



KASHI INSTITUTE OF PHARMACY

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COURSE FILE

ON

Medicinal Chemistry III (BP601T)

Year/Semester –3rd / 6th(Even)

By

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Varanasi

2023- 2024





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1. INSTITUTION VISION, MISSION AND QUALITY POLICY

VISION STATEMENT

"Empowering Future Pharmacists for Excellence and Innovation in Healthcare"
Kashi Institute of Pharmacy aims to foster a culture of innovation among its students and faculty, encouraging them to explore new ideas, technologies, and practices that contribute to the advancement of pharmacy and healthcare as a whole.

MISSION STATEMENT

"Enriching Education, Advancing Healthcare: Our mission at Kashi Institute of Pharmacy is to provide a transformative learning experience that prepares aspiring pharmacists to excel in a dynamic healthcare landscape. Through rigorous academic programs, innovative research, and community engagement, we are committed to fostering compassionate, skilled, and ethical pharmacy professionals who positively impact patient well-being and contribute to the evolution of healthcare practices."

- 1. Enriching Education:** Kashi Institute of Pharmacy is dedicated to offering an education that goes beyond traditional learning, focusing on holistic development and providing students with the tools they need to succeed in their careers.
- 2. Advancing Healthcare:** The mission highlights Kashi Institute of Pharmacy's commitment to contributing to the improvement and progress of healthcare through the education and training of future pharmacists.
- 3. Innovative Research:** Kashi Institute of Pharmacy's dedication to research indicates its aspiration to be at the forefront of pharmacy-related advancements, contributing to the expansion of knowledge and innovation within the field.
- 4. Community Engagement:** The mission underscores the importance of connecting with and serving the community, emphasizing the role of pharmacists as healthcare providers who directly impact patient well-being.

QUALITY POLICY

Quality education is institutions motto and institute is committed to excellence in quality in their technical profession





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2. PROGRAM EDUCATIONAL OBJECTIVES, PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES

DEFINITIONS:

Program Educational Objectives (PEOs):

Program educational objectives are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.

Program Outcomes (POs):

Program outcomes describe what students are expected to know and would be able to do by the time of graduation. This is related to the behavior, knowledge and skills of the students that acquire as they progress through the program.

Program Specific Outcomes (PSOs):

Program Specific Outcomes are statements that describe what the students of a specific program should be able to do.





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STATEMENTS OF PEOs, POs AND PSOs

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

PEO1 - PROFICIENT DEVELOPMENT

To develop in the students the capacity to obtain knowledge on Science and Pharmaceutical Science and apply it expertly inside sensible requirements, for example, financial, natural, social, political, moral, wellbeing and security, manufacturability and manageability with due moral obligation.

PEO2-CORE PROFICIENCY

To provide ability to recognize, plan, appreciate formulate, comprehend, analyze, design and solve Pharmaceutical problems with hands on experience in different advancement involving modern tools necessary for pharmacy practice to fulfill the necessities of society and the Pharmaceutical industry.

PEO3 - SPECIALISED ACHIEVEMENT

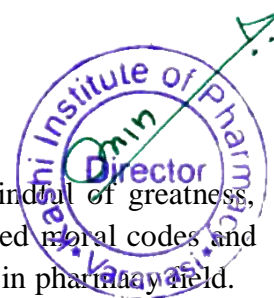
To furnished the students with the capacity to explore, reenact, design, simulate, experiment, analyze, optimize and interpret in their core applications through multi disciplinary ideas and contemporary figuring out how to incorporate them into industry prepared graduates.

PEO4 - PROFESSIONALISM

To provide training, exposure and awareness on importance of soft skills for better career and holistic personality development as well as professional attitude towards ethical issues, team work, responsibility, accountability, multidisciplinary approach and capability to relate pharmaceutical engineering issues to broader social context. To provide the required training in all aspects to the graduates to work as a health care professional in community and hospital pharmacies.

PEO5 - LEARNING ENVIRONMENT

To furnish students with an academic environment and make them mindful of greatness, foster the desire of revelation, imagination, creativity, authority, composed moral codes and rules and the long lasting figuring out how to turn into an effective expert in pharmacy field.





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THE PROCESS FOR ESTABLISHING THE PEO'S

The PEOs are established through the following process steps:

STEP 1: Vision and Mission of the Institute & Department are taken into consideration to interact with various stake holders, and establish the PEO's

STEP 2: The Head of the Department, Program Coordinator and other Senior Faculty prepares the draft version of PEOs and POs.

STEP 3: The draft rendition is examined with partners and their perspectives are gathered by the Program co-ordinator

STEP 4: The Program Assessment Committee surveys and dissects the PEOs and POs and presents its recommendations to the Departmental advisory Board.

STEP 5: The Departmental advisory Board deliberates on the recommendations and freezes the PEOs and POs and submits them to the BOG for final approval. The Program curriculum is planned by integrating inputs from members of Board of Studies and Academic council who are drawn from various academic institutions, R&D associations and industry





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Programme Outcomes (POs)

Programme Outcomes (POs)	
P01	Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
P02	Planning Abilities: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
P03	Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
P04	Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
P05	Design /development of Solutions: Pharmacy graduates will be able to design and Innovate solution to pharmacy problems by applying appropriate tools while keeping in mind safety and ethical factor for environmental & society.
P06	Leadership skills: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfilment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well-being.
P07	Professional Identity: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).



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PO8	Pharmaceutical Ethics: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
PO9	Communication: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
PO10	The Pharmacist and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
PO11	Environment and sustainability: Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-access and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.



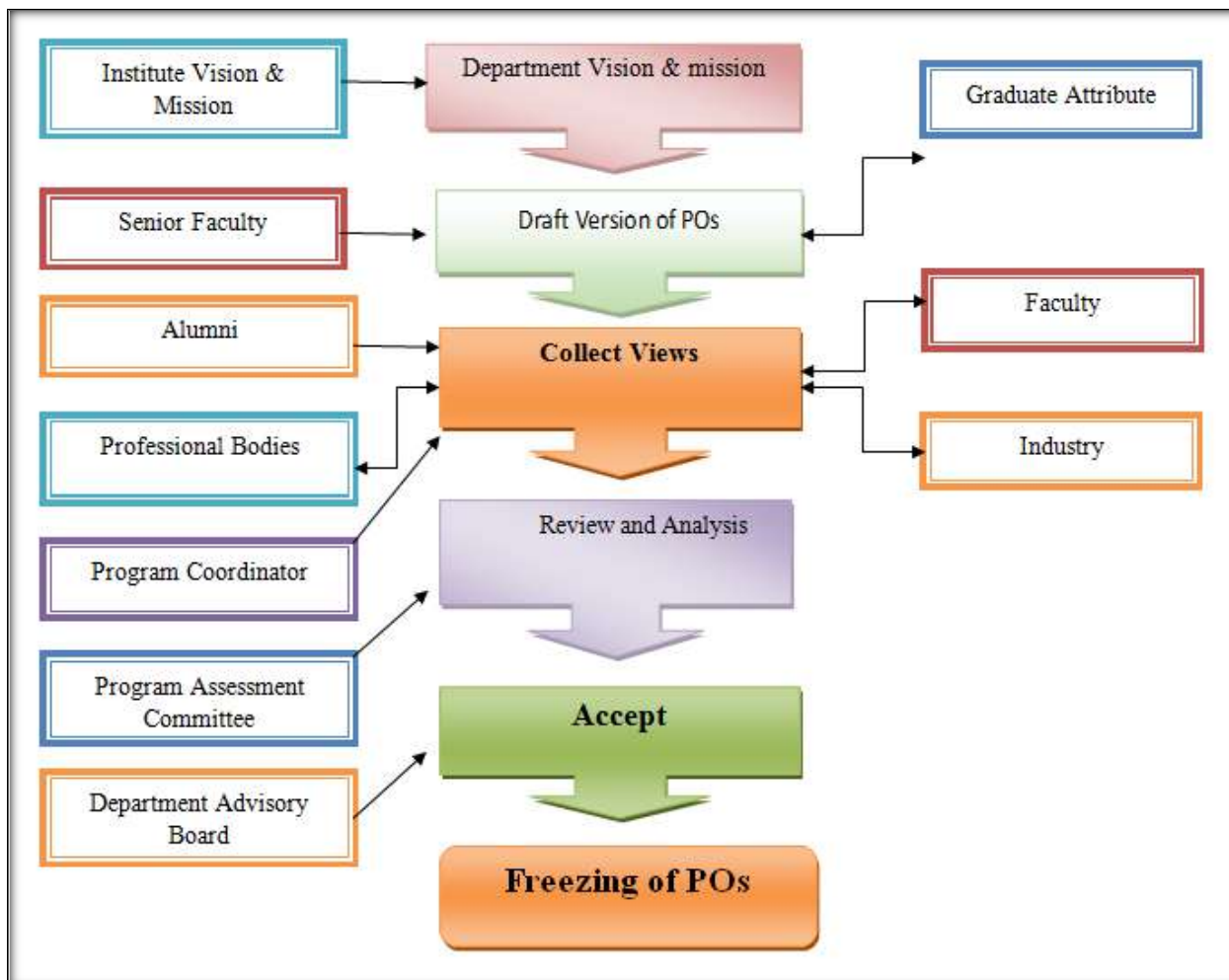


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PROCESS TO DEFINE PROGRAM OUTCOMES (POS) OF THE DEPARTMENT





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PROGRAM SPECIFIC OUTCOMES (PSOs)

The graduates of the department will attain

PSO1	Pharmacy graduates obtain position in successful career in pharmaceutical industry, research institutions, academic, government organizations and entrepreneurship.
PSO2	Perform research on various medical aspects and implement the Pharmaceutical knowledge in formulating the best suitable dosage form to provide high quality medicines to the society.
PSO3	Render the services to the public by providing patient centric effective treatments to curb the therapeutic issues with the required medicines and explain the effects of the drugs by analyzing the scientific literature for improving their health and well-being.





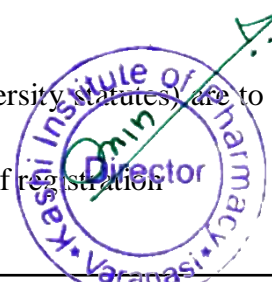
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3. ACADEMIC POLICY

1. **Academic Calendar:** Academic calendar of Kashi Institute of Pharmacy will strictly be in line with AKTU calendar.
2. **Faculty Feedback from Students and eligibility criteria:**
 - ❖ 1st Feedback: Taken by Faculty, within 10 working days from commencement of classes with 65% Attendance criteria.
 - ❖ 2nd Feedback: Taken by HOD, on or before 20 working days from commencement of classes with 75% Attendance criteria.
 - ❖ 3rd Feedback: Taken by Director, on or before 30 working days from commencement of classes with 75% Attendance criteria.
 - ❖ For all official purposes, Director's feedback shall be used.
 - ❖ Faculties showing poor performance, Counselling by Director will be initiated, the process may be repeated for faculties, if performance not improved. All such faculties, whose performance does not improve, three months' notice will be served prior to closing of academic session.
 - ❖ The counselling of weak performers has to be performed after every feedback and documented.
 - ❖ Classes conducted by Training and Placement department will also be included in all the feedbacks taken by HOD, Director and the Management.
3. **Conduction of Classes:** The classes for Odd/Even Semester will commence as per AKTU calendar.
 - a. Normal Class Time: 9:00 AM to 4 :30 pm (Including Lunch Break)
 - b. Registration - No students should be allowed to attend the classes without registration.
 - c. Tele-calling (On **Saturday**) by mentors will be done for students whose attendance is less than **75 %** on last working day of every week.
 - d. All faculties should start effective teaching from very first class and not to waste their respective classes on mutual introduction or general discussions as an excuse for low attendance in the class.
 - e. Weekly tele-calling report must be checked and signed by HOD.
 - f. **Parallel classes for detained students:** During Sessional and PUT all detained students will be counselled and motivational lecture by Director to attend classes regularly.
4. **Instructions and Undertakings:** The required instructions (university Statutes), are to be displayed before the commencement of the academic year.
 - a. All undertakings are required to be completed at the time of registration





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- b. All students to sign a common letter stating that min 75% attendance will be maintained to appear in sessional, PUT & End Semester University exams.
 - c. All students are referred to sign an affidavit, about their commitment & responsibility to maintain 75% attendance or as per AKTU attendance policy for being able to appear in all sessional /PUT and university exam, or else they stand detained from the above exams.
- 5. List of Slow Learners:** Weak students need to be identified, either based on the performance in University examinations or 1st Sessional marks, whichever is available earlier. Special consideration will be given by faculties to weak students in terms of their lectures, labs and learning of subjects based on evaluation of their weekly performance. Weak students should be given extra attention in the classes in way of personal attention of their understanding the subject, other queries, writing notes etc.
- 6. Smart Classes:** Where-ever the smart classroom is available, HOD must ensure that, once in a week on the rotation basis, every section must have all the classes in the smart class room, as per the availability. HOD to ensure effective utilization of board for whole week.
- 7. Director's Meeting with Class Coordinators:** To ensure the quality of education and smooth conduction of academic activities, Director meets with all Class Coordinators fortnightly. He also discusses and checks the performance of the events.
- 8. Quality Teaching:**
- a. Carrying book in the class room and reproducing the material as it is from the book on blackboard is the main cause of losing interest in the subject contents. Avoid carrying text books to the class.
 - b. Students must be motivated to ask questions during the last 5-6 minutes of lecture. Students may be asked to use blackboard for explaining some deliberation or their problems.
 - c. Delivery of lecture must be in English to a large extent. However; discussions can be in Hindi also. The English content is to be; (1) In first year as per demand (2) 50% in 2nd year (3) 75% in 3rd year and (4) 90% in 4th year.
 - d. Free and fearless homely environment should be provided to all students.
 - e. Faculty by their hard work and knowledge must ensure that all students give better academic feedback.
 - f. All faculties to reach their respective classes 5 minutes in advance.
 - g. Before taking attendance, the class teacher has to ensure proper organization of the class.
 - h. Revising previous lecture contents for 5-10 minutes before commencing next lecture, so as to ensure continuity of thought.
 - i. Group interaction, counseling with faculty & students should be on Saturday





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afternoon session.

