (a) Explain in detail the principles and practices of Ayurveda, Siddha, Unani and Homeopathy.

(OR)

(b) Discuss the applications of Indian medicinal plants in treating bacterial, fungal and viral diseases.

17. (a) Describe the collection, authentication and storage of selected Indian medicinal plants.

(OR)

(b) Essay the clinical significance of *Piper longum* and *Allium sativum* in medicinal plants.

18. (a) Discuss the methods for evaluating antimicrobial activity of medicinal plants including MIC determination.

(OR)

(b) Explain the procedure for in vitro antiviral activity testing using cell lines.

19. (a) Discuss the history, scope and need for cosmetic microbiology.

(OR)

(b) Explain the antimicrobial properties of natural cosmetic products like garlic, neem, turmeric, aloe vera and tulsi.

20. (a) Explain in detail the methods of preservative efficacy testing and microbial content testing in cosmetics.

(OR)

(b) Discuss the global regulatory and toxicological aspects of cosmetic preservatives.