

5. RASA SHASHTRA AND BHAISHAJYA KALPANA

Theory-400 Marks (100 Each)
Practical and viva-voce – **100** Marks

Paper I **100 MARKS**

RASASHASTRA

PART A

1. History and chronological evaluation of Rasashastra concept of Raseshwara darshan. Fundamental principles of Rasashastra, technical terminologies (Paribhasha) used in Rasa shastra.
2. Detailed Knowledge of ancient and contemporary Yantropakaran and their accessories used in aushadhikaran and their contemporary modification such as yantra, mushas, Putas, koshthis, bhrashtis, muffle furnace and other heating appliances, ovens, driers etc. used in manufacturing of Rasaushadhis in small scale and large scale, along with their applications.
3. study of sanskara, Role of Agni (heat), Jala(water) and other dravyas(Liquids), Kala(season) , Patra (container) etc. and their significance in Aushadhikaran.
4. Concept of Bhavana, Study of Mardana and its significance and knowledge of ancient and contemporary Grinding Techniques.
5. Detailed Knowledge of different procedures of Shodhana, Jarana, Murchana and Marana, Concept of Puta, Definition , types and specificaions of Different putas. Significanceof Different Putas in Relation to Bhasmikaran and Therapeutic efficacy of dravya under process. Bhasma pariksha vidhi and its significance in Relation to contemporary testing procedures. Amritikaran and Lohitikaran.
6. Detailed Knowledge of satva and Druti, satva shodhan, mrudukaran and maran of satva, its significance, in realtion to Therapeutic efficacy of dravya under process.
7. Concept of Pratinidhi (substitute) dravya and discussion on controversial drugs.

PART- B

1. Detailed ancient and contemporary knowledge of parad and its compounds with reference to source, occurrence, physio-chemical characterization, graahya-agrahyatva, Parad dosha, Parad gati, Parad shodhan, study of Ashtasanskara, Ashtadasa sanskara etc. , hingulottha Parad. Concept of Parad Jaran, moorchna, bandhan, pakshaccheda and marana etc. Therapeutic properties and uses of Parad.
2. Detailed ancient and contemporary knowledge with Geochemical / mineralogical/ biological identification , source, Occurrence, Physio-chemical characterization, graahya-agrahyatva, shodhan, maranadi vidhi and therapeutic Propertiesand uses of dravyas etc. included in Maharasa, Uparasa,

Sadharan Rasa, Dhatus, Upadhatu, Ratna, Uparatna, Visha, Upavisha, Sudha varga, Lavan varga, kshar varga, sikata varga, and other miscellaneous drugs used in Rasashashtra.

3. Detailed Knowledge of manufacturing , pharmacopoeial standards, storage, shelf life, therapeutic efficacy, dose, anupana, vikarashanti upaya and development of Technology with standard Operating Procedures of processing, standardization, quality control of following bhasmas and Pishtis.

Bhasma- Abhraka Bhasma, Svarnamakshika Bhasma, kasis Bhasma, Svarna Bhasma, Rajat Bhasma, Tamra Bhasma, Loha Bhasma, Mandura Bhasma, Naga Bhasma, vanga Bhasma, Yashad Bhasma, Trivanga Bhasma, Pittala Bhasma, Kamsya and Vartaloha Bhasma, shankha Bhasma, Shukti Bhasma, Kapardika Bhasma, Godanti Bhasma, Praval Bhasma, Mrigashringa Bhasma, Mayurpiccha Bhasma, kukkutanda tvak Bhasma, Hiraka Bhasma, Manikya Bhasma.

Dravaka- Shankha Dravaka

Pishti- Pravala Pishti, Manikya Pishti, Mukta Pishti, jahara Mohara Pishti, Trinakantamani Pishti etc.

4. Detailed Knowledge of manufacturing, storage, shelf life, pharmacopoeial standards, therapeutic efficacy, dose, anupana, and development of technology with standard Operating Procedures of processing, standardization, and quality control of kharaliya rasa, parpati, kupipakava rasa and pottali rasa.