- j. However total freedom is given to the faculty to conduct the classes.
- k. HOD should ensure the condition of the classroom / common amenities are clean and in hygienic condition.

9. Revision of Course: Based on actual course covered the revision classes required are to be planned by respective HOD in consultation with respective faculty member. It should be mandatory for all faculties to ensure revision of courses after completion of every Unit.

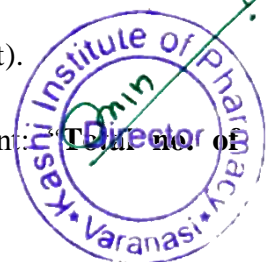
- a. Neither practical labs to be converted in lecture classes nor sections can be merged without prior approval from the Director.
- b. After completing each unit, the numerical/question from question Bank/assignment should be solved in the class. Subsequently written solutions to be provided for the same.
- c. Class notes of lectures missed by absentee students, should be provided to such students by the concerned faculty.

10. Assignments, Preparatory classes and Class Test: From each unit, at least one assignment (5-10 questions) and one class test / quiz (for 40-45 minutes) should be conducted. Preparatory classes can be arranged where it to be needed. Good quality questions must be given as per university question papers. It should not be treated as a formality. Date of delivery to students, date of submission by the students must be written on the above. A copy of each of the above must be submitted to the head and one copy must be available in faculty course file. All the above after critical evaluation must be submitted to Head for checking and for verification by college authorities. A copy of the assignment grading and class test marks must be submitted to the HOD for record. In numerical subjects only the unsolved questions should be given in assignment.

11. Monitoring of Academic Policy: Director/Academic Coordinator/HOD/Class coordinators will be checking the effective implementation of academic policy, by inspecting the following activities/ documents in all classes/ courses. Any flouting of the same, will automatically invite “disciplinary proceedings” leading to show-cause notices/penalties/even termination.

12. Markings of Attendance in Register:

- a. First lecture attendances have to be marked within first 10 minutes and in subsequent lectures within first 5 minutes.
- b. Attendance should be marked in alphabet P (Present) and A (Absent).
- c. The absent students to be marked preferably in red ink, as "A" only.
- d. The last two lines of attendance register sheet should represent: “**Total no. of absent:**” and “**Total no. of present:**” in the class”.





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- e. The last line should be signed by faculty of that course, counter-signed by HOD on weekly basis and Director/HOD on monthly basis or as & when they visit the class at the time of attendance.
- f. As students' attendance in any classes quite poor during semester, it is mandatory for faculty to ensure that every fortnight the department displays the student's attendance status.
- g. Each day the attendance is to be recorded and submitted in consolidated section /class wise form to the Director for 1st & 6th lectures.
- h. **Excel sheet for calculation of cumulative attendance % on daily basis:** Faculty members have to ensure that attendance for all classes is compiled properly to keep a check. The cumulative attendance % is calculated on weekly basis and if attendance is 75 % and above, no call should be made to parents, even though the student may be absent on/more than 3rd consecutive days. Weekly consolidated list to be prepared duly signed by HOD. Respective parents of all the absent students will be tele-called by respective mentors on Saturday.
- i. For any mass bunk, the concerned faculty member should inform the HOD immediately and the HOD should convey the information to Director immediately. HOD should immediately ask the class coordinators to call to parents informing about their ward's absence from the class and produce the tale calling report, with comments of the father/parents about the same, in the standard form.
- j. The tele-calling and its report, with proper remarks of the father/guardian, is to be submitted by all class coordinators to HOD, on the same day.

13. Conduction of Labs/Practical Classes and their conversion to class lectures:

- a. Faculty should always be present in the lab, during conduction of experiments.
- b. All experiments have to be guided by the faculty of lab concern, and not by lab technicians/ instructors.
- c. At least ten experiments are to be performed by students or as prescribed by AKTU/PCI.
- d. Faculty should ensure that all experiments are completed before PUT.
- e. Respective Lab manuals to be prepared and made available. Lab time should not be used for copying lab manuals/ practical records/files.
- f. The record file should be checked and graded; observation taken by students must be written in lab record not in rough note book. The same to be signed by faculty with date.
- g. Students are to be motivated to write the lab record on their own.
- h. Post-experimental quiz questions (3-5) related with the concerned lab experiment must be given to each student and they should be asked to write the answers in the Lab record itself. FAQ for each experiment should be prepared and shared with the students.



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- i. In lab, no copying of lab report from lab manuals is allowed and project report is to be suitably marked in scale of, say, 10 marks, after asking relevant viva-voce. FAQ should be developed for each lab experiments by associated faculties and students to be prepared for the same.
- j. Director/HOD must be on round when practicals are going on in laboratories.
- k. Lab manuals should be upgraded by faculty, as per requirement.
- l. Directors / HOD will monitor thoroughly the conduction of Labs and Viva-Voce.
- m. **Question Banks:** Students should be provided question bank and solutions. For question bank, 10 to 20 Questions per unit have to be prepared including questions from last three years university papers. This may also consist of other important questions, which faculty consider important from university examinations point of view, should be provided. These questions have to be used for tutorials, assignments, practice & revision etc.
- n. A model question paper, on university pattern, has to be solved in the class after completing the syllabus before PUT.

14. Status of Syllabus coverage before every sessional exams: All class coordinators should provide the current status of each course with

- a. % of syllabus covered
- b. No. of experiments completed
- c. Status of corrected lab records
- d. Syllabus to be covered before the commencement of 1st sessionals: 50%
- e. Syllabus to be covered before the PUT: 100%

15. Extra Classes, Assignments & Test: Notes to be provided in question-answer format, thereby avoiding any requirement of providing separate question bank (which most of the time contain only questions not their answers), and model paper at the end.

- a. Emphasis should be given on practical applications of the course.
- b. Revision classes to be conducted as and when required.
- c. Separate attendance sheet is to be prepared for slow learners.
- d. Standard questions as per AKTUs pattern & tough marking for all sessional /PUT exams.

16. Detention & Attendance Cut Off %: Detention list to be finalized based upon actual attendance %. Special cases may need policy directions from higher authority for some students. Such cases to be brought forward with all required details by respective HOD for inclusion/exclusion from detention list.

- a. For all sessional exams, attendance cut off is to be always 75%, while students to be told to maintain minimum 75% attendance conforming to AKTU/PCI guidelines.
- b. It should be announced in the beginning of semester, in each class, that all students through advisors/mentors have to sign such notice making them aware of 75% as cut off % for attendance.



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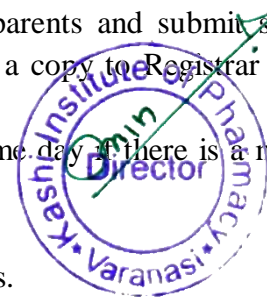
- c. A specific date is to be announced from COE to consider as attendance cut off date, i.e. from start of the session till the time of examination, excluding those who register late due to clearing of their back papers, after declaration of AKTU result.
- d. Detained List has to be prepared as per the guidelines and submitted to the university before the last date.
- e. No student below 60% attendance will be allowed to participate in any activity, be it an industrial visit or any cultural/sports activity.
- f. **Undertaking by parents/students for detained students:** For detained students, HOD have been advised to call the respective father/parents and tell them about detention of their ward and invite them to visit the college and meet HOD/Director, so as to sign an undertaking for being responsible for possible detention from PUT / final examination, if attendance found less than 75%. The HOD to be ready with the parents' feedback regarding date of their arrival in the campus.

17. Progress Report to parents: The "Progress Report" is to be sent to parents of students having low attendance and also to slow performers.

- a. After every Sessional examination, a copy of attendance record and sessional marks must be sent to parents by registered postal letters, signed by advisor, HOD and Director, with a clear intent that parents are kept in loop for pressurizing their wards to maintain at least 75% attendance and also to improve their academic performance.
- b. No Call / SMS / Letter is to be sent to students above 75% attendance / marks.

18. Mentor System: For ensuring better understanding of personal/professional problems of students, Mentors are to be appointed in each class, with assigned responsibilities as delineated below:

- ❖ More effective interaction/relationship with students & their parents/guardians with specific responsibilities.
- ❖ Counselling of the students for all problems including personal and related to academic performance, Sessional/ university examination results, fee, fines and all other academic-related issues.
- ❖ Dispatch of Progress Report to parents after Sessional examination.
- ❖ Rectify the changed/altere/fake mobile nos. of students' parents and submit such updated list, with email ids & postal address to HOD with a copy to Registrar and Director.
- ❖ Tele calling to be done by Mentors on **Saturday** and on same day if there is a mass bunk of classes.
- ❖ Attendance compilation on regular basis.
- ❖ Compilation of results of Sessional, PUT and Semester exams.
- ❖ Counselling tele-calling should be done for all classes/years except for final year students.
- ❖ Mentor/advisor should submit the report of the counselling once in 15 day.





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19. Counselling reports: To be submitted with explicitly delineated problems faced by students after sessional exam in pre defined format, by mentors to solve them. After 15 days, HOD will take a follow-up and or provide complete solutions to pending problems /issues, if any.

20. Final Year projects: The students have to submit Project synopsis/report, based on literature survey as undertaken by students, on their already pre-allotted project titles by some prefixed date. It is further understood and agreed upon that the department will ensure the following:

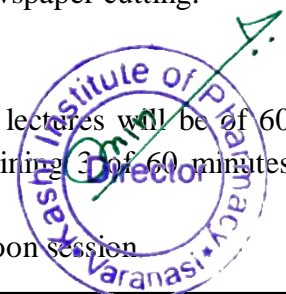
- ❖ Project Guide and title of the project to be decided & finalized for students and submitted to HOD.
- ❖ 8th Semester is utilized for the final year Projects as per the time table, but not at the cost of academics.
- ❖ Students to be resisted from purchasing readymade projects from the market.
- ❖ They should be inspired to think creatively, so as to make their projects as unique, innovative, interesting and thought-provoking.
- ❖ They should be persuaded to do things on their own.
- ❖ They should be asked to undertake literature survey on their respective projects
- ❖ They should be guided more closely by their respective guides on daily basis, so as to provide regular progress reports to their respective department.
- ❖ They should also be motivated to prepare FAQs for their Projects.
- ❖ Research paper based on the Project report to be published in reputed journals.
- ❖ HOD should ensure and monitor that all the projects are made by students themselves and the progress of projects should be reported on regular basis.

21. Industrial visit/PDP classes by T&P Cell:

- ❖ Students with 60% & above attendance only are permitted for industrial visits and that too in formal dress only.
- ❖ Industrial visit will as per syllabus norms industrial visit will arranged by HOD and T&P cell.
- ❖ For 2nd year students, English activities classes will be conducted, four class per week during semester.
- ❖ The Institute should display the list of placed students in their main notice board, including the name of the company and the package. There should also be a display board that will cover all the institutional activities including newspaper cutting.

22. Time Table Format for 1st year:

- ❖ New Time Table timings will comprise of 7 lectures. First 4 lectures will be of 60 minutes duration, 1 will be of 45 minutes duration and remaining 3 of 60 minutes duration.
- ❖ All practical classes shall be performed preferably in the afternoon session





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- ❖ Time table should be judiciously done by HOD and approved by Director at commencement of semester. Difficult courses in each department are identified and only senior/experienced faculties are to teach them. Senior faculties are to teach 2nd & 3rd year and junior ones to teach 4th year.
- ❖ 50% teaching load shall be counted for faculties engaged in labs/Seminars of the total duration in the Time-Table.

