

SYLLABUS: Pharmacy (Ayurveda) in Directorate of Ayush

Ayurveda parichya

- Definition of Ayu and its synonyms, types of Ayu (Hitayu, Ahitayu, Sukhay and Dukhaya). Definition of Ayurveda and its prayojana. Trisutra Ayurveda, Ashtangas of Ayurveda
- Ayurved-avtarana, General description about Atreya- Dhanwantari parampara, general description about brihatrayi (charak samhita, sushruta samhita and Astanga Hridya) and laghutrayi (Madhav nidaan, Sarandhar samhita and Bhav prakasha).
- Definition of padartha, shada padartha viz., Samanya, vishesha, guna, dravya, karma and samvaya. Importance of saamnya-vishesh siddhant.
- Concept of Prakriti, Purusha in origin of srishti, Nava dravya including Panchmahabhuta- (aakash, vayu, agni, jala and prathvi), Aatma, Mana, Kaal And Disha, their definition, qualities and significance in Ayurveda.
- General idea of Dosha (vaat, pitta and kapha), Dhatu (rasa, rakta, maansa, meda, asthi, majja and shukra), and Mala (sweda, mala and mutra), Upadhatu and dhatu mala.
- Knowledge of Trividha Upastambha (aahar, nidra & brahmcharya), Trividha bala (sahaja, yuktikrita & kaalja), Trividha aayatana (Asatmendriya artha samyoga), Trividha roga (nija, aagantuja & manas), Trividha rogamaarga (kosta, shakha and Madhya maarga), Trividha bhishag (Chadamchara, siddhasaadhta and jeevitasara) and Trividha aushadha (daivypashrya, yuktivyapashrya and satvavjaya and subtypes of Yuktivyapashrya (Antaparimaarjana, Bahi parimaarjana and shastra pranidhaan).

Swasthvritta

- Definition of Swastha as mentioned in Charaka Samhita and Sushruta samhita. Definition of health as per W.H.O.
- Definition of Ahara and its types (Ashita, peet, lehya and khadita). Ahar parinamakara bhava. Aharavidhi visheshayatana. Importance of Matrashan- Matra of Laghu and Guru aahar, Effects of Hina matra and Ati matra. Knowledge of Samashana, Adhyashana, Vishamshan etc. Anupana and its importance. Concept of balanced diet. Nidra (sleep), its type and importance in health. Contraindication of Divaswapna. Bhramcharya and its significance. Indication of Maithuna according to different ritus.

- Dincharya and its importance in swasthvritta. Abhyanga and its contraindication, Vyayama and its contra indication, Dehamardan, Udvartan, Snana and its properties & contraindications.
- Concept of Desha, its types (jaangala, saadharan and anupa). Concept of kaal its division on the bases of swantsara, ayan (like Uttarayan & Dakshinayan), ritu (shishira, vasant, greeshma, varsha, sharad & hemant). Concept of Ritu-sandhi and its importance in disease.
- Concept of Dharniya and Adharniya vega and their significance in health. Concept of Achara Rasayana.
- National programme like pulse-Polio, Malaria, Tuberculosis, Leprosy etc). Role of para-medical staff in Disaster management.

Rachna Sharira

- Definition of Sharira and Shaarira. **Garbha Sharira-** Garbhotpatti, Panch mahabhuta, their Gunas, their role in dehotpatti. Shadanga sharira.
- Definition of koshta and kosthanga. General anatomy of Digestive system.
- Cardio- vascular system and its general anatomy like Hridya (heart). Knowledge of Shira (veins), Dhamani (artery) and Srotas etc. study of blood and its components. General anatomy of respiratory system i.e. lungs and trachea.
- General anatomy of Urinary system and its component like kidney, ureter and urinary bladder, study about urine and its components etc. Anatomy of male and female reproductive organs testicle and penis, uterus, vagina and ovary.
- General idea of central nervous system. Knowledge of sense organs like eye, ear, nose skin and tongue.
- Dashvidha pranayatana and Marma, their importance.