5. Study of classical texts with respective commentaries and special emphasis on Rasarnava, Rasahridaya Tantra, Rasa ratna samucchaya, Rasendra Chintamani, Rasendra chudamani, Rasa ratnakar, Rasadhyaya, Rasa kamdhenu, Rasa chandanshu, Anandakanda, siddha Bhaishjya Manimala, Ayurved Prakash, Rasatarangini, Bhaishajya Ratnavali, Rasamritam etc. and the books mentioned in the schedule I of D & C Act – 1940. Relevant portion of Brihatrayi.

PAPER II

100 marks

BHAISHAJYA KALPANA

PART- A

1. History and chronological evolution of Bhaishajya kalpana, concept of Bheshaja and aushadhi fundamental principles of Bhaishajya kalpana. Technical terminologies (paribhasha) used in Bhaishajya Kalpana.

2. Classical and contemporary concept of collection, Storage, saviryata avadhi and preservation of different fresh and dry aushadhi dravyas and their graahya-agraahyavatva. Knowledge about Good collection and storage practices (GCP and GSP) as per WHO and NMPB guidelines.

3. Detailed knowledge of routes of drug administration, Aushadha matra, Posology, Anupana, Sahapana, Aushadha Sevana kala, Sevan Avadhi, Pathya, Apathaya.

4. Detailed Knowledge of manufacturing, standardization, quality control, pharmacopoeial standards, storage, shelf life and development of innovative technology with Standard Operating Procedures of following dosage forms

i) Panchavidha Kashaya, Churna, Rasakriya, Ghana, Avaleha, Pramathya, Mantha, Panaka, Sarkara, Kshirapaka Ushnodaka, Aushadha Siddha Udaka, Arka, Satva, Kshara, Lavana, Mashi, Gutika, Vatika Modaka, Guggulu and varti etc.

ii) sneha kalpana: concept of accha sneha and sneha pravicharana and murchhana. Sneha paka types of sneha paka and sneha siddhi lakshana, avartana. Sneha kalpa karmukata (pharmacokinetics and dynamics of sneha kalpa). Role of Sneha in relation to absorption of drug.

iii) kritanna and Bheshaja Siddha Anna Kalpana, Shuka and Shimbi Dhanya Kalpana, Dugdha, Dadhi, takra vikar and Mansarasadi Krutanna Kalpana, Aharopayogi Varga, concept of medicinal and functional food, dietary supplements and neutraceuticals etc.

iv) Sandhana Kalpana: Madya varga and shukta varga. Asava yoni. Alcoholic and acidic fermentation. Sandhana kalpa karmukata (Pharmacokinetics and Dynamics). Advances in fermentation technology. Knowledge of regulations in relation to alcoholic drug preparations.

v) Bahya Prayogartha kalpana: Lepa, Upanaha, Udvarthan, Avachurana / Avadhuana, Abhyanga, Dhupana, Malahara.

vi) Mukha, karna, Nasa, Netropacharartha, Kalpana.

vii) Basti Kalpana: Basti Yantra Nirmana, Types of basti. Anuvasana and Asthapana basti. Karma, kala and yoga basti etc. Basti Kalpa (Madhutailika, Piccha basti etc.) Comparison of Asthapana and Anuvasana basti with evacuation and retention enema.

PART-B

All the following procedures are to be studied in relevance to Ayurvedic Bhaishajya kalpas.

1. Methods of Expression and Extraction: Maceration, percolation, distillation, infusion and decoction. Knowledge about Filtration techniques.

2. Drying, open and closed air drying, freeze drying, vacuum drying and other drying methods pharmaceutical excipients.

3. Liquids : Clarified liquid, Syrup, Elixir,

4. Solid dosage Forms : powders : Size reduction, separation techniques, Particle size determination, Principles of mixing.

Tablets : Methods of tableting, Suppositories, Pessaries and Capsules, Sustained release dosage forms.

5. Semisolid dosage forms- Emulsions, Suspensions, Creams and Ointments, sterilization of Ophthalmic Preparations.
6. An introduction to various cosmetic Preparations such as Toiletries, Shampoo, Shaving Creams, Hair oils, Face powders (Talcum powders). Vanishing creams, lotions and Moisturisers, Face pack, Deodorants and Perfumes
7. Study of classical texts with special emphasis on Chakradatta, Sharangadhara Samhita, Bhaishajya Ratnavali, Bhava Prakasha, Yogaratnakara, relevant Portions of Brihatrayi, Ayurvedic Pharmacopeia of India, Ayurvedic Formulary of India.

