KVSR Siddhartha College of Pharmaceutical Sciences

Polyclinic Rd, Municipal Employees Colony, Acharya Ranga Nagar, Benz Circle, Vijayawada, Andhra Pradesh 520008

17th March2023

ADMISSION TEST Under DST-SERB Project

Candidates seeking admission into project fellow under DST – SERB in Pharmacy are required to appear for an Entrance examination which comprises of a Written test and Interview.

The written test consists of two papers. Paper 1 is based on Research Methodology and Paper 2 is based on specialization in pharmaceutics for 80 marks which are of Essay type and 90 minutes duration.

The Interview is for 40 Marks.

****

SYLLABUS FOR ADMISSIONTEST Under DST-SERB Project
(FULLTIME)

Paper1: Research Methodology[Marks80]

Unit I: Introduction

Meaning and objectives of research, motivation and dedication in research, criteria of good research, ethics in research, plagiarism, scientific integrity, selecting atopic, importance ofplanning,planningexperimentation,fieldworkandaccessingadvancedfacilities.Ethicsconcerning studies on animals and human volunteers, CPCSEA, ICMR and CDSCO guidelines on ethics in research.

Unit II: Types of Research

Descriptive studies: Case report; *Analytical studies*: Ecology study, cross-sectional study, case-control study, cohort study. *Experimental studies:* Interventional trial studies: Randomized Control Studies, Uncontrolled trial studies; Qualitative study design: Case study, observations, in-depth interview.

Sampling and Randomization, Size of sample, Bias, Single Blind Design, Double blind design, Open Design, Completely Randomised Design, Randomised Block Design and Latin Square Design.

Unit III: Literature review

Journals: Standard journals in Pharmaceutical Sciences, Impact factor, Citations, web based journals, writing a research paper, popular websites for scientific literature, choosing a journal for sending research publications, styles of writing references. Search Engines like Google Scholar and Science Direct.

Patents: Importance of patenting, Steps in patenting process, accessing patent literature.

Unit IV: **Testing of hypothesis**
Theory, calculation and applications of t-test, z-test, Chi squaretest, one way ANOVA, two way ANOVA and three way ANOVA, Duncan's test and Tukey's test.

Unit V: Preparation of Thesis
Structure of thesis, background of the work, importance of language, grammar, scientific andsystematicwayofpresentation,statisticalanalysis,useofgraphicalrepresentation,properpreparation of graphs and tables, discussion, comparison with previous work, interpretation of *in vitro* and *in vivo* results, summary and conclusion.

Paper 2 : Pharmacy (Question paper based on specialization)

[Marks80]

PHARMACEUTICS

1. Professional Pharmacy: Professional Pharmacy, Pharmaceutical jurisprudence including Drugs and Cosmetics Act 1940 and rules 1945. Pharmacy Act 1948, Code of Pharmaceutical ethics. Prescription: definition, various parts of prescription and their functions, handling of prescription, sources of errors, care required in dispensing procedures including labeling of dispensed products, preliminary knowledge of important Latin terms used in the prescriptionsandtheirtranslationintoEnglish.Posology:Definition,Factorsaffectingdoseselection.Calculation of children and infant doses. Drug regulatory agencies. Concepts on ICH, WHO, FDA, TGA,ISO,GMP,SOP,QBD,Patents etc.

2. Physical Pharmaceutics: States of mater, Physical properties of drug molecules, pH, buffers and isotonic solution, solubility phenomena, surface tension, interfacial phenomenon, Kinetics, Rheology, Micromeretics & powder flow, Diffusion and dissolution, Colloids, Complexation and proteinbinding

3. PharmaceuticalTechnology:Principles,Formulation,Ingredients,method of manufacture,evaluation,qualitycontroltests,labelingandpackagingof following class of product: Solid
dosageformsTablets,coating,capsules,microcapsules,powders,granulesetc.Liquiddosageforms-solutions,suspensions,emulsions,
Semisolid dosageforms-ointment,creams,gels,suppositories,
Parenterals-injections smallvolume, largevolume, ophthalmic preparations and
Pre-formulationstudies,Stabilitystudies and Pharmacopoealspecificationsforvariousformulations.
Formulation of cosmetics preparation like lipstick,shampoo,creams,nail preparations and dentifrices,powers etc.

4. Biopharmaceutics and Pharmacokinetics and their importance in formulation.Introduction to Biopharmaceutics:Drugabsorption, distribution ,metabolism and elimination.Compartmentmodel- Definition and Scope. Pharmacokinetics of drug absorption-Zero order and first order absorption rate constant. Determination of pharmacokinetic parameters.Bioavailability and bioequivalence:Measuresofbioavailability,Cmax, tmax, K_{el} and AreaUndertheCurve(AUC); Review of regulatory requirements for conducting bioequivalent studies. Biopharmaceutical Classification System(BCS)of drugs.