2.5.1: Mechanism of internal/ external assessment is transparent and the grievance redressal system is time- bound and efficient

Index

PRINCIPAL

Avanthi Institute of Pharmaceutical Sciences
Cherukupally (V), Bhogapuram Mandal
Vizianagaram Dt., - 531162

Principal

PRINCIPAL
Avanthi Institute of Pharmaceutical Sciences
Cherukupally (V), Bhogapuram Mandal
Vizianagaram Dt., - 531162

Mechanism for Internal Examination Grievance Redressal:

The college has a well-organized mechanism for Redressal of examination related grievances. The students can approach the faculty members, the concerned HOD and the Principal to redress the examination related grievances. The institution follows the University policy regarding the conduct of Examinations. The entire mechanism to deal with examination related grievances is time bound as per the University rules and regulations.

Procedure of Internal Examination:

- At the beginning of the semester, faculty members will inform the students about the various components in the assessment process during the semester as per the time-tables issued by JNTU-Vizianagaram.
- Time tables of both Examinations will be circulated to all HODS and Faculty members
- The same time tables will be circulated to all the students and also displayed on the College Notice Board.
- The internal assessment test schedules are prepared as per the university norms and communicated to the students well in advance.
- To ensure proper conduct of formative tests, two invigilators are assigned to each hall.
- Evaluation is done by the course handling faculty members and is informed to submit the evaluated answer scripts within three days from the date of conduct of examination.
- The corrected answer scripts are distributed to the students for their verification and in case of any grievances, steps are also taken to resolve it immediately.
- The marks obtained by the students in internal assessment tests are displayed on the department notice board
- After that the marks are uploaded periodically on the university web portal along with their attendance
- Day to day performance of the students is assessed for every experiment which includes regularity, viva and the promptness in subsiting the record for the quality of the projects, the evaluation is done by Project Review Committee along with project guides.

Redressal of Grievances related to Internal Examination (College level):

- After the Mid Exam evaluation, the descriptive answer scripts will be distributed to the students for verification.
- In case of any corrections, the student will take it to the notice of the concerned faculty.

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- The concerned faculty will re-evaluate the answer script based on the scheme of evaluation and if no difference in marks is identified, the same will be communicated to the student by explaining the scheme of evaluation. If any difference in marks is noticed, the faculty will modify the marks.
- More than 90% of the issues will be resolved at the faculty level.
- In case the problem is not resolved by the faculty/or if the student is not satisfied, the same would be taken to the notice of concerned HOD.
- The HOD would handle such grievances by assigning the related sheets (question paper, scheme of evaluation, answer script) to another subject expert for immediate revaluation.
- After revaluation if there is no change in the marks, the same would be communicated to the student(s).
- In case of any difference in marks the concerned HOD will inform to the subject faculty to update the marks.
- The Mid marks are allotted based on defined strategies and displayed on notice board.

Mechanism for External Examination Grievance Redressal:

The college has a well-organized mechanism for Redressal of examination related grievances. All the discrepancies regarding examination, faced by the college is immediately brought to the notice of the Controller of Examination of the University and corrections if any are done only after getting instructions from the University. It is very transparent and time bound.

Procedure of External Examination:

- The End Examination for the laboratory and projects shall be conducted with External examiner appointed from the other colleges as decided by the University.
- The Examination Cell will prepare the invigilation chart for Faculty and seating plan arrangement for the students with internal jumbling mechanism based on the time tables.
- Invigilators shall make announcement in the Examination Hall about the rules regarding the conduct of Examinations including the prohibition of electronic devices by the students in the Examination Hall.
- The invigilators are expected to be tactful while dealing with complex situations and not to disturb the tranquillity in the exam hall.
- In case any problem is identified, he/she may bring the matter to the notice of the Chief Supertendent and depending on the seriousness of the issue, the same can/could be taken to the notice of Controller of the Examinations (CE).

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- Generally, scheduled forenoon session Examinations starts at 10.00 AM and afternoon session Examinations starts at 2.00 PM.
- Invigilators were informed to arrive at the respective examination halls at least 30 minutes before the commencement of the Examination.
- All invigilators appointed in a hall are informed to report back in the Examination Cell after the completion of examination and are solely responsible for the submission of the answer booklets to the concerned Examination Cell authorities.
- Invigilators were informed to report immediately to the Chief Supertendent if any unusual incidents identified/traced during the examinations.

Redressal of grievances related to External Examinations (University level):

The queries related to results, corrections in mark sheets issued by the University are handled at J.N.T.U-GV Examination Cell after forwarding such queries through the college Examination Cell. If the students are not satisfied with the marks evaluated by the University, the students are allowed to apply for Revaluation. Recounting and Challenged Evaluation by paying the necessary processing fee to the University. For students whose marks are not entered or incorrectly entered, the college sends a photocopy of the mark list with an application to rectify the error at the University level. Thus, the college is prompt and takes utmost care in handling any Grievances of the student(s).

Principal

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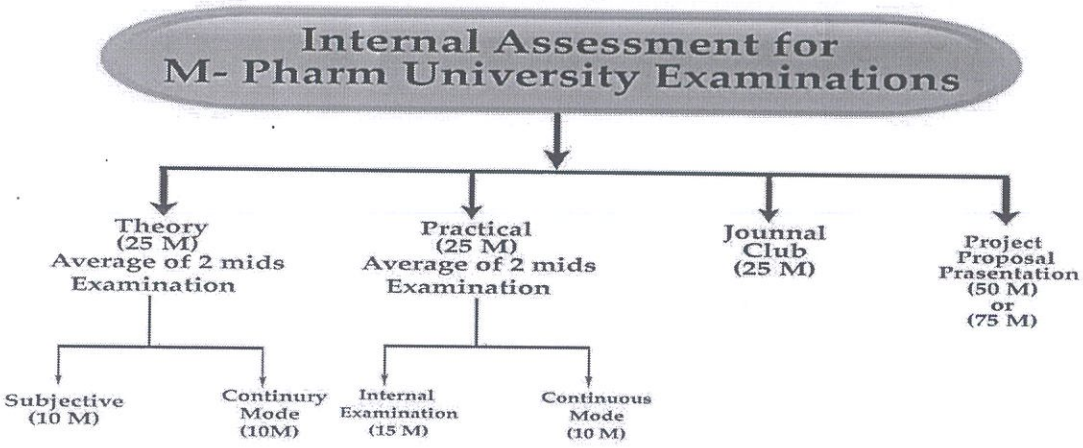
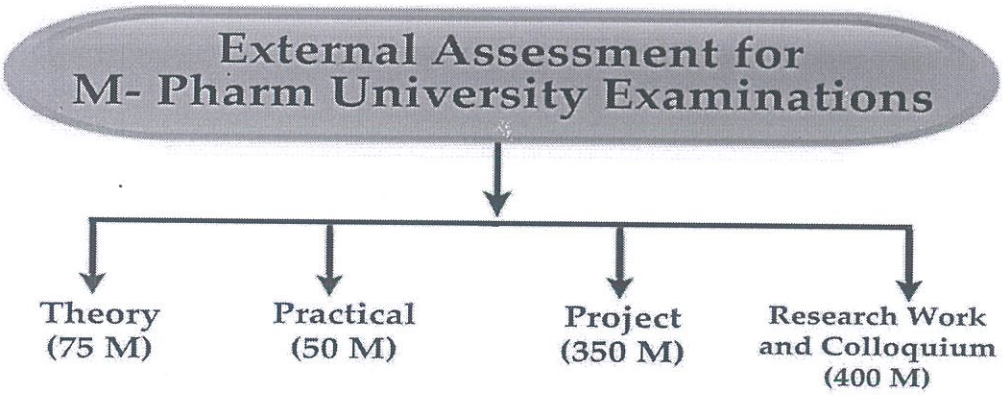
ACADEMIC REGULATIONS AS PER UNIVERSITY AND PCI GUIDELINES

Mechanism of Internal and External Examinations

Avanthi Institute of Pharmaceutical technology follows the academic regulations and guidelines set by the University and PCI, New Delhi.



Internal Assessment for M-Pharm University Examinations



External Assessment for M-Pharm University Examinations

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Vizianagaram Dt., - 531162

COURSE STRUCTURE AND SYLLABUS
For
M. PHARM

MPH R 20 Regulations

(Applicable for batches admitted from 2020-2021)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA - 533 003, Andhra Pradesh, India

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The Gazette of India

असाधारण
EXTRAORDINARY
भाग III—खण्ड 4
PART III—Section 4
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 3621 नई दिल्ली, बृहस्पतिवार, दिसम्बर 11, 2014/अग्रहायण 20, 1936
No. 3621 NEW DELHI, THURSDAY, DECEMBER 11, 2014/AGRAHAYANA 20, 1936

PHARMACY COUNCIL OF INDIA

NOTIFICATION

New Delhi, the 10th December, 2014

The Master of Pharmacy (M.Pharm) Course Regulations, 2014

No. 14-136/ 2014-PCI.—In exercise of the powers conferred by Sections 10 and 18 of the Pharmacy Act, 1948 (8 of 1948), the Pharmacy Council of India, with the approval of the Central Government hereby makes the following regulations; namely–

CHAPTER –I: REGULATIONS

1. Short Title and Commencement

These regulations shall be called as "The Revised Regulations for the Master of Pharmacy (M. Pharm.) Degree Program-Credit Based Semester System (CBSS) of the Pharmacy Council of India, New Delhi". They shall come into effect from the Academic Year 2016-17. The regulations framed are subject to modifications from time to time by the authorities of the university.

2. Minimum qualification for admission

A Pass in the following examinations

a) B. Pharm Degree examination of an Indian university established by law in India from an institution approved by Pharmacy Council of India and has scored not less than 55% of the maximum marks (aggregate of 4years of B.Pharm.)

b) Every student, selected for admission to post graduate pharmacy program in any PCI approved institution should have obtained registration with the State Pharmacy Council or should obtain the same within one month from the date of his/her admission, failing which the admission of the candidate shall becancelled.

Note: It is mandatory to submit a migration certificate obtained from the respective university where the candidate had passed his/her qualifying degree (B.Pharm.)

3. Duration of the program

The program of study for M.Pharm shall extend over a period of four semesters (two academic years). The curricula and syllabi for the program shall be prescribed from time to time by Phamacy Council of India, New Delhi.

4. Medium of instruction and examinations

Medium of instruction and examination shall be in English.

5. Working days in each semester

Each semester shall consist of not lessthan 100 working days. The odd semesters shall be conduted from the month of June/July to November.December and the even semesters shall be conducted from the month of December/January to May/June in every calendar year.

6. Attendance and progress

- A student shall be eligible to write University examinations if he acquires a minimum of 75% of attendance in aggregate of all the subjects/courses, and with minimum 50% in each and every course including practicals.
- Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester shall be granted by the College Academic Committee.
- Shortage of Attendance below 65% in aggregate shall not be condoned and not eligible to write their end semester examination of that class.
- Students whose shortage of attendance is not condoned in any semester are not eligible to write their end semester examination of that class.
- A prescribed fee shall be payable towards Condonation of shortage of attendance.
- A student shall not be promoted to the next semester unless, he satisfies the attendance requirement of the present semester, as applicable. They may seek re-admission into that semester when offered next. If any candidate fulfills the

attendance requirement in the present semester, he shall not be eligible for re-admission into the same class.

7. Program/Course credit structure

As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, practical classes, seminars, assignments, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week/ per activity.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses

Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and a multiplier of half (1/2) for practical (laboratory) hours.Thus, for example, a theory course having four lectures per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

The contact hours of seminars, assignments and research work shall be treated as that of practical courses for the purpose of calculating credits i.e., the contact hours shall be multiplied by 1/2. Similarly, the contact hours of journal club, research work presentations and discussions with the supervisor shall be considered as theory course and multiplied by 1.

7.2. Minimum credit requirements

The minimum credit points required for the award of M.Pharm. degree is 95. However based on the credit points earned by the students under the head of co-curricular activities, a student shall earn a maximum of 100 credit points. These credits are divided into Theory courses, Practical, Seminars, Assignments, Research work, Discussions with the supervisor, Journal club and Co-Curricular activities over the duration of four semesters. The credits are distributed semester-wise as shown in Table 14. Courses generally progress in sequence, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus.

8. Academic work

A regular record of attendance both in Theory, Practical, Seminar, Assignment, Journal club, Discussion with the supervisor, Research work presentation and Dissertation shall be maintained by the department/ teaching staff of respective courses.

M.Pharm I & II Semester Practicals:

- The individual student of the respective specialization need to carry out at least 75% of the practical prescribed in the syllabus.
- Based and depending upon the software available with the institute the practical can be designed.
- Some experiments have to be carried out only by Demonstration. Students are advised to know the Principle and Protocol of the experiment.

9. Course of study

The specializations in M.Pharm program is given in Table 1.

Table – 1: List of M.Pharm. Specializations and their Code

S. No.	Specialization	Code
1.	Pharmaceutics	MPH
2.	Industrial Pharmacy	MIP
3.	Pharmaceutical Chemistry	MPC
4.	Pharmaceutical Analysis	MPA
5.	Pharmaceutical Quality Assurance	MQA
6.	Pharmaceutical Regulatory Affairs	MRA
7.	Pharmaceutical Biotechnology	MPB
8.	Pharmacy Practice	MPP
9.	Pharmacology	MPL
10.	Pharmacognosy	MPG

The course of study for M.Pharm specializations shall include Semester wise Theory & Practical as given in Table – 2 to 11. The number of hours to be devoted to each theory and practical course in any semester shall not be less than that shown in Table – 2 to 11.

Table – 2: Course of study for M. Pharm. (Pharmaceutics)

Course Code	Course	Credit Hours	Credit Points	Hrs./ wk	Marks
Semester I					
MPH101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPH102T	Drug Delivery System	4	4	4	100
MPH103T	Modern Pharmaceutics	4	4	4	100
MPH104T	Regulatory Affair	4	4	4	100
MPH105PA	Pharmaceutics Practical I	6	3	6	75
MPH105PB	Pharmaceutical Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPH201T	Molecular Pharmaceutics (Nano Technology and Targeted DDS) (NTDS)	4	4	4	100
MPH202T	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4	100
MPH203T	Computer Aided Drug Development	4	4	4	100
MPH204T	Formulation Development of Pharmaceutical and Cosmetic Products	4	4	4	100
MPH205PA	Pharmaceutics Practical III	6	3	6	75
MPH205PB	Pharmaceutics Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table – 3: Course of study for M. Pharm. (Industrial Pharmacy)

Course Code	Course	Credit Hours	Credit Points	Hrs./ wk	Marks
Semester I					
MIP101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MIP102T	Pharmaceutical Formulation Development	4	4	4	100
MIP103T	Novel drug delivery systems	4	4	4	100
MIP104T	Intellectual Property Rights	4	4	4	100
MIP105PA	IndustrialPharmacyPracticalI	6	3	6	75
MIP105PB	Industrial Pharmacy Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MIP201T	Advanced Biopharmaceutics and Pharmacokinetics	4	4	4	100
MIP202T	Scale up and Technology Transfer	4	4	4	100
MIP203T	Pharmaceutical Production Technology	4	4	4	100
MIP204T	Entrepreneurship Management	4	4	4	100
MIP205PA	Industrial Pharmacy Practical III	6	3	6	75
MIP205PB	Industrial Pharmacy Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table – 4: Course of study for M. Pharm. (Pharmaceutical Chemistry)

Course Code	Course	Credit Hours	Credit Points	Hrs./ wk	Marks
Semester I					
MPC101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPC102T	Advanced Organic Chemistry –I	4	4	4	100
MPC103T	Advanced Medicinal chemistry	4	4	4	100
MPC104T	Chemistry of Natural Products	4	4	4	100
MPC105PA	Pharmaceutical Chemistry Practical I	6	3	6	75
MPC105PB	Pharmaceutical Chemistry Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPC201T	Advanced Spectral Analysis	4	4	4	100
MPC202T	Advanced Organic Chemistry –II	4	4	4	100
MPC203T	Computer Aided Drug Design	4	4	4	100
MPC204T	Pharmaceutical Process Chemistry	4	4	4	100
MPC205PA	Pharmaceutical Chemistry Practical III	6	3	6	75
MPC205PB	Pharmaceutical Chemistry Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table – 5: Course of study for M. Pharm. (Pharmaceutical Analysis)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
Semester I					
MPA101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPA102T	Advanced Pharmaceutical Analysis	4	4	4	100
MPA103T	Pharmaceutical Validation	4	4	4	100
MPA104T	Food Analysis	4	4	4	100
MPA105PA	Pharmaceutical Analysis Practical I	6	3	6	75
MPA105PB	Pharmaceutical Analysis Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPA201T	Advanced Instrumental Analysis	4	4	4	100
MPA202T	ModernBio-Analytical Techniques	4	4	4	100
MPA203T	Quality Control and Quality Assurance	4	4	4	100
MPA204T	Herbal and Cosmetic Analysis	4	4	4	100
MPA205PA	Pharmaceutical Analysis Practical III	6	3	6	75
MPA205PB	Pharmaceutical Analysis Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table – 6: Course of study for M. Pharm. (Pharmaceutical Quality Assurance)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
Semester I					
MQA101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MQA102T	Quality Management System	4	4	4	100
MQA103T	QualityControlandQuality Assurance	4	4	4	100
MQA104T	Product Development and Technology Transfer	4	4	4	100
MQA105PA	Pharmaceutical Quality Assurance Practical I	6	3	6	75
MQA105PB	Pharmaceutical Quality Assurance Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MQA201T	Hazards and Safety Management	4	4	4	100
MQA202T	Pharmaceutical Validation	4	4	4	100
MQA203T	Audits and Regulatory Compliance	4	4	4	100
MQA204T	Pharmaceutical Manufacturing Technology	4	4	4	100
MQA205PA	Pharmaceutical Quality Assurance Practical III	6	3	6	75
MQA205PB	Pharmaceutical Quality Assurance Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table – 7: Course of study for M. Pharm. (Regulatory Affairs)