23. Course File: Before going to the classes all faculties to finalize the Course Files in desired Format for respective course as per NAAC format and to include:

- a. Lecture plan
- b. one assignment per unit
- c. one tutorial per unit (as per point 9)
- d. course notes
- e. Unit wise question bank
- f. previous (3Years) AKTU question papers
- g. 1 model paper
- h. Before going for the vacation at the end of the semester, faculty members have to submit the course file to HOD, duly signed by the HOD & Director.

24. Result: The target result for any course should be 5% to 10% high in comparison from the previous result of AKTU. Target fixing & Result analysis:

- a. Every faculty is given individual target for the course they teach.
- b. Target to be fixed based on previous semester result and students performance in Sessional and PUT.
- c. Faculty who achieves the target may be recommending for incentives.
- d. Every department has to prepare the critical analysis of the result and document it for record purpose.

25. Faculty Development: Institute has to undertake FDP preferably every semester/year, so as to maintain faculties' performance level at its highest. It should be done by mock demonstration by each faculty in front of respective HOD & Director and graded for 10 attributes in a scale of 1-10 and creating overall performance index by vector addition, which is to be arranged in a descending order. All such faculties who perform less than 60% in FDP, are to be given another opportunity for Demo. If the performance is still less than satisfactory, the faculty concerned would invite some administrative action to be decided by the Director.

26. R&D Cell: All faculties are to be counselled by the HOD/Directors to ensure a creative research environment in the college/labs. R&D Chief, in coordination with HOD would ensure that each faculty publishes at least one research paper every year in refereed Journals. On the other hand, it has become mandatory for all faculties to ensure that they add at least one good publication in their professional accomplishments, every year.



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- a. The faculties are also encouraged to publish books on respective course for which they will be rewarded as per R&D Policy.
- b. Institute should arrange one International/National Conference, FDP, workshop every year for/by industry.
- c. Each faculty is encouraged to file patents for innovation.
- d. Industry interface is encouraged and invited.
- e. Consultancy by faculty to/from industry is invited.
- f. Projects financed by industry and sponsorship are to be actively sought.
- g. FDP, Seminar, Workshop (Minimum 1 week) Motivation to students for GPAT & guidance for same.
- h. Institute has to prepare financial budget if any for the above said R&D activities and get it approved from competent authorities through Directors well in advance.

27. Personality Development Program (PDP): Its syllabus is prepared for the whole year for each branch. The HOD and academic coordinators must ensure that the classes are running timely and with highest efficiency as per syllabus.

28. Startup & ED CELL: For enhancing skill development and developing entrepreneurship in students for setting up their own industries/businesses/start ups, the **Startup & Entrepreneur Development Cell (ED)** is working in the institution. It has to submit its monthly report to the Director.

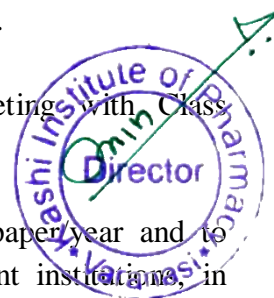
❖ **IQAC:** Internal Quality Assurance Cell (IQAC) has to work for creation, development, sustenance and improvement of high quality standards of a various academic processes, on continuous basis.

It will include teaching/learning of various courses, Labs/workshops experiments, faculty improvement, R&D activities, Projects, industrial training, PDP, professional communication, soft skill set enhancement, mock interviews, so that not only making our students place able, but actually ensuring their placement, in various companies/corporate.

29. Research Papers by Students: Motivating students to participate and publish research papers in reputed research journals/conferences. It is mandatory for final year students, before submission of the project. Students involved in research must be reasonably encouraged while awarding marks, after due verification by Head, R&D.

30. Director's Meeting with CRs: Director will have monthly meeting with Class Representatives (CRs).

31. Faculty Role in R&D: Each faculty has to publish one research paper/year and to participate in QIPs/FDPs/workshop, organized by various government institutions, in summer session break.





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32. Department's Role: Each department has to organize/arrange:

- Minimum two guest lecture per semester, one from industry and one from academia.
- One national/international conference preferably sponsored through reputed agencies.
- Minimum one external FDP and one workshop according to norms.
- One 2 days workshop
- One patent per year.
- To receive one grant /per semester for research project.
- Publishing of one book per year and 5 - 10 % of faculties should be encouraged for the registration for Ph. D. from reputed universities every year.

33. Weak Student/Slow Learners Policy: It is applicable for 1st year only to focus on the following:

- Separate classes for slow learners and extra classes whenever required after three weeks of commencement of classes.
- Special notes covering important topics should be provided to weak students/slow learners, along with unit wise question banks with solutions.
- Only important/Difficult subject extra classes will be organized.

34. Counselling/problem Solving Sessions: It will be organized by a committee comprising Director, HOD and IQAC representative twice in a semester i.e. first one after Sessional and second before PUT for students with less than 40% attendance and weak students, for assessing the reasons of their absence from the class/mass bunk/ poor marks in Sessional/performance.

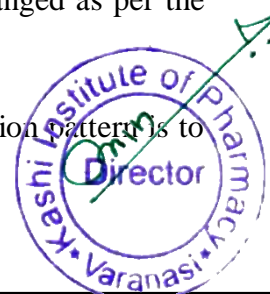
35. Min. cut off attendance of 75%: All students should be counselled by HOD to maintain at least 75% attendance, so as to be eligible to sit in Placement activities. In special circumstances it may be lowered up to 60%, after taking permission from higher authorities.

36. Additional Points for 1st year:

- Practical classes may be emphasized in the starting of the session and faculties are advised to complete all practical before PUT.
- Assignment will be given by faculty members as per syllabus coverage of individual subject.

37. Miscellaneous Points: Composition of committee is permitted to be changed as per the requirement.

38. The revised AKTU/PCI Guidelines/Norms i.e. for syllabus and examination pattern is to be updated by the HOD regularly.





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39. Target & Rewards: To be among the Top 10 Under Graduate Pharmacy Institute in U.P.

40. The members of committee of Kashi Institute of Pharmacy are stated below:

Sr. No.	Name	Designation	Committee Position
1.	Dr. Ashutosh Mishra	Director	Chairman
2.	Mr. Manoj Kumar Prajapati	Registrar	Member
3.	Dr. Vivek Keshari	HOD	Member
4.	Mr. Kumar Alok	Academic Coordinator	Member
5.	Mr. Sachchidanand Pathak	NAAC Coordinator	Member



(Registrar)

(HOD)

(Academic Coordinator)

(NAAC Coordinator)



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4. ACADEMIC CALANDER



KASHI INSTITUTE OF PHARMACY

ISO 9001:2015 (QUALITY MANAGEMENT SYSTEM)

Manage By: Jain Education Society

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Ref. No. Kashi IP/2023-24/76

Date: - 18/12/2023

Academic Calendar (B. Pharm.) EVEN SEMESTER 2023-24 B. Pharm (2nd, 4th, 6th, 8th Semester)

S. No.	Description	Semester System Exam			
		II Sem. (1st Year)	IV Sem. (2nd Year)	VI Sem. (3rd Year)	VIII Sem. (4th Year)
1	Last date for Student's Online Registration for the Odd Semester 2022-23	-----	-----	10/02/2024	10/02/2024
2	Commencement of Academic/Training Classes for all the students	04/04/2024	04/04/2024	16/02/2024	16/02/2024
3	Assignment & Class Test-1	24/04/2024 to 26/04/2024	24/04/2024 to 26/04/2024	28/02/2024 to 29/02/2024	28/02/2024 to 29/02/2024
4	Last date to evaluate the answer sheets and upload the marks over college ERP	29/05/2024	29/05/2024	01/03/2024	01/03/2024
5	Sessional Examination	13/05/2024 to 15/05/2024	13/05/2024 to 15/05/2024	08/04/2024 to 10/04/2024	08/04/2024 to 10/04/2024
6	Last date to evaluate the answer sheets and upload the marks over college ERP	20/05/2024	20/05/2024	13/04/2024	13/04/2024
7	Assignment & Class Test-2	05/06/2024 to 07/06/2024	05/06/2024 to 07/06/2024	22/04/2024 to 23/04/2024	22/04/2024 to 23/04/2024
8	Last date to evaluate the answer sheets and upload the marks over college ERP	10/06/2024	10/06/2024	24/04/2024	24/04/2024
9	PUT Examination	01/06/2024 to 08/06/2024	01/06/2024 to 08/06/2024	06/05/2024 to 10/05/2024	06/05/2024 to 10/05/2024
10	Makeup Sessional Examination	10/07/2024	10/07/2024	13/05/2024 to 14/05/2024	13/05/2024 to 14/05/2024
11	Last date to evaluate the answer sheets and upload the marks over college ERP	11/07/2024	11/07/2024	15/05/2024	15/05/2024
12	End Semester Theory Examination	20/07/2024	20/07/2024	25/05/2024	25/05/2024

Teaching Days Available (Month wise/ Day wise)

S.N.	Months	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	TOTAL
1	FEBRUARY	3	3	3	3	2	14
2	MARCH	3	3	4	4	4	18
3	APRIL	5	5	3	3	4	20
4	MAY	4	4	5	5	5	23
5	JUNE	4	4	4	4	4	20
6	JULY	3	3	3	3	3	15
7	TOTAL	22	22	22	22	22	110

Note: *Last date of deposition of fee (even sem.) for newly lateral entry admitted students (2023-24 session) is 31/12/2023.

Note:

- The Academic calendar may change as per new Academic Calendar of AKTU (as and when necessary).
- Assignment - 1 & Assignment - 2 will be submitted by the students as per the given schedule.
- Class Test will be conducted by respective faculty member in the subject lecture.
- Sessional: Before Sessional Exam, 50% of the subject syllabus must be covered.
- PUT: Before PUT Exam 100% of the subject syllabus will be covered.

Academic Coordinator

HOD

Director

Address: 23 Km Milestone, Varanasi- Allahabad Road, Mirzamurad, Varanasi (U.P.)





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5. COURSE INFORMATION SHEET (CIS)

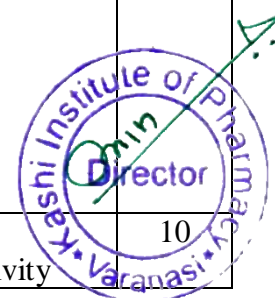
5a) COURSE DESCRIPTIONS

PROGRAM : Pharmacy	DEGREE : B. Pharm
COURSE : Medicinal Chemistry III	YEAR : III SEM : VI CREDITS : 4
COURSE CODE : BP601T	COURSE TYPE : Core
COURSE AREA / DOMAIN : Medicinal chemistry	CONTACT HOURS : 4+0+0 (L+T+P) Hours/week
CORRESPONDING LAB COURSE CODE : BP607P (IF ANY) :	LAB COURSE NAME : Medicinal Chemistry III – Practical

5b) UNIVERSITY SYLLABUS

BP601T. MEDICINAL CHEMISTRY – III (Theory)

Unit	Course Contents	Hours
I	Antibiotics Historical background, Nomenclature, Stereochemistry, Structure activity relationship, Chemical degradation classification and important products of the following classes. β-Lactam antibiotics : Penicillin, Cephalosporins, β - Lactamase inhibitors, Monobactams Aminoglycosides : Streptomycin, Neomycin, Kanamycin Tetracyclines : Tetracycline, Oxytetracycline, Chlortetracycline, Minocycline, Doxycycline	10
II	Antibiotics Historical background, Nomenclature, Stereochemistry, Structure activity	10





