

SRMJEEH (PG)
SRMJEE -HEALTH SCIENCES PG
Health Science Programs

Pattern

The questions will be set at the corresponding degree level

The questions will be of scholastic aptitude type

The question paper consists of 100 questions with duration of 150 minutes

Each correct answer carries 1 mark

There is no negative mark for wrong answers

| S.No. | PG Programs |
|-------|--------------------------------|
| 01 | M.SC (Nursing) |
| 02 | MPT |
| 03 | MOT |
| 04 | M.Pharm |

M.Sc Nursing

Topics covered

Anatomy

Biochemistry

Child Health Nursing

Communication and Educational Technology

Community Health Nursing

Management of Nursing Services and Education

Medical & Surgical Nursing (Adult including Geriatrics)

Mental Health Nursing

Microbiology

Midwifery & Obstetrical Nursing

Nursing Foundations

Nursing Research and statistics

Nutrition

Pharmacology, Pathology and Genetics

Physiology

Psychology

Sociology

MPT

Topics covered

Anatomy
Applied Physiology
Biomechanics
Clinical Cardio Respiratory Diseases
Clinical Neurology
Clinical Orthopaedics
Community Based Physiotherapy
Community Medicine
Electrotherapy (high frequency)
Electrotherapy (low and medium frequency)
Elements of Biochemistry & Pharmacology
EMG/Bio-feedback
Ethics & Management Studies
Exercise Therapy
General Medicine, General Surgery & Paediatrics
Massage
Nursing & First Aid
Pathology & Microbiology
Physiology
Physiotherapy in Cardio Respiratory conditions
Physiotherapy in Neurological conditions
Physiotherapy in OBG
Physiotherapy in Orthopaedic conditions
Radiology, Medical Electronics
Rehabilitation Medicine
Research Methodology & Biostatistics
Sociology & Psychology
Yoga, Health promotion & Sports Physiotherapy

MOT

Unit 1: Anatomy & Physiology

- Anatomy of cell, tissues, Cardiovascular system, respiratory system, lymphatic system, Digestive System, Endocrine system, ANS, PNS, CNS
- Anatomy of bone, Muscles, Joints, Nerves, Artery
- Anatomy of Upper limb, lower limb, thorax and abdomen, Head and Neck
- Physiology of cell, tissues, Blood, Cardiovascular system, respiratory system,
- Physiology of Circulation, Muscles, bones, lymphatic system, Digestive System, Endocrine system, ANS, PNS, CNS, Reproductive System

Unit 2: Biomechanics & Applied Anatomy

- Kinetics and kinematics of movement
- Muscle Structure and Function and Vertebral Column
- The biomechanics of upper limb
- The biomechanics of Lower limb
- Posture and Gait

Unit 3: Occupational therapy in Rehabilitation

- Occupational therapy process and practices
- Intervention for occupational therapy function
- Work evaluation and work programs, Mobility
- Rehabilitation to promote occupational therapy function to Conditions
- Early development in mental health
- Intervention techniques and Rehabilitation
- Delivery of services in various settings and the role of occupational therapy
- Child development from birth to five year
- Treatment approaches in pediatric, orthopedics, neurology and mental health
- Occupational Therapy Intervention for Pediatric Conditions, mental health, Neurological and Orthopedic conditions
- Occupational therapy evaluation for specific areas of dysfunction splinting
- Performance components and skills for in Occupational Therapy
- Groups in Occupational therapy, Group dynamics, Planning group, Group leadership, Ability to plan and organize the following groups

Unit 4: Occupational therapy in Organization and Administration

- Introduction to organization and administration
- Reporting and recording
- Management in health care system
- Staff development and directing
- Legal and ethical aspects of occupational therapy