Course Code	Course	Credit Hours	Credit Points	Hrs./ wk	Marks
Semester I					
MRA101T	Good Regulatory Practices	4	4	4	100
MRA102T	Documentation and Regulatory Writing	4	4	4	100
MRA103T	Clinical Research Regulations	4	4	4	100
MRA104T	Regulations and Legislation for Drugs & Cosmetics, Medical Devices, Biologicals &Herbals, and Food & Nutraceuticals In India and Intellectual Property Rights	4	4	4	100
MRA105PA	Regulatory Affairs Practical I	6	3	6	75
MRA105PB	Regulatory Affairs Practical II	6	3	6	75
	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650
Semester II					
MRA201T	Regulatory Aspects of Drugs & Cosmetics	4	4	4	100
MRA202T	Regulatory Aspects of Herbal & Biologicals	4	4	4	100
MRA203T	Regulatory Aspects of Medical Devices	4	4	4	100
MRA204T	Regulatory Aspects of Food & Nutraceuticals	4	4	4	100
MRA205PA	Regulatory Affairs Practical III	6	3	6	75
MRA205PB	Regulatory Affairs Practical IV	6	3	6	75
	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table – 8: Course of study for M. Pharm. (Pharmaceutical Biotechnology)

Course Code	Course	Credit Hours	Credit Points	Hrs./ wk	Marks
Semester I					
MPB101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPB102T	Microbial and Cellular Biology	4	4	4	100
MPB103T	Bioprocess Engineering and Technology	4	4	4	100
MPB104T	Advanced Pharmaceutical Biotechnology	4	4	4	100
MPB105PA	Pharmaceutical Biotechnology Practical I	6	3	6	75
MPB105PB	Pharmaceutical Biotechnology Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPB201T	Proteins and protein Formulation	4	4	4	100
MPB202T	Immunotechnology	4	4	4	100
MPB203T	Bioinformatics and Computational Biotechnology	4	4	4	100
MPB204T	Biological Evaluation of Drug Therapy	4	4	4	100
MPB205PA	Pharmaceutical Biotechnology Practical III	6	3	6	75
MPB205PB	Pharmaceutical Biotechnology Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650

Table – 9: Course of study for M. Pharm. (Pharmacy Practice)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
Semester I					
MPP101T	Clinical Pharmacy Practice	4	4	4	100
MPP102T	Pharmacotherapeutics-I	4	4	4	100
MPP103T	Hospital & Community Pharmacy	4	4	4	100
MPP104T	Clinical Research	4	4	4	100
MPP105PA	Pharmacy Practice Practical I	6	3	6	75
MPP105PB	Pharmacy Practice Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPP201T	Principles of Quality Use of Medicines	4	4	4	100
MPP202T	Pharmacotherapeutics II	4	4	4	100
MPP203T	Clinical Pharmacokinetics and Therapeutic Drug Monitoring	4	4	4	100
MPP204T	Pharmacoepidemiology & Pharmacoeconomics	4	4	4	100
MPP205PA	Pharmacy Practice Practical III	6	3	6	75
MPP205PB	Pharmacy Practice Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table – 10: Course of study for (Pharmacology)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
Semester I					
MPL101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPL102T	AdvancedPharmacology-I	4	4	4	100
MPL103T	Pharmacological and Toxicological Screening Methods-I	4	4	4	100
MPL104T	Cellular and Molecular Pharmacology	4	4	4	100
MPL105PA	Pharmacology Practical I	6	3	6	75
MPL105PB	Pharmacology Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPL201T	Advanced Pharmacology II	4	4	4	100
MPL202T	Pharmacological and Toxicological Screening Methods-II	4	4	4	100
MPL203T	Principles of Drug Discovery	4	4	4	100
MPL204T	Clinical Research and Pharmacovigilance	4	4	4	100
MPL205PA	Pharmacology Practical III	6	3	6	75
MPL205PB	Pharmacology Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table – 11: Course of study for M. Pharm. (Pharmacognosy)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
Semester I					
MPG101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPG102T	Advanced Pharmacognosy-I	4	4	4	100
MPG103T	Phytochemistry	4	4	4	100
MPG104T	Industrial Pharmacognostical Technology	4	4	4	100
MPG105PA	Pharmacognosy Practical I	6	3	6	75
MPG105PB	Pharmacognosy Practical II	6	3	6	75
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPG201T	Medicinal Plant biotechnology	4	4	4	100
MPG202T	Advanced Pharmacognosy-II	4	4	4	100
MPG203T	Indian system of medicine	4	4	4	100
MPG204T	Herbal cosmetics	4	4	4	100
MPG205PA	Pharmacognosy Practical III	6	3	6	75
MPG205PB	Pharmacognosy Practical IV	6	3	6	75
-	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Table–12: Course of study for M.Pharm. III Semester
(Common for All Specializations)

Course Code	Course	Credit Hours	Credit Points
MRM301T	Research Methodology and Biostatistics*	4	4
-	Journalclub	1	1
-	Discussion / Presentation (Proposal Presentation)	2	2
-	Research Work	28	14
Total		35	21

* Non University Exam

Table–13: Course of study for M.Pharm. IV Semester
(Common for All Specializations)

Course Code	Course	Credit Hours	Credit Points
-	JournalClub	1	1
-	Research Work	31	16
-	Discussion/FinalPresentation	3	3
Total		35	20

Table – 14: Semester wise credits distribution

Semester	Credit Points
I	26
II	26
III	21
IV	20
Co-curricular Activities (Attending Conference, Scientific Presentationsand Other Scholarly Activities)	Minimum=02 Maximum=07*
Total Credit Points	Minimum=95 Maximum=100*

*Credit Points for Co-curricular Activities

Table – 15: Guidelines for Awarding Credit Points for Co-curricular Activities

Name of the Activity	Maximum Credit Points Eligible / Activity
Participation in National Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)	01
Participation in international Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)	02
Academic Award/Research Award from State Level/National Agencies	01
Academic Award/Research Award from International Agencies	02
Research / Review Publication in National Journals	01
Research / Review Publication in International Journals	02

Note: International Conference: Held outside India; International Journal: The Editorial Board Outside India

*The credit points assigned for extra curricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

One Research/Review publication is necessary for all M.Pharm students before the completion of IV Semester. The Research/Review article need to be published/acceptance in UGC care list journals or any other reputed journals.

10. Program Committee

The M. Pharm. programme shall have a Programme Committee constituted by the Head of the Institution in consultation with all the Heads of thedepartments.

The composition of the Programme Committee shall be as follows:

A teacher at the cadre of Professor shall be the Chairperson; One Teacher from each M.Pharm specialization and four student representatives (two from each academic year), nominated by the Head of the institution.

Duties of the Programme Committee:

Periodically reviewing the progress of the classes.

Discussing the problems concerning curriculum, syllabus and the conduct of classes.

Discussing with the course teachers on the nature and scope of assessment for the course and the same shall be announced to the students at the beginning of respective semesters.

1. Communicating its recommendation to the Head of the Institution on academic matters.
2. The Programme Committee shall meet at least twice in a semester preferably at the end of each sessional exam and before the end semesterexam.

11. Examinations/Assessments

The schemes for internal assessment and end semester examinations are given from Table–16.

11.1. End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to IV shall be conducted by the respective university except for the subject with asterix symbol (*) for which examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.

Tables – 16: Schemes for internal assessments and end semester (Pharmaceutics- MPH)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPH101T	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MPH102T	Drug Delivery Systems	10	15	1Hr	25	75	3Hr	100
MPH103T	Modern Pharmaceutics	10	15	1Hr	25	75	3Hr	100
MPH104T	Regulatory Affairs	10	15	1Hr	25	75	3Hr	100
MPH105PA	Pharmaceutics Practical I	10	15	3Hr	25	50	3Hr	75
MPH105PB	Pharmaceutics Practical II	10	15	3Hr	25	50	3Hr	75
-	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPH201T	Molecular Pharmaceutics (Nano Tech and Targeted DDS) (NTDS)	10	15	1Hr	25	75	3Hr	100
MPH202T	Advanced Biopharmaceutics & Pharmacokinetics	10	15	1Hr	25	75	3Hr	100
MPH203T	Computer Aided Drug Development	10	15	1Hr	25	75	3Hr	100
MPH204T	Formulation Development of Pharmaceutical and Cosmetic Products	10	15	1Hr	25	75	3Hr	100
MPH205PA	Pharmaceutics Practical I	10	15	3Hr	25	50	3Hr	75
MPH205PB	Pharmaceutics Practical I	10	15	3Hr	25	50	3Hr	75
-	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 17: Schemes for internal assessments and end semester (Industrial Pharmacy- MIP)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MIP101T	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MIP102T	Pharmaceutical Formulation Development	10	15	1Hr	25	75	3Hr	100
MIP103T	Novel Drug Delivery Systems	10	15	1Hr	25	75	3Hr	100
MIP104T	Intellectual Property rights	10	15	1Hr	25	75	3Hr	100
MIP105PA	Industrial Pharmacy Practical I	10	15	3Hr	25	50	3Hr	75
MIP105PB	Industrial Pharmacy Practical II	10	15	3Hr	25	50	3Hr	75
-	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MIP201T	Advanced Biopharmaceutics and Pharmacokinetics	10	15	1Hr	25	75	3Hr	100
MIP202T	Scale up and Technology Transfer	10	15	1Hr	25	75	3Hr	100
MIP203T	Pharmaceutical Production Technology	10	15	1Hr	25	75	3Hr	100
MIP204T	Entrepreneurship Management	10	15	1Hr	25	75	3Hr	100
MIP205PA	Industrial Pharmacy Practical III	10	15	3Hr	25	50	3Hr	75
MIP205PB	Industrial Pharmacy Practical IV	10	15	3Hr	25	50	3Hr	75
-	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 18: Schemes for internal assessments and end semester (Pharmaceutical Chemistry-MPC)

CourseCode	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPC101T	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MPC102T	Advanced Organic Chemistry – I	10	15	1Hr	25	75	3Hr	100
MPC103T	Advanced Medicinal Chemistry	10	15	1Hr	25	75	3Hr	100
MPC104T	Chemistry of Natural Products	10	15	1Hr	25	75	3Hr	100
MPC105PA	Pharmaceutical chemistry Practical I	10	15	3Hr	25	50	3Hr	75
MPC105PB	Pharmaceutical chemistry Practical II	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPC201T	Advanced Spectral Analysis	10	15	1Hr	25	75	3Hr	100
MPC202T	Advanced Organic Chemistry II	10	15	1Hr	25	75	3Hr	100
MPC203T	Computer Aided Drug Design	10	15	1Hr	25	75	3Hr	100
MPC204T	Pharmaceutical Process Chemistry	10	15	1Hr	25	75	3Hr	100
MPC205PA	Pharmaceutical chemistry Practical III	10	15	3Hr	25	50	3Hr	75
MPC205PB	Pharmaceutical chemistry Practical IV	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 19: Schemes for internal assessments and end semester (Pharmaceutical Analysis-MPA)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPA101T	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MPA102T	Advanced Pharmaceutical Analysis	10	15	1Hr	25	75	3Hr	100
MPA103T	Pharmaceutical Validation	10	15	1Hr	25	75	3Hr	100
MPA104T	Food Analysis	10	15	1Hr	25	75	3Hr	100
MPA105PA	Pharmaceutical Analysis Practical I	10	15	3Hr	25	50	3Hr	75
MPA105PB	Pharmaceutical Analysis Practical II	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPA201T	Advanced Instrumental Analysis	10	15	1Hr	25	75	3Hr	100
MPA202T	Modern Bio-Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MPA203T	Quality Control and Quality Assurance	10	15	1Hr	25	75	3Hr	100
MPA204T	Herbal and Cosmetic Analysis	10	15	1Hr	25	75	3Hr	100
MPA205PA	Pharmaceutical Analysis Practical III	10	15	3Hr	25	50	3Hr	75
MPA205PB	Pharmaceutical Analysis Practical IV	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 20: Schemes for internal assessments and end semester (Pharmaceutical Quality Assurance- MQA)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MQA101T	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MQA102T	Quality Management System	10	15	1Hr	25	75	3Hr	100
MQA103T	Quality Control and Quality Assurance	10	15	1Hr	25	75	3Hr	100
MQA104T	Product Development and Technology Transfer	10	15	1Hr	25	75	3Hr	100
MQA105PA	Pharmaceutical Quality Assurance Practical I	10	15	3Hr	25	50	3Hr	75
MQA105PB	Pharmaceutical Quality Assurance Practical II	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MQA201T	Hazards and Safety Management	10	15	1Hr	25	75	3Hr	100
MQA202T	Pharmaceutical Validation	10	15	1Hr	25	75	3Hr	100
MQA203T	Audits and Regulatory Compliance	10	15	1Hr	25	75	3Hr	100
MQA204T	Pharmaceutical Manufacturing Technology	10	15	1Hr	25	75	3Hr	100
MQA205PA	Pharmaceutical Quality Assurance Practical III	10	15	3Hr	25	50	3Hr	75
MQA205PB	Pharmaceutical Quality Assurance Practical IV	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 21: Schemes for internal assessments and end semester (Pharmaceutical Regulatory Affairs- MRA)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MRA101T	Good Regulatory Practices	10	15	1Hr	25	75	3Hr	100
MRA102T	Documentation and Regulatory Writing	10	15	1Hr	25	75	3Hr	100
MRA103T	Clinical Research Regulations	10	15	1Hr	25	75	3Hr	100
MRA104T	Regulations and Legislations for Drugs & Cosmetics, Medical Devices, Biologicals & Herbals, and Food & Nutraceuticals in India and Intellectual Property Rights	10	15	1Hr	25	75	3Hr	100
MRA105PA	Regulatory Affairs Practicals I	10	15	3Hr	25	50	3Hr	75
MRA105PB	Regulatory Affairs Practicals II	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MRA201T	Regulatory Aspects of Drugs and Cosmetics	10	15	1Hr	25	75	3Hr	100
MRA202T	Regulatory Aspects of Herbal & Biologicals	10	15	1Hr	25	75	3Hr	100
MRA203T	Regulatory Aspects of Medical Devices	10	15	1Hr	25	75	3Hr	100
MRA204T	Regulatory Aspects of Food Neutraceuticals	10	15	1Hr	25	75	3Hr	100
MRA205PA	Regulatory Affairs Practicals III	10	15	3Hr	25	50	3Hr	75
MRA205PB	Regulatory Affairs Practicals IV	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 22: Schemes for internal assessments and end semester (Pharmaceutical Biotechnology-MPB)