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	<p>relationship, Chemical degradation classification and important products of the following classes.</p> <p>126</p> <p>Macrolide: Erythromycin Clarithromycin, Azithromycin.</p> <p>Miscellaneous: Chloramphenicol*, Clindamycin.</p> <p>Prodrugs: Basic concepts and application of prodrugs design.</p> <p>Antimalarials: Etiology of malaria.</p> <p>Quinolines: SAR, Quinine sulphate, Chloroquine*, Amodiaquine, Primaquine phosphate, Pamaquine*, Quinacrine hydrochloride, Mefloquine.</p> <p>Biguanides and dihydro triazines: Cycloguanil pamoate, Proguanil.</p> <p>Miscellaneous: Pyrimethamine, Artesunate, Artemether, Atovaquone.</p>	
III	<p>Anti-tubercular Agents</p> <p>Synthetic anti tubercular agents: Isoniazid*, Ethionamide, Ethambutol, Pyrazinamide, Para amino salicylic acid.*</p> <p>Anti tubercular antibiotics: Rifampicin, Rifabutin, Cycloserine Streptomycin, Capreomycin sulphate.</p> <p>Urinary tract anti-infective agents</p> <p>Quinolones: SAR of quinolones, Nalidixic Acid, Norfloxacin, Enoxacin, Ciprofloxacin*, Ofloxacin, Lomefloxacin, Sparfloxacin, Gatifloxacin, Moxifloxacin</p> <p>Miscellaneous: Furazolidine, Nitrofurantoin*, Methanamine.</p> <p>Antiviral agents:</p> <p>Amantadine hydrochloride, Rimantadine hydrochloride, Idoxuridine trifluoride, Acyclovir*, Gancyclovir, Zidovudine, Didanosine, Zalcitabine, Lamivudine, Loviride, Delavirding, Ribavirin, Saquinavir, Indinavir, Ritonavir.</p>	10
IV	<p>Antifungal agents:</p> <p>Antifungal antibiotics: Amphotericin-B, Nystatin, Natamycin, Griseofulvin.</p> <p>Synthetic Antifungal agents: Clotrimazole, Econazole, Butoconazole, Oxiconazole Tioconazole, Miconazole*, Ketoconazole, Terconazole, Itraconazole, Fluconazole, Naftifine hydrochloride, Tolnaftate*.</p> <p>Anti-protozoal Agents: Metronidazole*, Tinidazole, Ornidazole, Diloxanide, Iodoquinol, Pentamidine Isethionate, Atovaquone, Eflornithine.</p> <p>Anthelmintics: Diethylcarbamazine citrate*, Thiabendazole, Mebendazole*, Albendazole, Niclosamide, Oxamniquine, Praziquantal, Ivermectin.</p> <p>127</p> <p>Sulphonamides and Sulfones</p> <p>Historical development, chemistry, classification and SAR of Sulphonamides: Sulphamethizole, Sulfisoxazole, Sulphamethizine, Sulfacetamide*, Sulphapyridine, Sulfamethoxazole*, Sulphadiazine, Mefenide acetate, Sulfasalazine.</p> <p>Folate reductase inhibitors: Trimethoprim*, Cotrimoxazole.</p> <p>Sulfones: Dapsone*.</p>	8
V	<p>Introduction to Drug Design</p>	7



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Various approaches used in drug design. Physicochemical parameters used in quantitative structure activity relationship (QSAR) such as partition coefficient, Hammett's electronic parameter, Taft's steric parameter and Hansch analysis. Pharmacophore modeling and docking techniques. Combinatorial Chemistry: Concept and applications of combinatorial chemistry: solid phase and solution phase synthesis. 128	Total	45
--	-------	----

BP607P. MEDICINAL CHEMISTRY- III (Practical)

List of Experiments

I. Preparation of drugs and intermediates

1. Sulphanilamide
2. 7-Hydroxy, 4-methyl coumarin
3. Chlorobutanol
4. Triphenyl imidazole
5. Tolbutamide
6. Hexamine

II. Assay of drugs

1. Isonicotinic acid hydrazide
2. Chloroquine
3. Metronidazole
4. Dapsone
5. Chlorpheniramine maleate
6. Benzyl penicillin

III. Preparation of medicinally important compounds or intermediates by Microwave irradiation technique

IV. Drawing structures and reactions using chem draw

- V. Determination of physicochemical properties such as logP, clogP, MR, Molecular weight, Hydrogen bond donors and acceptors for class of drugs course content using drug design software Drug likeliness screening (Lipinski's RO5)



5c) EVALUATION SCHEME



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Assessments								
Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP601T	Medicinal Chemistry III	10	15	1 Hr	25	75	3 Hr	100

5d) GAP IN SYLLABUS

S. No.	DESCRIPTION	PROPOSED ACTION	NO. OF CLASSES
1	IUPAC nomenclature of heterocyclic compounds	Black Board	1

5e) WEB SOURCE REFERENCES

5f) DELIVERY / INSTRUCTIONAL METHODOLOGIES

<input type="checkbox"/> CHALK & TALK	<input type="checkbox"/> STUDY MATERIAL	<input type="checkbox"/> WEB RESOURCES
<input type="checkbox"/> LCD / SMART BOARDS	<input type="checkbox"/> STUDY SEMINARS	<input type="checkbox"/> ADD-ON COURSES

5g) ASSESSMENT METHODOLOGIES – DIRECT

Direct methods display the student's knowledge and skills from their performance in the class assignment test (It is a metric used to continuously assess the student's understanding capabilities), internal assessment tests [the Internal Assessment marks in a theory paper shall be based on two tests, sessional test & pre university test (PUT)], end semester examinations



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(theory or practical), seminars, laboratory assignments/experiments (it is a qualitative performance assessment tool designed to assess student's practical knowledge and problem solving skills), mini/major projects, add on courses, certification, presentations (as per the requirement) etc. These methods provide a sampling of what students know and/or can do and provide strong evidence of student learning.

Various methods used in assessment process that periodically documents and demonstrates the degree to which the Course Outcomes are attained.

5h) ASSESSMENT METHODOLOGIES – INDIRECT

Indirect methods such as course exit survey/assignments of course outcomes by feedback, assignments of mini/major project by external experts, faculty feedback, examiner feedback & others survey to reflect on student's learning. They are used to assess opinions or thoughts about the graduate's knowledge or skills.

Collect variety of information about course outcomes from the students after learning entire course.

Rubrics are used for both formative and summative assessment of students. Same rubric is used for assessing an outcome so that the faculty is able to assess student progress and maintain the record of the same for each student.

ASSESSMENT PROCESS

Assessment Process for CO Attainment:

For the evaluation and assessment of CO's and PO's, rubrics are used. The rubrics considered here are given below:

CO Assessment Rubrics:

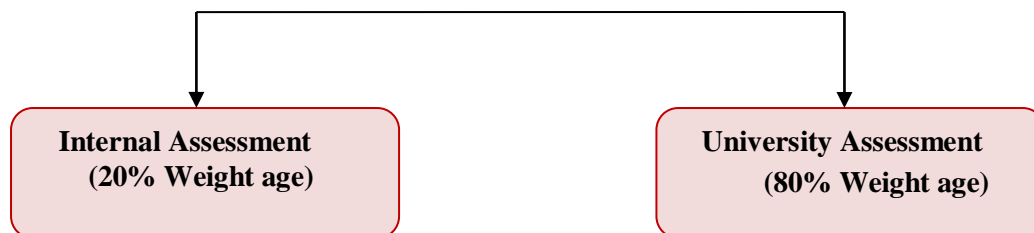
CO Assessment



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Course Outcome is evaluated based on the performance of students in internal assessments and in university examination of a course. Internal assessment contributes 20% and university assessment contributes 80% to the total attainment of a CO.

CO Assessment Tools:

The description of Assessment tools used for the evaluation of program outcomes is given in Table below. The various assessment tools used to evaluate COs and the frequency with which the assessment processes are carried out are listed in this table. In each course, the level of attainment of each CO is compared with the predefined targets, if it is not, the course coordinator takes necessary steps for the improvement to reach the target. With the help of CO against PO/PSO mapping, the PO/PSO attainment is calculated by program coordinator. Assessment Tools are of two types' direct tools and indirect tools. Which are described below.



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Assessment Type	Assessment method	Weightage	Assessment Period	Assessment and Reviewed By
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DIRECT TOOLS

- Internal test 1
- Internal test 2 (PUT)
- Assessments
- AKTU theory & Practical examination
- lab experiment
- viva Voce
- Practical Records
- Internal Practical exam
- Industrial Training
- Hospital Training
- Seminar & Workshop
- Minor / Major Project
- Quizzes

INDIRECT TOOLS

- Course Exit Survey
- Parent feedback
- Alumni survey
- Employer Feedback
- Curriculum feedback

Assessment Process for Calculating the Attainment of Pos and PSO



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Direct	Assessment tool based on Subject nature	80% (80% of AKTU Examination + 20% of the Assessment tools)	Once per Semester	Department Advisory committee
	AKTU Examination		Once per Semester	
Indirect	Current Passing out Students Survey	20%	8 th semester	Department Advisory committee
	Recruiters Survey		Every Placement activity	
	Alumni Survey		Once per Year	

5i) TEXT BOOKS & REFERENCE BOOKS

REFERENCE BOOK	
1.	Remington's Pharmaceutical Sciences.
2.	Wilson and Giswold's Organic medicinal and Pharmaceutical Chemistry.
3.	Organic Chemistry by I.L. Finar, Vol. II.
4.	Indian Pharmacopoeia.
TEXT BOOK	
1.	Foye's Principles of Medicinal Chemistry.



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2.	Text Book of medicinal chemistry(V. Alagarsamy) Vol II
3.	Rama Rao Nadendla -Principle of Organic Medicine Chemistry
4.	Medicinal Chemistry BY Ashutosh kar
5.	Text book of practical organic chemistry- A.I.Vogel.

5j) Class time table

KASHI INSTITUTE OF PHARMACY, MIRZAMURAD VARANASI									
Time Table Session 2022-23 EVEN Semester									
Room No.: LRB-2	B. Pharm, 3rd Year, VI Semester (Batch-A)				Effective from: 16.02.204				
Lecture	1st	2nd	3rd	4th		5th	6th	7th	8th
Timing	08:55-09:50	09:50-10:45	10:50-11:45	11:45-12:35	12:35-01:30	01:30-02:15	02:15-03:00	03:05-03:50	03:50-04:35
Monday	BP-605T	T&P Cell	BP-603T	BP-606T	LUNCH	BP-604T	BP-609P(A)/BP-608P(B)		
Tuesday	BP-605T	BP-606T	BP-601T	BP-604T		BP-602T	BP-603T	COUNSELLING	GPAT
Wednesday	BP-601T	T&P Cell	BP-606T	BP-603T		BP-602T	BP-609P(B)/BP-610P(A)		
Thursday	BP-604T	BP-601T	BP-605T	BP-603T		BP-602T	BP-607P(A)/BP-610P(B)		
Friday	BP-604T	BP-606T	BP-605T	BP-601T		BP-602T	BP-607P(B)/BP-608P(A)		
Saturday	OFF								

Subject Name		Faculty Name	Total Lecture	Contact No.
Medicinal Chemistry-III	BP-601T	Mr. Prashant Choubey	4	9721752269
Pharmacology-III	BP-602T	Dr. Vivek Keshri	4	7970798454
Herbal Drug Technology-III	BP-603T	Mr. Kumar Alok	4	7004363940
Biopharmaceutics and Pharmacokinetics	BP-604T	Ms. Akanksha Patel	4	8004575893
Pharmaceutical Biotechnology	BP-605T	Mr. O.P.Verma	4	8923086639
Quality Assurance	BP-606T	Mr. Deepak Kumar	4	7771011822
Medicinal Chemistry-III Practical	BP-607P	Mr. Prashant Choubey	3*2=6	9721752269
Pharmacology-III Practical	BP-608P	Ms. Shikhi Srivastava	3*2=6	7970798454
Herbal Drug Technology- Practical	BP-609P	Mr. Kumar Alok	3*2=6	7004363940
Reports on Industrial Training	BP-610P		3*2=6	8905043317
Soft Skill		T&P Cell	2	



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5k) Faculty Time Table

KASHI INSTITUTE OF PHARMACY, MIRZAMURAD VARANASI

Time Table | Session 2023-24 | Even Semester

Faculty Name: Mr. Prashant Kumar Choubey

B. PHARM

Lecture	1st	2nd	3rd	4th	th	5th	6th	7th	8th
Timing	08:55-09:50	09:50-10:45	10:50-11:45	11:45-12:35	12:35-01:30	01:30-02:15	02:15-03:05	03:05-03:50	3:50-4:35
Monday					L U N C H				
Tuesday			BP601T (A)						
Wednesday	BP601T								
Thursday		BP601T					BP-607P(A)		
Friday				BP601T					
Saturday									



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6. CO – PO And CO – PSO Mapping and Blooms Taxonomy

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Course : B. Pharm			Semester: 6 th (Even)				Academic Year: 2023-2024								
Course Code : BP601T			Course Name :												
Name of the Faculty :			Mr. Prashant Kumar Choubey												
Section : A & B															
CO-PO & PSO MAPPING															
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
CO 1	3	0	1	0	0	0	0	0	0	1	0	1	1	0	1
CO 2	3	0	1	1	0	0	1	0	0	1	1	1	1	0	1
CO 3	3	0	1	0	0	0	1	0	0	1	1	1	1	3	2
CO 4	3	0	1	0	1	0	0	0	0	1	1	1	1	3	2
CO 5	3	0	1	3	0	0	0	0	0	1	0	1	1	3	0

