

## Question Bank

### SUBJECT: INDUSTRIAL PHARMACOGNOSY (RS4)

#### Chapter 1: Introduction

Short Essay- 5M

1. Give the importance and status of herbal drugs in national and international market
2. Give a brief account on plant based industries and research institutions in India
3. Explain the status and scope of herbal drugs and herbal industries.

#### Chapter 2: Phytopharmaceuticals

Long Essay- 10 M

1. What are phytopharmaceuticals? Explain the method of isolation, identification and estimation of Quinine and Diosgenin
2. Give the structure of sennosides and solasodine. Explain the method of isolation, identification and estimation of Ca-sennosides and Solasodine
3. Give the structure of caffeine and andrographolide. Explain the method of isolation, identification and estimation of Caffeine and Andrographolides
4. Explain the method of isolation, identification and estimation of Glycyrrhizin and Podophyllotoxin
5. What are phytopharmaceuticals? Explain the method of isolation, identification and estimation of Hesperidin and Curcumin
6. Explain the method of isolation, identification and estimation of Ca-Sennosides and Hesperidin
7. Explain the method of isolation, identification and estimation of Quinine and Andrographolides
8. Explain the method of isolation, identification and estimation of Caffeine and Podophyllotoxin
9. Explain the method of isolation, identification and estimation of Solasodine and Curcumin
10. Explain the method of isolation, identification and estimation of Glycyrrhizin and Diosgenin

### Chapter 3: Quality Control and Standardization of Herbal Drugs

Long Essay- 10 M

1. Explain the need for quality control of raw materials and extracts. Describe WHO guidelines for quality control of Herbal drugs
2. What are Marker compound analysis and Chromatographic finger printing? Explain their role in evaluation and standardization
3. What is a 'Monograph'? List out the parameters of herbal monograph and explain their significance in detail.
4. Describe the importance of standardization of raw materials, extracts and formulations with examples
5. Explain the importance of HPTLC & HPLC in evaluation and standardization of herbal drugs. Describe the monographic analysis of Ashwagandha.
6. Explain the monographic analysis of Vasaka and Guduchi.
7. Explain the monographic analysis of Ashwagandha and Guggulipid.
8. Explain the monographic analysis of Vasaka and Ashwagandha.
9. Explain the monographic analysis of Gokhru and Guduchi.
10. What are the objectives WHO guidelines for quality control of herbs? Explain the procedure and significance of determination of tannin content and mucilage content.
11. What are marker compounds? Give their importance with examples. Explain the HPLC and HPTLC methods for analysis for vasicine. Add a note on chromatographic fingerprinting.
12. What is chromatographic fingerprinting? How is it useful in evaluation and standardization of herbal drugs? Explain with examples. Add a note on HPLC and HPTLC assay of Ashwagandha.

Short answers 2M

1. Define: standardization
2. Explain the term 'quality control of herbal drug'.
3. What is authentication of herbal drugs.
4. Define: Marker compounds Give one example.
5. Explain the term chromatographic fingerprinting
6. Give the significance of estimation of microbial content in herbal drugs.
7. Give the significance of estimation of pesticide content in herbal drugs.
8. Give the applications of HPLC in herbal drug analysis.
9. Give the applications of HPTLC in herbal drug analysis.
10. What is chemomicroscopy?
11. Give the significance of estimation of heavy metal content in herbal drugs

## **Chapter 4: Herbal Cosmetics and Nutraceuticals**

Short Essay- 5M

1. Define and classify Nutraceuticals with examples. Give the source and uses of Spirulina
2. What are Nutraceuticals? Give their importance. Give examples of anti-oxidants used as Nutraceuticals
3. What are Nutraceuticals? Give examples of herbs used as Nutraceuticals. Write the source and uses of Garlic
4. Explain the role of herbs in cosmetics with examples
5. Name the herbs used in skin care preparations. Give the source, uses and significance of Curcuma in skin care preparations.
6. Name the herbs used in skin care preparations. Give the source, uses and significance of Aloe vera and Neem in skin care preparations.
7. Name the herbs used in skin care preparations. Give the source, uses and significance of Saffron and Sandalwood in skin care preparations.
8. What are Hair care preparations? Explain the role of herbs in hair care preparations with examples.
9. Give the source of Soapnut, Amla and Henna. Give the significance of their usage in hair care preparations
10. Give the source of Saffron, hibiscus and Bringaraj. Explain their role in cosmetics.