CourseCode	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPB101T	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MPB102T	Microbial and Cellular Biology	10	15	1Hr	25	75	3Hr	100
MPB103T	Bioprocess Engineering and Technology	10	15	1Hr	25	75	3Hr	100
MPB104T	Advanced Pharmaceutical Biotechnology	10	15	1Hr	25	75	3Hr	100
MPB105PA	Pharmaceutical Biotechnology Practical I	10	15	3Hr	25	50	3Hr	75
MPB105PB	Pharmaceutical Biotechnology Practical II	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPB201T	Proteins and Protein Formulation	10	15	1Hr	25	75	3Hr	100
MPB202T	Immunotechnology	10	15	1Hr	25	75	3Hr	100
MPB203T	Bioinformatics and Computational Biotechnology	10	15	1Hr	25	75	3Hr	100
MPB204T	Biological Evaluation of Drug Therapy	10	15	1Hr	25	75	3Hr	100
MPB205PA	Pharmaceutical Biotechnology Practical III	10	15	3Hr	25	50	3Hr	75
MPB205PB	Pharmaceutical Biotechnology Practical IV	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 23: Schemes for internal assessments and end semester (Pharmacy Practice- MPP)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPP101T	Clinical Pharmacy Practice	10	15	1Hr	25	75	3Hr	100
MPP102T	Pharmacotherapeutics - I	10	15	1Hr	25	75	3Hr	100
MPP103T	Hospital & Community Pharmacy	10	15	1Hr	25	75	3Hr	100
MPP104T	Clinical Research	10	15	1Hr	25	75	3Hr	100
MPP105PA	Pharmacy Practice Practical I	10	15	3Hr	25	50	3Hr	75
MPP105PB	Pharmacy Practice Practical II	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPP201T	Principles of Quality Use of Medicines	10	15	1Hr	25	75	3Hr	100
MPP202T	Pharmacotherapeutics - II	10	15	1Hr	25	75	3Hr	100
MPP203T	Clinical Pharmacokinetics and Therapeutic Drug Monitoring	10	15	1Hr	25	75	3Hr	100
MPP204T	Pharmacoepidemiology & Pharmacoeconomics	10	15	1Hr	25	75	3Hr	100
MPP205PA	Pharmacy Practice Practical III	10	15	3Hr	25	50	3Hr	75
MPP205PB	Pharmacy Practice Practical IV	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 24: Schemes for internal assessments and end semester (Pharmacology- MPL)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPL101T	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MPL102T	Advanced Pharmacology - I	10	15	1Hr	25	75	3Hr	100
MPL103T	Pharmacology and Toxicology Screening methods- I	10	15	1Hr	25	75	3Hr	100
MPL104T	Cellular and Molecular Pharmacology	10	15	1Hr	25	75	3Hr	100
MPL105PA	Pharmacology Practical I	10	15	3Hr	25	50	3Hr	75
MPL105PB	Pharmacology Practical II	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPL201T	Advanced Pharmacology - II	10	15	1Hr	25	75	3Hr	100
MPL202T	Pharmacology and Toxicology Screening methods- II	10	15	1Hr	25	75	3Hr	100
MPL203T	Principles of Drug Discovery	10	15	1Hr	25	75	3Hr	100
MPL204T	Clinical Research and Pharmacovigilance	10	15	1Hr	25	75	3Hr	100
MPL205PA	Pharmacology Practical III	10	15	3Hr	25	50	3Hr	75
MPL205PB	Pharmacology Practical IV	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables – 25: Schemes for internal assessments and end semester (Pharmacognosy- MPG)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continues Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPG101T	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hr	100
MPG102T	Advanced Pharmacognosy - I	10	15	1Hr	25	75	3Hr	100
MPG103T	Phytochemistry	10	15	1Hr	25	75	3Hr	100
MPG104T	Industrial Pharmacognostical Technology	10	15	1Hr	25	75	3Hr	100
MPG105PA	Pharmacognosy Practical I	10	15	3Hr	25	50	3Hr	75
MPG105PB	Pharmacognosy Practical II	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPG201T	Medicinal Plant Biotechnology	10	15	1Hr	25	75	3Hr	100
MPG202T	Advanced Pharmacognosy – II	10	15	1Hr	25	75	3Hr	100
MPG203T	Indian system of Medicine	10	15	1Hr	25	75	3Hr	100
MPG204T	Herbal Cosmetics	10	15	1Hr	25	75	3Hr	100
MPG205PA	Pharmacognosy Practical III	10	15	3Hr	25	50	3Hr	75
MPG205PB	Pharmacognosy Practical IV	10	15	3Hr	25	50	3Hr	75
	Seminar/Assignment	-	-	-	-	-	-	100
Total								650

Tables– 26: Schemes for internal assessments and end semester examinations (Semester III& IV)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total			
			Marks	Duration		Marks	Duration	
SEMESTER III								
MRM301T	Research Methodology and Biostatistics*	10	15	1 Hr	25	75	3 Hrs	100
-	Journal club	.	.	.	25	.	.	25
-	Discussion / Presentation (Proposal Presentation)	.	.	.	50	.	.	50
-	Research work	.	.	.	.	350	1 Hr	350
Total								525
SEMESTER IV								
-	Journal club	.	.	.	25	.	.	25
-	Discussion / Presentation (Proposal Presentation)	.	.	.	75	.	.	75
-	Research work and Colloquium	.	.	.	.	400	1 Hr	400
Total								500

*Non University Examination

- The subject 'Research Methodology and Biostatistics (MRM 301T)' in III Semester has to be conducted by respective institute with paper setting followed by evaluation.
- The award of marks to be uploaded in JNTUK portal.

Note: The answer scripts, question paper and attendance sheet need to be packed and kept under the institution safely.

11.2. Internal assessment: Continuous mode

The marks allocated for Continuous mode of Internal Assessment shall be awarded as per the scheme given below.

Table – 27: Scheme for awarding internal assessment: Continuous mode

Theory	
Criteria	Maximum Marks
Attendance (Refer Table – 28)	8
Student – Teacher interaction	2
Total	10
Practical	
Attendance (Refer Table – 28)	5
Based on Practical Records, Regular viva voce, etc.	5
Total	10

Table – 28: Guidelines for the allotment of marks for attendance

Percentage of Attendance	Theory	Practical
95 – 100	8	5
90 – 94	6	3.75
85 – 89	4	2.5
80 – 84	2	1.25

- Allocation of marks for attendance will be considered on the basis of individual student's punctuality, regularity, attentiveness, conduct and submission of assignments.

11.2.1. Sessional Exams

Two sessional exams shall be conducted for each theory/practical course as per the schedule fixed by the college(s). The scheme of question paper for theory and practical sessional examinations is given in the table. The average marks of two sessional exams shall be computed for internal assessment as per the requirements given in tables.

12. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of M.Pharm. programme if he/she secures atleast 50% marks in that particular course including internal assessment.

13. Carry forward of marks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified in 12, then he/she shall reappear for the end semester examination of that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

14. Improvement of internal assessment

A student shall have the opportunity to improve his/her performance only once in the sessional exam component of the internal assessment. The re-conduct of the sessional exam shall be completed before the commencement of next end semester theory examinations.

15. Reexamination of end semester examinations

Revaluation/recounting/challenging valuation as per the University norms is acceptable within stipulated time period. This process is also applicable for all previous batches joined under PCI regulations.

Table – 29: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I and III	November / December	As per University norms
II and IV	May / June	As per University norms

16. Allowed to keep terms (ATKT):

No student shall be admitted to any examination unless he/she fulfills the norms given in 6. ATKT rules are applicable as follows:

A student shall be eligible to carry forward all the courses of I and II semesters till the III semester examinations. However, he/she shall not be eligible to attend the courses of IV semester until all the courses of I, II and III semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to IV semesters within the stipulated time period as per the norms.

Note: Grade AB should be considered as failed and treated as one head for deciding ATKT. Such rules are also applicable for those students who fail to register for examination(s) of any course in any semester.

17. Grading of performances

17.1. Letter grades and grade pointsallocations:

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table – 30.

Table–30: Letter grades and grade points equivalent to Percentage of marks and performances.

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less than 50	F	0	Fail
Absent	AB	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

18. The Semester grade point average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses (Theory /Practical) in a semester with credits C1, C2, C3 and C4 and the student's grade points in these courses are G1, G2, G3 and G4, respectively, and then students' SGPA is equal to:

$$SGPA = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4}{C_1 + C_2 + C_3 + C_4}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a For ABS grade in course 4, the SGPA shall then be computed as:

$$SGPA = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO}}{C_1 + C_2 + C_3 + C_4}$$

19. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the IV semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all IV semesters and their courses. The CGPA shall reflect the failed status incase of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$CGPA = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4}{C_1 + C_2 + C_3 + C_4}$$

where C_1, C_2, C_3,.... is the total number of credits for semester I,II,III,…. and S_1,S_2, S_3,....is the SGPA of semester I,II,III,…. .

20. Declaration of class

The class shall be awarded on the basis of CGPA as follows:

First Class with Distinction = CGPA of 7.50 and above
First Class = CGPA of 6.00 to 7.49
Second Class = CGPA of 5.00 to 5.99

21. Project work

All the students shall under take a project under the supervision of a teacher in Semester III to IV and submit a report. 4 copies of the project report shall be submitted (typed & bound copy not less than75 pages).

The internal and external examiner appointed by the University shall evaluate the project at the time of the Practical examinations of other semester(s). The projects shall be evaluated as per the criteria given below.

M.Pharm III Semester (research work)

- The M.Pharm III Semester for conduct of research work will be evaluated by the external examiner with rich experience and Doctorate holder. Depending upon the number of students in each specialization examiner should be appointed.

III Semester

Presentation	-	100 Marks
Depth of Research Work	-	100 Marks
Literature Survey	-	75 Marks
Communications skills	-	75 Marks
Total	-	**350 Marks**

IV Semester

Project Thesis	-	200 Marks
Power point Presentation	-	100 Marks
Viva Voce & Queries	-	100 Marks
Total	-	**400 Marks**

22. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates whofail in one or more courses during the M.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the M. Pharm program in minimum prescribed number of years, (two years) for the award of Ranks.

23. Award of degree

Candidates who fulfill the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

24. Duration for completion of the program of study

The duration for the completion of the program shall be fixed as double the actual duration of the program and the students have to pass within the said period, otherwise they have to get fresh Registration.

25. Revaluation/ Retotaling of answer papers

Revaluation/recounting/challenging valuation as per the University norms is acceptable within stipulated time period. This process is also applicable for all previous batches joined under PCI regulations.

26. Re-admission after break of study

Candidate who seeks re-admission to the program after break of study has to get the approval from the university by paying a condonation fee.

ACADEMIC CALANDER AS PER UNIVERSITY(JNTU-GV) GUIDELINES

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Directorate of Academic Planning

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA-533003, Andhra Pradesh, INDIA
(Established by AP Government Act No. 30 of 2008)

Lr. No. JNTUK/DAP/RAC/I Year M.Pharmacy/2022-23 *Date: 08-12-2022*

Dr. KVSG Murali Krishna,
M.E, Ph.D.,
Director, Academic Planning
JNTUK, Kakinada

To
All the Principals of Affiliated Colleges,
JNTUK, Kakinada.

Revised Academic Calendar of I Year M. Pharmacy
Academic year 2022-23

I SEMESTER			
Description	**From**	**To**	**Weeks**
Commencement of Class Work	**12.12.2022**		
Induction Classes	12.12.2022	17.11.2022	1W
I Unit of Instruction	19.12.2022	11.02.2023	8W
I Mid Examinations	06.02.2023	11.02.2023	
II Unit of Instructions	13.02.2023	08.04.2023	8W
II Mid Examinations	03.04.2023	08.04.2023	
Preparation & Practicals	10.04.2023	15.04.2023	1W
End Examinations	17.04.2023	29.04.2023	2W
Commencement of II Semester Class Work	**01.05.2023**		
II SEMESTER			
Commencement of Class Work	**01.05.2023**		
I Unit of Instructions	01.05.2023	24.06.2023	8W
I Mid Examinations	26.06.2023	24.06.2023	
II Unit of Instructions	26.06.2023	19.08.2023	8W
II Mid Examinations	14.08.2022	19.08.2023	
Preparation & Practicals	21.08.2023	26.08.2023	1W
End Examinations	28.08.2023	10.09.2023	2W
Commencement of Class Work	**12.09.2023**		

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24.12.22
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KAKINADA-533003, Andhra Pradesh, INDIA
(Established by AP Government Act No. 30 of 2008)

Lr. No. JNTUK/DAP/RAC/I Year/M.Tech 2022-23 *Date: 14-12-2022*

Dr. KVSG Murali Krishna,
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All the Principals of Affiliated Colleges,
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Revised Academic Calendar of I Year M. Tech/M. Pharmacy
Academic year 2022-23

I SEMESTER			
Description	**From**	**To**	**Weeks**
Commencement of Class Work	**31.10.2022**		
Induction Classes	31.10.2022	05.11.2022	1W
I Unit of Instruction	07.11.2022	31.12.2022	8W
I Mid Examinations	26.12.2022	31.12.2022	
II Unit of Instructions	02.01.2023	25.02.2023	8W
II Mid Examinations	20.02.2023	25.02.2023	
Preparation & Practicals	27.02.2023	04.03.2023	1W
End Examinations	06.03.2023	18.03.2023	2W
Commencement of II Semester Class Work	**20.03.2023**		
II SEMESTER			
Commencement of Class Work	**20.03.2023**		
I Unit of Instructions	20.03.2023	29.04.2023	6W
Summer Holidays	01.05.2023	27.05.2023	4W
Continue of I Unit of Instructions	29.05.2023	10.06.2023	2W
I Mid Examinations	05.06.2023	10.06.2023	
II Unit of Instructions	12.06.2023	05.08.2023	8W
II Mid Examinations	31.07.2022	05.08.2023	
Preparation & Practicals	07.08.2023	12.08.2023	1W
End Examinations	14.08.2023	26.08.2023	2W
Commencement of Class Work	**04.09.2023**		

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KAKINADA-533003, Andhra Pradesh, INDIA
(Established by AP Government Act No. 30 of 2008)

Lr. No. JNTUK/DAP/AC/II Year/M.Pharmacy/2022-23 *Date: 07-11-2022*

Dr. KVSG Murali Krishna,
M.E, Ph.D.,
Director, Academics & Planning
JNTUK, Kakinada

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JNTUK, Kakinada.

Academic Calendar of II Year M. Pharmacy for Academic year 2022-23

III & IV SEMESTER			
Description	**From**	**To**	**Weeks**
Commencement of Project Work	**14.11.2022**		
III Semester*	14.11.2022	15.04.2023	22 W
IV Semester	17.04.2023	16.09.2023	22 W
Thesis submission duration	18.09.2023	23.09.2023	1 W

***Non-University examination, but department has to conduct internal mid-term examinations as per University norms. The student should get at least 50% marks in internal examinations to get satisfactory in the Research Methodology & Bio statics.**

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INTERNAL THEORY EXAMINATION ASSESSMENT

ESTD : 2005

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Cherukupally (Village), Chittivalasa (SO), Bhogapuram (Mandal), Vizianagaram (Dist.) -531162.
www.avanthipharma.ac.in, principal@avanthipharma.ac.in

I M. Pharmacy I Sem I MID Exam R16, February 2023

Subject: Advanced Pharmaceutical Analysis **Branch: M pharm (pharmaceutical Analysis)**

Time: 120 min. **Max. Marks: 30** **Date of exam: 07/02/2023**

S. No	Questions	Blooms Taxonomy Level	Course Out Come	Marks
	Answer any two questions			
1.	a) Define the Impurities? Write the Classification on Impurities present in API (7 ½ M) b) Explain the procedure of repotting and control of degradation products (7 ½ M)	Apply Understand	CO1	15
2.	Explain the analytical procedure and instrumentation of "C,"H" analysis	Apply understand	CO2	15
3.	Explain WHO, ICH guidelines for stability testing of pharmaceutical and biological products.	Remember apply	CO3	15

B. Chaitanya
Signature of the faculty

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I M. Pharmacy I Sem I MID Exam R16, February 2023

Subject: Advanced Pharmaceutical Analysis **Branch: M pharm (pharmaceutical Analysis)**

Time: 120 min. **Max. Marks: 30** **Date of exam: 07/02/2023**

Scheme of Evaluation

1. a) Define the Impurities? Write the Classification on Impurities present in API **(7 ½ M)**

   Definition of Impurities- **2.5 M**

   Classification on Impurities present in API- **5 M**

   b) Explain the procedure of repotting and control of degradation products **(7 ½ M)**

   Definition of degradation product – **2.5 M**

   Procedure of repotting and control - **5 M**

2. Explain the analytical procedure and instrumentation of "C,"H" analysis **(15 M)**

   Analytical Procedure of C & H – **7 M**

   Instrumentation of "C,"H" Analysis – **8 M**

3. Explain WHO, ICH guidelines for stability testing of pharmaceutical and biological products. **(15 M)**

   WHO guidelines for stability testing **-7 M**

   ICH guidelines for stability testing – **8 M**

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B. Chaitanya
Signature of the faculty

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ESTD : 2005

SUBJECTIVE TEST

JNTUK Reg. No. : 22T51S1603 Date : 7/02/2023

Student Name : Gara. Suresh Year : Sem : 1-1 mid-1

Branch : B. Pharm / Pharm D. / Pharm D. (P.B) / M. Pharm

Specialization : Pharmaceutical analysis Time :

Subject Name : Advanced Pharmaceutical analysis Total Marks :

Marks Secured : Invigilators Signature :

26/30 13/15

(2) Analytical procedure and instrumentation of "C", "H" analysis:

C : Carbon

H : Hydrogen

Carbon, Hydrogen are fundamental elemental components that are analyzed on the ship during IODP expeditions. Fluctuations in the concentration and/or content ratio of carbon: Hydrogen A few options for sample preparation method, instrument settings, and measurement methodology exist.

In addition to the pregenerated methods, specific analytical methodology may be required based on the natural of certain sample materials.

In this case, new methods will be created by the laboratory technicians working in conjunction with the scientists.

Instrumentation:-

Combustion Elemental analysers are manufactured in a variety of configurations to suit specific applications, and the choice will depend on the elements of interest, the sample type & size, and the concentration of the analyte.

Instruments require 2 gas supplies:

i) an inert carrier gas

ii) High purity gas

* The strict specification for carbon is associated with the need to reduce the nitrogen blank contribution to an inconsequential level.

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* additionaly, Gc-type gas filters are also usually fitted to prevent trace organic species & water entering the combosion system.

→ potential elemental impurities derived from intentionaly added catalysts & Inorganic Reagents:

If any element listed is intentionaly added, it should be considered in the Risk assessment: for this categork, the identity of the potential Impurities is known and tech. for controlling the elemental Impurities are easily characterized and defined.

→ potential Elemental Impurities derived from manufacturing Equipment:

The contribution of Elemental Impurities from this source may be limited.

The subset of elemental Impurities that should be considered in the risk assessment will depend on the manufacturing Equipment used in the production of the drug product.

application of process knowledge, selection of Equipment, Equipment Qualification

Gmp controls Ensure a Low Contribution from manufturing Equipment.

Carbon, Hydrogen both are variocy components to the.

this involves combustion of the sample in a stream of oxygen; followed by measurement of resulting CO_2 & water vapour cyingan Infrared or thermal conductivity.