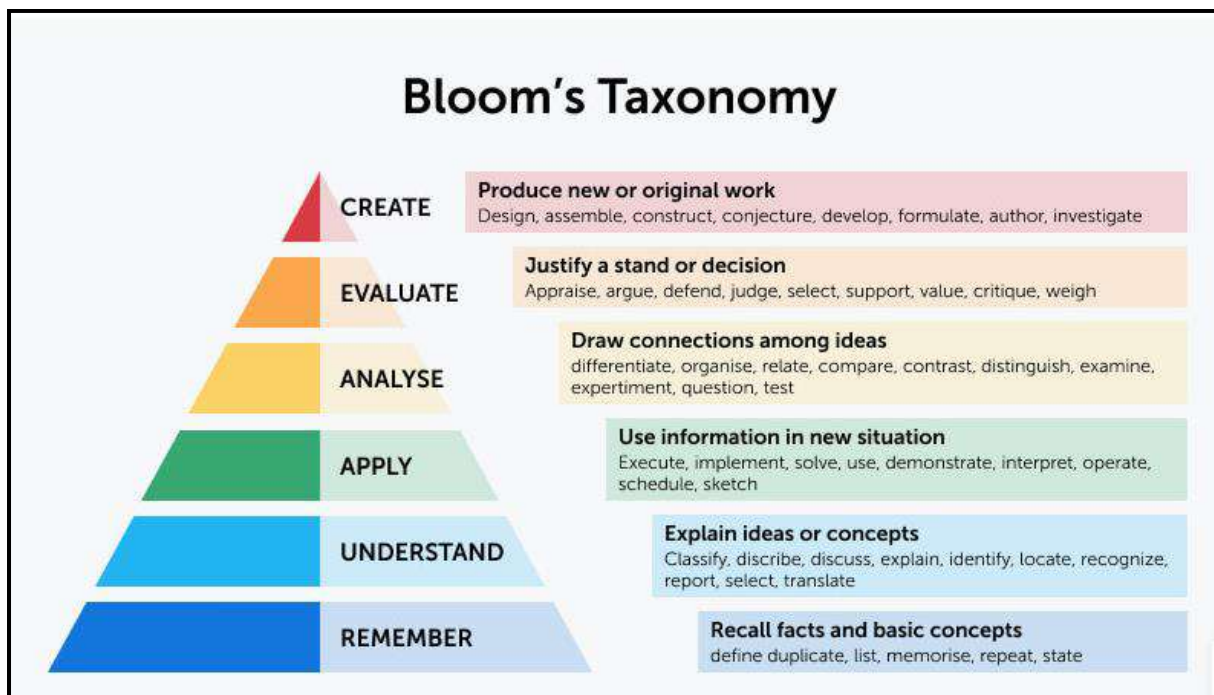
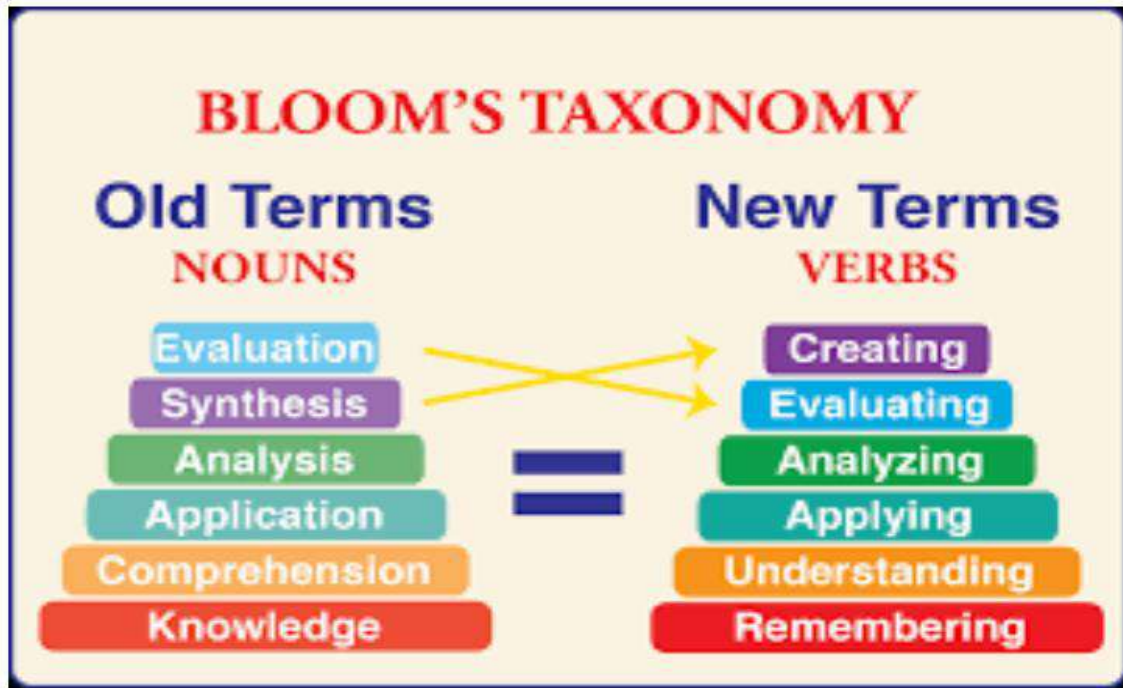


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Revised Bloom's Taxonomy





Cognitive Processes:

Level 1 - C1

Categories & Cognitive Processes	Alternative Names	Definition
Apply		Applying a procedure to a familiar task
Executing	Carrying out	Applying a procedure to a familiar task
Implementing	Using	Applying a procedure to an unfamiliar task

Level 2 - C2

Categories & Cognitive Processes	Alternative Names	Definition
Remember		Retrieve knowledge from long- term memory
Recognizing	Identifying	Locating knowledge in long-term memory that is consistent with presented material
Recalling	Retrieving	Retrieving relevant knowledge from long-term memory

Categories & Cognitive Processes	Alternative Names	Definition
Remember		Construct meaning from instructional messages, including oral, written, and graphic communication
Understand	Clarifying Paraphrasing Representing Translating	Changing from one form of representation to another
Interpreting	Illustrating Instantiating	Finding a specific example or illustration of a concept or principle
Exemplifying	Categorizing Subsuming	Determining that something belongs to a category
Classifying	Abstracting Generalizing	Abstracting a general theme or major point(s)
Summarizing	Concluding Extrapolating Interpolating Predicting	Drawing a logical conclusion from presented information
Inferring	Contrasting Mapping Matching	Detecting correspondences between two ideas, objects, and the like
Comparing	Constructing models	Constructing a cause and effect model of a



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		system
Explaining	Clarifying Paraphrasing Representing Translating	Construct meaning from instructional messages, including oral, written, and graphic communication

Level 3 – C3

Categories & Cognitive Processes	Alternative Names	Definition
Apply		Applying a procedure to a familiar task
Executing	Carrying out	Applying a procedure to a familiar task
Implementing	Using	Applying a procedure to an unfamiliar task

Categories & Cognitive Processes	Alternative Names	Definition
Analyze		Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose
Differentiating	Discriminating Distinguishing Focusing Selecting	Distinguishing relevant from irrelevant parts or important from unimportant parts of presented material
Organizing	Finding coherence Integrating Outlining Parsing Structuring	Determining how elements fit or function within a structure
Attributing	Deconstructing	Determine a point of view, bias, values, or intent underlying presented material

Level-4 C4

Evaluate		Make judgments based on criteria and standards
Checking	Coordinating Detecting Monitoring Testing	Detecting inconsistencies or fallacies within a process or product; determining whether a process or product has internal consistency; detecting the effectiveness of a procedure as it is being implemented
Critiquing	Judging	Detecting inconsistencies between a product and external criteria; determining whether a product has external consistency; detecting the appropriateness of a procedure for a given



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		problem
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Level- 5 C5

Categories & Cognitive Processes	Alternative Names	Definition
Create		Put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure
Generating	Hypothesizing	Coming up with alternative hypotheses based on criteria
Planning	Designing	Devising a procedure for accomplishing some task
Producing	Constructing	Inventing a product

The Knowledge Dimension

Dimension	Definition
Factual Knowledge	The basic elements students must know to be acquainted with a discipline or solve problems in it
Conceptual Knowledge	The interrelationships among the basic elements within a larger structure that enable them to function together
Procedural Knowledge	How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods
Met cognitive Knowledge	Knowledge of cognition in general as well as awareness and knowledge of one's own cognition

Blooms Taxonomy:

Cognitive Process 1: To Remember

Remembering consists of recognizing and recalling relevant information from long-term memory.

Verbs associated with this level:

Choose, define, describe, find, identify, label, list, locate, match, name, recall, recite, recognize, record, relate, retrieve, say, select, show, sort and tell



Cognitive Process 2: To understand

Understanding is the ability to make your own meaning from educational material such as reading and teacher explanations. The sub-skills for this process include interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.

Verbs associated with this level:

Categorize, clarify, classify, compare, conclude, construct, contrast, demonstrate, distinguish, explain, illustrate, interpret, match, paraphrase, predict, represent, reorganize, summarize, translate and understand

Cognitive Process 3: To apply

Applying refers to using a learned procedure either in a familiar or new situation.

Verbs associated with this level:

Apply, carry out, construct, develop, display, execute, illustrate, implement, model, solve and use

Cognitive process 4: To Analyze

To analyze is to break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose. Students analyze by differentiating, organizing, and attributing.

Verbs associated with this level:

Analyze, ascertain, attribute, connect, deconstruct, determine, differentiate, discriminate, dissect, distinguish, divide, examine, experiment, focus, infer, inspect, integrate, investigate, organize, outline, reduce, solve a problem.

Cognitive Process 5: To evaluate

To evaluate is to make judgments based on criteria and standards.

Verbs associated with this level:

Appraise, assess, award, check, conclude, convince, coordinate, criticize, critique, defend, detect, discriminate, evaluate, judge, justify, monitor, prioritize, rank, recommend, support, test, value

Cognitive Process 6: To Create

To create is to put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure; inventing a product. This skill involves putting things together to make something new. To accomplish creating tasks, learners generate, plan, and produce.

Verbs associated with this level:

Adapt, build, compose, construct, create, design, develop, elaborate, extend, formulate, generate, hypothesize, invent, make, modify, plan, produce, originate, refine, transform.



Bloom's Taxonomy

<p>LEVEL-I: Knowledge/ Remember: <i>Can the student recall or remember the information?</i></p> <ul style="list-style-type: none">• Arrange• Choose• Define• Describe• Find• How• Label• List• Match• Name• Relate• Recall• Show• What	<p>LEVEL-II: Comprehension/ Understand: <i>Can the student explain ideas or concepts?</i></p> <ul style="list-style-type: none">• Classify• Compare• Convert• Explain• Express• Illustrate• Outline• Relate• Show• Summarize• Translate
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Bloom's Taxonomy

<p>LEVEL-III: Application/ Apply: <i>Can the student use information in a new way?</i></p> <ul style="list-style-type: none">• Construct• Develop• Discover• Identify• Interview• Modify• Predict• Practice• Solve	<p>LEVEL-IV: Analysis/ Analyze: <i>Can the student distinguish between the different parts?</i></p> <ul style="list-style-type: none">• Categorize• Classify• Compare• Distinguish• Generate• Examine• Interpret• Operate• Simplify
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Bloom's Taxonomy

LEVEL-V:

Evaluation/ Evaluate:

Can the student justify a stand or decision?

- Assess
- Choose
- Compare
- Determine
- Evaluate
- Explain
- Interpret
- Justify
- Measure
- Prioritize
- Prove
- Select

LEVEL-VI:

Synthesis/ Create :

Can the student create new product or point of view?

