2.3. Rasashastra Evam Bhaishajyakalpana

(IATROCHEMISTRY AND AYURVEDIC PHARMACEUTICS)

Theory - Two Papers
Total Marks - 200
Teaching hours - 200

Practical:--
Total Marks - 200
Teaching hours - 200

RASASHASTRA

Paper 1

Part A

100 Marks
50 Marks

1. Definition and etymology of Rasa, History of Rasashastra, Importance of Rasausadhi, Concept of Rasa-Rasayana, Concept of Raseshwar Darshana. Concept of Rasashala and Rasamandap.


5. Brief description & application of Musha (Crucible): Samanya Musha, Gostani musha, Vajra Musha, Maha musha, Yoga musha, Vrintaka Musha, Malla / Pakwa musha. Different types of crucibles e.g. Silica crucible, platinum crucible. Mudra and Sandhi Bandhana.


10. Brief introduction of quality control, standardization and GMP of Rasaoushadhies.

Part B 50 Marks

Occurrence, Synonyms, Minerological identification, Sources, Types, Grahya and Agrahyata, Shodhana, Marana and other processing techniques. Properties, dose, anupan and therapeutic uses, pathya – apathy and ashuddha, apakwa and avidhee sevanjanya dosha and its management, important formulations of the following:

1. Maharasa – Abhraka (Biotite Mica), Vaikrantha, Makshika (Chalco-pyrite), Vimala (Iron Pyrite), Shilajatu, Sasyaka (Peacock ore), Chapala and Rasaka (Sphalerite).

2. Uparasa – Gandhaka (Sulfur), Gairika (Red Ochre), Kasisa (Green Vitriol), Kankshi (Alum), Haratala (Orpiment), Manahshila (Realgar), Anjana and Kankustha.

3. Sadharana Rasa – Kampillaka, Gauri pashana (Arsenic oxide), Navasadara (Ammonium chloride), Kaparda (Cowry), Agnijara, Giri Sindura (Red oxide of Hg), Hingula (Red Cinnabar) and Mriddara shringa (Litharge).

4. Dhatu – Swarna (Gold), Rajata (Silver), Tamra (Copper), Loha (Iron), Vanga (Tin), Naga (Lead), Yashada (Zinc), Kamsya (Bronze), Pittala (Brass), Vartaloha. Dhatu -graha sambandha.

5. Ratna – Manikya (Ruby), Mukta (Pearl), Pravala (Coral), Tarkshya (Emerald), Pushparaga (Topaz), Vajra (Diamond), Nilam (Sapphire), Gomeda (Zircon or Cinnamome stone), Vaidurya (Cats eye). Ratnapariksha, Ratnadosha, Ratna-graha sambandha.

6. Uparatna – Vaikrant (Tourmaline), Suryakanta (Sun stone), Chandrakanta (Moon stone), Rajavarta (Lapis lazuli), Perojaka (Turquise), Sphatikamani (Quartz), Trinakanta, Palanka, Putika, Rudhir.

7. Sudha varga – Sudha (Lime stone ), Kaparda (Cowries), Shukti (Oyster Shell), Shankh (Conch Shell), Mriga shringa (Stag horn), Khatika, Godanti (Gypsum) and Samudraphena (Cattle Fish bone), Kukkutanda twak (Hen’s Egg Shell).
8. **Sikata varga** - Sikata (Silica), Dugdhapashana (Talc), Nagapashana / Jaharmohara (Serpentine), Badarshama (silicate of lime), Vyomasha (Sangeyashab - Jade), Kousheyashma (Asbestos) and Akika (Agate).

9. **Kshara varga** - Sarja kshara (Sodium bicarbonate), Yava kshara, Tankana kshara (Borax), Surya Kshara (Potassium Nitrate).

10. **Miscellaneous** - Mandura, Bola, Dam-ul Akhawayan (Raktabandhini), Kasturi, Bhoonag, Mayurpiccha, Sarjarasa, Madhoocchishta.