PAPER-III **100 Marks**

RASA CHIKITSA & AUSHADHA YOGA VIGYANA

PART-A

1. Rasachikitas, Kshetrikaran, Rasajarna, Lohajarna, Ashuddha, Apakva, Avidhi Rasadravya Sevanajanya Vikara evam Vikara shanti upaya (Management and Knowledge of untoward effects of inappropriately Processed and administered drugs)
2. Detailed Knowledge of Aushadhi patha Nischiti and Sanyojan (Formulation design and composition), Dose, Anupana and Method Of administration, therapeutic efficacy and Uses (indications and contra-indications), Probable mode Of action etc. Of the following Aushadhi Yogas
 - a. Kharaliya Rasa: Shwasa Kuthara Rasa, Tribhuvana Kriti Rasa , Higuleshwara Rasa, Anand bhairava Rasa, Maha Lakshmivilasa Rasa, vasnata Kusumakara Rasa, vasanta mali Rasa, Brihat vata chintamani Rasa, Laghu ruta shekhar Rasa, ruta shekhara Rasa, Ram ban Rasa, Chandra kala Rasa, Yogendra Rasa, Hridyarnava rasa, Grahani Kapata Rasa, Garbha pala Rasa, Jalodarari Rasa, Mrityunjaya Rasa, Madhumalini vasanta Rasa, Arsha Kuthara Rasa, Krimi mudgara Rasa, Suchika bharana Rasa, Tri nerta Rasa, Smruti sagara Rasa, Vata gaJankusha Rasa, Agni Kumar Rasa, Ekangavir Rasa, Kama dudha Rasa, Purna chandrodaya Rasa, Pratap lankeshwara Rasa, Maha Vata vidhwansaka Rasa, Kasturi bhairava Rasa, Ashwa Kanchuki Rasa, Gulma Kuthara Rasa, Maha Jwarankusha Rasa, Chandramrita Rasa, Kapha Ketu Rasa, Prabhakara Vati, Pravala Panchamrita, Gandhaka Rasayana, Chaturbhuj rasa, Navajivan rasa, Shonitargal rasa, Raktapitta Kulakandan rasa, Amavatari Rasa, Kravyada Rasa, Garbha chintamani Rasa, Chintamani Rasa, Trailokya chintamani Rasa, Pradarantaka Rasa, Vangeshwara Rasa, Brihat vangeshwara Rasa, Shwasakasa Chintamani Rasa, Arogya vardhini Vati, Chandra Prabha Vati, Agni tundi vati, Shankha vati.
 - b. Kupipakva Rasa : Rasa Sindura, Makaradhwaja, Sidha makaradhwaja, Samira Pannaga Swarnarvangesvar, Malla sindura, Rasa Karpur, Rasa pushpa, Manikya Rasa.
 - c. Parpati Rasa: Rasa Parpati, Loha Parpati, Tamra Parpati, Suwarna Parpati, Gagana Parpati, Vijay Parpati , Panchamrit Parpati, Shwet Parpati, Bola parpati

- d. Pottali Rasa : Rasagarbha pottali, Hemagarbha pottali, Mallagarbha pottali, Hiranyagarbha pottali, Shankagarbha pottali,Lokanath Rasa, Mriganka Pottali
- e. Loha evam Mandura Kalpa:Ayaskriti, Loha Rasayana, Amlapittantaka loha,Chandanadi loha, Dhatri loha, Navayasa loha, Putapakva vishama Jwarantaka loha, Shilajatwadi loha, Tapyadi loha, Saptamrita loha, Pradaranaatka loha, Rohitaka loha. Punarnava Mandura, Shatavari Mandura, Triphala Mandura, Mandura, Vataka etc.
- f. Knowledge of Essential ayurvedic drug list as Prescribed by Dep. Of AYUSH (Govt of india) and its significance.