- Choose
- Compile
- Compose
- Construct
- Create
- Develop
- Discuss
- Elaborate
- Estimate
- Formulate
- Maximize
- Minimize
- Modify
- Propose
- Solve

7. Lecture Plan Along with Class Test Schedule

Lecture No.	Module No.	CO	TOPIC ENTITLED	Remarks, if any
1.	1	1	General introduction	
2.	1	1	History and Nomenclature of penicillins	
3.	1	2	SAR and Stereochemistry of penicillins	
4.	1	3	Mechanism of action penicillins and Important products penicillins	
5.	1	1	History, Nomenclature and Classification of Cephalosporins	
6.	1	2	Stereochemistry and SAR and mechanism of action of Cephalosporins	
7.	1	3	Chemical degradation of Cephalosporins. Beta lactamase inhibitors and Monobactams	
8.	1	2	Aminoglycosides (Streptomycin, Neomycin, Kanamycin)	
9.	1	2	Tetracycline, Oxytetracycline, Chlortetracycline	
10.	1	2	Minocycline, Doxycycline	



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Class Test-1			
11.	2	1	Historical background, Nomenclature Stereochemistry and Structure activity Relationship of macrolides
12.	2	3	Chemical degradation, classification and important products of macrolides
13.	2	2	Historical background, Nomenclature Stereochemistry of Quinine sulphate, Chloroquine*, Amodiaquine, Primaquine phosphate
14.	2	2	Structure activity Relationship, Chemical degradation ,classification and important products of Quinine sulphate, Chloroquine, Amodiaquine,Primaquine phosphate
15.	2	1	Historical background, Nomenclature, Stereochemistry of Pamaquine*, Quinacrine hydrochloride, Mefloquine
16.	2	2	Structure activity Relationship , Chemical degradation classification and important products of Pamaquine, Quinacrine hydrochloride, Mefloquine
17.	2	2	Prodrugs: Basic concepts and application of Prodrugs design.
18.	2	2	Antimalarial (Quinolines)
19.	2	2	Biguanides and dihydro triazines: Cycloguanil pamoate, Proguanil.
20.	2	2	Miscellaneous: Pyrimethamine, Artesunete, Artemether, Atovoquone.
Class Test-2			
21.	3	4	Synthetic anti tubercular agents: Isoniazid*, Ethionamide, Ethambutol, Pyrazinamide
22.	3	4	Para amino salicylic acid.* Anti tubercular antibiotics: Rifampicin, Rifabutin,
23.	3	4	Cycloserine, Streptomycine, Capreomycin sulphate.
24.	3	4	Urinary tract anti-infective agents Quinolones: SAR of quinolones, Nalidixic Acid,
25.	3	4	Norfloxacin, Enoxacin,Ciprofloxacin*, Ofloxacin,
26.	3	4	Lomefloxacin, Sparfloxacin, Gatifloxacin, Moxifloxacin
27.	3	4	Miscellaneous: Furazolidine, Nitrofurantoin*, Methanamine.
28.	3	4	Antiviral agents: Amantadine hydrochloride, Rimantadine hydrochloride, Idoxuridine trifluoride, Acyclovir*
29.	3	2	, Gancyclovir, Zidovudine, Didanosine, Zalcitabine, Lamivudine, Loviride



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30.	3	2	, Delavirding, Ribavirin, Saquinavir, Indinavir, Ritonavir.	
			Class Test-3	
31.	4	4	Synthetic Antifungal agents: Clotrimazole, Econazole, Butoconazole, Oxiconazole Tioconazole, Miconazole*, Ketoconazole,	
32.	4	4	Terconazole, Itraconazole, Fluconazole, Naftifine hydrochloride, Tolnaftate*.	
33.	4	4	Anti-protozoal Agents: Metronidazole*, Tinidazole, Ornidazole, Diloxanide, Iodoquinol, Pentamidine	
34.	4	4	Isethionate, Atovaquone, Eflornithine. Anthelmintics: Diethylcarbamazine citrate*, Thiabendazole, Mebendazole*, Albendazole,	
35.	4	2	Niclosamide, Oxamniquine, Praziquantal, Ivermectin	
36.	4	4	Sulphonamides and Sulfones Sulphamethizole, Sulfoxazole, Sulphamethizine, Sulfacetamide*, Sulphapyridine	
37.	4	4	, Sulfamethoxazole*, Sulphadiazine, Mefenide acetate, Sulfasalazine.	
38.	4	4	Folate reductase inhibitors: Trimethoprim*, Cotrimoxazole. Sulfones: Dapsone*. Antifungal antibiotics: Amphotericin-B, Nystatin, Natamycin, Griseofulvin.	
			Class Test-4	
39.	5	5	Various approaches used in drug design.	
40.	5	5	Physicochemical parameters used in quantitative structure activity relationship (QSAR) such as partition coefficient, Hammett's electronic parameter,.	
41.	5	5	Taft's steric parameter and Hansch analysis	
42.	5	5	Pharmacophore modeling	
43.	5	5	Docking techniques	
44.	5	5	Combinatorial Chemistry: Concept and applications chemistry: solid phase synthesis	
45.	5	5	Solution phase synthesis.	
			Class Test-5	



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		Revision of university Question paper	
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8. Lecture Delivery schedule

NAME OF FACULTY: MR. PRASHANT KUMAR CHOUBEY				
SEMESTER: VI		Session: 2023-2024		Sec: A+B
SUBJECT & CODE: Medicinal Chemistry (BP601T)			TOTAL PERIODS: 4	
Lecture No.	CO	TOPIC ENTITLED	Planned Date	Actual Date
1.	1	General introduction	16.02.2024	16.02.2024
2.	1	History and Nomenclature of penicillins	20.02.2024	20.02.2024
3.	2	SAR and mechanism of action penicillins	21.02.2024	21.02.2024
4.	2	Stereochemistry and Important products penicillins	22.02.2024	22.02.2024
5.	1	History, Nomenclature and Classification of Cephalosporins	23.02.2024	23.02.2024
6.	2	Stereochemistry and SAR and mechanism of action of Cephalosporins	27.02.2024	27.02.2024
7.	3	Chemical degradation of Cephalosporins. Beta lactamase inhibitors and Monobactams	28.02.2024	28.02.2024
8.	2	Aminoglycosides Streptomycin,	29.02.2024	29.02.2024
9.	2	Neomycin, Kanamycin Tetracycline,	01.03.2024	01.03.2024
10.	2	Oxytetracycline, Chlortetracycline Minocycline, Doxycycline	05.03.2024	05.03.2024
		Class Test-1	06.03.2024	
11.	1&2	Historical background, Nomenclature Stereochemistry and Structure activity Relationship of macrolides	07.03.2024	
12.	3	Chemical degradation, classification and important products of macrolides	12.03.2024	
13.	1&2	Historical background, Nomenclature Stereochemistry of Quinine sulphate, Chloroquine*, Amodiaquine, Primaquine phosphate	13.03.2024	
14.	2	Structure activity Relationship, Chemical degradation ,classification and important products of Quinine sulphate, Chloroquine*, Amodiaquine,Primaquine phosphate	14.03.2024	



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15.	1&2	Historical background, Nomenclature, Stereochemistry of Pamaquine*, Quinacrine hydrochloride, Mefloquine	15.03.2024	
16.	2&4	Structure activity Relationship , Chemical degradation classification and important products of Pamaquine*, Quinacrine hydrochloride, Mefloquine	19.03.2024	
17.	2	Prodrugs: Basic concepts and application of Prodrugs design.	20.03.2024	
18.	2	Antimalarial (Quinolines)	21.03.2024	
19.	2	Biguanides and dihydro triazines: Cycloguanil pamoate, Proguanil.	22.03.2024	
20.	2	Miscellaneous: Pyrimethamine, Artesunete, Artemether, Atovoquone.	26.03.2024	
		Class Test-2	27.03.2024	
21.	4	Synthetic anti tubercular agents: Isoniazid*, Ethionamide, Ethambutol, Pyrazinamide	28.03.2024	
22.	4	Para amino salicylic acid.* Anti tubercular antibiotics: Rifampicin, Rifabutin,	29.03.2024	
23.	2	Cycloserine, Streptomycine, Capreomycin sulphate.	2.04.2024	
24.	2	Urinary tract anti-infective agents Quinolones: SAR of quinolones, Nalidixic Acid,	3.04.2024	
25.	4	Norfloxacin, Enoxacin, Ciprofloxacin*, Ofloxacin,	04.04.2024	
26.	2	Lomefloxacin, Sparfloxacin, Gatifloxacin, Moxifloxacin	05.04.2024	
27.	4	Miscellaneous: Furazolidine, Nitrofurantoin*, Methanamine.	09.04.2024	
28.	4	Antiviral agents: Amantadine hydrochloride, Rimantadine hydrochloride, Idoxuridine trifluoride, Acyclovir*	10.04.2024	
29.	2	, Gancyclovir, Zidovudine, Didanosine, Zalcitabine, Lamivudine, Loviride	11.04.2024	
30.	2	, Delavirding, Ribavirin, Saquinavir, Indinavir, Ritonavir.	12.04.2024	
		Class Test-3	16.04.2024	
31.	4	Synthetic Antifungal agents: Clotrimazole, Econazole, Butoconazole, Oxiconazole Tioconazole, Miconazole*, Ketoconazole,	17.04.2024	
32.	4	Terconazole, Itraconazole, Fluconazole, Naftifine hydrochloride, Tolnaftate*.	18.04.2024	



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33.	4	Anti-protozoal Agents: Metronidazole*, Tinidazole, Ornidazole, Diloxanide, Iodoquinol, Pentamidine	19.04.2024	
34.	4	Isethionate, Atovaquone, Eflornithine. Anthelmintics: Diethylcarbamazine citrate*, Thiabendazole, Mebendazole*, Albendazole,	23.04.2024	
35.	2	Niclosamide, Oxamniquine, Praziquantal, Ivermectin	24.04.2024	
36.	4	Sulphonamides and Sulfones Sulphamethizole, Sulfisoxazole, Sulphamethizine, Sulfacetamide*, Sulphapyridine	25.04.2024	
37.	4	, Sulfamethoxazole*, Sulphadiazine, Mefenide acetate, Sulfasalazine.	26.04.2024	
38.	4	Folate reductase inhibitors: Trimethoprim*, Cotrimoxazole. Sulfones: Dapsone*. Antifungal antibiotics: Amphotericin-B, Nystatin, Natamycin, Griseofulvin.	30.04.2024	
		Class Test-4	01.05.2024	
39.	5	Various approaches used in drug design.	02.05.2024	
40.	5	Physicochemical parameters used in quantitative structure activity relationship (QSAR) such as partition coefficient, Hammett's electronic parameter,.	03.05.2024	
41.	5	Taft's steric parameter and Hansch analysis	07.05.2024	
42.	5	Pharmacophore modeling	08.05.2024	
43.	5	Docking techniques	09.05.2024	
44.	5	Combinatorial Chemistry: Concept and applications chemistry: solid phase synthesis	10.05.2024	
45.	5	Solution phase synthesis.	14.05.2024	
		Class Test-5	15.05.2024	
		Revision of university Question paper		
		Total No. of Lectures Planned: 45		



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9. LIST OF STUDENTS

S. No.	ROLL NO.	STUDENTS NAME
1.	2105510500001	ABHISHEK KUMAR CHAUBEY
2.	2105510500002	ABHISHEK MAURYA
3.	2105510500003	ADARSH MISHRA
4.	2105510500004	AKASH KESHARI
5.	2105510500005	AKASH PATEL
6.	2105510500006	AKHILESH CHAUHAN
7.	2105510500007	ALOK KUMAR PATEL
8.	2105510500008	AMAN PANDEY
9.	2105510500010	AMIT SINGH
10.	2105510500012	ANCHAL PATHAK
11.	2105510500013	ANIKET JAISWAL
12.	2105510500014	ANKIT SINGH
13.	2105510500015	ANKUR YADAV
14.	2105510500017	ANURAG SINGH
15.	2105510500018	ASHUTOSH KUMAR KUSHWAHA
16.	2105510500019	ASHWANI KUMAR CHAUBEY
17.	2105510500020	ASWIN SINGH
18.	2105510500021	AYUSH KUMAR
19.	2105510500022	BIPUL SINGH
20.	2105510500023	CHANDAN YADAV
21.	2105510500025	DEEPU CHAUHAN
22.	2105510500026	DIVYANSH CHAUBEY
23.	2105510500027	DIVYANSHU YADAV
24.	2105510500029	GYANENDRA KUMAR UPADHYAY
25.	2105510500030	HARSH PANDEY
26.	2105510500031	HARSH SINGH
27.	2105510500033	HARSH SINGH
28.	2105510500034	HIMANSHU MISHRA
29.	2105510500035	HIMANSHU SINGH
30.	2105510500036	ISHA GUPTA



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32.	2105510500038	JANHVI RAI
33.	2105510500039	JYOTI DEVI
34.	2105510500040	JYOTI PATEL
35.	2105510500041	KM AKANKSHA KASAUNDHAN
36.	2105510500042	KM DIVYA MISHRA
37.	2105510500043	KM KALPANA VERMA
38.	2105510500044	KOMAL YADAV
39.	2105510500045	LAV TIWARI
40.	2105510500046	MAHAVEER PRASAD PANDEY
41.	2105510500047	MAMTA SINGH
42.	2105510500048	MANISHA KANNAUJIYA
43.	2105510500049	MANSHI KUMARI
44.	2105510500050	MD SHEIKH ZAFAR
45.	2105510500052	MOHIT KUMAR
46.	2105510500053	MRIDUL SINGH
47.	2105510500054	NARAYAN SINGH
48.	2105510500055	NEHA KUMARI
49.	2105510500056	NIKHIL KUSHWAHA
50.	2105510500057	NISHANT PATEL
51.	2105510500058	NITISH KUMAR VISHWAKARMA
52.	2105510500059	NIYAZ AHMAD ANSARI
53.	2105510500060	PAVAN KUMAR
54.	2105510500061	PRAFUL SINGH
55.	2105510500063	PRIYANKA SINGH
56.	2105510500064	PRIYANSHU SINGH
57.	2105510500065	PRIYESH KESHARI
58.	2105510500066	RAHUL BIR
59.	2105510500067	RAHUL MAURYA
60.	2105510500068	RAJVEER SINGH
61.	2105510500069	RAKESH DEO PANDEY
62.	2105510500070	RAUNAK KUMAR SINGH
63.	2105510500071	RAVI KUMAR SHUKLA