Substance	Grams in 100g sample		moles in 100g Sample
Carbon	48.6g	$\frac{1\ mole\ C}{12.011\ g\ C}$	4.05 mol C
Hydrogen	8.10g	$\frac{1\ mole\ H}{1.0079\ g\ H}$	8.10 mol H

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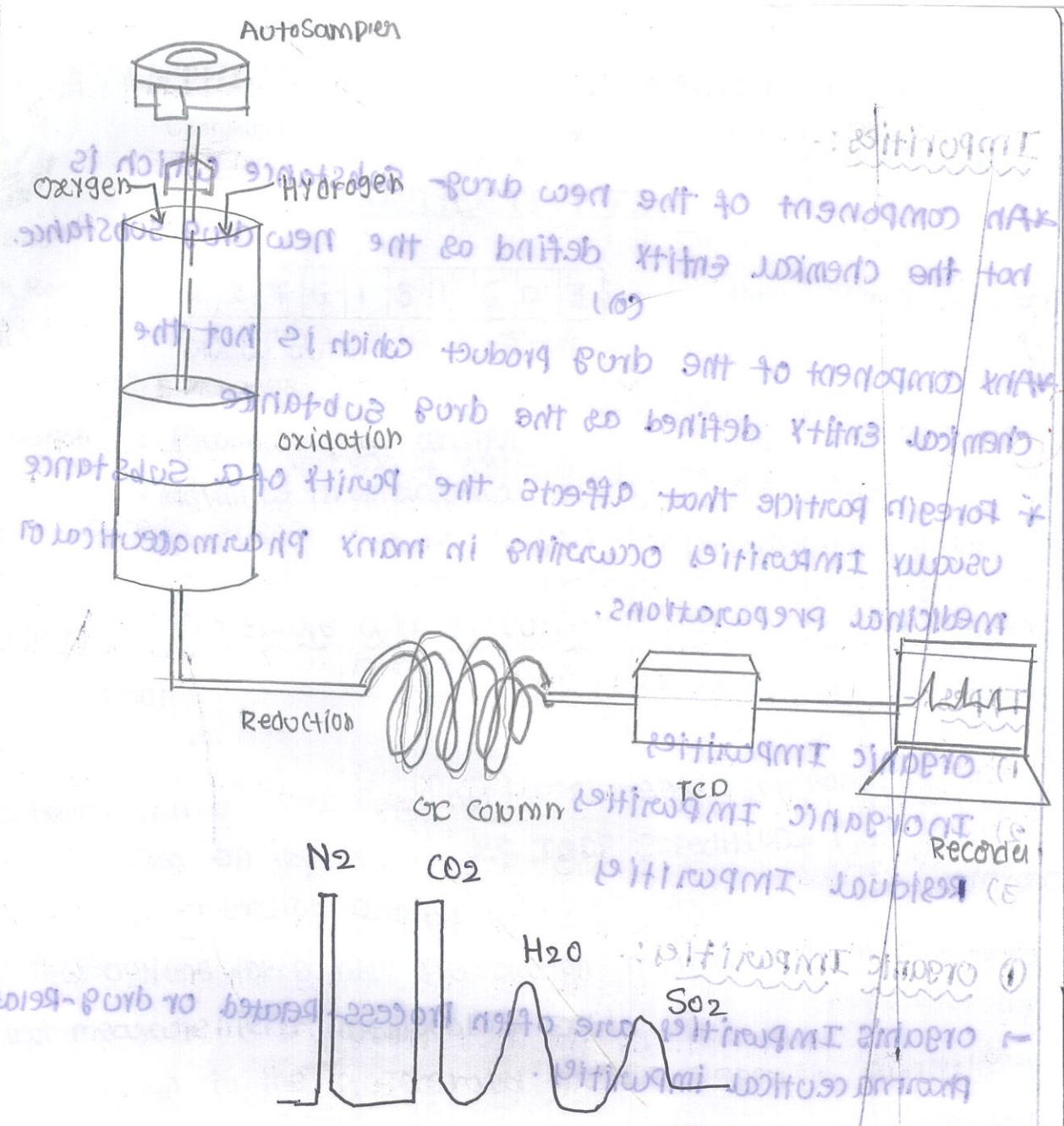

Applications:-

→ CH Elemental analysers have been used in analytical laboratories for Ever thirty years.

→ The method is used extensively across a wide range of applications, including pharmaceuticals, chemicals, oil-Related products, catalysts & food.

→ since many of these catalyst systems involve large quantities of noble metal such as platinum, palladium & rhenium.

→ Oil industry, an important application of the industries to the carbon Hydrogen used.

→ Regeration procedures involving controlled buring of the carbon are executed at a optimal interval.

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(1)

a) Impurities:-

*An component of the new drug substance which is not the chemical entity defind as the new drug substance.

(or)

*Any component of the drug product which is not the chemical entity defined as the drug substance

* Foregin particle that affects the purity of a substance usually Impurities occurring in many pharmaceutical or medicinal preparations.

Types:-

1) Organic Impurities
2) Inorganic Impurities
3) Residual Impurities

① Organic Impurities:-

→ Organic Impurities are often Process-Related or drug-Related pharmaceutical impurities.
→ Starting materials
→ By-products
→ Degradation products
→ Reagents, ligands & catalysts

② Inorganic Impurities:-

→ Inorganic impurities often derive from the manufacturing process.
→ In organic contaminats can be detected & quantified using Pharmacopeial Standars.
→ Reagents, ligands & catalysts
→ Heavy metals or other Reidual metals
→ Inorganic salts
→ other materials (Filter aids, charcoal)

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Residual solvents :-

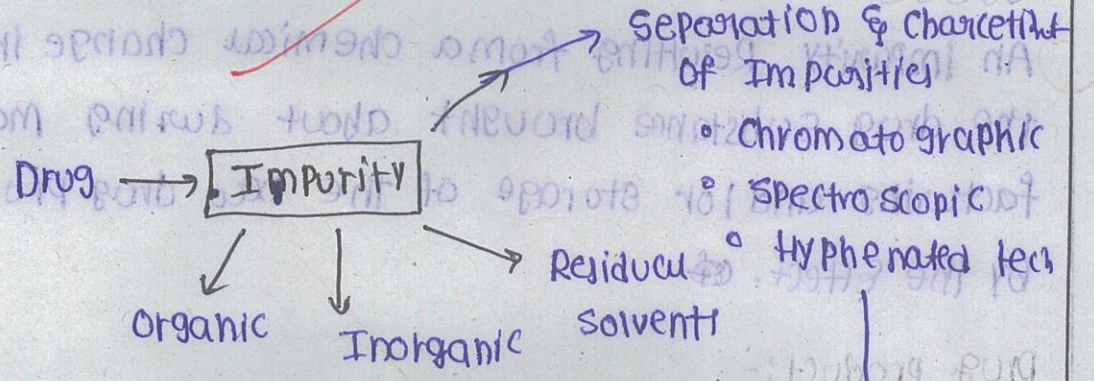
→ Impurity in Pharmaceutical is Residual Solvents.

→ These Impurities are Residuals of solvents present in the manufacturing.

→ Class I : Solvents to be avoided

→ Class 2 : Solvents to be Limited

→ Class 3 : Solvents with Low toxic potential



Impurities as per ICH guidelines :

→ Q3A (R2) : Impurities in new drug substance

→ Q3B (R2) : Impurities in new drug products

→ Q3C (R5) : Impurities Guideline for Residual Solvents

→ Q3D : Impurities Guideline for Elemental Impurities

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Impurities Present in API:-

API: Active Pharmaceutical Ingredient.

Identification of Impurities is done by variety of chromatographic & spectroscopic tech.

These are different methods for detecting & Characterising Impurites with TLC, HPLC, HPTLC, AAS etc.

conventional Liquid chromatography, particularly, HPLC has been exploited widely in field of Impurity profiling.

The wide range of detectors, & stationary phases along with its sensitivity & cost effective separation.

(b) Procedure of Reporting & control of degradation Products:

Degradation product:

An impurity resulting from a chemical change in the drug substance brought about during manufacturing and/or storage of the new drug product by the effect.

Drug product:-

→ In the drug Product specification, only degradation Products are to be incorporated as Impurities.

→ Degradation products of the drug substance

→ Reaction Products of the substance with an Excipient.

listing in the specification:-

→ Each specified Identified degradation product

→ Each specified unidentified degradation product

→ Any unspecified degradation product with an acceptance criteria of not more than 0.10% Identification threshold.

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* When identification is not feasible, a summary of the studies performed should be presented.
* Degradation products at a level of not more than the Identification threshold (1.0%) do not need to be Identified.
* The applicant should summarize the degradation products observed.
* additionally, Laboratory studies conducted to detect degradation products in new drug.
* summary should include test results of batches manufactured during development.
* batches representative of the proposed commercial process.
* A Rationale should be provided for exclusion of those Impurities that are not degradation product.

New drug product described in the registration application

→ Batch identity,
→ Strength & size
→ site of manufacture
→ manufacturing process
→ Immediate container closure
→ degradation Product content
→ use of batch
→ Reference to analytical procedure
→ batch number of the drug substance used in the new drug product

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ESTD : 2005

SUBJECTIVE TEST

JNTUK Reg. No. : 22T51S1605 Date : 7/2/2023
Student Name : K. Rama lakshmi Year : I st Sem : I st mid-1
Branch : B. Pharm / Pharm D. / Pharm D. (P.B) / M. Pharm
Specialization : M. Pharmacy Time :
Subject Name : Advanced pharmaceutical Analysis Total Marks :
Marks Secured : Invigilators Signature :

22/30 11/15

I a) Impurities :-

As defined by the united states pharmacopeial (USP). Impurity is "any component of a drug substance that is not the chemical entity defined as the drug substance and in addition. for a drug product any component that is not a formulation ingredient".

classification :-

organic impurities :- organic impurities are often process related or drug-related pharmaceutical impurities. These types of contaminants are most likely to arise during the synthesis, purification, and storage of the drug substance. organic volatile impurities are residual solvent that are produced during the synthesis drug substance Excipients used materials. by products. Intermediates degradation products reagents ligands and catelysts

Inorganic impurities :-

Inorganic impurities derive from the manufacturing process these impurities are often reagents: ligands, catalysts heavy or residual metals, inorganic salts, filter aids or charcoals. Inorganic contaminants are detected and quantified using pharmacopeal methods.

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Residual solvents :-

The third type of mourty pharmaceuticals residual solvents these impurities are residuals of solvents present in the manufacturing process. solvents used in pharmaceutical manufacturing. three classes based on their toxicity class one solvent should always be avoided enviromentally hazardous class two solvents should have limited toxicity may be present. class three solvents have two toxic material to human and do not need a limit.

without identifying and eliminating impurities in pharmaceuticals, the quality, safety, and efficacy of drug products are put at risk.

b) Degradation :-

→ Identification and characterisation of all degradation products.

→ essential for achieving the quality in pharmaceutical products.

→ Developmant for patient safety.

Degradation products :-

unwanted chemicals that develop during the manufacture, transport and storage of drug products.

→ Affect the efficiency of pharmaceutical products.

light
temperature
PH.

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Types :-

→ physically chemical degradation products.

→ chemical degradation product.

→ micro biological degradation products.

Reporting & control of degradation products :-

→ Degradation products observed during manufacture and stability studies. potential degradation pathways.

→ Impurities arising the interaction with excipients and the impurities container closure system.

→ laboratory studies conducted to detect degradation products.

→ Analytical produres should be developed for degradata which care :-

- potent
- toxic
- pharmacological effect

Analytical prokedures :-

The analytical prokedure should be validated to demonstrate specified & unspecified degradation product. the registration capplicable documented guidance (analytical prokedure have been validation detected & quantification of degradation products).

→ for validation the samples should be stored under stress condition like be stored

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→ light
→ heat
→ humidity
- Acid base
- oxidation.

2)

1) Elemental Analysis (EA) :-

This involves combustion of the sample in a stream of oxygen, followed by measurement of the resulting carbon dioxide and water vapour using an infrared (IR) detector.

2) Gas chromatography (GC) :-

This involves volatilizing the sample and separating the components based on their boiling points or polarity, followed by measure-ment of the resulting carbon dioxide and water vapour using an IR or TC detector.

3) Fourier Transform infrared spectroscopy (FTIR):-

This involves irradiating the sample with infrared light and measuring the absorption spectrum, from which the carbon and hydrogen content can be determined.

4) Nuclear magnetic Resonance (NMR) :-

Spectroscopy involves exposing the sample to a field and measuring the

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the resonant frequency of the hydrogen atom, from which the hydrogen content can be determined.

Regardless of the method used, accurate calibration and sample location are critical for obtaining reliable results.

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I M. Pharmacy I Sem II MID Exam R16, April 2023

Subject: Advanced Pharmaceutical Analysis **Branch: M pharm (pharmaceutical Analysis)**

Time: 120 min. **Max. Marks: 30** **Date of exam: 06/04/2023**

S. No	Questions	Blooms Taxonomy Level	Course Out Come	Marks
	Answer any two questions			
1.	a) Write a note regulator requirement of Phyto pharmaceuticals (7 ½ M) b) Explain the HPTLC/HPLC finger printing technique (7 ½ M)	Apply Understand	CO4	15
2.	Write a principle, procedure, applications of immunoassays	Apply understand	CO5	15
3.	Explain the biological tests & assays of oxytocin, heparin sodium IP.	Remember apply	CO6	15

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Signature of the faculty

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I M. Pharmacy I Sem II MID Exam R16, February 2023

Subject: Advanced Pharmaceutical Analysis **Branch: M pharm (pharmaceutical Analysis)**

Time: 120 min. **Max. Marks: 30** **Date of exam: 06/04/2023**

Scheme of Evaluation

1. a) Write a note regulator requirement of Phyto pharmaceuticals **(7 ½ M)**

   Definition of Phyto pharmaceuticals - **2.5 M**

   regulator requirement of Phyto pharmaceuticals - **5 M**

   b)) Explain the HPTLC/HPLC finger printing technique **(7 ½ M)**

   HPTLC finger printing technique – **2.5 M**

   HPLC finger printing technique - **5 M**

2. Write a principle, procedure, applications of immunoassays **(15 M)**

   principle, procedure of immunoassays – **7M**

   applications of immunoassays – **8 M**

3. Explain the biological tests & assays of oxytocin, heparin sodium IP. **(15 M)**

   biological tests & assays of oxytocin **-7 M**

   biological tests & assays of heparin sodium IP– **8 M**

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Signature of the faculty

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ESTD : 2005

SUBJECTIVE TEST

JNTUK Reg. No. : 22T51B1609 Date : 6/4/2023

Student Name : M.Soumya Year : 1st Sem : 1st - 1st sem mid-2

Branch : B. Pharm / Pharm D. / Pharm D. (P.B) / M. Pharm

Specialization : M.pharmacy Time :

Subject Name : Advanced pharmaceutical analysis. Total Marks :

Marks Secured : 28/30 14/15 Invigilators Signature :

2A) A) Immunoassay:-

An immunoassay is a biochemical test that measures the conc. of a substance in a liquid (or) portion of a biological specimen, using the reaction of an antibody (or) antibodies to its antigen (drug).

principle:-

* As assay is a general term for an analytical laboratory procedure designed to detect the presence of the quantity of a drug in a biological fluid such as urine (or) serum (the fluid component of the blood obtained after removal of blood cells & fibrin clot).
* An immunoassay, therefore, is an analytical procedure which has as its basis the principles of immunology - Specifically, the binding of drugs to antibodies.
* This binding of antibodies to drugs forms the basis for immunoassay.
* In the development of an immunoassay, the first step is to inject an animal (host) with the drug that we ultimately wish to analyze.
* The host immune system, recognizing the drug as a "foreigner" generates antibodies to this drug and these antibodies can then be harvested from the serum of the animal.
* In the test - tube environment of the laboratory (invitro), these antibodies can be recombined with the appropriate drug

Procedure:-

* Several different types of immunoassay are routinely performed in the laboratory.

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* Although they differ in the types of reagents & instrumentation used, they are all based on the same scientific principle (the binding of drugs to antibodies).
* The three types of immunoassay that are commonly used for drug testing are the radioimmunoassay (RIA), enzyme multiplied immunoassay (EMIT) & fluorescence polarization immunoassay (FPIA)
* The immunoassay is based on the competitive (or) non-competitive binding of the antigen with the antibody.

1) Competitive immunoassay:-

* Competitive immunoassay are always designed so that there are fewer antibody-binding sites present in the reaction mixture than there are molecules of (labeled plus unlabeled) drug.
* Because the label & unlabeled drug appear the same to the anti-body. They will complete equally for the limited no. of available binding sites on the antibody.

2) Non-competitive immunoassay:-

* Non-competitive immunoassays generally provide the highest level of assay sensitivity & specificity.
* This format is referred to as a "Sandwich" assay because the analysis id bound (sandwiched) b/w two highly specific antibody reagents.
* The reaction mixture typically induces an excess of labeled antibody, so that all drug/metabolite is bound.
* The amount of antibody-antigen complex is then measured to determine the amount of drug present in the sample.

Applications:-

Forensic toxicological aspects

Radioimmunoassay:-

* Elegant test in analytical chemistry.