REFERENCES

- [1] Ross and Wilson - "Anatomy and Physiology in Health and Illness".
- [2] Ranganathan T.S.- "Text book of Human Anatomy"
- [3] Gray's Anatomy 38th Edition for Reference only
- [4] Pedretti's Practice skills for physical dysfunction edited by Heidi McHugh Pendleton, Winifred Schultz Krohn (7th edition)
- [5] Occupational Therapy for Physical Dysfunction by Mary Vining Radomski, Catherine A Trombly (7th edition)
- [6] Occupational Therapy and Physical Dysfunction, Principles, Skills and Practice by Ann Turner, Margaret Foster, Sybil E Johnson (4th edition)
- [7] Willard and Spackman's Occupational Therapy (12th edition)
- [8] Low back disorders -evidence based prevention and Rehab by Mc. Gill (3rd edition)
- [9] Movement : Functional movement systems : screening , Assessment corrective strategies by Gray cook

M.Pharm

INDUSTRIAL PHARMACY

UNIT I - OPHTHALMIC AND LIQUID ORAL PRODUCTS Eye drops, eye lotions, eye ointments, Ophthalmic inserts, - Formulation, Evaluation and production of syrups, suspensions and emulsions

UNIT II - PARENTERAL PRODUCTS Water for injection, pyrogenicity, non-aqueous vehicles, isotonicity adjustment methods formulation: preparation of unit dose and multiple dose parenterals, infusion fluids and sterile powders, Quality control, Aseptic techniques- source of contamination and method of prevention, design of aseptic area, laminar flow bench service and maintenance, Concept of Total parenteral nutrition (TPN)

UNIT III - SUSTAINED RELEASE DRUG DELIVERY SYSTEMS Rationale for sustained release drug delivery systems, advantages and disadvantages- physic-chemical properties influencing design and performance. Controlled drug delivery modules osmotic pump system- density altered system- floating devices.

UNIT IV - TRANSDERMAL DRUG DELIVERY SYSTEM Targeted drug delivery Liposome, Resealed erythrocytes- Magnetic micro spheres- Pharmaceutical aerosols.

UNIT - V Good manufacturing practice of quality assurance, quality audit, personal requirements in manufacturing practice, master formula card- manufacturing records. Pilot scale up Techniques-concepts of pilot plant, scale up techniques in pharmaceutical industries. Design, development and process validation method for pharmaceutical operation involved in the production of pharmaceutical products with special reference to tablets, suspensions.

MEDICINAL CHEMISTRY

Classification, Mode of action, Structure, chemical name, Synthesis (only those compounds that are superscribed by s) and uses of the following category of the drugs.

UNIT I - STEROIDS AND RELATED DRUGS Structure and stereochemistry of steroids Androgens: Testo sterone, Dihydrotestosterone, Methyltestosterones, SAR of

Androgens Oestrogens: Oestradiol, Mestranols. Chemical relationship between Oestrone, Oestriol and Oestradiol, SAR of Oestrogenic derivatives, Diethyl Stilboestrols and Dienosterol. Gestogens: Progesterone, Norethindrone. Corticosteroids: Cortisone, Hydrocortisone, Prednisone, Dexamethasone, Betamethasone and Beclomethasone and Oral Contraceptives.

UNIT II - ANTIBACTERIAL AGENTS Sulphonamides and Sulphones: Sulfamethiazoles Sulfacetamides Sulfapyridine, sulfamethoxazole, Sulfadiazine, Mafenide acetate, Sulfasalazine, Trimethoprim, Dapsone, Solapone. SAR of Sulphonamides. Synthetic Anti-Bacterial agents: Nalidixic acid, Norfloxacin, Ciprofloxacin, Gatifloxacin, Sparfloxacin, Moxifloxacin, Nitrofurazone and Furozolidone Anti-Fungal Agents: Clotrimazole, Econazole nitrate, Sulconazole nitrate, Tioconazole, Ketoconazole, Miconazole, Fluconazole, Flucytosin. Local Anti-infective Agents: Hexachlorophene, Halazone, Benzalkonium chloride, Cetylpyridinium chloride, Chlorhexidine gluconate, Gentian violet, Methylene blue, Nitromersal, Thiomersal, Methyl paraben, Propyl paraben and Sodium benzoates.