PART-B

Detailed Knowledge Of Aushadhi patha Nischiti and sanyojan (Formulation designing and composition), dose anupana and methods of administration, therapeutic efficacy and uses (indications and contra-indications), probable mode of action etc. of the following Aushadhi yogas

- a. **Panchavidha Kashayas and their Upakalpa:** Ardraka swarasa, Tulasi swarasa, Vasa Putapaka, Nimba Kalka, Rasona Kalka, Kulattha Kwath, Punarnavasthaka Kwatha, Rasna Saptaka Kwatha, Dhanyak hima,Sarivadi hima, Panchakola Phanta, Tandulodaka, Mustadi Pramathya, Kharjuradi mantha, Shadanga Paniya, Laksha rasa, Arjuna Kshirapaka, Rasona Kahirapaka,Chincha Panaka, Candana Panaka, Banapsha sharkara, Nimbu sharkara, Amrita satva, Ardraka satva,Ajamoda arka, yavanyadi arka
- b. **Kritanna and Bheshaja Siddha Ahara Kalpana:** yavagu, (Krita and Akrita), Ashtaguna manda, Laja manda, Peya, Vilepi, Krishara, yusha, Mudga yusha, Kulattha yusha, Saptamushtika yusha, Khada, Kambalika, Raga, Shadava, Mamsarasa, Veshavar, Dugdha Vikara- Piyush, Kilata, Kshirashka, Hyaiyangavina, Morata, Santanika, Dadhi & Dhadhi Vikar- Katvar Dadhi, Dadhi Mastu, Takra,Ghola, Udasvita, Mathita, Chhacchika etc.
- c. **Churna:** Sitopaladi Churna,Talisadi Churna, Triphala Churna, Hingvashtaka Churna, Avipattikara Churna, Swadishta Virechana Churna, Bhaskar Lavana Churna, Sudarshana Churna, Maha Sudarshana Churna, Gandharva Haritaki Churna, Pushyanuga Churna, Ajamodadi Churna, Hingvadi Churna, Eladi Churna, Dadimashtaka Churna, Trikatu Churna, Vaishwanara Churna, Gangadhara Churna ,JatiPhaladi Churna, Narayana Churna etc.
- d. **Gutika:** Arogya vardhani Vati, Chandra Prabha Vati, Chitrakadi Gutika, Sanjivani Vati, Lasunadi Vati, Lavangadi Vati Vyoshadi Vati, Khadiradi Vati, Kankayana Vati, Abhayadi modaka, Marichyadi gutika, Amalakyadi gutika, Samshamani Vati, Kutaja Ghana Vati, Shiva Gutika, Eladi Vati, Kasturyadi Gutika, Arshoghni Vati.
- e. **Guggulu:** Yogaraja Guggulu, Maha Yogaraja Guggulu, Trayodashanga Guggulu, Kanchanara Guggulu, Rasnadi Guggulu, Triphala Guggulu, Simhanada Guggulu, Gokshuradi Guggulu, Kaishora

Guggulu, Panchatikta Guggulu, Amritadi Guggulu, Vatari Guggulu, Lakshadi Guggulu, Abha Guggulu, Navak Guggulu, Navakarshika Guggulu

f. **Sneha Kalpa**

g. **Sneha Moorchhana-** Ghrita Murchana, Taila Murchhana

h. **Siddha Ghrita-** Shatavari Ghrita, jatyadi Ghrita, Phala Ghrita, Dadimadi Ghrita, Kshirashatpala Ghrita, Mahatriphala Ghrita, Dhanvantari Ghrita, Amritaprasha Ghrita, Kalyanaka Ghrita, Brahmi Ghrita, Changeri Ghrita, Panchatikta Ghrita, Sukumara Ghrita, Panchagavya Ghrita.

i. **Siddha Taila -** Maha Narayan taila, Maha Masha Taila, Bala Taila, Nirgundi Taila, Shadbindu Taila, Vishagarbha Taila, Sahacharadi Taila, Jatyadi Taila, Apamarga Kshara Taila, Tuvarak Taila, Kshirabala Taila (Avartita), Lakshadi Taila, Anu Taila, Kumkumadi Taila, Hingutriguna Taila, Kottumchukadi Taila, Prasarinyadi Taila, Dhanwantri Taila, Balashwagandhadi Taila, Balaguduchyadi Taila, Nilibhringyadi Taila, BrihadSindhavadi Taila, Irimedadi Taila, Chandanadi Taila, Panchaguna Taila, Arka Taila, Pinda Taila, Kasisadya Taila.

