RESEARCH OFFICER (AYURVEDA) IN AYURVEDA MEDICAL EDUCATION (DRUGS STANDARDIZATION UNIT)

Cat.No:629/2023

Total Marks **100**

Module I 20 marks

1. Detailed study of raw materials used in Ayurveda – Identification, Pharmacology, part used, dose, therapeutic utility, methodology of studying controversial drugs, prathinidhi drugs (substitutes), apamisrana (adulterants) and unidentifiable drugs. Scientific study of methods of drug evaluation with special reference to quality, safety and efficacy. Concept of evaluation of plant drugs as per WHO guidelines. Determination of physical and chemical constituents and its extractive value.
2. Review on important modern works on classical medicinal plants published by Govt. of India, Dept.of Ayush and ICMR
3. Basic knowledge on experimental pharmacology for the evaluation of- analgesic, anti pyretic, anti inflammatory, anti diabetic, anti hypertensive, hypo lipidemic, anti ulcer, cardio protective, hepatoprotective, diuretics, adaptogens, CNS activites.
4. Knowledge on Heavy metal analysis, pesticidal residue and aflatoxins
5. Knowledge on evaluation of anti microbial and antimycotic activities
6. Classical and Contemporary concepts of collection, Storage, Saviryata Avadhi and Preservation methods of different fresh and dry Aushadhi dravyas and their graahya- agraahyatva. Knowledge about Good collection and storage practices (GCP and GSP) as per WHO and NMPB guidelines.

Module II 15 marks

1. Detailed knowledge of manufacturing, standardization, quality control, pharmacopeial 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, Arka, Satva, Kshara, Lavana, Masi, 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) 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.

2. Commonly used Ayurvedic formulations

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

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

   ii) Drying, open and closed air drying, freeze drying, vacuum drying and other drying methods.

4. Study of classical texts with special emphasis on Chakradatta, Sharangadhara Samhita, Bhaishajya Ratnavali, Bhava Prakasha, Yogaratnakara, relevant portions of Brihatrayi,

Module III 15 marks

1. Knowledge of toxicity and pharmacological activities of herbo-mineral compounds

2. Detailed knowledge of Pharmacovigilance – National and International Scenario. Pharmacovigilance of Ayurvedic Drugs.
3. Scope and evolution of pharmacy. Information resources in pharmacy and pharmaceutical Science.
4. Pharmaceutical formulation designing and dosage form design (Pre-formulation).
5. Packaging materials and Labeling.
6. Management of pharmacy, Store and inventory management, Personnel management, Good Manufacturing Practices related to Ayurvedic drug industry.
7. Pharmaceutical Marketing, Product release and withdrawals.
8. Patenting and Intellectual Property Rights.
9. Laws Governing Ayurvedic drugs.
    i) Relevant regulatory provisions of Ayurvedic drugs in Drug and Cosmetics Act – 1940 and Rules – 1945
    ii) Laws pertaining to Drugs and Magic remedies (Objectionable Advertisement) Act – 1954.
    iii) Prevention of Food Adulteration (PFA) act.
    iv) Food Standards and Safety Act – 2006
    v) Laws pertaining to Narcotics
    vi) Factory and Pharmacy Acts
    vii) Consumer Protection Act – 1986
    viii) Knowledge of Good Clinical Practices and Inspection Manual prescribed by Dept. of AYUSH, Govt. of India.
10. Regulatory Affairs related to International Trade and Practices of Ayurvedic Drugs.

11. Introduction to Ayurvedic Pharmacoepia of India, Ayurvedic Formulary of India. .

12. Introduction to Traditional Knowledge Digital Library

Module IV 15 Marks

1. Different dosage forms in modern pharmaceutics

   i) Liquids: Clarified liquid, Syrup, Elixir.

   ii) 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.

   iii) Semisolid dosage forms- Emulsions, Suspensions, Creams and Ointments, Sterilization of Ophthalmic preparations.

   iv) An introduction to various cosmetic preparations such as Toiletories, Shampoo, Shaving creams, Hair oils, Face Powders (Talcum powders). Vanishing creams, lotions and Moisturizers, Face pack, Deodorants and Perfumes

2. Quality control aspects, methods and guidelines

3. Shelf life, stability studies, preservatives, preservation techniques

Module V 10 Marks

1. Major instruments and equipments used for Ayurvedic drug processing and quality control

Module VI 5 Marks

1. Research and Publication ethics

2. Ethics

   i. Animal ethics committee

ii. Human ethics committee

And related guidelines

Module VII 5 Marks

1. Drug development and Research
2. Preclinical evaluation: Experimental pharmacology [Bioassay, In vitro, In vivo, Cell line studies]
3. Clinical pharmacology: Evaluation of New Chemical Entity – Phases and methods of clinical research.

Module VIII 5 Marks

1. Medical Statistics

   Awareness of various statistical tests and statistical software

Module IX 5 Marks

1. Brief introduction to animal products used in therapeutics, their physical and chemical properties, pharmacological activity, therapeutic uses and dose

Module X 5 Marks

1. Definition and categories of raw materials from plant, animal, metallic and mineral origin, plant concentrates, extracts and exudates, resins, excipients, sweetening agents, volatile oils, perfumes, flavours and colours.

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.