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65.	2105510500074	ROHIT PATEL
66.	2105510500075	SACHIN KUMAR
67.	2105510500076	SAJJAN YADAV
68.	2105510500077	SAMPURNA NAND UPADHYAY
69.	2105510500078	SANDHYA SINGH
70.	2105510500079	SARFARAJ ALI
71.	2105510500080	SARTHAK SINGH
72.	2105510500082	SHAAD WALI
73.	2105510500083	SHASHANK SINGH
74.	2105510500084	SHIVAM SINGH
75.	2105510500086	SHRUTI JAISWAL
76.	2105510500087	SHUBHAM PATEL
77.	2105510500089	SINGH RASHMI SANJAY
78.	2105510500090	SNEHA UPADHYAY
79.	2105510500091	SRISHTI TRIPATHI
80.	2105510500093	SUNITA YADAV
81.	2105510500094	SURAJ SINGH
82.	2105510500095	SURYA SINGH
83.	2105510500096	TANYA PATEL
84.	2105510500097	UTKARSH RAI
85.	2105510500099	VAIBHAY MISHRA
86.	2105510500100	VEER PRATAP SINGH
87.	2105510500101	VIMAL KUMAR DUBEY
88.	2105510500102	VISHAL GUPTA
89.	2105510500104	VIVEK GUPTA
90.	2105510500105	VIVEK KUMAR MISHRA
91.	2205510509001	KHUSHBOO YADAV
92.	2205510509002	MONU YADAV
93.	2205510509003	NIDHI YADAV



10. INTRODUCTORY CLASSES

1. Name of the Faculty Member: **Mr. Prashant Kumar Choubey**
2. Did you teach this/ similar subject earlier in any class?: **YES**
3. **Class Room Management** - When you enter the class observe the following:
EVERYTHING IS FIND OK.
 - (a) Students should get up & pay compliments; if not teach them to do so and Reply back & tell them to sit down
 - (b) See that the seating arrangement is proper. If required make changes.
 - (c) Ask General Welfare of the students especially hosteller regarding their mess & food.
 - (d) In case any particular student is found not cheerful, ask the reason & do the needful.
 - (e) Make the students aware of General Discipline, Dress Code, Attendance and class etiquettes.
 - (f) Emphasize importance of taking down notes in separate copies for different subjects, keeping in step with the class and Establish importance of asking questions.
 - (g) Importance of communication in English for the professionals.
4. When you find that the students are comfortable and ready to listen, then talk on the following points: **YES**
 - (a) Introduce yourself i.e. Name, qualification and experience in research etc. and any other information which may influence the students to regard you as their teacher/ guide or mentor.
 - (b) Introduce the subject to be taught highlighting the following:
 - ❖ Course Objectives
 - ❖ Course Outcomes
 - ❖ Expectations from the students after attending the Course
 - ❖ Evaluation Scheme, Syllabus and Books
 - ❖ Course Delivery to include – Total number of Units to be taught in the semester, number of Units to be covered up before 1st sessional, tests, sessional test schedules, duration and course coverage in the tests, number of assignments/ quizzes, sessional marks policy etc.
 - ❖ Importance and relevance of the subject in Pharmacy.



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- ❖ Its importance for career in the industry & likely career avenues, Need of the knowledge in human life, at national & international level.
 - ❖ Brief summary of the subject taught in previous semester (to connect the current subject with the subject taught earlier-pre-requisites).
 - ❖ Clarify doubts, if any, about the curriculum and about any other matter.
- (c) Create interest amongst the students so that they will eagerly wait to attend your classes.
- (d) Provide information about various co-curricular and extra-curricular activities and clubs in the college and emphasize their importance for their overall personality development and help in placement. Also inform the incentive schemes for their participation in such activities within the college and outside.
- (e) Provide information about technical Society/ professional magazines being promoted by the department and various Centres of Excellence in the college.
5. Just before the end of the class, enquire if they have any comments or suggestion.
6. Submit the report to the HOD after the introductory class.

Observations/ Report

As per the instructions above, everything was done and it was observed that students are more enthusiastic towards the learning of this subject in coming lectures. Also the pre requisite questions were done on the spot by students.



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11. PLAN SUMMARY OF ASSIGNMENT

KASHI INSTITUTE OF PHARMACY			
SUMMARY OF ASSIGNMENT-B.PHARM SEM-VI			
Subject: Medicinal Chemistry-III		Session: 2023-24	
Sub Code: BP601T			
S.NO	Assignment	Planned Date	Actual Date
1	Assignment-1	06/03/2024	06/03/2024
2	Assignment-2	27/03/2024	
3	Assignment-3	16/04/2024	
4	Assignment-4	01/05/2024	
5	Assignment-5	15/05/2024	



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12. UNIT WISE ASSIGNMENTS

KASHI INSTITUTE OF PHARMACY			
PROGRAM : Pharmacy (B. Pharm)		Semester: VI	
COURSE CODE : BP601T			
COURSE: Medicinal Chemistry III		MM: 10	
Assignment-I			
Sr. No.	Assignment Question	Mapped CO's	Bloom Level
1.	Nomenclature and SAR of penicillins	2	L1,L2,L3
2.	Stereochemistry and SAR of Cephalosporins	2	L1,L2,L3
3.	Chemical degradation of Cephalosporins	3	L1,L2
4.	Short notes on chemistry of Streptomycin	2	L1,L2,L3
5.	Short notes on SAR and chemistry of Tetracycline	2	L1,L2,L3

KASHI INSTITUTE OF PHARMACY			
PROGRAM : Pharmacy (B. Pharm)		Semester: VI	
COURSE CODE : BP601T			
COURSE: Medicinal Chemistry III		MM: 10	
Assignment-II			
Sr. No.	Assignment Question	Mapped CO's	Bloom Level
1.	Short notes on Nomenclature and of macrolides	1	L1,L2
2.	Chemical degradation, of macrolides	3	L1,L2
3.	Synthesis of Chloroquine and pamaquine	4	L2,L6
4.	Structure activity Relationship, Chemical degradation of Quinine sulphate,	3	L1,L2
5.	Write a short note on prodrug concept	2	L1,L2,L3



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KASHI INSTITUTE OF PHARMACY			
PROGRAM : Pharmacy (B. Pharm)		Semester: VI	
COURSE CODE : BP601T			
COURSE: Medicinal Chemistry III		MM: 10	
Assignment-III			
Sr. No.	Assignment Question	Mapped CO's	Bloom Level
1.	Synthesis of Isoniazid	4	L2,L6
2.	SAR of quinolones	2	L1,L2,L3
3.	Synthesis of Ciprofloxacin	4	L6
4.	Synthesis of nitrofurantoin	4	L6
5.	Chemistry and synthesis of acyclovir	4	L2,L6

KASHI INSTITUTE OF PHARMACY			
PROGRAM : Pharmacy (B. Pharm)		Semester: VI	
COURSE CODE : BP601T			
COURSE: Medicinal Chemistry III		MM: 10	
Assignment-IV			
Sr. No.	Assignment Question	Mapped CO's	Bloom Level
1.	Write a note on chemistry of Clotrimazole	4	L2
2.	Synthesis of Miconazole	4	L6
3.	Synthesis of Metronidazole	4	L6
4.	Synthesis of Diethylcarbamazine citrate	4	L6
5.	Synthesis of sulfamethoxazole	4	L6



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KASHI INSTITUTE OF PHARMACY

PROGRAM : Pharmacy (B. Pharm) Semester: VI

COURSE CODE : BP601T

COURSE: Medicinal Chemistry III MM: 10

Assignment-V

Sr. No.	Assignment Question	Mapped CO's	Bloom Level
1.	Note on Hammet's electronic parameter	5	L1,L2,L3
2.	Note on Tafts steric parameter	5	L1,L2,L3
3.	Note on Pharmacophore modeling	5	L1,L2,L3
4.	Short note on solid phase synthesis	5	L1,L2,L3
5.	Note on various Docking techniques	5	L1,L2,L3




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13. & 14. SOLUTION OF ASSIGNMENTS AND MARKS

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MIRZAMURAD VARANASI

ASSIGNMENT -1

COURSE : B.PHARM 3rd YEAR

Session : 2023-2024

SUBJECT : MEDICINAL CHEMISTRY III

Submitted By **ALOK KUMAR PATEL**
ROLL -2105510500007

Submitted To **PRASHANT CHAUBEY**
ASSISTANT PROFESSOR

10/10

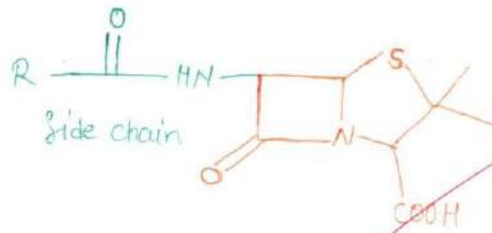


ques → 1 Nomenclature and SAR of Penicillin

10
10

NOMENCLATURE OF PENICILLIN

⇒ According to chemical abstract, Penicillins are numbered start from S atom. Sulfur atom assigned as 1st position and N atom assigned as in the 4th position and is called as 6-acylamino 2,2-dimethyl-3-carboxylic acid.



• According to USP system, N' atom assigned as 1st position and 'S' atom assigned in the 4th position and is called as 4-thia-1-azabicyclo heptane.



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15. MENTOR – MENTEE LIST

KASHI INSTITUTE OF PHARMACY			
MENTORSHIP PROGRAM			
B.PHARM 3rd YEAR Students, 2023-2024			
Sr. No.	Roll Number	Name of Candidate	Mentor Name
1	2105510500001	ABHISHEK KUMAR CHAUBEY	Mr. Omprakash Verma
2	2105510500002	ABHISHEK MAURYA	
3	2105510500003	ADARSH MISHRA	
4	2105510500004	AKASH KESHARI	
5	2105510500005	AKASH PATEL	
6	2105510500006	AKHILESH CHAUHAN	
7	2105510500007	ALOK KUMAR PATEL	
8	2105510500008	AMAN PANDEY	
9	2105510500010	AMIT SINGH	
10	2105510500011	ANAND CHAUBEY	
11	2105510500012	ANCHAL PATHAK	
12	2105510500013	ANIKET JAISWAL	
13	2105510500014	ANKIT SINGH	
14	2105510500015	ANKUR YADAV	
15	2105510500017	ANURAG SINGH	
16	2105510500018	ASHUTOSH KUMAR KUSHWAHA	
17	2105510500019	ASHWANI KUMAR CHAUBEY	
18	2105510500020	ASWIN SINGH	
19	2105510500021	AYUSH KUMAR	
20	2105510500022	BIPUL SINGH	
21	2105510500023	CHANDAN YADAV	



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23	2105510500026	DIVYANSH CHAUBEY	
24	2105510500027	DIVYANSHU YADAV	
25	2105510500028	GAURAV KUMAR DUBEY	
26	2105510500029	GYANENDRA KUMAR UPADHYAY	Mr. Deepak Kumar
27	2105510500030	HARSH PANDEY	
28	2105510500031	HARSH SINGH	
29	2105510500032	HARSH SINGH	
30	2105510500033	HARSH SINGH	
31	2105510500034	HIMANSHU MISHRA	
32	2105510500035	HIMANSHU SINGH	
33	2105510500036	ISHA GUPTA	
34	2105510500037	JAI SINGH	
35	2105510500038	JANHVI RAI	
36	2105510500039	JYOTI DEVI	
37	2105510500040	JYOTI PATEL	
38	2105510500041	KM AKANKSHA KASAUNDHAN	
39	2105510500042	KM DIVYA MISHRA	
40	2105510500043	KM KALPANA VERMA	
41	2105510500044	KOMAL YADAV	
42	2105510500045	LAV TIWARI	
43	2105510500046	MAHAVEER PRASAD PANDEY	
44	2105510500047	MAMTA SINGH	
45	2105510500048	MANISHA KANNAUJIYA	
46	2105510500049	MANSHI KUMARI	
47	2105510500050	MD SHEIKH ZAFAR	
48	2105510500052	MOHIT KUMAR	
49	2105510500053	MRIDUL SINGH	
50	2105510500054	NARAYAN SINGH	