## **Chapter 5: Natural sweeteners and bitters**

Short Answers- 2M

1. Name any two natural sweeteners and bitters
2. Give source and active constituents of two sweeteners.
3. What are bitters? Give two examples
4. Give the significance of natural bitters and sweeteners

## **Chapter 6: Patenting and Regulatory requirements of natural products**

Short Essay- 5M

1. Define Patent & IPR. Explain the patenting aspects of traditional knowledge and natural products
2. What are the advantages of patenting natural products? Explain with examples.
3. Define Farmers and Breeders rights. Explain the WHO guidelines for regulation of herbal medicine.

4. Explain the term 'Bioprospecting' and 'Biopiracy'. Give the advantages of patenting of herbal drugs
5. Discuss the case study of Neem and Curcuma in patenting.
6. What is herbal patenting? Explain its importance

## **Chapter 7: Plant Biotechnology**

### **Short Essay- 5M**

1. Explain the occurrence of Chemodemes in medicinal plants with examples
2. Define Polyploidy. Describe the technique and its applications in improving the quality of medicinal plants with examples
3. What is hybridization? Describe the technique and explain its significance in improving the quality of medicinal plants
4. Explain the techniques of plant tissue culture in detail
5. List out different types of plant tissue culture techniques and discuss the applications of plant tissue culture.
6. How is tissue culture useful as a source of secondary metabolite production? Explain the strategies to improve the production.
7. Explain the various factors affecting the production of secondary metabolites in plant tissue culture.
8. Write a brief note on production of Secondary metabolites from tissue culture
9. What are Transgenic plants? Write a note on their applications with examples.
10. What is plant tissue culture? Explain the technique and give its uses.

### **Short Answers- 2M**

1. Define the terms: Callus & Suspension culture
2. What are Chemodemes?
3. Define Polyploidy and give methods to induce polyploidy
4. Define: Explant. How do you sterilize the explants
5. Explain the term 'Totipotency'.
6. Give applications of tissue culture
7. Define Chemostat & Turbidostat
8. What are Transgenic plants? Give examples
9. What are artificial seeds?
10. Name the growth measurement methods in tissue culture
11. What are elicitors? Give examples
12. Give the uses of hybridization
13. What are edible vaccines?

14. Name some precursors in enhancing the production of secondary metabolites
15. Define plant biotechnology
16. Give the methods of improving the quality of medicinal plants.
17. Mention various types of tissue culture techniques.
18. Name the macro and micronutrients in M.S medium
19. Give the differences between callus and suspension cultures.
20. Give the advantages of tissue culture over cultivation methods.
21. Give the applications of the suspension cultures
22. Give the importance of polyploidy in improving quality of medicinal plants.
23. Give the importance of hybridization in improving quality of medicinal plants.
24. Give the importance of Transgenic plants
25. Give the importance of chemodemes in improving the quality of medicinal plants.

## Chapter 8: Enzyme Biotechnology

### Short Essay- 5M

1. What is immobilization? Describe the different techniques for Immobilization of enzymes.
2. What is immobilization? Give its applications and explain the adsorption and entrapment methods of immobilization
3. Define immobilization. Give the advantages of immobilization and list out the different methods
4. Write a brief note on biotransformation using plant cell cultures and enzymes.
5. Write the source, isolation & uses of Papain
6. Write the source, isolation & uses of Bromelain.
7. Classify the different methods of immobilization with their advantages and disadvantages. Explain the encapsulation technique.

