

2016

THE MASTER OF PHARMACY (M. PHARM.) COURSE REGULATION 2014

(BASED ON NOTIFICATION IN THE GAZETTE OF INDIA No. 362, DATED DECEMBER 11, 2014)

SCHEME AND SYLLABUS



PHARMACY COUNCIL OF INDIA

Combined Council's Building, Kotla Road,
Aiwan-E-Ghalib Marg, New Delhi-110 002.
Website : www.pci.nic.

COURSE STRUCTURE AND SYLLABUS
For
M. PHARM

MPH R 18 Regulations

(Applicable for batches admitted from 2018-2019)



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

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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 4 years 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 be cancelled.

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 Pharmacy 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 less than 100 working days. The odd semesters shall be conducted 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 candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.

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.

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 Tech and Targeted DDS)	4	4	4	100
MPH202T	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4	100
MPH203T	Computer Aided Drug Delivery System	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	Industrial Pharmacy Practical I	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
MPC1012T	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
MPC105PB	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	Modern Bio-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	Quality Control and Quality 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 Computer Technology	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
MPP102T	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	Advanced Pharmacology-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	Experimental Pharmacology practical- II	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-1	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
MPG102T	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
-	Journal club	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
-	Journal Club	1	1
-	Research Work	31	16
-	Discussion/Final Presentation	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 Presentations and 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 (Indexed in Scopus / Web of Science)	01
Research / Review Publication in International Journals (Indexed in Scopus / Web of Science)	02

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

*The credit points assigned for extracurricular 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.

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 the departments.

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 semester exam.

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)	10	15	1Hr	25	75	3Hr	100
MPH202T	Advanced Biopharmaceutics & Pharmacokinetics	10	15	1Hr	25	75	3Hr	100
MPH203T	Computer Aided Drug Delivery System	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)

Course Code	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)

Course Code	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 Computer Technology	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	Experimental Pharmacology Practical II	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

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)	10
Based on Practical Records, Regular viva voce, etc.	10
Total	20

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

Percentage of Attendance	Theory	Practical
95 – 100	8	10
90 – 94	6	7.5
85 – 89	4	5
80 – 84	2	2.5
Less than 80	0	0

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 at least 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

Reexamination of end semester examination shall be conducted as per the schedule given in table 29. The exact dates of examinations shall be notified from time to time.

Table – 29: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I and III	November / December	May / June
II and IV	May / June	November / December

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 points allocations:

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:

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

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 F or ABS grade in course 4, the SGPA shall then be computed as:

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

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 in case 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:

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

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

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 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
Communications skills	50 Marks
Question and answer skills	100 Marks
Total	250 Marks

22. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail 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 I Retotaling of answer papers

There is no provision for revaluation of the answer papers in any examination. However, the candidates can apply for retotaling by paying prescribed fee.

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.

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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/M. Tech/M. Pharmacy/Pharma D/I Year/2020-21

Date: 31-05-2021

Dr. R. Srinivasa Rao,
Director, Academic Planning
JNTUK, Kakinada

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

Revised Academic Calendar for I Year M. Tech/M. Pharmacy
Academic year 2020-21

I SEMESTER			
Description	From	To	Weeks
Commencement of Class Work	22.02.2021		
I Unit of Instruction	22.02.2021	10.04.2021	7W
I Mid Examinations	05.04.2021	10.04.2021	1W
II Unit of Instructions	12.04.2021	29.05.2021	7W
II Mid Examinations	24.05.2021	29.05.2021	1W
Preparation & Practicals			
End Examinations			
Commencement of II Semester Class Work			
II SEMESTER			
I Unit of Instructions	31.05.2021	17.07.2021	7W
I Mid Examinations	12.07.2021	17.07.2021	1W
II Unit of Instructions	19.07.2021	04.09.2021	7W
II Mid Examinations	30.08.2021	04.09.2021	1W
Preparation & Practicals	06.09.2021	11.09.2021	1W
End Examinations	13.09.2021	25.09.2021	2W
Commencement of next Year Class Work	18.10.2021		
<i>Note: : I Semester Examinations may be conducted at the convenience during the II Semester.</i>			

R. Srinivasa Rao
Director Academic Planning
Director
Academic Planning
JNTUK Kakinada

Copy to the Secretary to the Hon'ble Vice Chancellor, JNTUK
Copy to Rector, Registrar, JNTUK.
Copy to Director of Evaluation, JNTUK.

**INSTITUTIONAL EXAMINATION
COMMITTEE**

VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN
ENIKEPADU, VIJAYAWADA

INSTITUTIONAL EXAMINATION COMMITTEE 2020-21

Date: 02-11-20

ROLES & RESPONSIBILITIES:

- Ensure proper dissemination of information with regard to examination among all the stakeholders viz. students / faculty / non – teaching staff / university authorities etc.
- To receive exam notification / schedule from JNTUK web portal.
- To ensure proper organization of internal assessments / sessional / end semester examinations in the college.
- Ensure proper communication with JNTUK with regards to examination and fulfillment of university circulars.
- To communicate with the faculty regarding the setting of question paper and the other requisites that go along with it.
- To ensure proper seating plan and invigilation duties.
- Appoint alternative internal examiners / external examiners for conduct of end semester theory/ practical examination with permission of university authorities.
- Record and issue the answer books and other exam related stationery to the invigilators / internal examiners 30 minutes before the commencement of the exam
- Download and print the appropriate number of question papers at least 20 minutes before the commencement of the exam and maintain absolute confidentiality
- To have an internal squad committee to ensure the smooth conduct of examinations and also to avoid issues of malpractices.
- Resolve students / faculty / university grievances with regards to examinations.
- Uploading internal theory / practical examination marks on JNTUK web portal.
- Maintain records with regards to conduct of examination and results.