13. **Introduction to pharamcogvivalence and its status in India, with reference to Ayurvedic drugs.**
   A) Necessary to know - From part A and B : S. No. 1 to 9
   B) Desired to know - From part B : S. No. 10

**Practical**

**Minimum Twenty five practicals to be performed**

1. **Rasa [Parada]**
   - Samanya Shodhana of Parada
   - Kajjali
   - Mugdha rasa
   - Shodhana of Abhraka
   - Dhanyabhraka nirmana
   - Shodhana of Makshika
   - Shodhana of Shilajatu
   - Shodhana of Sasyaka.

2. **Maharasa varga**
   - Shodhana of Gandhaka
   - Shodhana of Gairika

3. **Uparasa varga**

---

17 | U G Syllabus 2nd year 2013
4. **Sadharana rasa varga**
   - Shodhana of Kasisa
   - Shodhana of Kankshi
   - Shodhana of Haratala
   - Rasa manikya nirman
   - Shodana of Manashila
   - Shodhana of Hingula
   - Sodhana of Navasadar
   - Shodhana of Kapardika

5. **Sudha Varga**
   - Shodhana of Shankha
   - Shodhana of Shukti
   - Shodhana of Pravala mula
   - Shodhana of Godanti

6. **Dhatu varga**
   - Samanya Shodhana of Lauha
   - Shodhana of Mandura
   - Samanya Shodhana of Tamra
   - Shodhana of Naga
   - Shodhana of Vanga
   - Shodhana of Yashada

7. **Kshara Varga**
   - Shodhana of Tankana

8. **Parpati**
   - Preparation of Rasaparpati, Bola Parpati and Swetaparpati

9. **Visha varga**
   - Shodhana of Vatsanabha, Bhallataka, Kupilu, Dhattura beeja, Jayapala, Gunja, Chitrakamoola.

**PRACTICAL FOR DEMONSTRATION / GROUP PRACTICALS**

1. Hingulad rasakrishti (Hingulotttha Parada).

2. Bhasma: 4 (One from each group)
   - i. Abhraka bhasma, Swarna Makshika bhasma, Tamra bhasma
   - ii. Vanga bhasma, Naga bhasma, Yashada bhasma
   - iii. Mandura bhasma, Kasisa bhasma
   - iv. Shankha bhasma, Kapardika bhasma, Godanti bhasma.

3. Pishti : 1 Pravala pishti, Jaharmohara / Akika pishti,
   - Trina kantha mani pishti, Mukta pishti.

4. Druti : 1 Gandhaka druti.

5. Formulations 4 (one from each group)
   - i. Rasasindura, Swarna vanga, Sameer pannaga rasa
   - ii. Saptamruta lauha, Punarnava mandura, Navayasa lauha
   - iii. Agnitundi vati, Tribhuvana kirti rasa, Sootshekhara rasa, Laghusutashekhara Rasa
   - iv. Arogyavardhini vati, Laghumalinivasanta rasa, Hinguleshwar rasa, Anandbhairav rasa, Rajapravartini vati
BHAISHAJYAKALPANA

Paper II 100 Marks

Part A 50 Marks

1. **History and Chronological (kramika vikasa) development** of Bhaishajyakalpana. Concept of Aushadha and Bheshaja.

2. **Fundamental principles of Bhaishajya Kalpana.**

3. **Study of Ancient and Contemporary systems of ‘Maana’ (Units of measurement), Shushka -ardra –drava- dravya grahan niyam** (Rules of measures of dry, fresh, liquid drugs); Grahyagrahyatva, Nava Puran dravya grahan niyam.

4. Guidelines and Methods of collection, storage, preservation of Aushadhi dravya. Concept of Saviryatavadhi (shelf life) and stability in ancient and contemporary science.

5. **Bheshajprayogavidhi : Aushadha Matra, Anupana and sahapan and Aushadh sevan kaala. (Posology).**


7. **Introduction and general knowledge of useful instruments/ Equipments** - Disintegrator, Mixer, Grinder, End Runner, Edge Runner, Sieve-Shaker, Granulator, Tableting machine, Pill making machines, coating and polishing pan, capsule filling machine, sieves and mesh.