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*Method may fail in case of low quantity.
*Assay of many substance which are present in trace amount in blood, urine & hair.

Enzyme multipled Immunoassay:-
*cheapest & simplest technique.
*Analytical method.
*widely used in therapeutic & illicit drug monitoring.

(B) Biological tests of oxytocin:-
*Synthesized in both sexes, well recognized physiological affects only in women.
*cyclic polypeptide hormone from positerior pituitary gland.
*Neurosecretary product mainly synthesize in the c/l bodies of paraventricular nuclear of the hypothalamus.
*Stimulate the contraction of the uterine smooth muscle & memory gland.
*facilitates the contraction of uterus.
*It is presented as a solid (s) solution in a solvent containing an appropriate anti-microbial perservative such as 0.2% w/v of chlorobutol.
* Animal species 90-110%, started no. of units of oxytocin activity.

Mechanism of action:-
* Neuropeptide made in hypothalamus that stimulates contractions that expel the infant from uterus.
*Responsible for milk letdown & triggered by the nipple stimulation of suckling.
* called love & bonding hormone, it has a very special affect on mothering.
*Psychologically, Oxytocin promotes a feeling of well being & tranquility.

Biological assay of oxytocin:-
Principle:-
* Potency is determined by comparing its activity.

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*Depression of BP.
*contraction of uterus
*Milk ejection pressure

Standard preparation:-

Method-A:- Depression of the BP in chicken.

Test animals :- cockered (young male chicken).

Method-B:- (By contraction of the rat uterus).

Test animals :- female rat 120-200g.

*Anaesthetized cock - prolonged & constant high BP
*Expose gluteus primus muscle (thigh) & remove political cortery & femoral vein.

1(B):- HPTLC:-

In HPLC, we try to study the separation on a inert stationary plate & allow molecules of a carries soln that able to dissolve the components of sample & provide a adjustable position of separated sample by varying solvent strength.

HPTLC fingerprinting:-

*The checklist of botanical/medicinal plants along with their scientific validation is still blessed. The traditional methods are poor, time consuming & less scientific, so there is a need to used emerging technological knowledge and sophisticated analytical methods.
*HPTLC provide a deep inside into the plants compound profile & their chemistry.
*There is no substitution of qualitative visual results of HPTLC for botanicals.

Mobile phase:- The moleculs, that moves ~~the~~ with flow (on TLC plate (in column).

Stationary phase:- The molecules that remains immobile.

1) Similar substances - Same Rf values.
2) Exchange the solvents (or) modify their ratios depending on experimental need.
3) change in solvent strength, change the Rf values

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22T5151609

Sample preparation:-

Drying- shed drying for 15-21 days dry Enough
Grinding- Depends upon samples.

Extraction:-

* Simply 1:10 - sample : solvent (universal),
* Initially 500mg of powdered sample into 10ml solvent.

Solvent selection:-

The choice of solvent is influenced by what is intented with the extract for this reason successful determination of biologically active compounds large dependent on type of solvent used in the extraction produre.
* properties of a good solvent is plant extraction includes, low toxicity ease of evaporation at low heat. promotion of rapid physiological absorption of extract, preservative action.

(A) Phytopharmaceuticals:-

Globally, herbal medicine has been considered an important alternative to modern allopathic medicine. Although the herbal medicines are very popular in the society only few medicinal herbs has been scientifically evaluated for their potential in medical treatment.

Globally, several diverse regulatory approaches are in vogue such as:-

* Same regulatory requirements for all products.
* Same regulatory requirements for all products with certain types of evidence not required ~~from~~ for ~~all~~ ~~regulatory~~ herbal medicines.
* Exemption from all regulatory requirements for herbal medicines.

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* Exemption from all regulatory requirements for herbal medicines concerning registration (&) marketing authorization.
* Herbal medicines subject to all regulatory requirements

Herbal preparations are classified in 3 categories:-

* Traditional medicinal use provisions "traditional use" accepted on the basis of sufficient safety data & placeable efficacy.
* Safety & an efficacy data from the company's own development "stand alone" (&) a combination of own studies and bibilographic data "mixed application"
* well-established medicinal use provision. "well-established we demonstrated with the provision of scientific literature.

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ESTD : 2005

SUBJECTIVE TEST

JNTUK Reg. No. : 22T51S1606 Date : 6/4/23

Student Name : K. Shalini Year : 1st Sem : 1st Sem Mid-II

Branch : B. Pharm / Pharm D. / Pharm D. (P.B) / M. Pharm

Specialization : M. pharmacy Time :

Subject Name : Advanced pharmaceutical Analysis Total Marks :

Marks Secured : 26/30 13/15 Invigilators Signature :

2) a) Immunoassay :-

An immunoassay is a biochemical test that measures the concentration of a substance in a liquid (a portion of a biological specimen) using the reaction of an antibody or antibodies to its antigen (drug)

Principle :-

* An assay is a general term for an analytical laboratory procedure designed to detect the presence of & (or the quantity of a drug in a biological fluid such as wine or Serum (the fluid component of the blood obtained removal of blood cells, fibrin clot).
* An immunoassay, therefore, is an analytical procedure which has as its basis the principles of immunology specifically the binding of drugs to antibodies.

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* This binding of antibodies to drugs forms the basis for immunoassay.
* In the development of an immunoassay, the first step is to inject an animal (host) with the drug that we ultimately wish to analyze.
* The host immune system, recognizing the drug as a 'foreigner', generates antibodies to this drug & these antibodies can then be harvested from the serum of the animal.
* In the test-tube environment of the laboratory (in vitro), these antibodies can be recombined with the appropriate drug.

procedure :~

* Several different types of immunoassay are routinely performed in the laboratory.
* Although they differ in the types of reagents & instrumentation used, they are all based on the same scientific principle (the binding of drugs to antibodies).
* The three types of immunoassay that are commonly used for drug testing are the radioimmunoassay (RIA), enzyme multiplied immunoassay,

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(EMIT), fluorescence polarization immunoassay (FPIA).

* The immunoassay is based on the competitive or non-competitive binding of the antigen with the antibody.

1. Competitive immunoassay :-

* competitive immunoassay are always designed so that there are fewer antibody-binding sites present in the reaction mixture than there are molecules of (labelled plus unlabelled drug).

*. Because the label & unlabelled drug appear the same to the antibody. They will compete Equally for the limited number of available binding sites on the antibody.

2. Non-competitive immunoassay :-

* Non-competitive immunoassays generally provide the highest level of assay sensitivity & Specificity.

* This format is refered to as a 'Sandwich' assay because the analysis id bound b/w 2 highly specific antibody reagents.

* The reaction mixture typically includes an Excess of labeled antibody, so that all target metabolite bound.

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* The amount of antibody - antigen complex is then measured to determine the amount of drug present in the Sample.

* Applications :-

* Forensic toxicological aspect :-

Radioimmunoassay :-

* Elegant test in analytical chemistry.
* method may fail in case of low quantity.
* Assay of many substance which are present in trace amount in blood, urine & hair.

* Enzyme multiplied immunoassay :-

* Cheapest & Simplest technique.
* Analytical method.
* widely used in therapeutic & illicit drug monitoring.

B) Biological tests of oxytocin :-

→ Synthesized in both sexes, well recognized physiological affects only in women.

→ cyclic polypeptide hormone from posterior pituitory gland

→ Stimulate the contraction of the uterine smooth muscle & memory gland.

→ facilitates the contraction of uterus.

→ It is presented as a solid or solution in a solvent containing an appropriate antimicrobial.

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preservative. Such as 0.2% w/v of chlorbutol.

→ Animal Species - 90- 110% Started number of units of oxytocin activity.

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mechanism of action :-

Neuropeptide made in hypothalamus that Stimulates contrations the expel infont from uterus.

→ Responsible for milk letdown & triggered by the nipple Stimulation of Suckling.

→ Called love & bonding hormone. It has a very special affect on mothering.

→ psychdogically, oxytocin promotes a feeling of well being & tranquility.

Biological assay of oxytocin :-

principle :-

→ Depression of BP

→ Contraction of uterus

→ Milk Ejection pressure.

Standard preparation :-

method -A :- Depression of the Bp in chicken.

test animals :- cockerel (young male chicken).

Method :- (By Contraction of the uterus)

Test animals :- female rate 200g

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→ Anaesthetized rock - prolonged & constant high B.p.

→ Expose gluteus primus muscle. (thigh) & remove. Political artery & femoral vein.

1.) b) HPTLC :-

In the high performance thin layer chromatography (HPTLC) we try to study the separation on a inert stationary plate & allow molecules of a carrier solution that able to dissolve the components of sample & provide a adjustable position of separated sample by varying solvent strength.

HPTLC finger printing :-

The checklist of botanical / medicinal plants along with their scientific validation is still blessed. The traditional methods are poor, time consuming and less scientific, so there is a need to used emerging technological knowledge & sophisticated analytical methods.

→ HPTLC provide a deep inside in to the plants compound profile & their

Chemistry

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→ There is no substitution of qualitative visual results of HPTLC for botanicals.

mobile phase :- The molecules, that moves with flow (on TLC plate/ in column)

Stationary phase :- The molecules, that remains immobile.

(1) Similar substances - same R_f values.

(2) Exchange the solvents or modify their ratios, depends on experimental needs.

(3) Change in solvent strength, change the R_f values.

Sample preparation :-

Drying - Shed drying for 15-21 days to avoid Enzyme.

Grinding - Depends upon samples.

Extraction :-

→ Simply 1:10 - Sample : Solvent (universal)

→ Initially 500mg powered sample into 10ml Solvent

Solvent Selection :-

→ The choice of solvent is influenced by what is intended with the extract, for this reason successful determination of biologically active compounds charge dependent.

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on type of solvent used in the Extraction procedure.

→ properties of a good solvent in plant Extraction includes, low toxicity case of Evaporation at low heat promotion of rapid physiologic absorption of the Extract preservative action.

d) * Phyto pharmaceutical :-

→ Globally, herbal medicine has been considered an important alternative to modern allopathic medicine. Although the herbal medicines are Very popular in the Society only few medicinal herbs have been Scientifically Evaluated for the potential in medical treatment.

→ Then, the ~~phyto pharmaceutical~~.

Globally, Several diverse regulatory approaches are in vogue such as:-

→ Same regulatory requirements for all products.

→ Same regulatory requirements for all products with certain types of evidence not required for herbal medicines.

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* Exemption from all regulatory requirements for herbal medicines concerning registration or marketing authorization,
* Herbal medicines subject to all regulatory requirements.

Herbal preparations are classified in 3 categories

* Traditional medicinal use provisions "traditional use" accepted on the basis of sufficient safety data & plausible Efficacy.
* Safety & an Efficacy data from the company's own development.

"Stand alone" or a combination of own studies & bibliographic data "mixed application."

"
* well-Established Medicinal use provisions. well established use demonstrated with the provision of scientific literature.

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Consolidated Internal Marks Statement

Branch : **I semester M PHARMACY (Academic Year 2022-2023)**

Subject : **Advanced Pharmaceutical Analysis**

Subject Code : **MPA102T**

Faculty : **Mrs. B. Chaitanya**

S No	Reg. No	MID-I			MID-II			Average of mid exams
		Sessional exam -1 (15 M)	Continuous Mode-1 (10)	Total-I (25 M)	Sessional exam -II (15 M)	Continuous Mode-II (10)	Total-II (25 M)	
1	22T51S1602	12	10	22	14	10	24	23
2	22T51S1603	13	10	23	13	10	23	23
3	22T51S1605	11	10	21	13	10	23	22
4	22T51S1606	13	10	23	13	10	23	23
5	22T51S1607	12	10	22	14	10	24	23
6	22T51S1608	11	10	21	13	10	23	22
7	22T51S1609	12	10	22	14	10	24	23
8	22T51S1610	12	10	22	13	10	23	23
9	22T51S1611	12	10	22	11	10	21	22
10	22T51S1612	13	10	23	14	10	24	24
11	22T51S1613	13	10	23	13	10	23	23
12	22T51S1614	13	10	23	13	10	23	23
13	22T51S1615	11	10	21	14	10	24	23

B. Chaitanya

Staff **Exam in-charge** **Principal**

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Display of Internal Marks during Academic Year 2022-2023
Branch: I M Pharmacy I Semester

S No	Reg. No	*Modern Pharmaceutical Analytical Techniques (MPA101T)	*Advanced Pharmaceutical Analysis (MPA102T)	*Pharmaceutical Validation (MPA103T)	*Food Analysis (MPA104T)	*Pharmaceutical Analysis Practical-I(MPA105PA)	*Pharmaceutical Analysis Practical-II (MPA105PB)
1	22T51S1602	23	23	23	23	24	24
2	22T51S1603	23	23	24	24	24	23
3	22T51S1605	23	22	22	23	23	24
4	22T51S1606	23	23	23	23	24	24
5	22T51S1607	23	23	23	24	24	24
6	22T51S1608	23	22	22	23	24	24
7	22T51S1609	23	23	22	23	24	24
8	22T51S1610	23	23	23	23	24	24
9	22T51S1611	21	22	22	22	23	22
10	22T51S1612	22	24	23	24	24	23
11	22T51S1613	23	23	23	24	24	24
12	22T51S1614	23	23	23	23	24	24
13	22T51S1615	23	23	22	23	24	23

** Average marks of two internal theories & lab examinations*

A. Naga Srinivas.
B. Chaitanya
A.N.V. Santhosh
typed

Staff

Exam in-charge

typed

Principal

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INTERNAL LAB EXAMINATION

ASSESSMENT

I M. Pharmacy I Sem Lab internal-I Exam R16, February 2023

Subject: Pharmaceutical analysis Practical-I **Branch: M pharm (pharmaceutical Analysis)**

Time: 180 min. **Max. Marks: 30** **Date of exam: 10/02/2023**

I. Synopsis (5 M)

1. Write a note on quality control test for capsules? **2.5 M**
2. Explain different types of record maintenance in quality control. **2.5 M**

II. Major Experiment (12M)

Perform and report the unknown concentration of **RIBOFLAVIN** by using fluorimetry

III. Minor Experiment (8 M)

Perform and report the percentage% purity of **IBUPROFEN**?

IV. Record & Viva – voce (5 M)

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ESTD : 2005

SUBJECTIVE TEST

JNTUK Reg. No. : 22T51S1606 Date :

Student Name : K. Shalini Year : 1st ✓ Sem : 1st Sem Practical - X Internal - ✓ (mid-1)

Branch : B. Pharm / Pharm D. / Pharm D. (P.B) / M. Pharm

Specialization : M. pharmacy Time :

Subject Name : Practical - I Lab Internal - I Total Marks : 13

Marks Secured : Invigilators Signature :

I Synopsis (2m)

(a) write a note on quality control test for capsules.

(b) Explain different types of records maintainance in qc.

II Major. (2m)

Perform & Report the unknown concentration of Riboflavin by using flowimetry.

III minor (1m)

Perform & Report the % purity of Ibuprofen

IV Record + Vivavoce. (10M)

Syn - 1
maj - 1
min - 1
Rec - 10
13

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II Major :-

Aim :-

To determine the unknown concentration of Riboflavin by flourimetry.

Procedure :-

Preparation of Riboflavin Stock Solution :-

weigh 100mg of riboflavin pure drug & transfer into 100ml volumetric flask & make upto mask with water which gives 1000ug/ml filter it & take 5ml & make upto 100ml with water gives 5ug/ml.

preparation of unknown Sample :-

Make any Sample of unknown & findout the flouresecence intensity from the graph & findout & it by Extrapolation method.

Calculation :

observation :-

Concentration.	flouresecence intensity.
0.01	15.8
0.02	40.1
0.03	63.7
0.04	85.3
100	
unknown.	75.1

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$$Y = Mx + c$$

$$75.1 = 387.8x + 4.03$$

$$387.8x = 75.1 - 4.03$$

$$387.8x = 75.1 - 4.03$$

$$x = \frac{75.1 - 4.03}{387.8}$$

$$x = 0.204 \text{ ug/ml.}$$

Report :- The concentration of given sample was found to be 0.204 ug/ml.

III **Minor :-**

Aim :- To determine the amount of Ibuprofen as per I.P.

Procedure :-

1. weigh accurately about 0.5g of potassium hydrogen pthalate previously powdered & dried out at 120°C for 1 hr. & dissolved in 75 ml of H_2O added 2 drops of phenolpthalein & titrated with 0.1N Sodium hydroxide solution until permanganate pale pink colour was produced.

Assay of Ibuprofen (Raw material) :-

1. weighed 0.5g of raw material to a 100ml of Conical flask & this 100ml of alcohol was added which was previously neutralized with 0.1N Sodium hydroxide solution using phenolpthaline as indicator. Each 1ml of 0.1N NaOH is equivalent to 0.020639g of $C_{11}H_8O_2$.

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calculations :-

wt. of potassium hydrogen pthalate (w_1) = 0.501g

wt. of potassium hydrogen pthalate (w) = 0.004g

After transfer (w_2) $(w_1 - w_2)$ = 0.501 − 0.004

= 0.497g.

potassium hydrogen pthalate Vs 0.1N NaOH.