j. **Rasakriya, Avaleha, Khanda etc:** Darvi Rasakriya, Vasa Avaleha, Brahma rasayana, Chyavanprasha Avaleha, Kushmanda Avaleha, Dadima Avaleha, Bilvadi Avaleha, Kantakaryavaleha, Haridrakhanda, Marikel Khanda, Soubhagyashunthi Paka, Amritabhallataka, Kamsa Haritaki, Chitraka Haritaki, Vyaghri Haritaki, Bahushala Guda, Kalyana Guda.

k. **Sandhana Kalpa:** Lodhrasava, Kumaryasava, Ushirasava, Chandanasava, Kanakasava, Sarivadyasava, Pippalyasava,Lohasava, Vasakasava, Kutajarishta, Draksharishta, Raktamitrarka,Dashamularishta, Abhayarishta, Amritarishta, Ashokarishta,Sarasvatarishta, Arjunarishta, Khadirarishta, Ashwagandha Arishta, Vidangarishta, Takrarishta, Drakshasava, Mahadrakshasava,Mritasanjivani sura, Maireya, Varuni, Sidhu,Kanji, Dhanyaml, Madhu Shukta, Pindasava.

l. **Anya Kalpa :** Phala varti, Chandrodaya varti, Arka lavana, Narikela lavana, Triphala masi, Apamarga kshara, Snuhi kshara, Ksharasutra, Atasi upanaha, Sarjarasa malahara, Gandhaka malahara, Sindhuradi malahara,Shatadhouta Ghrita, Sahasra Dhouta Ghrita, Sikhta taila, Dashanga lepa, Dosaghna lepa, Bhallataka taila patana, Jyotishmati Taila, Bakuchi Taila, Dashanga dhupa, Arshoghna dhupa, Nishadi Netra bindu, Madhutailika Basti, Piccha basti, Yapani Basti.

PAPER – IV

100marks

PHARMACOLOGY AND PHARMACY MANAGEMENT

PART-A

1.General Pharmacology:

- Principles of Pharmacology, Pharmacodynamics and Pharmacokinetics: Absorption,

- distribution, Metabolism and excretion, mechanism of action, dose determination and dose response, structure activity relationship.
- b.Routes of drug administration
 - c.Factors modifying drug effect, Bioavailability and Bioequivalence, drug interactions, adverse drug reaction and Drug toxicity.
 - d.Preclinical evaluation : Experimental pharmacology [Bioassay, In vitro , In vivo, Cell line studies], Animal ethics.
2. Clinical pharmacology: Evaluation of new chemical Entity- Phases and methods of clinical research.
Ethics involved in human research.
 3. Elemental constituents of human body such as Iron, Copper, Zinc, Calcium, Manganese etc and its physiological importance. Deficiencies and excess of various elements.
 4. Toxicity of heavy metals and chelation therapy.
 5. Knowledge of toxicity and pharmacological activities of herbo-mineral compounds.
 6. Detailed knowledge of Pharmacovigilance - National and International Scenario.
Pharmacovigilance of Ayurvedic Drugs.

PART B

1. Scope and evolution of pharmacy. Information resources in pharmacy and pharmaceutical science.
2. Pharmaceutical formulation designing and dosage form design (Pre-formulation)
3. Packaging materials and Labeling.
4. Management of pharmacy, store and inventory management, Personnel management, Good Manufacturing Practices related to Ayurvedic drug industry.
5. Pharmaceutical Marketing, product release and withdrawals.
6. Hospital, Dispensing and Community pharmacy.
7. Patenting and Intellectual Property Rights.
8. Laws Governing Ayurvedic drugs
 - a. Relevant regulatory provisions of Ayurvedic drugs in Drug and Cosmetics Act - 1940 and rule 1945
 - b. Laws pertaining to Drugs and magic remedies (Objectionable Advertisement) Act -1954.
 - c. Prevention of Food Adulteration (PFA) act.
 - d. Food Standards and Safety Act-2006
 - e. Laws pertaining to Narcotics
 - f. Factory and Pharmacy Acts
 - g. Consumer Protection Act-1986

- h. Knowledge of Good Clinical Practices and Inspection Manual prescribed by Dept. Of AYUSH, Govt of India.
- 9. Regulatory Affairs related to International Trade and Practices of Ayurvedic Drugs.
- 10. Introduction to Ayurvedic Pharmacopoeia of India, Ayurvedic Formulary of India.
- 11. Introduction to Indian Pharmacopoeia, British and United States Pharmacopoeia, Pharamcoepial Codex
- 12. Introduction to Traditional knowledge Digital Library.