8. **Sneha kalpana :** Sneha yoni, Types of Sneha, Sneha murchana vidhi, Sneha paka vidhi, patra paka, types and their use. Sneha siddhi lakshana, dose, Preparation and uses of Triphala Ghrita, Bramhghrita, Narayana taila, Anutaila.

9. **Sandhana Kalpana and its types:** Madya Kalpana, Asava, Arishta, Sura (Prasanna - Kadambari - Medaka - Jagala - Bakkasa), Maireya, Surasava, Shukta, Kanjika, Sauviraka, Tushodaka, Sidhu kalpana their methods of preparation, siddhi lakshana, properties, uses, doses. Takrarishta, Draksharishta, Ashokarishta, Dashamoolarishta, Kumaryasava, Chandanasava.
10. **Kritanna and Aushadhisiddha anna Kalpana**: Definition of Kritanna, Concept of Pathya and Apathya, Yavagu -types of yavagu, Manda, Peya, Vilepi, Anna, Bhakta, Odan, Yush -types, Krishara, Mansa rasa, Vesavara, Khad Kamblika, Raga, Shadava, Dadhi and Takra Varga – Takra, Udasvita, Katvar, Mathita, Chhachika.

**PART B**


2. **Principles and precautions for preparation of formulations for following:**
   2.1 **Netraupacharartha kalpana (Ophthamic preparations)** – Seka, Drava, Pindi, Anjana - Ashchyotana - Tarpana - Putapaka and Vidalaka, Methods of preparation of eye drops, eye ointments.
   2.2 **Nasyopachararth Kalpana** - Classification of Nasya, Navana, Avapidana, Pradhaman, Marsha and Pratimarsha nasya.
   2.3 **Dhumapanarth kalpana** - Classification of dhumpaan, Method of preparation of dhumvarti and it’s therapeutic uses. Dhupan: Vranadhupan, arshodhupan.
   2.4 **Mukhaprayogartha kalpana** - Gandoosha - Kavala - Pratisaran, Tooth paste, Tooth powders and Mouth wash.
   2.5 **Basti kalpana**- Classification, Method of preparation of Niruha and Anuvasana, Basti Therapeutic properties and uses of Basti.

3 Brief knowledge of Standardization of Ayurvedic formulations- Kasthaushadhi.


5 Concept of, Aushadhi Nirmanshala, with respect to Good Manufacturing Practices (GMP) in accordance to Schedule T.

**Practical Bhaishajya Kalpana**

**50 Marks**

**Following practicals to be performed- (Minimum one from each category)**

Method of preparation, therapeutic uses, dose and anupana of the following

1. Swarasa- Ardrika swarasa, Tulasi swarasa, Kumari Swarasa, Vasa putapaka swarasa
2. Kalka- Nimba kalka, Rasona kalka.
4. Hima- Dhanyaka hima, Sarivadi hima .
5. Phanta- Panchakola phanta,Yastimadhu Phanta.
6. Pramathya- Mustadi pramathya  
7. Mantha- Kharjuradi mantha  
8. Aushadh siddha paniya- Shadanga paniya  
10. Arka - Yavani arka, Gulab arka, Misreya arka  
18. Khanda- Haridra khanda, Narikela khanda, Sowbhagyay shunti paka  
19. Satva- Amruta satva,  
20. Varti- Phala varti, Chandrodaya varthi  
21. Lavana- Arka lavana, Narikela lavana  
22. Masi- Triphala masi, Mayurpiccha Masi  
23. Ksheerapaka- Arjuna ksheerapaka, Rasona ksheerapaka, Shunthi Ksheerapaka  
24. Kshara- Apamarga kshara, Snuhi kshara, Ksharasutra.  
25. Manda, Peya, Vilepi, Yavagu, Krishna, Vesavara  
26. Yusha - Mudga yusha, Saptamushtika yusha, Kulattha yusha  
27. Arishta- Kutajarishta, Takrarishta .  
28. Asava - Kumaryasava, Kanakasava  
29. Sukta kalpana- Kanji  
30. Udaka- Tandulodaka  
31. Upanaha- Atasi Upanaha  
32. Siktha Taila Nirmaan  
33. Malahara- Sarjarasa malahara, Gandaka malahara, Cream, Emulsion. Sneha Kalpana  
Sneha Murchhana - Ghrita Murchana, Taila Moorchna, Ghrita kalpana: Jatyadi ghrita, Triphala ghrita, ksheerashatphala ghrita- Taila kalpana-Panchaguna taila,Arka taila, Bala taila,Jatyadi taila  
35. Taila patana- Bhallataka taila patana, Jayapala taila patana  