UNIT III - ANTI PARASITIC AGENTS Anti-Protozoal Agent: Metronidazole, Diloxanide, Iodoquinol, Melarsoprol, Dimercaprol and Nifurtimox. Anthelmintics: Piperazine, Diethylcarbamazine citrate, Thiabendazole, Pyrantel pamoate, Mebendazole, Albendazole, Niclosamide and Praziquantel. Antimalarials: Chloroquine phosphate, Amodiaquine HCl, Mefloquine HCl, Primaquine Phosphate, Pyrimethamine, Proguanil and Atovaquone.

UNIT IV - DRUGS AFFECTING HORMONAL SYSTEMS Oral Hypoglycemic Agents: Chlorpropamide, Glipizide, Glibenclamide, Metformin, Phenformin, Pioglitazone, Rosiglitazone, Repaglinide, Nateglinide, Tolrestat, Sorbitol and Acarbose. Antithyroid Drugs: Propyl thiouracil, Methimazole, Carbimazole, Goitrin and Phloretin. Anti-Resorptive Agents: Tamoxifen, Raloxifene, Lasofoxifene, Ospemifene, Bazedoxifene, Clodronate and Zoledronic acid.

UNIT V - ANTIVIRAL AGENTS : Amantadine, Rimantadine, Idoxuridine, Acyclovir, Trifluridine, Ganciclovir, Zidovudine, Didanosine, Lamivudine, Zalcitabine, Ribavirin,

Nevirapine and Amprenavir. Anti-Neoplastic Agents: Mechlorethamine HCl, Cyclophosphamides, Chlorambucils, Busulfan, Lomustine, Thiotepas, Dacarbazines, Mercaptopurine, Thiotepa, Thioguanine, Flurouracil, Floxuridine, Capecitabine, Azathioprine, Cisplatin, Carboplatin. Anti-Mycobacterial Agents: Isoniazids, Pyrazinamides, Ethambutols, Aminosalicyclic acid and Ethionamide.

PHARMACOGNOSY

UNIT - I Studies of Traditional drugs Common vernacular names, botanical sources, morphology, chemical nature of chief constituents, pharmacology, common uses and marketed formulations of following indigenous drugs: Amla, Ashoka, Satavari, Punarnava, *Phyllanthus niruri*, Gymnema, Gokhru, Shankapushpi, Guggul, Garlic, Brahmi, Vasaka, Methi, Withania. UNIT - II Extraction, isolation, separation, purification of plant metabolite Modern methods of extraction, basic principles of various chromatographic techniques like column, TLC, Paper, HPTLC, GC, electrophoresis and spectroscopic methods and their application to natural products. UNIT - III Plant tissue culture. Historical development, types of cultures, nutritional requirements, growth and their maintenance, production of secondary metabolites through tissue culture techniques, applications of plant tissue culture in pharmacognosy. Detailed study of callus culture, cell suspension culture, single cell culture, totipotency and application, clonal propagation, enzyme immobilization technique. Role of plant growth regulators for the production of secondary metabolites. UNIT - IV Basic metabolic pathways leading to the formation of plant secondary metabolites. Calvin cycle, Krebs's cycle, Glycolysis, shikimic acid pathway, mevalonic acid pathway. Biogenesis and pharmaceutical application of the following phytoconstituents: Atropine, Morphine, Digoxin, Reserpine, Ergometrine, Quinine. UNIT - V A brief account of plant based industries and institutions involved in work of medicinal and aromatic plants in India. Sources, Industrial production and pharmaceutical application of phytoconstituents such as Quinine, Sennosides, Podophyllotoxin, Digoxin, Solasodin, Tropane alkaloids, Mentha oil, Vinca alkaloids, Taxol, Silymarin. Herbal formulations: preparation and uses of tinctures, herbal syrups,

herbal creams, herbal shampoos. WHO guidelines for the assessment of herbal medicines.