Practicals:-

- Minimum 150 Practicals are to be performed covering all the dosage forms.

Minimum 150 Practicals are to be performed covering all the dosage forms

Rasashastra- 60, Bhaishajya kalpana- 60, Drug Testing and Drug Standardization - 30

a. Rasashastra Practical list - (any 60 practical)

- 1 Hidgulotha ParadNirman
- 2 Parad ShamanyaShodhan
- 3 Parad SwedanSanskars
- 4 Parad MardanSanskars
- 5 Parad MurchanSanskars
- 6 Parad UtthapanSanskars
- 7 Parad Trividha PatanSanskars
- 8 Parad Rodhan Sanskar
- 9 Parad Niyman Sanskar
- 10 Parad DipanSanskars
- 11 Gandhak DrutriNirman
- 12 Kajjali Nirman
- 13 Rasa parpati Nirman
- 14 Rasasindur Nirman
- 15 Rasapottali Nirman
- 16 DhanyabhrakNirman
- 17 Abhrak Maran
- 18 Abhrak Amrutikaran
- 19 Abhrak Lohitikaran
- 20 Suvarnamakshik Vishesh Shodhan
- 21 Suvarnamakshik Maran
- 22 Suvarnamakshik Amrutikaran
- 23 Shilajatu Prapti Agnitapi
- 24 ShilajatuPrapti Suryatapi
- 25 Sasyak Satvapatana
- 26 Sasyak Maran
- 27 Gairik Shodhan
- 28 Kasis Maran
- 29 Kankshi Shodhan
- 30 Hartal samanya Shodhan
- 31 Hartal Vishesh Shodhan
- 32 Hartal Bhasm Nirman
- 33 Rasmanikya Nirman

- 34ManShila Shodhan**
- 35Rasanjan Nirman**
- 36Pushpanjan Nirman**
- 37Souviranjan Nirman**
- 38Kankushtha Shodhan**
- 39Kampillak Shodhan**
- 40Gouripashan Shodhan**
- 41Gandhak shodhan**
- 42Mugdha rasa**
- 43Navsagar Shodhan (Urdhavpatan)**
- 44Kaparda Maran**
- 45Hingul Shodhan**
- 46Raspushpa Nirman**
- 47Rasakarpur Nirman**
- 48Rashpushpa Malhar Nirman**
- 49Suvarna Samanya Shodhan**
- 50Suvarna Vishesh Shodhan**
- 51Suvarna Maran**
- 52Makardhavaj Nirman**
- 53Raupya Samanya Shodhan**
- 54Raupya Vishesh Shodhan**
- 55Raupya Maran**
- 56Raupyasindur Nirman**
- 57Kantloh Sthalipak**
- 58kantloh Bhanupak**
- 59Kantloh Putpak**
- 60Mandur Maran**
- 61Tamra Samanya Shodhan**
- 62Tamra Vishesh Shodhan**
- 63Tamra Dhatu Pishti Nirman**
- 64Tamra Bhasm Nirman**
- 65Tamra Amrutikaran**
- 66Somnathi Tamra Basma Nirman**
- 67Vanga Samanya Shodhan**
- 68Vanga Vishesh Shodhan**
- 69Vanga Jaran**
- 70Vanga Bhasma Nirman**
- 71Suvarna vanga Nirman**
- 72Yashad Samanya Shodhan**
- 73Yashad Vishesh Shodhan**
- 74Yashad Jaran**
- 75Yashad Maran**
- 76Nag Vishesh Shodhan**
- 77Nag Jaran**
- 78Nag Maran**
- 79Trivanga Bhasma Nirman**
- 80Shankha Shodhan**
- 81Shankha Maran**
- 82Shukti Maran**
- 83Godanti Maran**
- 84AkikPishti Nirman**