S.No	Contents of Conical flask.	Burette reading Initial final.	Vol of NaOH	Indiator	End Point.
1.	0.4979 of potassium hydrogen pthalate	0.0ml - 2.5ml	25 ml	Phenol -pthalin.	pale. Pink

Normality of NaOH = $\frac{\text{wt. taken} \times \text{actual normality.}}{\text{total vol} \times \text{wt. factor.}}$

$= \frac{0.497 \times 0.1}{25 \times 0.02042} = 0.09735N$

assay : wt of the Sample taken = 0.1062g.

Ibuprofen Vs 0.1N NaOH.

S.no	contents in Conical flask	Burette readings Initial final	vol of NaOH	Indicator	End point
1.	0.01002 g of Sample + 20ml of alcohol.	0.0ml - 5ml	5ml	Phenolpthalin	Pale pink Colour.

% purity of Ibuprofen = $\frac{5.0 \times 0.09735 \times 0.02063 \times 100}{0.1002 \times 0.1}$

= 100.21 % w/v.

Report :-

The percentage purity of the given Sample of ibuprofen was found to be 100.21 % w/v

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a) Quality control tests :-

Quality control test are divided into

- physical test
- Disintegration test
- weight variation
- Dissolution test
- Assay content uniformity

Physical test :-

In this test the capsules are fat ito it auto. matic capsule colour - the capsules are from diameter sorter by a pneumatic conveyer. In this unit any capsule standard for particular product is discarded other phases test.

Disintegration test :-

The disintegration test determines whether capsules disintegrated with prescribed time when placed in a liquid medium under prescribed integral conditions.

wt. Variation test.

-weight 20 capsules individually & determine the avg wt. the individual wts should be with in limit of 90 -110% of avg. wt.

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Dissolution test :-

The dissolution test is carried out using dissolution apparatus official in both USP & I.P. The capsule is placed in a basket & basket is immersed in dissolution medium

b) These are the records pertaining to a particular ward.

* Circular record
* Round book
* Duty Roaster
* ward indent book
* ward inventory Book.
* Staff patient assignment Record

Types of records :-

Hospital records are broadly classified into 4 categories. Based on area of usage. They are :-

1) patients clinical record
2) Individual staff records
3) ward records.
4) Administrative records with Educational Value.

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I M. Pharmacy I Sem Lab internal-I Exam R16, February 2023

Subject: Pharmaceutical analysis Practical-I **Branch: M pharm (pharmaceutical Analysis)**

Time: 180 min. **Max. Marks: 30** **Date of exam: 10/02/2023**

Scheme of valuation

S. No	Evaluation Process	Marks
1	Internal laboratory exam	20 M
2	Day to day assessment in laboratory	10 M
3	Total	30 M

B. Chaitanya
Signature of the faculty

Principal

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ESTD : 2005

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I M. Pharmacy I Sem Lab internal-II Exam R16, February 2023

Subject: Pharmaceutical analysis Practical-I **Branch: M pharm (pharmaceutical Analysis)**

Time: 180 min. **Max. Marks: 30** **Date of exam: 10/04/2023**

I. Synopsis (5 M)

1. Write a note on MBTA reagent? **2.5 M**
2. Explain the calibration procedure of UV visible spectrophotometer. **2.5 M**

II. Major Experiment (12M)

Perform and report the unknown concentration of **SALBUTAMOL** by using MBTH reagent.

III. Minor Experiment (8 M)

Perform and report the unknown concentration of **ASCORBIC ACID** by TTZ reagent.

IV. Record& Viva – voce (5 M)

B. Chaitanya
Signature of the faculty

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ESTD : 2005

SUBJECTIVE TEST

JNTUK Reg. No.	: 22T51S1607		**Date**	:
Student Name	: M. Divyasai	**Year :** 1st yr	**Sem**	: Sem-I
Branch	: B. Pharm / Pharm D. / Pharm D. (P.B) / M. Pharm			Practical - I
Specialization	: M. Pharmacy		**Time**	: Internal - II (mid-2)
Subject Name	:		**Total Marks**	:
Marks Secured	: 14		**Invigilators Signature**	:

I Synopsis

a) write note on MBTA reagent.

b) Explain the caliberation procedure of UV-Visible spectrophoter.

Syn - 2
maj - 2
min - 1
viva - 5

II Major

Perform & report the unknown conc. of salbutamol by using MBTH reagent.

III Minor

Perform & report the unknown conc. of Ascorbic acid by TTZ reagent

IV Viva & record (10m)

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II

Major

Aim:- To estimate the amount of salbutamol present in the given sample by MBTH reagent requirement.

Procedure :-

Preparation of reagent :-

MBTH (0.2% w/v) - 200 mg of MBTH was dissolved in 1000 ml of distilled water. As (1%) 1gm of dissolved in 100 ml of 0.72 m H_2SO_4.

Calibration curve :-

10mg of drug dissolved in 100 ml of distilled water to produce conc of stock solution. Then from above solution take 1, 2, 3, 4, 5 ml of solution & to each flask add 1ml of MBTH reagent & 1ml of CAS reagent of 1 µg/ml, 2 µg/ml, 4 µg/ml, 5 µg/ml.

Sample preparation :-

To the given unknown sample add 1ml of MBTH reagent & 1ml of CAS & volume, was made upto 10ml with dist. H_2O. The substance of both sample & standard solution. Then calibration were plotted.

Concentration	Absorbance
1	0.63
2	0.642
3	0.842
4	0.898
5	1.123
Unknown	0.862

$y = mx + c$

$0.862 = 0.124x + 0.454$

$0.862 = 0.124x + 0.454$

$x = \frac{0.862 - 0.454}{0.124}$

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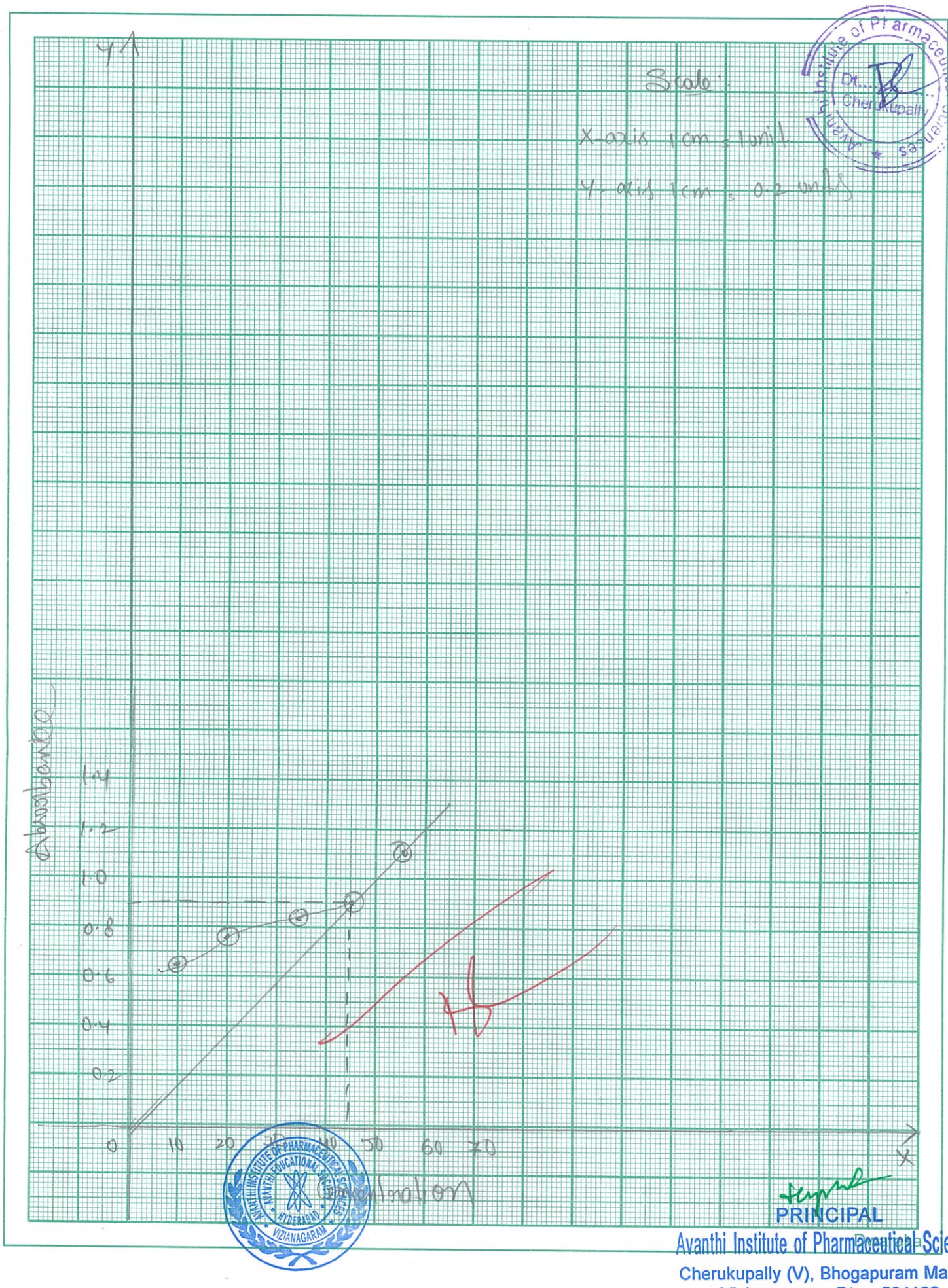
Spectrophotometric determination of Salbutamol by MBTH reagent



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$x = 3.290$ µg/ml.

Report:- The concentration of given unknown sample from sheet found to be 3.290 µg/ml & from graphical method was found to be 4.0 µg/ml.

III Minor :-

Aim :- To estimate the amount of ascorbic acid present given sample by using TTZ reagent.

Procedure :-

preparation of Reagent :-

0.25 g of TTZ reagent dissolved in 100 ml of Methanol.

preparation of 0.5% NaOH solution :-

0.5 g of NaOH dissolved in 100 ml of ethanol & gives conc. of 100 µg/ml from this pipette out 1ml & make upto 1000 ml which gives 10 µg/ml stock solution.

Sample solution :-

To the given sample add 5 ml of TTZ reagent & 1ml of 0.5% w/v of NaOH solution & make upto mark with measure its absorbance at 280 nm from calibration graph, conc. of given was calculated & noted the result.

	conc.	Absorbance
1		2.064
2		2.071
3		2.086
4		2.109
5		2.309
Unknown		2.089

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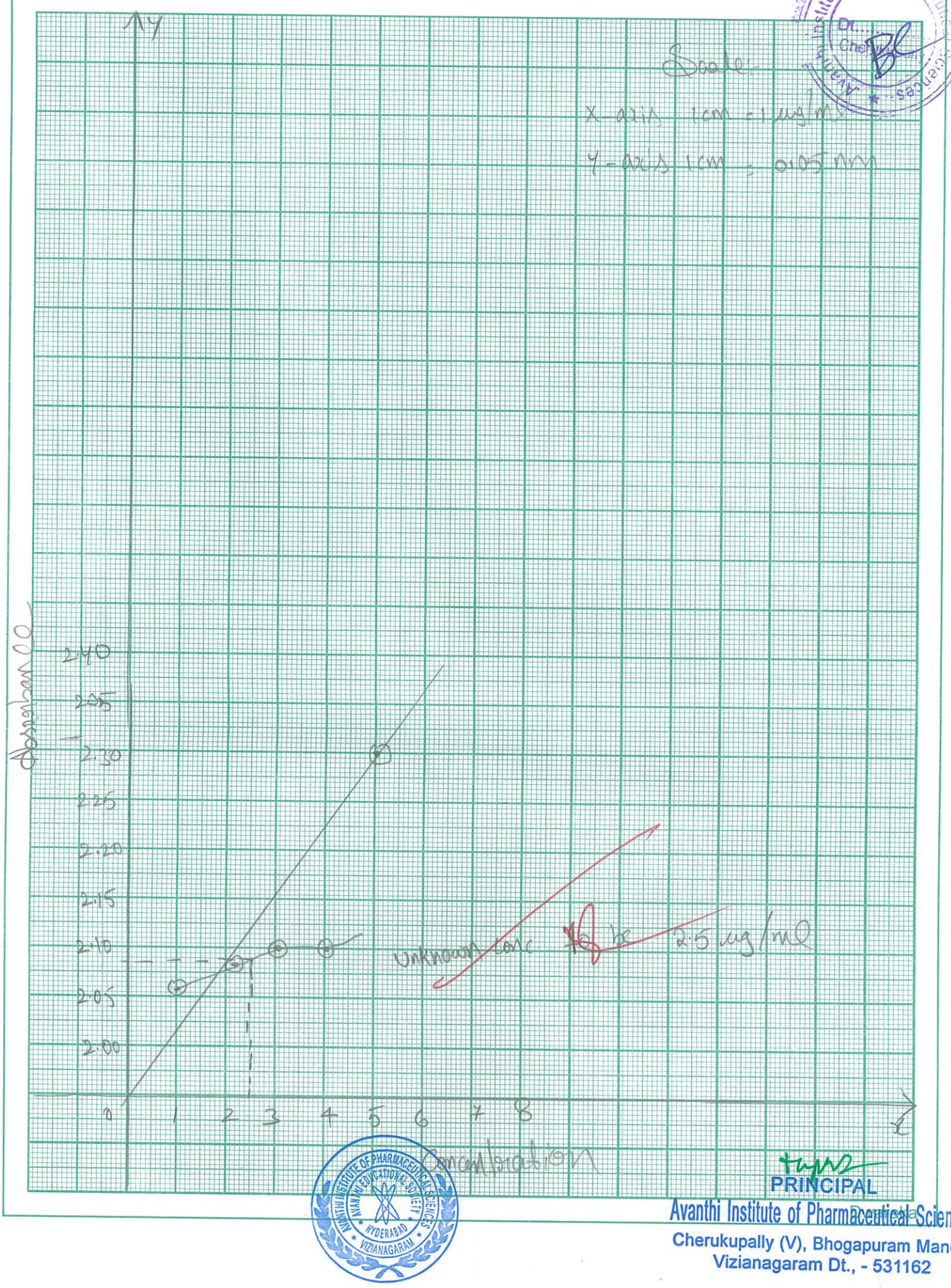
Spectrophotometric determination of Ascorbic acid by using PTZ reagent



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$$Y = mx + C$$

$$2.089 = 0.051x + 1.972$$

$$x = \frac{2.089 - 1.972}{0.051}$$

$$= 2.294 \text{ mg/ml}$$

Report:

The concentration of unknown sample by using excell sheet was found to be 2.294 ug/ml.

The conc. of unknown sample by using graph found to be 2.0 ug/ml.

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22T5151607
Prac-I Lab-II
Avanthi Institute of Pharmaceutical Sciences
Dr... Cherukupally

(1) MBTH Reagent :-

→ 3-Methyl-1,2-benzothiazoline hydrazone hydrochloride

→ Introduce in 1910 by BEST HORN

→ Used for estimation of no. of drugs having

- phenols
- aromatic amines
- aldehydes
- poly hydroxy carbons
- indoles
- Carbazones
- Benzothiazines

Advantages :-

- The colour produced with MBTH reagent for many of drugs is blue colour which is very stable one.

Applications

→ MBTH is used in analysis of drinking surfaces saline waters, domestic & industrial waste.

→ Used in estimation of drugs like acyclovir, ganicyclovir, ceftazimide & cefadroxil, nicoumadiol.

→ Used in identification of groups such as

- Aldehydes
- Amines
- phenols
- Aryl amines

used for estimation of disinfectants

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(2) Calibration of UV - visible Spectrophotometer :-

→ Spectrometer calibration is a process where a scientific instrument known as a spectrometer is calibrated to confirm that it is working properly.

→ This is important, as it ensures that the measurements obtained with instrument.

→ A UV - VIS spectrometer is calibrated because the performance of spectrometers includes testing the resolution, wavelength accuracy and stray light affect needs to perform.

→ The calibration of UV - VIS spectrometers are performed with combination of liquid filters and solid filters.

→ Liquid & solid - state filters are calibrated by the filter manufacture.

→ Solid - state filters maintain their performance for many years when handled properly but the liquid filters decreases much quicker due to slow irreversible chemical reactions.

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I M. Pharmacy I Sem Lab internal-II Exam R16, February 2023

Subject: Pharmaceutical analysis Practical-I **Branch: M pharm (pharmaceutical Analysis)**

Time: 180 min. **Max. Marks: 30** **Date of exam: 10/04/2023**

Scheme of valuation

S. No	Evaluation Process	Marks
1	Internal laboratory exam	20 M
2	Day to day assessment in laboratory	10 M
3	Total	30 M

B. Chaitanya

Signature of the faculty

Principal

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(Approved by P.C.I.S.A.I.C.T.E. Affiliated to J.N.T.U. Kakinada & Recognised by
A.P. State Council of Higher Education)
Cherukupally (Vi), Chittivalasa (SO), Vizianagaram (Dt.) Pin - 531 162
Phone : 08933-226262, 9705169740

CERTIFICATE

Certified that this is a bonafied record of Practical work done by Mr./Miss K. N. H. Bindu *a student of B. Pharmacy, Pharm D.M. Pharmacy, with Regd. No.* 21T51S1606 *in the* pharmaceutical analysis practical - I *Laboratory of Department of Pharmaceutical Sciences during the year* 2021-2022

No. of Experiments 2 | 8

B. Chaitanya
03/06/22
Signature Faculty Incharge

PRINCIPAL
Avanthi Institute of Pharmaceutical Sciences
Cherukupally (V), Bhogapuram (M)
Signature of Head of Dept.