INSTRUMENTAL METHODS OF ANALYSIS

UNIT I - ABSORPTION SPECTROSCOPY Theory of electronic, atomic and molecular spectra. Fundamental laws of photometry, Beer - Lambert's law, application and its deviation. Spectra of isolated chromophores, auxochromes, batho chromic shift, hypsochromic, hyper and hypochromic shift. Instrumentation- Source, Monochromator, Sample cell, Detectors such as Photovoltaic cell, Photomultiplier tube, Photoemissive cell, Applications in Pharmacy

UNIT II - EMISSION SPECTROSCOPY Fluorimetry: Theory, luminescence, factors affecting fluorescence, quenching, instrumentation, applications, fluorescent indicators, study of pharmaceutically important compounds such as Thiamine, Quinine sulphate, Riboflavine estimated by fluorimetry. Flame photometry: Theory, nebulization, flame and flame temperature, interference, flame spectrometric techniques - internal standard, external standard and standard addition methods, instrumentation and pharmaceutical applications. Nephelometry and Turbidimetry: Theory, Instrumentation of Nephelometry and Turbidimetry. Pharmaceutical Applications.

UNIT III - INFRARED SPECTROSCOPY Vibrational transitions, Theory, Types, Hook's law. Dispersive and Fourier Transform Instrumentation - source and detectors used, sample handling in IR spectroscopy. Applications of FT - IR in Pharmacy. Preliminary Study of IR frequencies for functional groups

UNIT IV - ADVANCED SPECTROSCOPIC TECHNIQUES Nuclear Magnetic Resonance - Introduction, Principle involved, Reference standard, chemical shift, factors affecting chemical shift, shielding, deshielding, Spin - spin interaction, Coupling constant, Instrumentation and its applications Mass Spectroscopy - Introduction, Type of Ionization Techniques such as Electron impact, Chemical ionization, Fast atom bombardment, MALDI, ESI, Mass analyzers- Quadrapole, Time of Flight and Magnetic sector. Detectors - Photomultiplier tube and Faraday cup, fragmentation rules such as

ring rule, nitrogen rule and McLafferty rearrangement. Instrumentation and applications.

UNIT V - ADVANCED CHROMATOGRAPHIC TECHNIQUES Introduction, Classification, Principle involved in separation, Components used such as Columns, Sample application, detectors, Sample preparation including Liquid - Liquid Extraction, Solid Phase Extraction and protein precipitation, theoretical aspects and applications of following chromatographic techniques High Performance Liquid Chromatography, High Performance Thin Layer Chromatography and Gas Chromatography.

PHARMACOLOGY AND THERAPEUTICS

UNIT - I General principles of chemotherapy, Sulfonamides and Co-trimoxazole, Penicillins, Cephalosporins, Quinolones and Fluoroquinolones, Chloramphenicol, Tetracyclines, Macrolides, Aminoglycosides, Miscellaneous antibiotics, Chemotherapy of tuberculosis and leprosy.

UNIT - II Anti malarial drugs, Anti fungal drugs, Anti - viral drugs, Anthelmintics, Anti protozoals, Anti - amoebic drugs, Drugs for urinary tract infections and sexually transmitted diseases, Chemotherapy of malignancy, Immunosuppressive agents. UNIT - III Definition of poison, general principles of treatment of poisoning, Treatment of Barbiturate, organophosphorus, opioid and atropine poisoning, Heavy metals and heavy metal antagonists, Definition for acute, sub acute and chronic toxicity, genotoxicity, carcinogenicity, teratogenicity and mutagenicity.

UNIT - IV Discovery and development of new chemical entities, Clinical trials, design of clinical trials and testing of drugs in human, Gene Therapy - An introduction and its role in cancer treatment, High throughput screening techniques.

UNIT - V Individualization of Drug therapy, Adverse drug reactions, Drugs used during pregnancy, lactation, pediatrics and geriatrics, Drug interactions, Drug induced disease, Therapeutic Drug monitoring.