Kriva Sharira

- Definition of Dosha and their types, location in the body, their normal functions. Factors behind vitiation of Doshas. Dosha prakopa kaal and its importance in shodhana of Doshas according to Ritu. Combination of dosha like sansarga- sannipata.
- Definition of Dhatus, their types and Upadhatu. Dhatutpatti krama. Concept of Oja, its importance.
- Definition of Mala, their types, karma and importance. Knowledge of Dhatu Mala.
- Dosha-dushya samurcchana and its importance in disease. Gati of dosha like kshaya, vriddhi and saanya; their characteristics and functions in abnormal stage. kshaya- vriddhi lakshan of dhatus. Srotas, factors behind their vitiation, features of their vitiation.
- Basic study of cell and tissue. Blood and its components, Physiology of blood circulation, Respiration, excretion etc. Definition of indriya, indriya artha, indriya adhishtana, gyanendriya, karmendriya.
- General physiology of digestion- Grahani and its importance, concept of agni and its types. Koshta and its types.
- Concept of Prakriti and its type. Characteristic features of different type of sharira prakriti.

Dravya Guna

- Dravya Laxana, Panchabhoutika nishpatti, Aushadhatwa dravya pradhanyata.
- Definition of Dravya Guna vignana and its importance.
- Brief Knowledge of Basic Concepts Of Dravya, Guna, Karma Rasa, ,Veerya, Vipaka, Prabhava & Paribhashas like Triphala, Trikatu, Laghupanchamula, Brihatpanchmula, Dashamula, Trinapanchamula, Valleepanchamula, Trijataka, Chaturjataka, Trikantaka, Panchapallava, Panchakola , Shadushana, chaturushana, jeevaneeya gana, Panchagavya, knowledge of Agrya-aushadha with examples and Chikitsopyogi Aahaar Varga.

Pharmacognosy-

- Definition, Scope, Classification and Systematic study of Crude drugs. Identification, Collection, Storage and general knowledge about cultivation of some common herbs like Guggulu, Shatavari, Ashwagandha, Ghritakumari , Haritaki, Vibhitak, Amala etc.

Pharmacology-

- Introduction, Definition & scope of Pharmacology and Principles of general Pharmacology , Brief Knowledge of following - CNS depressants, Sedatives, Antipyretics, Analgesics Antiepileptic, Antihypertensive, Anticoagulant, Haemopoetic, Bronchodilators, Expectorants, Digestants, Antacids, , Laxatives, Diuretic, Antidiabetic, steroids, Contraceptives, Antibiotics.
- Route of Drug Administration, Aushadha Suvan kala, Anupana- its importance, Posology.

Regulation of Drugs-

- An overview of Drugs & Cosmetic Act, 1940 and Drugs & Magic Remedies Act, 1945.
- New developments in the field of Drug Regulation (Ayurveda).

Rasa Shastra

- Definition of Rasashastra. Brief knowledge of Rasa, Maharasa, Uparasa, Saadharan rasa, Dhatu, Upadhatu etc.
- Paribhasha & its importance , Shodhana, Marana, Bhavana, Avapa, Nirvapa, Dhanvantari Bhaga, Rudrabhaga etc
- Brief description of yantras and their uses like Dola yantra, Damaru Yantra, Khalwa Yantra, Trividha Patana Yantra Vidyadhara Yantra etc.
- Brief description of putas and their uses like Gajaputa, Mahaputa, Laghuputa, Varahaputa, Kukkutaputa etc.
- Brief description of musha like Samanya Musha, pakwa musha, vajra musha etc and chullikas (Angarakoshthi). Modern devices of heating like Electric stove, Heating Mantle, Gas stove etc their Types & Uses.

Bhaishajya Kalpana

- Definition & Fundamental principles of Bhaishajya Kalpana like Paribhasha, Mana, Panchavidha kashaya kalpana, Anukta and visheshokta dravya grahana, Dravyasthrita Rsas, guna, veerya, vipaka, prabhava etc.
- Knowledge of Ancient Equipments like Khalwa Yantra, Arka yantra, Patana Yantra etc.
- Guidelines and method of collection, storage, preservation of Aushadhi dravya. Rules for taking Shushka- Ardra and drava medicines. Grahyatava-agrahyatwa, Nava Purana dravya grahana niyama.