II. Visit of minimum three GMP approved Ayurvedic manufacturing units.
Distribution of Practical Marks: Total 200 Marks

**Rasashastra** - 100

1. Record Book - 10 Marks
2. Experiment - 30 Marks
3. Spotting - 20 Marks
4. Viva-voce - 40 Marks

**Bhaishajyakalpana** - 100

1. Record Book - 10 Marks
2. Experiment - 30 Marks
3. Spotting - 20 Marks
4. Viva-voce - 40 Marks

**Reference Books**

1. Adyatan Rasa Shastra R.K. Goyal
2. Abhinav Rasa Shastra Vaidya Somadev Sharma
3. Asava Arishta Vigyanam Dr. Pakshdhar Jha
4. Ayurvediya Rasa Shastra (Sachitra) Chandrabhusan Jha
5. Ayurvediya Rasa Shastra Badrinarayan Pandey
6. Rasa Bhaishajya Paribhasa Sureshananda Thapaliyal
7. Ayurvediya Rasa Shastra Prof. Siddhi Nandan Mishra
8. Ayurved Prakash Vaidya Gujrat Mishra
9. Drugs and Cosmetic Act - 1940
10. Paka Darpana Dr. Indradev Tripathi
11. The Paka-darpana of King Nala Dr. Madhulika critical study
12. Parada Vigyananiyam Vasudev M. Dwivedi
13. Pratyaksha Aushadh Nirmanam Acharya VishwanathDwivdei
14. Bhaishjyakalpana Vigyanam Dr. Agnihotri
15. Rasa Tarangini Sadanand Sharma
16. Rasa Darpan Prof. Bhajan Das Swami
17. Rasa Bindu Dr. Sanjay Sharma
18. Rasa Bhaishajya Kalpana Vigyan Vaidya Santosh Kumar Khandal
19. Rasa Mitra Dr. Tryambak Nath Sharma
21. Rasaratna samuchchaya- Ambikadatta shastri
22. Rasaratna samuchchaya - Damodar Joshi
25. Rasa Shastra Prayogiki Srivastava, Yadav and Prof. Ramesh Saxena
26. Rasamritam Vaidya Yadavji Tirkramji Acharya
25. Rasayan Sara Vaidya Shyam Sunderacharya
26. Rasendra Sampradaya Vaishya
27. Rasendra Sara Sangraha Vaidya Hajari Lal Sukul
29. Vaidyak Paribhasha Pradeep (Hindi Translation) Vaidya Gopal Krishna
30. Sharangadharasha Samhita Dr. Indradev Tripathi
31. Bharatiya Bhaishajya Kalpana Vigyana Dr. Radhakrishna Parashar
32. Bhaishajya Kalpana Vijnanam Gananath Vishwanath Dwivedi
33. Rasa Shastra (English) Dr. K Ramachandra Reddy
34. Rasa Ratna Samuchchaya (English) Prof. Damodar Joshi
35. Rasendra Chintamani (Hindi) Prof. Damodar Joshi
36. Ayurvedic formulary of India Prof. Siddhinandan Mishra
38. Ayurvedic Pharmacopoeia of India, CCRAS Siddhi Nandan Mishra
40. Textbook of Rasashasra Dr. K. Ramachandra Reddy
41. Ashadhayoga Vighyanam Dr. P. Suresh
42. Vaidyaka Paribhasha Pradipa (Engish Translation) Dr. K. Ramachandra Reddy &
43. Relevant parts of Brihatrayee Dr. P H C Murthy
44. Text book of Bhaishjya Kalpana - Prof S S Savirkar (CCRAS Publication)
45. Text Book of Rasa Shastra Prof S N Mishra
46. Rasa Chandashu
47. Bhaishjya Ratnawali
48 Yoga Ratnakar

*****
***
*