Syllabus for Entrance Test (2011) for admission to M. Pharm course of Dr. H. S. Gour Vishwavidyalaya (Central University) Sagar, M.P.

The students will be tested for their knowledge at graduate level on the following topics of Pharmaceutical Sciences:

Pharmacognosy & Phytochemistry : [Q.No. 1 to18] :-

Source, chemistry, tests, isolation and characterization of phytopharmaceuticals belonging to the group of carbohydrates, alkaloids, glycosides, terpenoids, steroids, essential oils, lipids, resins, tannins and pharmaceutical enzymes. Pharmacognosy of crude drugs containing above phytoconstituents. Indigenous traditional drugs. Standardization of raw materials and herbal products including WHO guidelines. Plant tissue culture and its applications in drug production.

Pharmacology : [Q.No. 19 to 33] :-

General pharmacological principles including Toxicology. Drug interaction. Pharmacology of drugs acting on Central nervous system, Cardiovascular system, Autonomic nervous system, Gastro-intestinal system and Respiratory system. Pharmacology of Autocoids, Hormones, Hormone antagonists and Chemotherapeutic agents including anticancer drugs. Bioassays Immuno Pharmacology. Drugs acting on the blood and blood forming organs. Drugs acting on the renal system.

Medicinal Chemistry : [Q.No. 34 to 48] :-

Structure, nomenclature, classification, synthesis, SAR and metabolism of the following category of drugs official in Indian Pharmacopoeia and British Pharmacopoeia:- Hypnotics and Sedatives, Analgesics, NSAIDS, Neuroleptics, Antidepressants, Anxiolytics, Anticonvulsants, Antihistaminics, Local Anaesthetics, Cardio Vascular drugs: Antianginal agents Vasodilators, Adrenergic & Cholinergic drugs, Cardiotonic agents, Diuretics, Anti-hypertensive drugs. Hypoglycemic agents, Antilipedmic agents, Coagulants, Anticoagulants, Antiplatelet agents. Chemotherapeutic agents – Antibiotics, Antibacterials, Sulpha drugs. Antiprotozoal, Antiviral, Antitubercular, Antimalarial, Anticancer and Antiamoebic drugs. Diagnostic agents. Introduction to drug design. Stereochemistry of drug molecules. Preparation, storage and uses of official Radiopharmaceuticals, Vitamins and Hormones. Eicosanoids and their applications.

Pharmaceutical Analysis : [Q.No. 49 to 55] :-

Principles, instrumentation and applications of: Absorption spectroscopy (UV, visible & IR). Fluorimetry, Flame photometry, Potentiometry, Conductometry and Polarography. Pharmacopoeial assays. Different chromatographic techniques-Column, Paper, TLC, Ion-exchange, Gel filtration. Basics of GLC and HPLC.

Biochemistry : [Q.No. 56 to 60] :-

Biochemical role of hormones, Vitamins, Enzymes, Nucleic acids, Bioenergetics. Metabolism of carbohydrates, lipids, proteins. Methods to determine the kidney & liver function. Lipid profiles.

Pharmaceutics : [Q.No. 61 to 77] :-

Preformulation, formulation development and evaluation of various dosage forms. Manufacturing standards and Q.C. limits as per the pharmacopoeial requirements. Introduction to new drug delivery systems. Biopharmaceutics and Pharmacokinetics and their importance in formulation. Biopharmaceutical classification of drugs, bioavailbility and bioequivalence, pharmacokinetic models. Absorption kinetics. Formulation and preparation of cosmetics – lipsticks, shampoos, creams, nail preparations and dentifrices. Pharmaceutical calculations.
Problems related to manufacturing of various dosage forms and their remedies.

Clinical Pharmacy: [Q.No. 78 to 82] :-

Therapeutic drug monitoring, Dosage regimen in pregnancy and lactation, pediatrics and geriatrics. Renal and hepatic impairment. Drug – drug interactions and drug – food interactions, adverse drug reactions.

Industrial Unit Operations: [Q.No. 83 to 86] :-

Principles involved and pharmaceutical applications of size reduction, size separation, drying, mixing and filtration.

Physical Pharmaceutics : [Q.No. 87 to 92] :-

Solubility and solubility distribution phenomenon, micromeritics, complexation, diffusion and dissolution, interfacial phenomenon, suspension and emulsion. Polymer science-pharmaceutical and biomedical applications of polymers.

Applied Microbiology and Biotechnology: [Q.No. 93 to 100] :-

Eukaryotic and Prokaryotic cells, Sterilization methods and mechanisms, validation and sterility testing. Principles and methods of microbiological assays of the Pharmacopoeia. Methods of preparation of official sera and vaccines. Serological and diagnostics tests. Applications of microorganisms in Bio Conversions and in Pharmaceutical industry.
The principles involved in cellular and humoral immunity, hypersensitivity reactions. Genetic engineering, transformation, conjugation, transduction, gene cloning and amplification. Expression of recombinant protein. Immobilization techniques and applications.

Note: […..] Figures in parenthesis indicates the number of questions to be asked / set.