Nidan and kaya chikitsa

- Definition of Nidaan, brief knowledge about Panch Nidaan, definition of Vyadhi, classification of vyadhi (diseases), Saadhyata- Asaadhyata of Vyadhi.
- Definition of Chikitsa. Chikitsa chatuspada. Types of chikitsa. Classification of chikitsa, samshodhan and sanshaman chikitsa.
- Examination of patient, Astavidha pariksha, Monitoring of BP, Temp, Pulse rate and respiratory rate.
- General idea of rasayan and vajikarna.

Shalya & Shalakya-

- Definition of Shalya tantra, general knowledge of astavidha shalya karma and its use.
- Brief knowledge of Para-surgical procedures like Raktamokshana, Agni karma and Kshaar karma.
- Definition of Shalakya tantra and general idea about disease related to Shalakya tantra like Akshi roga, karna roga, naasa roga, shiro roga and mukha roga.

Stree Roga- Prasuti Tantra and kaumarbhritya

- General introduction to Prasuti tantra and Stree Roga, idea of Raja sraava (Menstrual cycle),. Diseases related to the subject like, Rakta pradara, Sweta pradar, youni vyapad etc.
- General idea of Garbhini and Garbhini charya. Sutika kaal and sutika paricharya.
- Definition of Kaumarbhritya, Idea of Vaya(age). Drug doses in Children. Idea of vaccination Immunization schedule
- Programmes of govt related to Mother and child health, use of contraceptives in family planning.

Agad tantra & Vyavhaar Ayurveda

- Definition of Agada Tantra (Toxicology) & Visha. Visha Bheda (classification of poisons) Sthavara and Jangama Visha. Visha Guna.
- Visha data ke lakshana, different methods of detecting visha in food etc described in Ayurveda. Visha Prabhava(sign and symptoms of Visha), Visha Gati.
- Laws related to Poisons, Poisons act-1919, Dangerous-drug act-1930.
- Introduction and definition of Vyavahara Ayurveda, Code of medical ethics.

Dravya Guna

1. Classification of Drugs according to Ayurvedic principles :
 - a) On the Basis of Bhoutika Sanghatana : ex Paarthivadi Dravya etc.
 - b) On the Basis of Yonibheda : Eg. Jangama (Animal product), Aoudbhida (Plant), Bhouma (Mineral product)
 - c) On the basis of Prayoga Bheda: like aoushadhi dravya , Ahara dravya,
 - d) On the basis of Rasabheda: Madhuraskanda, Amlaskanda, katu skanda, Tiktaskanda, Kashayaskanda.
 - e) On the basis of Vipaka Bheda : Madhura vipaka, Amlavipaka, katu vipaka
 - f) On the Basis of Veerya Bheda : sheeta veerya and Ushna veerya –etc
 - g) On the Basis of Dosha Karma Bheda: Vata, pitta, Kapha shaman, & kopana & Swasthahita
 - h) On the Basis of Karmatmaka: (Pharmacological classification) like- Jeevaneeya, Brumhaneeya, Lekhaneeya, Bhedaneeya, Deepaneeya, Shukrajanana etc.
2. Study of following drugs including Classification, Latin name, Family, Vernacular name, Synonyms, Botanical description, Varities. Habitat, Chemical composition, Properties, Doshakarm, Actions. Uses, Parts used : Dosage, Formulations, Substitute and Adulteration.

1. Aragvadha	12. Dhatura	23. Jataamansi
2. Ardraka	13. Ela	24. Kutaja
3. Apaamarga	14. Gokshur	25. Khadira
4. Arjuna	15. Guduchi	26. Bhumyamalki
5. Ashwagandha	16. Guggulu	27. Nirgundi
6. Arka	17. Chandan	28. Nimba
7. Aamalaki	18. Chitrak	29. Marich
8. Ashok	19. Haritakee	30. Madanphala
9. Balaa	20. Haridra	31. Pareesha
10. Bilva	21. Jyotishmati	32. Punarnava
11. Bhringraj	22. Jamboo	33. Pippali