85Jaharmohara Pishti Nirman
86Shwet Parpati Nirman
87TribhuvankirtiRas Nirman
88Vatsanabh Shodhan
89Dhattur Shodhan
90Gunja Shodhan
91Bhallatak Shodhan
92Shukti shodhan
93Kuchala Shodhan
94Tankan Shodhan
95Mayurpiccha Mashi Nirman
96Kukkutandatawk Bhasma Nirman
97Ajasthi BhasmaNirman
98Shankhadrava Nirman
99Samirpannag Ras Nirman
100Loknath Ras Nirman

b. Bhaishajya Practical list - (any 60 practical)

1Swaras Kalpana - 02
2Kalka Kalpana – 02
3Kwath Kalpana – 02
4Him Kalpana – 02
5PhantKalpana – 02
6KshirPaka Nirman – 02
7Panak Nirman – 02
8Mantha Nirman – 02
9Shadangodak Nirman – 01
10Tandulodak Nirman – 01
11Ghan Nirman – 02
12KhandPakaNirman – 02
13Avaleha Nirman – 02
14Siddha Ghrit Nirman – 02
15Siddha Tail Nirman – 02
16Bhallatak Tail Patan – 01
17LakshaRas Nirman – 01
18Pramathyra Nirman – 01
19Asava Nirman – 04
20Arishta Nirman – 04
21Sidhu Nirman – 01
22Sura Nirman – 01
23Waruni Nirman – 01
24Shukta Nirman – 01
25MaireyakNirman – 01
26Chukra Nirman – 01
27SandakiNirman – 01
28Guggul Shodhan – 01

- 29**Guggul Kalpa Nirman – 08
- 30**Churna Nirman – 05
- 31**GutikaNirman – 10
- 32**Lavan kalp Nirman – 02
- 33**MashiNirman – 02
- 34**LepaNirman – 02
- 35**MalharNirman – 02
- 36**UpanahNirman – 01
- 37**Kshar Nirman – 02
- 38**Kshar Sutra Nirman – 01
- 39**BastiDravyaNirman – 02
- 40**NetraBinduNirman – 01
- 41**AnjanNirman – 02
- 42**Preparation of AharKalpana – 10
- 42**Ark kalpana -01
- 43**Varti Kalpana- 01

c. Drug Testing and Drug Standardization (30 practical – Rasa 15+ Bhaishajya 15)

Rasashastra-

Chromatographic separation T.L.C., H.P.T.L.C. or any other applicable tests – Any 15 Drugs

- | | |
|-------------------|-----|
| a) Bhasmas- | 6 |
| b) Pottali- | 2 |
| c) Parpati | - 3 |
| d) KhalviRasayan- | 3 |
| e) Sindur | - 2 |
| f) SudhaVarga | - 2 |

Bhaishajya-

Student should perform any 15 practicals using available tests at department from following list.

Experiments for chemical analysis

- a) Determination of Foreign matter
- b) Determination of Moisture %
- c) Determination of Ash value, ash analysis
- d) Chromatography
- e) Spectrophotometric finger printing
- B) Oils & Fats testing**
 - a) Specific gravity
 - b) Refractive index
 - c) Estimation of Iodine value
 - d) Saponification value
 - e) Acid value
- C) Tests for preparations like asavas, aristas, tablets etc**
 - a) Determination of pH value
 - b) Determination of Alcohol content of Asavas and Arista

- c) Determination of Sugar content of Asavas and Arista
- d) Test for aflotoxine
- e) Determination of Viscosity (Oswald's viscometer)
- f) Determination of Specific gravity
- g) Determination of Disintegration time for tablets
- h) Hardness test for tablets
- i) Friability test for tablets

- Educational Visits to minimum five(5) GMP approved Ayurvedic Pharmacies

The brief report of each visit should be written by student in a journal (Duly signed by Guide and HOD)

- a) Visit to three State Ayurvedic Pharmacy (GMP Approved)
- b) Visit to one out of State Ayurvedic Pharmacy (GMP Approved)
- c) Visit to one Modern Pharmacy (MNC) such as Glaxo, Pfizer, FDA Laboratory etc.