### Short Answers- 2M

1. Name some polymers used in immobilization
2. Give the advantages of Immobilized enzymes.
3. Give the source & uses of Papain
4. Give the source & uses of Bromelin
5. What are biosensors?
6. Give the method for isolation of Papain.
7. Give the method for isolation of Bromelain.
8. Give uses of Papain and Bromelain.

## Chapter 9: Complementary and Alternative medicine

### Short Essay- 5M

1. Define the complementary and alternative systems of medicine with examples. Write a brief note on Unani system of medicine
2. Name the various dosage forms of Ayurveda and explain the preparation of Taila
3. Define Ayurveda, Siddha, Unani and Homeopathy systems of medicine. Explain how they are different from allopathic system of medicine
4. Explain the principle, diagnosis and methods of treatment in Ayurveda system of medicine
5. Explain the principles of Ayurveda, Siddha and Unani systems of medicine
6. Explain the principles and methods of treatments in Unani & Homeopathy systems of medicine.
7. Describe the method of preparation of Aristas & Asavas
8. Explain the methods for determination of alcohol content in Aristas & Asavas
9. Describe the methods of preparation of Bhasma and Churna
10. Describe the methods of preparation of Leha and Ghutika
11. Describe the method of preparation of Taila and Churna.
12. What are traditional formulations? Explain the preparation of Asava and Churna.
13. What are traditional formulations? Explain the preparation of Bhasma and Gutika.
14. Explain the principles of Ayurveda, Homeopathy and Unani systems of medicine.

### Short Answers- 2M

1. Define Churna.
2. Define Ghutika
3. Define Taila
4. Define Leha
5. Define Bhasma
6. Define Aristas & Asavas
7. Give the differences between Ayurveda & Siddha
8. What is Homeopathy?
9. Why is alcohol estimated in Aristas .
10. Give the differences between Asavas and Aristas.
11. Give the principle of Unani system

## Chapter 10: Study of some Traditional drugs

Short Answers- 2M

1. Give the source and uses of Acorus
2. Give the source and uses of Apamarg
3. Give the source and uses of Bael
4. Give the source and uses of Brahmi
5. Give the source and uses of Chirata
6. Give the source and uses of Coleus
7. Give the source and uses of Gudmar
8. Give the source and uses of Kantakari
9. Give the source and uses of Methi
10. Give the source and uses of Pippali
11. Give the source and uses of Punarnava
12. Give the source and uses of Rasna
13. Give the source and uses of Shatavari
14. Give the source and uses of Shankapushpi
15. Give the source and uses of Shilajit
16. Give the active constituents and uses of Acorus
17. Give the active constituents and uses of Apamarg
18. Give the active constituents and uses of Bael
19. Give the active constituents and uses of Brahmi
20. Give the active constituents and uses of Chirata
21. Give the active constituents and uses of Coleus
22. Give the active constituents and uses of Gudmar
23. Give the active constituents and uses of Kantakari
24. Give the active constituents and uses of Methi
25. Give the active constituents and uses of Pippali
26. Give the active constituents and uses of Punarnava
27. Give the active constituents and uses of Rasna
28. Give the active constituents and uses of Shatavari
29. Give the active constituents and uses of Shankapushpi
30. Give the active constituents and uses of Shilajit
31. Give the source of Acorus and Bael
32. Give the source of Apamarg and Chirata
33. Give the source of Brahmi and Coleus
34. Give the source of Gudmar and Kantakari
35. Give the source of Pippali and Shankapushpi
36. Give the source of Punarnava and Rasna
37. Give the source of Shatavari and Shilajit

38. Give the chemical constituents of Acorus and Bael
39. Give the chemical constituents of Apamarg and Chirata
40. Give the chemical constituents of Brahmi and Coleus
41. Give the chemical constituents of Gudmar and Kantakari
42. Give the chemical constituents of Pippali and Shankapushpi
43. Give the chemical constituents of Punarnava and Rasna
44. Give the chemical constituents of Shatavari and Shilajit

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