34. Rohitak	40 . Shalmali	46 . Vacha
35 .Rasona	41 Sudershan	47. Vibhitaki
36. Shirisha	42 . Tulsi	48 . Lodhra
37. Shatavari	43. Tvak	49. Vidang
38. Karanja	44 .Udumber	50. Yashtimadhu
39. Kumari	45. Vansh	

3. Brief knowledge of drugs of animal origin (Kasturi, Mrigashringa, Pravala, Bhunaga, Gandhamarjara veerya, Shankha, Shambuka, Shukti, Indragopa etc).
4. Brief knowledge of Standardization of Singal Drugs. And the parameters for Standerdization (like – TLC, Ash value, etc)
5. Brief Knowledge of Purification of some poisonous drugs like Vatsanabha, Bhallataka, Bhanga, Ahiphena, Gunja, Kupeelu, Jayapala, Dhattura,etc

Rasashastra

1. Rasa Shabda nirukti, Synonyms, Occurrence, Grahya Parada Laxana, Parada doshas, Parada samanya Shodhana, and, Knowledge of Parada Murchhana with Examples. Hingulottha Parada nishkasana vidhi and its importance.
2. Classification of Rasoushadhies like-
 - (a) Kharaliya Rasayoga- Ex-, Tribhuvana Kirti Rasa
 - (b) Parpati Rasayoga- Ex, Rasaparpati
 - (c) Kupipakwa Rasa – Ex, Rasasindura
 - (d) Pottali Rasayoga- Ex, Hemagarbha pottali Rasa, Sidh Malcadhwa and their importance.
3. Maharasa Uparasa, Sadharanarasa, Dhatu upadhatu, Ratna uparatna, , Sudha Sikata varg General Knowledge of, Shodhana and Marana vidhi, Matra and their use in Ayurvedic formulations.
4. Aoushadhi Yoga Gnanam : (Ingredients and their proportion, Method of preparation, dose, anupana, and indications of the following)

Arogya vardhini vati,
sanjeevani vati,
Tribhuvana kirti rasa,

Hinguleshwara rasa,
Kasturibhairava rasa,
Hridayarnava rasa,

Chandraprabha vati,
Shwasakuthara Ras,
Sutashekhara Rasa,
Kamadudha Rasa,
Icchabhedi rasa,
Saptamrita loha,
Gandhaka Rasayana,

Pravalapanchamritarasa
, Vasanta kusumakara,
Rasasindura,
Rasaparpati,
Shwtaparpapati,
Makaradhwaja rasa,
Krmimudgar rosa

Bhaishajya kalpana

1. History, chronological development and fundamental principles of Bhaishajya Kalpana.
 2. Knowledge of Ancient and Modern Equipments like Khalwa Yantra, Arka yantra, Patana Yantra, Disintegrator, Pulverize, Mixer, Grinder, Edge runner, End runner , Ballmill Machine, Seive Shaker, Granulator, Tableting machine, Pill Making machines, Coating and polishing Pans, Capsule filling Machine, Dryer, Muffle furnace, Hot Air Oven, Dehumidifier etc.
 3. Study of Ancient and Contemporary Systems of Mana- Pautava, Dravaya and Payya mana. (units of measurements)
 4. Concept of Saviryatavadhi (Shelf life), Stabilization of Pharmaceutical products, Antioxidants, Preservatives and Sterilization.
 5. Introduction to Pharmacopoeias with special reference to the Ayurvedic Pharmacopoeia of India and Ayurvedic Formulary of India (AFI).
 6. Standardization and its importance in present scenario, Standardization parameters to all Kalpanas.
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1. Method of Preparation as per classics, Ingredients, General dose and at least one or two examples for each Kalpana of Pancha vidha kashaya Kalpana and Upakalpana.