- Posting in R & D/ Production unit in GMP certified Ayurvedic Pharmacy.

duration- 30 days should completes in final M.D. first year

**.15 days for R& D, 15 days for Production Unit and Q.C.
.tie up of MUHS with GMP certified Pharmacy (ADMA).**

- Minimum attendance in three National Conferences within three academic years.

Minimum 10 Clinical Cases Using Different Doses Form are to be studied and recorded for Efficacy and ADR's (If any)

• Minimum one research paper on the core contributory work of dissertation published or accepted in peer reviewed ,indexed journal.

• Examinee has to submit supporting documents in relation to above mentioned academic activities at the time of Practical examination.

PATTERN OF PRACTICAL EXAMINATION	100 marks
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Duration of the practical: 2 days

1. Identification of the specimen: **10marks**

2. Drug Processing **30 marks**

i) Major Practicals: 2 (1 Rasashastra and 1 Bhaishajya kalpana) **10x2=20**

ii) Minor practicals :2 (1 Rasashastra and 1 Bhaishajya Kalpana) **5x2=10**

3. Drug testing and analysis **-10 marks**

a) Rasaushadhi -1

b) Kashthaushadhi -1

4. Power point presentation on dissertation work : 15 minutes **-10marks**

5. A Demo Lecture on any subject topic : 10 minutes **-10marks**

- 6. Documentation** -15 marks
 a) Journals (practical Records) of minimum 150 practicals from Rasa Shastra, Bhaishajya Kalpana and Drug Analysis.
 b) Reports of the visits.
 c) Case Records.

7.Viva voce examination -15marks

Reference Books:-

- 1.Rasahridaya Tantra
2. Rasarnava
3. Rasaratna Samuccahaya
4. Ayurved Prakasha
5. Rasendrachudamani
6. Rasendra Chintamani
7. Rasatarangini
8. Rasaprakasha Sudhakara
9. Rasamrita
10. Rasa chandanshu : CCRAS Publication
11. Sharangadhar Samhita
12. Sharangadhar Darpan (BP Pandey)
13. Bhavaprakasha
14. Yoga Ratnakara
15. Bhaishajya Ratnavali
16. Siddha Bhaishajya Manimala
17. Ayurvediya Aushadhikaran – Puranika & Dhamanakar
18. Bharata Bhaishajya Ratnakara
19. Rasayoga Sagar
20. Siddha Yoga Sangraha – Yadavaji Trikamji Acharya
21. Sahatrayoga
22. Vaidyaka Paribhasha Pradip
23. Dravyaguna vijnan Part 1 & 2 – Yadavji Trikamji
24. Chakradatta- Ratnaprabha
25. Relevant Parts From Charaka Samhita, Sushruta Samhita, Kashyapa Samhita, Ashtanga Sangraha, Ashtanga Hridaya.
26. Reminton : Science and Practice of Pharmacy
27. Theory and Practice of Industrial Pharmacy – Leon Lachman et al
28. Clinical Pharmacology – K.D. Tripathi
29. Clinical Pharmacology –Lawrence Benette
30. Drug Discovery and Evaluation (Pharmacological assays) HG Vogel
31. Pharmacological Basis of Therapeutics – Goodman & Gilman
32. Database of Medicinal Plants of CCRAS

33. Quality and Standards of Medicinal Plants – ICMR Publication
34. Quality Control of Ayurvedic Drugs – PLIM, Gaziabad
35. Ayurvedic Pharmacopoeia Of India
36. Ayurvedic Formulary of India
37. Indian Pharmacopoeia
38. British Pharmacopoeia
39. United States Pharmacopoeia
40. Pharmacopoeia Codex
41. Current Good Manufacturing Practices
42. Drug & cosmetic act1940 and Rule 1945 With Latest Amendments
43. Drugs and Magic Remedies (Objectionable advertisement) Act – 1954
44. Prevention Of Food Adulteration (PFA) act
45. Laws Pertaining to Narcotics
46. Factory and Pharmacy Act
47. Consumer Protection Act- 1986
48. Brief Information on the peer reviewed Journals, Official websites and other official search engines along with their links (Related with the Subject)
49. Rutleys Elements of Mineralogy
50. Bhasma Vigyaniyam
51. Kupipakva Vigyaniyam
52. Anupana Manjari
53. Siddha Bhaishajya Manimala