Submitted for Practical Examination held on : 22-06-2022

Examiner

B. Chaitanya
Examiner - 2

INDEX

Serial No.	Date:	Name of the Experiment	Page No	Marks Awarded	Remarks
01	07/01/22	Calibration of pH meter	01-05	9/10	21/1/22
02	21/01/22	Calibration of UV-Visible Spectrophotometer	06-10	9/10	28/1/22
03	21/01/22	Calibration of Weighing balance & Weighing box	11-12	8/10	28/1/22
04	28/01/22	Calibration of Conductivity meter	13-14	9/10	4/2/22
05	28/01/22	Calibration of Nephelometer	15-16	9/10	4/2/22
06	04/02/22	Calibration of friability apparatus.	17-18	8/10	4/2/22
07	04/02/22	Calibration of disintegrating apparatus.	19-21	9/10	11/2/22
08	11/02/22	Calibration of dissolution test apparatus.	22-25	9/10	18/2/22
09	18/02/22	Calibration of HPLC	26-33	9/10	25/2/22
10.	18/02/22	Calibration of Gas Chromatograph	34-37	8/10	25/2/22
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12.	04/03/22	Assay of Sulphamethazole	39	8/10	11/3/22
13.	11/03/22	Assay of Calcium gluconate infection IP	40-41	9/10	18/3/22
14.	18/03/22	Assay of Cephalexin Capsules IP	42-43	8/10	25/3/22
15.	18/03/22	Estimation of Quinine	44-45	9/10	25/3/22

Date 07/01/2022

Expt. No. 01 Page No. 01

CALIBRATION OF pH METER

Aim: To calibrate the pH meter.

Requirements:

* Chemicals:- Buffer solution of pH 4.02, pH 6.35
* Apparatus: Beaker, Pipette, tissue paper
* Instruments: pH meter
  make - Elico
  model - LT180

Theory and Principle:

* pH definition:- pH is defined as a figure expressing the acidity on alkalinity of a solution on a logarithmic scale on which 7 is neutral, lower values are more acidic & higher values more alkaline. pH is equal to $\log_{10} c$, where c is the hydrogen ion concentration in moles per liter.

$$pH = -\log(H^+)$$

pH meter is the instrument used to measure the pH of given solution. It contains 4 parts.

1. Sensing electrode
2. Reference electrode
3. A sample being used to measure
4. High input independence operation amplifier to measure & display the cell potentially.

The pH meter is Voltameter & measures the potentials across the pH sensing & reference

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T°_{c} Temperature	Primary Standard	Potassium tetra oxalaxate	Disodium H_2 phosphate + pt dihydroxy phosphate	Sodium tetra borate
15	4.00	1.67	6.90	9.28
20	4.00	1.68	6.88	9.23
25°	4.01	1.68	6.87	9.18
30°	4.02	1.68	6.85	9.14
35°	4.02	1.69	6.85	9.10

pH = 4.02 (Primary Standard)

T°_{c} Temperature	pH observation	pH as per IP	Inference	IP limit
15°c	3.15	4.00	0.85	
20°c	3.04	4.00	0.96	± 0.05
25°c	3.10	4.01	0.91	
30°c	3.15	4.02	0.87	
35°c	3.74	4.02	0.28	

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electrode. It also converts the pH meter at given temperature into pH terms it provides mechanism to conduct ion ideal behaviour of the electrode system. As per Nernest equation.

$$E_{cell} = \epsilon^\circ + 0.0592 pH$$

$$pH = [\epsilon_{cell} - \epsilon_{ions}]/0.0592$$

In the accurate measurements of pH meter is calibrated manually using 3 references buffer solution, once the reference buffer with acidic pH, the 2nd with neutral pH & 3rd basic pH.

Procedure:

Preperation of buffer solutions:-

1. Buffer pH 4.02:- 10.2g of potassium hydrogen pthalate (it is previously dried at 10°c to 135°c for 2hrs) was dissolved in distilled H_2O & volume was made upto one litre of H_2O.
2. Buffer pH 6.85:- 3.55g of anhydrous disodium hydrogen phosphate & 3.40g of potassium dihydrogen phosphate (each previously dried out at 110°c at 135°c for 2hrs) was dissolved in dist. H_2O & final volume was made upto 1 litre.
3. Buffer with pH 9.14:- 0.1184g of potassium hydrogen phosphate & 0.355g of anhydrous dissodium hydrogen phosphate was dissolved in dist. H_2O & final

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pH - 6.87 (Solution: disodium hydrogen phosphate + pot. dihydrogen phosphate)

$T^{\circ}c$ Temp	pH Observation	pH as per IP	Inference	IP Limit
15°c	6.82	6.90	0.08	
20°c	6.83	6.88	0.05	
25°c	6.83	6.87	0.04	± 0.05
30°c	6.82	6.85	0.03	
35°c	6.82	6.85	0.03	

pH = 9.18 (Solution:- Sodium tetraborate)

$T^{\circ}c$ Temp	pH Observation	pH as per IP	Inference	IP limit
15°c	8.99	9.28	0.24	
20°c	9.16	9.23	0.07	± 0.05
25°c	9.23	9.18	0.05	
30°c	9.21	9.14	0.07	
35°c	9.17	9.10	0.07	

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volume made upto 1 liter with the same.

Calibration procedure:-

* Switch on the pH meter & stabilize for 20min. If the electrode is being used for first time it has to be activated in 0.1N HCl for 24hrs, then throughly washed with distilled H_2O.
* Standard buffer solution of pH 4.02, pH 6.05 all prepared by dissolving an appropriate buffer tablets. In the specified volume with distilled H_2O.
* Set the pH meter using the buffer control knob to the known pH at the buffer solution.
* Dip electrode assembly in beaker containing least solution.
* Press selection switch to read pH.
* Now measure the pH at various temp like 0, 5, 10, 15, 20, 25, 30, 35°c & raise the electrode rinse with dist. H_2O.
* Dip the electrode assembly into 2nd buffer solution to adjust the pH at required value & also measure the values at various temp like 0, 5, 10, 15, 20, 25, 30, 35°c.
* Raise electrode assembly & Rinse with dist. H_2O & immersed in dist. H_2O.

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Date _____

Expt. No. _____ Page No. 04

Precautions:-

* Pure dist. H_2O should be used for preparing soln.
* Standard buffer solutions should be given, stored in chemically reluctant alkali stoppered bottles.

As per I.P calibration procedure:

* Calibrate the apparatus using buffer solution (primary standard). A 100% w/v solution of pot. hydrogen pthalate, previously dried at 110°-130° for 2hrs. Adjusting the meter to read the appropriate pH value given in table, corresponding to then temperature of the solution.
* To set the scale, use a 2nd reference buffer solution using either of buffer soln given below & Carry out a check with 3rd buffer solution.

Preperation of reference buffer solutions.

* 1.27% w/v soln of pot. tetra oxalate.
* Mixture containing 0.348% w/v pot. dihydrogen phosphate both previously dried at 110°c - 130°c for 2hrs.
* 0.3814% w/v solution as Sodium tetraborate stored & protected from CO_2.

Method:- Immerse the electrodes in the soln under examination & measure the pH at the temp as for standard soln at the end of set of measurements. Record the pH of soln used to st. the meter and electrodes. If the difference b/w these

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Readings & the original value & greater than 0.05, the set of the measurements must be repeated: when measuring of pH above 10.0 & Ensure that the glass electrode is suitable for use under alkaline conditions.

Report:-

We have observed the pH of buffer solution of 4, 6, 8, & 9.2 at various temperature & compared the values against acceptance criteria.

It is observed that the values are not conforming (meeting) the requirements.

∴ Hence it is concluded that, calibration doesn't meet the requirements.

BP 21/1/22 9/10

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EXTERNAL THEORY EXAMINATION ASSESSMENT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
UNIVERSITY EXAMINATION CENTER, VIZIANAGARAM
M.PHARMACY-I SEMESTER (PCI REGULATIONS) REGULAR & SUPPLEMENTARY EXAMINATIONS, APRIL - 2023
(2022,2021, 2020, 2019 & 2018 ADMITTED BATCHES)

TIME TABLE

Time:10.00 AM To 01.00

	DATE & DAY			
Branches	**17-04-2023 (Monday)**	**19-04-2023 (Wednesday)**	**21-04-2023 (Friday)**	**25-04-2023 (Tuesday)**
PHARMACEUTICS /PHARMACEUTICAL TECHNOLOGY (03&11)	Modern Pharmaceutical Analytical Techniques **(MPH101T)**	Drug Delivery System **(MPH102T)**	Modern Pharmaceutics **(MPH103T)**	Regulatory Affair **(MPH104T)**
PHARMACEUTICAL ANALYSIS AND QUALITY ASSURANCE (04)	Modern Pharmaceutical Analytical Techniques **(MQA101T)**	Quality Management System **(MQA102T)**	Quality Control and Quality Assurance **(MQA103T)**	Product Development and Technology Transfer **(MQA104T)**
PHARMACOLOGY (06)	Modern Pharmaceutical Analytical Techniques **(MPL101T)**	Advanced Pharmacology-I **(MPL102T)**	Pharmacological and Toxicological Screening Methods-I **(MPL103T)**	Cellular and Molecular Pharmacology **(MPL104T)**
PHARMACEUTICAL ANALYSIS (16)	Modern Pharmaceutical Analytical Techniques **(MPA101T)**	Advanced Pharmaceutical Analysis **(MPA102T)**	Pharmaceutical Validation **(MPA103T)**	Food Analysis **(MPA104T)**
PHARMACEUTICAL MANAGEMENT & REGULATORY AFFAIRS /PHARMACEUTICAL REGULATORY AFFAIRS (13 &17)	Good Regulatory Practices **(MRA101T)**	Documentation and Regulatory Writing **MRA102T)**	Clinical Research Regulations **(MRA103T)**	Regulations and Legislation Drugs & Cosmetics, Medical Devic Biologicals & Herbals, and Foo Nutraceuticals In India an Intellectual Property Right **(MRA104T)**

NOTE:

(I) ANY OMISSIONS OR CLASHES IN THIS TIME TABLE MAY PLEASE BE INFORMED TO THE CONTROLLER OF EXAMINATIONS, IMMEDIATELY

(II) EVEN IF GOVERNMENT DECLARES HOLIDAY ON ANY OF THE ABOVE DATES, THE EXAMINATIONS SHALL BE CONDUCTED AS USUAL.

(III) THE PRINCIPALS ARE REQUESTED TO INFORM THE UNIVERSITY IMMEDIATELY, IF ANY OTHER SUBSTITUTE SUBJECTS THAT ARE NOT INCLUDE IN THE ABOVE L

Date:10-04-2023

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UNIVERSITY EXAMINATION CENTER, VIZIANAGARAM
M.PHARMACY-II SEMESTER (PCI REGULATIONS) REGULAR & SUPPLEMENTARY EXAMINATIONS, AUGUST/SEPTEMBER - 2023

TIME TABLE

Time:02.00 PM To 05.00 PM

	DATE & DAY			
Branches	**28-08-2023 (Monday)**	**30-08-2023 (Wednesday)**	**01-09-2023 (Friday)**	**04-09-2023 (Monday)**
PHARMACEUTICS /PHARMACEUTICAL TECHNOLOGY (03&11)	Molecular Pharmaceutics (MPH201T)	Advanced Bio pharmaceutics & Pharmacokinetics (MPH202T)	Computer Aided Drug Development (MPH203T	Formulation Development of Pharmaceutical and Cosmetic Products (MPH204T)
PHARMACEUTICAL ANALYSIS AND QUALITY ASSURANCE (04)	Hazards and Safety Management (MQA201T)	Pharmaceutical Validation (MQA202T)	Audits and Regulatory Compliance (MQA203T)	Pharmaceutical Manufacturing Technology (MQA204T)
PHARMACOLOGY (06)	Advanced Pharmacology – II (MPL201T)	Pharmacology and Toxicology Screening methods- II (MPL202T)	Principles of Drug Discovery (MPL203T)	Clinical Research and Pharmacovigilance (MPL204T)
PHARMACEUTICAL ANALYSIS (16)	Advanced Instrumental Analysis (MPA201T)	Modern Bio-Analytical Techniques (MPA202T)	Quality Control and Quality Assurance (MPA203T)	Herbal and Cosmetic Analysis (MPA204T)
PHARMACEUTICAL MANAGEMENT & REGULATORY AFFAIRS /PHARMACEUTICAL REGULATORY AFFAIRS (13 &17)	Regulatory Aspects of Drugs and Cosmetics (MRA201T)	Regulatory Aspects of Herbal & Biologicals (MRA202T)	Regulatory Aspects of Medical Devices (MRA203T)	Regulatory Aspects of Food Neutraceuticals (MRA204T)

NOTE:

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Date:22-08-2023

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM

Jumbling/Clustering Centers List For M.Pharmacy II Sem Regular/Supply Examinations , August- 2023

SNO	CC	COLLEGE NAME	CC	EXAM CENTER NAME	ALLOTTED STRENGTH	DIST
1	PK	Viswanadha Institute of Pharmaceutical Sciences	Q7	Avanthi Inst. Of Engg And Tech, Bhogapuram, Vzm	24	VZM
2	HH	Gokul Pharmacy College	6B	Swami Vivekananda Engineering College	2	VZM
3	8K	Gokul Group of Institutions, Vzm			1	
4	T5	Avanthi Institute of Pharmaceutical Sciences	6F	Sai Ganapathi Engineering College	57	VSP
5	B7	Emmanuel College of Pharmacy			4	VSP
6	AC	Vignan Institute of Pharmaceutical Technology	NT	Visakha Institute of Engg and Tech, Narava, Visakhapatnam	15	VSP
7	DA	Sri Sivani College of Pharmacy	MT	Sri Venkateswara Coll of Engg and Technology, Etcherla, Sklm	32	SKM

DATE: 22-08-2023

NOTE : For any queries mail to ce@jntugv.edu.in on or before 23.08.2023 [05:00 PM]

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PART - I

To be filled by Candidate

Q. Paper Set No.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA
VIZIANAGARAM - 535 003

(Read the Instructions given on the reverse side)

Sl. No. : 200266

Q. Paper Set No.

Signature of the Controller of exams

Hall Ticket No.:

Name :

Examination :

Month-Year :

Branch :

Sub. Code :

Subject Name :

Date of Exam :

College Code & Name :

Signature of the Student with date

Signature of the Invigilator with date

Y/S

MARKS AWARDED FOR QUESTIONS
(for Examiner's award only)

Q.No.	a	b	c	d	Total
1					
2					
3					
4					
5					
6					
7					
8					
Total Marks (In Figures) :					

Total Marks

Sl. No. of Answer Book in the Bundle

JNTUGV

PART - III

To be filled by the Student

Q. Paper Set No.

Use for 2nd Valuation only

Valuation

Use for 2nd Valuation only

2

Exam :

Branch :

Sub. Code :

Sub. Name :

Control Bundle No.

MARKS IN WORDS

Tens Place | Units Place

* To be filled by the Examiner

Sign / write within the box only

Examiner's Signature

Examiner's Name

Scrutinizer's Signature

Scrutinizer's Name

Sl. No. of Ans. Book in Bundle

MARKS AWARDED FOR QUESTIONS
(for Examiner's award only)

Q.No.	a	b	c	d	Total
1					
2					
3					
4					
5					
6					
7					
8					
Total Marks (In Figures) :					

Total Marks

Sl. No. of Answer Book in the Bundle

JNTUGV

PART - II

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Q. Paper Set No.

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Valuation

Use for 1st Valuation only

1

Exam :

Branch :

Sub. Code :

Sub. Name :

Control Bundle No.

MARKS IN WORDS

Tens Place | Units Place

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Examiner's Name

Scrutinizer's Signature

Scrutinizer's Name

Bundle Number - To be filled by the Examiner

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EXTERNAL LAB EXAMINATION ASSESSMENT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
VIZIANAGARAM – 535 003, A.P.
UNIVERSITY EXAMINATION BRANCH

Dr.V.S.Vakula
Asst. Professor, EEE
Controller of Examination

Mobile No: +91 8374033499
Email: ce@jntugv.edu.in

Date: 17-08-2023

NOTICE

All the Principals of affiliated colleges are hereby informed that the Laboratory external examinations for M.Pharmcy II Semester (PCI Regulation) Regular/ Supplementary students are to be conducted from **21-08-2023 to 26-08-2023.**

The reports/OMR sheets of the above exams are to be submitted in person to CE office on **28.08.2023 (Monday) & 29.08.2023 (Tuesday).**

Controller of Examinations

Copy to
The Director of Evaluation for favour of information

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VIZIANAGARAM

I M. Pharmacy II Sem Lab External Exam R16, February 2023

Subject: Pharmaceutics practical _IV (MPH205PB) **Branch: M pharm (pharmaceutics)**

Time: 180 min. **Max. Marks: 50** **Date of exam: 23/08/2023**

I. Synopsis (10 M)

1. Write a note on computer simulation in pharmacokinetic and pharmacodynamics. **(5 M)**
2. Differentiate between SVP and LVP in briefly. **(5 M)**

II. Major Experiment (20M)

Prepare and submit 5grams of Antidandruff shampoo and report the evaluated characteristics.