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51	2105510500055	NEHA KUMARI	Ms. Sneha Yadav
52	2105510500056	NIKHIL KUSHWAHA	
53	2105510500057	NISHANT PATEL	
54	2105510500058	NITISH KUMAR VISHWAKARMA	
55	2105510500059	NIYAZ AHMAD ANSARI	
56	2105510500060	PAVAN KUMAR	
57	2105510500061	PRAFUL SINGH	
58	2105510500062	PRASHANT SINGH	
59	2105510500063	PRIYANKA SINGH	
60	2105510500064	PRIYANSHU SINGH	
61	2105510500065	PRIYESH KESHARI	
62	2105510500066	RAHUL BIR	
63	2105510500067	RAHUL MAURYA	
64	2105510500068	RAJVEER SINGH	
65	2105510500069	RAKESH DEO PANDEY	
66	2105510500070	RAUNAK KUMAR SINGH	
67	2105510500071	RAVI KUMAR SHUKLA	
68	2105510500072	RISHI PANDEY	
69	2105510500073	RISHI RAJ YADAV	
70	2105510500074	ROHIT PATEL	
71	2105510500075	SACHIN KUMAR	
72	2105510500076	SAJJAN YADAV	
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74	2105510500078	SANDHYA SINGH	
75	2105510500079	SARFARAJ ALI	
76	2105510500080	SARTHAK SINGH	Mr.Sachchidanand Pathak
77	2105510500082	SHAAD WALI	
78	2105510500083	SHASHANK SINGH	
79	2105510500084	SHIVAM SINGH	
80	2105510500086	SHRUTI JAISWAL	
81	2105510500087	SHUBHAM PATEL	
82	2105510500088	SHUBHAM SHUKLA	
83	2105510500089	SINGH RASHMI SANJAY	
84	2105510500090	SNEHA UPADHYAY	
85	2105510500091	SRISHTI TRIPATHI	
86	2105510500092	SUDHANSHU SHEKHAR SINGH	
87	2105510500093	SUNITA YADAV	
88	2105510500094	SURAJ SINGH	
89	2105510500095	SURYA SINGH	
90	2105510500096	TANYA PATEL	
91	2105510500097	UTKARSH RAI	
92	2105510500099	VAIBHAY MISHRA	
93	2105510500100	VEER PRATAP SINGH	
94	2105510500101	VIMAL KUMAR DUBEY	
95	2105510500102	VISHAL GUPTA	
96	2105510500103	VISHAL PANDEY	
97	2105510500104	VIVEK GUPTA	
98	2105510500105	VIVEK KUMAR MISHRA	
99	2205510509001	KHUSHBOO YADAV	
100	2205510509002	MONU YADAV	
101	2205510509003	NIDHI YADAV	



29. UNIVERSITY QUESTION PAPER

Printed Pages: 01

Paper Id: 236618

Sub Code: BP-601T

Roll No.

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**B. PHARM
(SEM VI) THEORY EXAMINATION 2022-23
MEDICINAL CHEMISTRY III**

Time: 3 Hours

Total Marks: 75

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

- 1. Attempt all questions in brief. 10 x 2 = 20**
- a. Describe the nomenclature of beta-lactam antibiotics.
 - b. Give two examples of tetracycline antibiotics.
 - c. Describe the concept of Prodrug in drug development.
 - d. Outline the synthesis of Chloramphenicol.
 - e. Enlist anti-tubercular antibiotics.
 - f. Outline the synthesis for Acyclovir.
 - g. Describe the synthesis of Dapsone.
 - h. Define antiprotozoal agents with examples.
 - i. Illustrate combinatorial synthesis in drug discovery.
 - j. Define Molecular Docking.

SECTION B

- 2. Attempt any twoparts of the following: 2 x 10 = 20**
- a. Outline the classification of beta-lactam antibiotics with examples. Explain structure activity relationship for Penicillin.
 - b. Outline classification of anti-infective agents used in urinary tract infections. Explain structure activity relationship for Quinolones and synthesis of Ciprofloxacin.
 - c. Enlist and illustrate the physicochemical parameters used in QSAR.

SECTION C

- 3. Attempt any fiveparts of the following: 7 x 5 = 35**
- a. Describe the synthesis and uses of Diethylcarbamazine citrate and Mebendazole.
 - b. Illustrate Solid Phase and Solution Phase Synthesis along with their applications.
 - c. Outline the synthesis, and uses of Isoniazid and Nitrofurantoin.
 - d. Illustrate in detail about types of Prodrugs with their applications.
 - e. Classify antiviral agents with examples and explain their mechanism of action.
 - f. Illustrate the classification of Sulphonamides with synthesis of Sulfacetamide.
 - g. Describe azoles as antifungal agents with suitable examples.



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Printed page: 1 of 1
Subject Code: BP601T

Roll No: _____

**BPHARMA
(SEM VI) THEORY EXAMINATION 2021-22
MEDICINAL CHEMISTRY III – THEORY**

Time: 3 Hours

Total Marks: 75

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief.

10 x 2 = 20

a.	What is B-lactam antibiotics? Give some examples.
b.	Draw the chemical structures of minocycline and doxycycline.
c.	Write the mechanism of action of Chloramphenicol.
d.	Define prodrugs with examples.
e.	Enlist urinary tract anti-infective agents
f.	Write the mode of action and uses of zidovudine.
g.	Write mode of action and synthesis of isoniazid.
h.	Define anthelmintic agents. Write the synthesis of Mebendazole.
i.	Define QSAR.
j.	Describe applications of combinatorial Chemistry.

SECTION B

2. Attempt any *two* parts of the following:

2 x 10 = 20

a.	Discuss in detail about cephalosporins with suitable examples.
b.	Explain SAR of tetracycline. Discuss its mechanism of action and uses.
c.	Describe structure activity relationship of 4-amino quinolone. Explain mechanism of action and synthesis of Chloroquine.

SECTION C

3. Attempt any *five* parts of the following:

7 x 5 = 35

a.	Explain substituent hydrophobicity constant in relation to drug design.
b.	Explain in detail about aminoglycosides with examples.
c.	Discuss chemistry, classification and SAR of Sulfonamides with suitable examples.
d.	Classify synthetic antifungal agents. Describe mechanism of action, synthesis and uses of Miconazole.
e.	Define combinatorial chemistry and explain in detail about solid phase synthesis.
f.	Define and classify anti tubercular agents. Explain in detail with suitable example.
g.	Describe the synthesis and uses of Acyclovir, Ciprofloxacin and Dapsone.



Printed Pages: 01

Paper Id: 150288

Sub Code: RPH627

Roll No.

B. PHARM
(SEM VI) THEORY EXAMINATION 2018-19
PHARMACEUTICAL CHEMISTRY-VII (MEDICINAL CHEMISTRY-II)

Time: 3 Hours

Total Marks: 70

Note: 1. Attempt all Sections. If you require any missing data, choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

- a. Define ligand.
- b. Give two examples of 2D descriptor.
- c. Give mode of action and examples of class I antiarrhythmic drugs.
- d. Draw the structure of insulin.
- e. Write the synthesis of celecoxib
- f. Write the mode of action and synthesis of minoxidil.
- g. Write mode of action and examples of angiotensin converting enzyme inhibitors.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

- a. What is hammet substituent constant? Explain the role of electronic parameter in QSAR.
- b. Define and classify antianginal drugs. Discuss mode of action synthesis and uses of Isosorbide dinitrate
- c. Write the mode of action synthesis of metformin and propylthiouracil.
- d. Define and classify NSAID. Discuss SAR of aryl acetic acid derivatives.
- e. Discuss in detail about cosmeceuticals. Write the synthesis of tazarotene.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Discuss in detail about 3D QSAR methodologies.
- (b) Discuss in detail about structure based drug design

4. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Explain in detail about calcium channel blocker.
- (b) Explain SAR, mode of action, synthesis and uses of Lovastatin

5. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Classify hypoglycemic agents and discuss in detail about thiazolidinediones and alpha glucosidase inhibitors.
- (b) Discuss the SAR of Chlorthiazide diuretics and write the synthesis and uses of acetazolamide.

6. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Write a note on anticoagulants.
- (b) Discuss mode of action, synthesis and uses of paracetamol and mefenamic acid.

7. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Define and classify antihistaminic agents. Discuss the mode of action and synthesis of diphenhydramine.
- (b) Explain proton pump inhibitor with special reference to rabeprazole.



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Printed Pages: 02

Paper Id: 1 5 0 6 1 1

Sub Code:PH-361

Roll No.

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B PHARM
(SEM-VI) THEORY EXAMINATION 2017-18
PHARMACEUTICAL CHEMISTRY- VI
(MEDICINAL CHEMISTRY-II)

Time: 3 Hours

Total Marks: 100

Note: Attempt all Sections.

SECTION A

1. **Attempt all questions in brief.** **2 x 10 = 20**
- a. Differentiate between structure based and analogue based drug design.
 - b. Give two examples of cardiac glycosides used in the treatment of CHF.
 - c. What are anti-anginal drugs? Give examples of nitrovasodialator used in the treatment of angina.
 - d. Define alkylating agents with example of drugs. Alkylating agents are used in the treatment of which disease?
 - e. What are the main uses of H₁- receptor blockers? Give any two examples of H₁-receptor blocker drugs.
 - f. Write down the structure and uses of Mefenamic acid.
 - g. Define anticoagulant drugs. Write down two examples of anticoagulant drugs.
 - h. What is the rationale behind use of sulphamethoxazole and trimethoprim as drug combination in drug Co-trimoxazole?
 - i. Write down the structure and uses of Captopril.
 - j. Give an example of aldosterone antagonist used as diuretic agent.

SECTION B

2. **Attempt any three of the following:** **10 x 3 = 30**
- a. Write down the synthesis, mode of action and uses of Propranolol.
 - b. Write down the synthesis, mode of action and uses of Methotrexate.
 - c. Write down the synthesis, mode of action and uses of Paracetamol.
 - d. Write down the synthesis, mode of action and uses of Furosemide.
 - e. Write down the synthesis, mode of action and uses of Nalidixic acid.

SECTION C

3. **Attempt any one part of the following:** **10 x 1 = 10**
- (a) Define drug design. Discuss in detail various approaches to analogue based drug design.
 - (b) Define QSAR. Write a detailed note on various descriptors used in QSAR study.
4. **Attempt any one part of the following:** **10 x 1 = 10**
- (a) Classify antiarrhythmic drugs with examples. Write down the synthesis and mode of action of Procainamide.
 - (b) Classify antianginal drugs with suitable examples. Write down the mode of action and uses of Methyldopa.



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BOP361

B.PHARM.

THEORY EXAMINATION (SEM-VI) 2016-17

MEDICINAL CHEMISTRY-II

Time : 3 Hours

Max. Marks : 100

Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION – A

1. Explain the following: 10 x 2 = 20
- Define QSAR.
 - What is soft drug?
 - Define prodrug.
 - Give the structure and category of Procainamide.
 - What is angina pectoris and how will you cure.
 - Give the category of following drugs- Methimazole, Spironolactone, Glibenclamide, Mefenamic Acid
 - What is NSAIDS? Give any two examples.
 - Match the following:

Proton pump inhibitors	Chlorthiazide
NSAIDS	Amlodipine.
Diuretics	Rabeprazole.
Antihypertensive drugs	Diclofenac
 - Give the role of Rabeprazole.
 - What is Cosmeceuticals?

SECTION – B

2. Attempt any five parts of the following questions: 5 x 10 = 50
- Discuss the basic concepts of drug design.
 - Explain analogue based drug design and structure based drug design.
 - Give the classification of Antiarrhythmic drugs also give the synthesis of Atenolol.
 - Write the synthesis and MOA of Furosemide.
 - Give the synthesis and uses of any two.
 - Glibenclamide,
 - Spironolactone
 - Methimazole
 - Write the classification of Non steroidal anti-inflammatory drugs also give the MOA of Paracetamol.
 - Write about Hypoglycaemic agents. Explain them with suitable examples.
 - Discuss the, structure activity relationship, mode of action and uses of Aspirin.

SECTION – C

3. Attempt any two parts of the following questions: 2 x 15 = 30
- Explain the basic concepts of QSAR. Discuss about molecular descriptors with reference to the 2D and 3D parameters.
 - Write the classification of Antihistaminic drugs. Give SAR and synthesis of Diphenhydramine.
 - Write in detail about the Antihypertensive drugs with reference to the Captopril.

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30.LECTURE NOTES

- ❖ Lecture notes has been prepared (Handwritten, PPT and Handbook) and compiled in separate file.



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**END OF
COURSE FILE**