Swaras(Expressed juice of drugs) – Tulasi Swarasa, Ardraka Swaras

Kalka(Paste of Drugs) –Nimba Kalka, Lashuna Kalka,

Kwatha (Decoction)- Triphala Kwatha, Punarnavashtaka Kwatha

Hima (Cold infusion)-Dhanyakadi Hima, Sarivadi Hima

Phanta (Hot infusion)- Panchakola Phanta , Yasthimadhu Phanta

Pramathya- (Mustadi Pramathya),
 Aushadha siddha paneeya- (Shadanga
 Paneeya) Tardulodaka, Laksha rasa, Mantha
 – (Kharjuradi Mantha), Panaka-(Chincha
 Panaka), Arka (Distillation)-Pudina Arka,
 Rasakriya- (BabbuluRasakriya), Phanita,

Avaleha- Chyavanaprashavalehya,
 Ksheerapaka-(Arjunaksheerapaka), Satwa
 (Guduchi Sathwa), Guggulu Kalpana-
 (Triphala Guggulu). Masi Kalpana –
 (TriphalaMasi). Lavana Kalpana –(Narikela
 Lavana)

1. **Churna Kalpana** -(Size reduction, objectives, and factors affecting size reduction, methods of size reduction, Size separation, size separation by sifting. Official standards for powders. Sedimentation methods of size separation),.Eg: Hingwashtaka Churna, Sitopaladi Churna
2. **Vati Kalpana**-Varti, Gutika, etc (Modern aspect of Tablets and Capsules, Suppositories)
 Ex: Chitrakadi Vati Sanjeevani Vati, Chandrodaya Varti.
3. **Sneha Kalpana**- (Medicated Oils and Ghee) knowledge of method of preparation, Snha siddhi laxana, dose, Advantages of Sneha kalpas etc. Ex: Jyatyadi Taila, Triphala Ghrita.
4. **Sandhana Kalpana** -(Fermentative Preparations) Significance of fermentative preparations, General method of preparation of Asava-Aritha. Tests to confirm the onset & completion of fermentation process, Dose and Shelf life Ex: Dashamularishtha, Kumariasava.
5. **Pathya Kalpana** -(Preparations of Diet) Concept of Pathyapathya, Manda, Peya, Vilepi, Anna, Bhakta, Odana, Yusha, Krishara, Mamsarasa, Raga, Shadava, Dadhi, Takra, Udaswita, Mathita etc.
6. **Lepa Kalpana** – Types of Lepas, Method of Preparation Application of Lepas (Herbal Applications) Dashanga lepa,
7. **Siktha Taila, Malahara, Upanaha & Other Kalpanas**(Ointments, Poultice & other preparations)Method of preparation of Gandhakadya Malahara, Sarjarasa Malahara, Atasi upanaha, Shatadhouta Ghrita,
8. **Kshara Kalpana** - **Types**,Method of preparation of Apamarga Kshara. General method of preparation of Kshara sutra.
9. Brief introduction of ointments, creams, gels, lotions, shampoos, soaps, liniments etc.
10. Arka kalpna- method of preparation of arka like Ajmoda arka, uses, shelf life etc.

Drug Manufacturing Unit

1. Ayurvedic concept of Bheshajagara/ Rasashala.
2. The Drug Manufacturing Unit, GMP Requirements Based On WHO Guidelines for Ayurvedic Pharmaceutical Industries, Scope, Requirements, Premises, Ancillary areas, Storage areas, Weighing areas, *Production areas*, Quality control areas,
3. Staff required in Pharmacy like Paricharaka, Drug Keeper, Pakakarmaghna, Storage of raw materials, Plan of Modern Pharmacies, Ideal plan for construction of pharmacy. List of Recommended Books like AFI, Charak Samhita, Bhaishajya Ratnavali, Sharangdhara Samhita, Bhav Prakash Nighantu.
4. List of recommended machinery like Pulverizer, Tablet making machine, granulator, disintegrator, sieve and shaker, Mixer and Grinder, Edge runner, End runner, Ballmill Machine, Coating and polishing Pans, Capsule filling Machine, Muffle Furnace, etc for drug manufacturing and Equipments used for quality control like TLC, Refractometer, Tablet disintegration machine etc.
5. Documentation, Batch processing records, Standard operating procedures (SOPs) and records,
6. Good practices in production, Prevention of cross-contamination and bacterial contamination during production, Finished products, Rejected, recovered, reprocessed and reworked materials, Reference samples and standards.
7. Good practices in quality control, Stability studies, Qualification and validation.
8. Hygiene of Workers, Health, Clothing, Sanitation and Medical Services.
9. Labels, Packaging materials, Bar-coding.
10. Drug Licensing Authority. & Drugs and Cosmetic Act-in relation to Pharmacy. Pharmacy Act-1948, Drug and magical remedy act. Introduction to consumer protection act (CPA), Introduction to NDP (narcotic drug protection) act.
11. Pharmacovigilance.