III. Minor Experiment (15 M)

Prepare and submit 10grams of tooth paste and report the evaluated characteristics .

IV. Record& Viva – voce (5 M)

Signature of the faculty

PRINCIPAL
Avanthi Institute of Pharmaceutical Sciences
Cherukupally (V), Bhogapuram Mandal
Vizianagaram Dt., - 531162

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA, VIZIANAGARAM
VIZIANAGARAM - 535 003, ANDHRA PRADESH, INDIA

UNIVERSITY END EXAMINATIONS : MAIN ANSWER BOOK

Exam : _____ Year _____ Semester : Reg/Supply

Month & Year : _____

Branch : _____

Name of the Laboratory : _____

Hallticket Number										

Marks Awarded	

Signature of the Examiner-1

Signature of the Examiner-2

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Cherukupally (V), Bhogapuram Mandal
Vizianagaram Dt., - 531162

EXTERNAL PROJECT ASSESSMENT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
UNIVERSITY EXAMINATION CENTER, VIZIANAGARAM
M. PHARMACY-I SEMESTER (PCI REGULATIONS) EXTERNAL LAB EXAMINERS, ARIL – 2023

S.No	CC	College Name	Branches	Lab	Name of the External Examiners
01	T5	Avanthi Institute of Pharmaceutical Sciences	Pharmaceutics (03)	Pharmaceutics Practical - I	Name: Dr.Saritha Designation: professor Qualification: Ph.D Mobile No: 8919337038 Email: Chsaritha1975@gmail.com College Name: Vignan Institute of Pharmaceitical Sciences, Duvvada,Visakhapatnam Teaching Experience:15 years
02				Pharmaceutics Practical - II	Name: Mr.B.Rama Rao Designation: Associate Professor Qualification: M.Pharm Mobile No: 9398339254 Email: ramaraobora@gmail.com College Name: Vignan Institute of Pharmaceutical Sciences, Duvvada,Visakhapatnam Teaching Experience: 15 years

Controller of Examinations

GUIDELINES FOR M PHARMACY PROJECT WORK

- All the students shall undertake a project under the supervision of a teacher in Semester III to IV and submit a report. 4 copies of the project report shall be submitted (typed & bound copy not less than 75 pages).
- The internal and external examiner appointed by the University shall evaluate the project at the time of the Practical examinations of other semester(s). The projects shall be evaluated as per the criteria given below

Evaluation of Dissertation Book:

Objective(s) of the work done	- 50 Marks
Methodology adopted	- 150 Marks
Results and Discussions	- 250 Marks
Conclusions and Outcomes	- 50 Marks
Total	**500 Marks**

Evaluation of Presentation:

Presentation of work	- 100 Marks
Communication skills	- 50 Marks
Question and answer skills	-100 Marks
Total	**250 Marks**

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Vizianagaram Dt., - 531162

A DISSERTATION

On

"FORMULATION AND EVALUATION OF MEBEVERINE HYDROCHLORIDE GASTRORETENTIVE FLOATING MICROSPHERES"

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, VIZIANAGARAM.

In partial fulfillment of the requirements for the award of degree

MASTER OF PHARMACY

IN

PHARMACEUTICS

By

MALLA VASUNDHARA

(Reg no: 21T51S0305**)**

Under the guidance of

S.Chandrasekhar, M.Pharm

ASSOCIATE PROFESSOR

ESTD 2005

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES

(Affiliated to JNTU, Vizianagaram and Approved by AICTE & PCI, New Delhi)

Cherukupalli (V), Chittivalasa (P.O), Bhogapuram (M.D), Vizinagaram (Dt), Pin-531162, Andhra Pradesh, India.

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Cherukupally Village, Chittivalasa (SO), Bhogapuram(Md), Vizianagaram Dist. - 531 162.
Administrative Office : Beside PEN SCHOOL, Dabagardens, Visakhapatnam - 530 020 (A.P.)
web : www.avanthienggcollege.org e-mail : info@avanthienggcollege.org
☎ 08933 226262
08933-226739
09866664637
Fax 08933 226739
☎ 0891-2748231
5567320
Fax : 0891-5567321

CERTIFICATE

This is to certify that the dissertation entitled "FORMULATION AND EVALUATION OF MEBEVERINE HYDROCHLORIDE GASTRORETENTIVE FLOATING MICROSPHERES" is being submitted by MALLA VASUNDHARA (21T51S0305) in partial fulfillment of curricular requirements of Master of Pharmacy degree from Jawaharlal Nehru Technological University, Vizianagaram, Andhra Pradesh, is a record of bonafide work carried out by him under my supervision during academic year 2021-2023. The results embodied in this thesis have not been submitted to any other university or institute for award of any degree or diploma.

Station: Vizianagaram

Date: 25-11-23

S. Chandrasekhar

Signature of Supervisor,
Mr. S. Chandrasekhar
M.Pharm
AssociateProfessor,
Department of Pharmaceutics.

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Chenkupally Village, Chittivalasa (SO), Bhogapuram(Md), Vizianagaram Dist. - 531 162.
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Station: Vizianagaram
Date: 25/11/2023.

Dr. M.B.V.RAJU,
M.Pharmacy, Ph.D,.
PRINCIPAL.

DECLARATION

I hereby declare that the subject matter embodied in this dissertation "FORMULATION AND EVALUATION OF MEBEVERINE HYDROCHLORIDE GASTRORETENTIVE FLOATING MICROSPHERES" which is being submitted by me in partial fulfillment of curricular requirements of master of Pharmacy degree from Jawaharlal Nehru Technological University, Vizianagaram, Andhra Pradesh. The results of investigation carried out by me under supervision of Mr. S. Chandrasekhar (M.Pharm) Associate Professor, Department of Pharmacology, Avanthi Institute of Pharmaceutical Sciences, Cherukupally – 531162. During academic year 2021-2023. I further declare that the work is original and has not been submitted in part or full for the award of any other degree or diploma.

Vasundhara

Station: Vizianagaram

Date: 25-11-23

Signature of the Student.

EVALUATION CERTIFICATE

This is to certify the dissertation work entitled "FORMULATION AND EVALUATION OF MEBEVERINE HYDROCHLORIDE GASTRORETENTIVE FLOATING MICROSPHERES" is being submitted by MALLA VASUNDHARA (21T51S0305) is suitable for the partial fulfillment of curricular requirements of **MASTER OF PHARMACY** in 2021-2023 to the Jawaharlal Nehru Technological University, Vizianagaram, Andhra Pradesh.

Station: Vizianagaram

Date : 25/11/2023

Evaluator's Signature

External examiner:

Internal examiner: S. Chandrasekhar

ACKNOWLEDGEMENT

The work presented in this thesis would not have been possible without my close association with many people who were always there when I needed them the most. I take this opportunity to acknowledge them and extend my sincere gratitude for helping me tomake this M. Pharmacy thesis a possibility.

I owe my heartiest gratitude to my research guide, Mr.S.Chandrasekhar Associate professor, who has enlightened my knowledge through their extended guidance, encouragement and moral support.

I express my sincere thanks to M. SRINIVASA RAO (Chairman), Avanthi Institute of Pharmaceutical Sciences, for providing me the basement to develop my skills by providing all the facilities which helped me to overcome all the hurdles during the course of completion of my project.

I express my sincere thanks to DR. M.B.V.RAJU (Principal), Avanthi institute of pharmaceutical sciences, JNTUV University for providing me necessary research facility.

I extend my sincere thanks to faculty of department of pharmacology for their support during my thesis work in Avanthi institute of pharmaceutical sciences.

I extend my sincere thanks to all the Head of Departments of different branches and my faculty members, Librarian, Lab technicians for giving me thought provoking suggestions and helping me to explore different fields which helped me for successful completion of the thesis. I also thank all the non-teaching staff for their timely assistance.

I extend my eternal thanks to my beloved parents and friends for their love, affection and moral support towards me.

I thank the Almighty for giving me the strength and patience to work through all these years so that today I can stand proud with my head held high.

-MALLA VASUNDHARA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003 , ANDHRA PRADESH, INDIA

GRADE CARD

Memo. No. : N 2768617

Serial No. : 222071901100854

Examination : M.Pharmacy I Semester (PCI) Reg.

Branch : Pharmacology

Name : KUCHARLAPATI PAVANI

Aadhar No. :

Hall Ticket No. : 21T51S0602

Month & Year of Exams : JUNE 2022

Institution : AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES

S.No.	COURSE CODE	COURSE TITLE	Grade Secured	Grade Points, G i	Status	Credits Obtained, C i
1	MPL101T	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	B	8	P	4
2	MPL102T	ADVANCED PHARMACOLOGY-I	C	7	P	4
3	MPL103T	PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING METHODS- I	C	7	P	4
4	MPL104T	CELLULAR AND MOLECULAR PHARMACOLOGY	B	8	P	4
5	MPL105PA	PHARMACOLOGY PRACTICAL I	O	10	P	3
6	MPL105PB	PHARMACOLOGY PRACTICAL II	A	9	P	3
7	MPL106S	SEMINAR/ASSIGNMENT	A	9	P	4
Courses Registered : 7	Appeared : 7	Passed : 7 Total :	---	---	---	26

* Medium of Instructions and Examinations in English

Semester Grade Point Average (SGPA) : 8.19

^ CP -- COMPLETED

^ NCP -- NOT-COMPLETED

Date of Issue : 15-May-2023

Verified by

CONTROLLER OF EXAMINATIONS

MP : Mal Practice WH : With Held P : Pass F : Fail AB : Absent

Note : Any discrepancy must be represented within 15 days from the date mentioned above.

1100809

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003 , ANDHRA PRADESH, INDIA

GRADE CARD

Memo. No. : N 2768605

Serial No. : 222071901100844

Examination : M.Pharmacy I Semester (PCI) Reg.

Branch : Pharmaceutics

Name : MALLA VASUNDHARA

Aadhar No. :

Hall Ticket No. : 21T51S0305

Month & Year of Exams : JUNE 2022

Institution : AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES

S.No.	COURSE CODE	COURSE TITLE	Grade Secured	Grade Points, Gi	Status	Credits Obtained, Ci
1	MPH101T	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	B	8	P	4
2	MPH102T	DRUG DELIVERY SYSTEM	B	8	P	4
3	MPH103T	MODERN PHARMACEUTICS	C	7	P	4
4	MPH104T	REGULATORY AFFAIR	C	7	P	4
5	MPH105PA	PHARMACEUTICS PRACTICAL I	O	10	P	3
6	MPH105PB	PHARMACEUTICAL PRACTICAL II	A	9	P	3
7	MPH106S	SEMINAR/ASSIGNMENT	A	9	P	4
Courses Registered : 7	Appeared : 7	Passed : 7 Total :	---	---	---	26

*** Medium of Instructions and Examinations in English**

Semester Grade Point Average (SGPA) : 8.19

^ CP -- COMPLETED

^ NCP -- NOT-COMPLETED

CONTROLLER OF EXAMINATIONS

Date of Issue : 15-May-2023 **Verified by**

MP : Mal Practice **WH : With Held** **P : Pass** **F : Fail** **AB : Absent**

Note : Any discrepancy must be represented within 15 days from the date mentioned above.

1100797

List of External Grievances During the academic year -2022-2023

The Examination cell is responsible for addressing any grievances pertaining to End examinations. If necessary, the cell promptly sends a letter to the university. The University then takes immediate action based on the nature of the grievance. In case a student is dissatisfied with the marks awarded to them in the End examination, they have the option to choose Revaluation, Recounting, or Challenge evaluation by paying the required fee to the university. If students opt for re-evaluation or rechecking of their answer scripts, they must submit the same to the university for necessary action. Therefore, the college has implemented a transparent, time-bound, and efficient mechanism. The Examination cell handles grievances related to errors in certificates by raising the matter with the university. The following list provides the number of students who have applied for Revaluation/Recounting and the number of students whose marks have been changed for the academic year **2022-2023.**

The total number of external grievances regarding Recounting/Re-Evaluation, Modification in Certificates during the academic year **2022-2023** is **02.**

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UNIVERSITY EXAMINATION CENTER, VIZIANAGARA8

Date: 28.12.2023.

This is to bring to your kind notice that the revaluation results of the students of affiliated colleges under JNTU Gurajada Vizianagaram pertaining to I M. Pharmacy I Semester (PCI) Regular/ Supplementary Examinations conducted during the month of April - 2023, are furnished below.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM JNTUGV- UNIVERSITY EXAMINATION SECTION						
I M. Pharmacy I Semester Regular/Supply Examinations held in April - 2023						
S. No	**Roll Number**	**Sub Code**	**Sub Name**	**Previous Grade**	**Current Grade**	**Status**
1	21T51S1607	MPA103T	PHARMACEUTICAL VALIDATION	F	F	No Change
2	22AC1S1601	MPA102T	ADVANCED PHARMACEUTICAL ANALYSIS	F	D	Change
3	22DA1S1603	MPA103T	PHARMACEUTICAL VALIDATION	F	D	Change
4	22DA1S1606	MPA103T	PHARMACEUTICAL VALIDATION	F	F	No Change
5	22DA1S1606	MPA101T	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	F	F	No Change
6	22DA1S1606	MPA102T	ADVANCED PHARMACEUTICAL ANALYSIS	F	C	Change
7	22T51S0311	MPH104T	REGULATORY AFFAIRS	F	F	No Change
8	20DA1S1608	MPA101T	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	F	F	No Change
9	20DA1S1608	MPA103T	PHARMACEUTICAL VALIDATION	F	D	Change
10	22DA1S1604	MPA102T	ADVANCED PHARMACEUTICAL ANALYSIS	F	F	No Change
11	22DA1S1604	MPA103T	PHARMACEUTICAL VALIDATION	F	F	No Change
12	22DA1S1605	MPA101T	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	F	F	No Change
13	22DA1S1610	MPA101T	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	F	D	Change

Controller of Examinations

List of Internal Grievances During the academic year -2022-2023

S No	Name of the Issue /Grievances	Date of issue raised	Date of issue solved
1.	Seeking permission for ID Card	20/07/2023	20/07/2023
2.	Seeking permission for ID Card	08/08/2023	08/08/2023
3.	Re-issuing of hall ticket	20/09/2023	20/09/2023
4.	Re-issuing of hall ticket	21/09/2023	21/09/2023
5.	Seeking permission for transport for exam centre	26/09/2023	26/09/2023

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Vizianagaram Dt., - 531162

Vizianagaram,
Date : 8-8-23.

To,
The Principal sir,
Avanthi institute of Pharmaceutical sciences,
cherukupally,
Tagarapuvalasa.

subject : seeking Permission for ID card.

Respect sir,

I am M. kusuma studying M.Pharm 1st year IInd sem on the branch of Pharmaceutical analysis bearing the 22T515160. I would like to inform you that I have forgetten My ID card at home. so, I request you to allow Me for the external exam.

Thanking you,

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AVANTHI EDUCATIONAL SOCIETY
HYDERABAD
VIZIANAGARAM

PRINCIPAL
Avanthi Institute of Pharmaceutical Sciences
Cherukupally (V), Bhogapuram Mandal
Vizianagaram Dt., - 531162

Yours obediently,
M. kusuma,
22T515160,
1st year M Pharm,
Pharmaceutical Analysis.

cherukupalli

Date : 20 Sep 2023.

To,

The principal sir,

Avanthi Institute of pharmaceutical Sciences,

Vizayanagaram,

Cherukupalli.

Respected Sir,

I. M. Sowmya pursuing M. pharm 1st year IInd sem. On The Branch of pharmaceutical Analysis Bearing The 22T51S1609. I would like to Inform you That my hall ticket was missing due to I was not allowed for examination. I hope my problem would be considered and Reissue my Hall Ticket And hope That I would be allowed for examinatio

Thanking you sir,

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VIZIANAGARAM

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Avanthi Institute of Pharmaceutical Sciences
Cherukupally (V), Bhogapuram Mandal
Vizianagaram Dt., - 531162

yours obediantly

M. Sowmya

22T51S1609

1st year M pharm

pharmaceutical Analysi

Vizianagaram,

Date : 21-9-2023.

TO

The Principal,

Avanthi institute of Pharmaceutical sciences,

Cherukupally.

SUB : Re-issuing of Hall Ticket.

Respected sir,

I am N. Rupadevi pursuing M.pharmacy (Pharmacology) 1st year - IInd sem bearing that 22T51S0605. I would like to inform you that my hall ticket was missing due to I was not allowed for examination. I hope my problem would be considered and Re-issue my hall ticket and I hope that I would be allowed for examination.

Thanking you,

Yours obediently

N. Rupadevi,

22T51S0605,

1st yr. M pharmacy.

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Vizianagaram

Dt:- 26-09-2022

To,

The Principal Sir,

Avanthi Institute of Pharmaceutical Science,

Cherukupally,

Sub : Seeking Permission for transport.

Respected Sir,

I G. Harika studying 1st M-Pharmacy II nd sem bearing roll no : 22T51S0305. I would like to inform you that we are writting semister & examination in other collages. As it is too far from our home town, there is no other alternative for us to reach the center. So I request you to provide the transportation during exams time.

Thanking you.

Your's Obediently

G. Harika

Centics.

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