Clinical Pharmacy

1. Hospital & Clinical Pharmacy:
 - (a) Definition
 - (b) Functions and objectives of Hospital Pharmaceutical services.
 - (c) Location, Layout, Flow chart of material and men.
 - (d) Requirements and abilities required for hospital Pharmacists.
- 2 Drug distribution system in Hospitals:
 - (a) Out -Patient services and Queue system.
 - (b) In- Patient services- (a) types of services (b) detailed discussion of unit dose system, Floor ward stock system, Satellite Pharmacy services, Central sterile services, Bed side Pharmacy.
- 3 Drug Information service and Drug Information Bulletin.
- 4 Prescriptions: Reading and Understanding of Prescriptions. Latin terms Commonly used
Modern methods of Prescribing. Adoption of metric System. Calculations involved in
Dispensing. Incompatibilities in Prescriptions.
- 5 Dispensing knowledge of Ayurvedic preparations like Aasava, Aristha, Bhasma, choorna,
oils, ghee tablets, capsules and crude drugs for kwatha etc.
- 6 Drug Interactions
 - (a) Definition and Introduction.
 - (b) Mechanism of Drug Interaction
 - (c) Drug- Drug Interaction.
 - (d) Drug- Food Interaction.
- 7 Adverse Drug Reaction.
- 8 Drug dependences, Drug Abuse, addictive drugs and their treatment, complications.
- 9 Application of computer knowledge.
 - General Introduction Computer Windows applications: Word. Excel, Power point presentation.
 - Different software used in Pharmacy.
- 10 Application of Computer in maintenance of records, inventory control, medication
monitoring, drug information and Data storage and retrieval in hospital and retail pharmacy
establishments.

Nidaan and kaya chikitsa

- Pancha nidaan of disease Like Jwara, Raktapitta, Paandu, Kaamla, Shwasha, Kaas, Kustha, Prameha, Aamvaat etc.
- Treatment plan of these disease. Pharmaceutical preparation used for treatment in these diseases like sudarshan choorna Commonly occurring contagious diseases like URTI, chicken pox, malaria, dengue, typhoid, UTI etc.
- Commonly used blood investigations and significance.
- First aid and maintenance of first aid box.

Shalya & Shalakya-

- Commonly occurring shalya saadhya roga like Vrana, kshata, vidradhi, bhagna,
- Idea of Raktamokshana, Agni karma and Kshaar karma.
- Definition of Shalakya tantra, genral idea of Akshi roga.
- Choorna, Rasakriya, Anjana etc
- kama roga, nasa gata roga, Shiro roga and mukha roga.
- Knowledge of Bandaging.

Stree Roga- Prasuti Tantra and kaumarbhritya

- Treatment of the common Diseases related to the subject like Rakta pradara, Sweta pradara etc and its treatment plan. Drugs of common use Raja pravartani vati, kanya lauhaadi vati, pushyanuga choorna, Ashokaarista etc
- Definition of Kaumarbhritya, Idea of Vaya(age), Vaya related to various Panchkarma procedures.
- Dose fixation in pediatric practice.
- Diseases like Balaatisaar, Shosha, Shayya mutrata etc. Common medicine like Arvindaasava, Balchaturbhadra choorna etc

Agad tantra & Vyavhaar Ayurveda

- Definition of Agad Tantra, general idea of Visha, different types of Visha, Idea about Aam visha.
- Treatment of poisoning like, kuchla, vatsanaabha, karveer, bhanga, opium etc. poisoning due to alcohol and organophosphorus compounds.
- Different laws related to medical science like medical negligence, rape and murder etc.
- Bio medical waste and its disposal.