MEETING SCHEDULE:

The committee members meet twice in the academic year.

CONSTITUTION: The details of the members are as follow:

S. No	Name of the Faculty	Designation	Post
1	Dr. K. Padmalatha	Professor & Principal	Chairperson
2	Mr. S. Venkateswara Rao	Associate Professor	College Examination Officer
3	Mrs. B. Hemalatha	Assistant Professor	Member
4	Mr. M. Bala krishna	Assistant Professor	Member
5	Dr. N. Prathibha	Assistant Professor	Member




PRINCIPAL
VIJAYA INSTITUTE OF
PHARMACEUTICAL SCIENCES FOR WOMEN
ENIKEPADU, VIJAYAWADA - 521 108.



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
UNIVERSITY EXAMINATION CENTER, KAKINADA

M. Pharmacy II SEMESTER (PCI REGULATION) I MID EXAMINATIONS, AUGUST - 2021

T I M E T A B L E

TIME : 10.00 AM TO 12.00 NOON

BRANCH & SPECIALIZATION	23-08-2021 (Monday)	24-08-2021 (Tuesday)	25-08-2021 (Wednesday)	26-08-2021 (Thursday)
Pharmaceutics (03)	Molecular Pharmaceutics (MPH201T)	Advanced Bio pharmaceutics & Pharmacokinetics (MPH202T)	Computer Aided Drug Development (MPH203T)	Formulation Development of Pharmaceutical and Cosmetic Products (MPH204T)
Industrial Pharmacy (09)	Advanced Bio pharmaceutics and Pharmacokinetics (MIP201T)	Scale up and Technology Transfer (MIP202T)	Pharmaceutical Production Technology (MIP203T)	Entrepreneurship Management (MIP204T)
Pharmaceutical Chemistry (02)	Advanced Spectral Analysis (MPC201T)	Advanced Organic Chemistry II (MPC202T)	Computer Aided Drug Design (MPC203T)	Pharmaceutical Process Chemistry (MPC204T)
Pharmaceutical Analysis (16)	Advanced Instrumental Analysis (MPA201T)	Modern Bio-Analytical Techniques (MPA202T)	Quality Control and Quality Assurance (MPA203T)	Herbal and Cosmetic Analysis (MPA204T)
Pharmaceutical Quality Assurance (15)	Hazards and Safety Management (MQA201T)	Pharmaceutical Validation (MQA202T)	Audits and Regulatory Compliance (MQA203T)	Pharmaceutical Manufacturing Technology (MQA204T)
Pharmaceutical Regulatory Affairs (13)	Regulatory Aspects of Drugs and Cosmetics (MRA201T)	Regulatory Aspects of Herbal & Biologicals (MRA202T)	Regulatory Aspects of Medical Devices (MRA203T)	Regulatory Aspects of Food Nutraceuticals (MRA204T)
Pharmacy Practice (08)	Principles of Quality Use of Medicines (MPP201T)	Pharmacotherapeutics – II (MPP202T)	Clinical Pharmacokinetics and Therapeutic Drug Monitoring (MPP203T)	Pharmacoepidemiology & Pharmacoeconomics (MPP204T)
Pharmacology (06)	Advanced Pharmacology – II (MPL201T)	Pharmacology and Toxicology Screening methods- II (MPL202T)	Principles of Drug Discovery (MPL203T)	Clinical Research and Pharmacovigilance (MPL204T)
Pharmacognosy (07)	Medicinal Plant Biotechnology (MPG201T)	Advanced Pharmacognosy – II (MPG202T)	Indian system of Medicine (MPG203T)	Herbal Cosmetics (MPG204T)

- NOTE: (i) If Government declares holiday on any of the above dates, the examinations will be conducted as usual
(ii) Any omissions or clashes in this Time Table may please be informed to the Controller of Examinations immediately.
(iii) The Principals are requested to inform the University, if any other substitute subjects that are not included in the above time table immediately.

Date: 11-08-2021

S. Vistard

PRINCIPAL
VIJAYA INSTITUTE
PHARMACEUTICAL SCIENCES FOR WOMEN
ENIKEPADU, VIJAYAWADA - 521 108.

Control & duty
Controller of Examinations



VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN


ENIKEPADU, VIJAYAWADA - 521108

I M. PHARM II SEM I MID EXAMS

STAFF INVIGILATION DUTIES

Time: 09.00 AM to 11.00 AM

DATE	STAFF NAME	SIGN
23.08.2021 (Monday)	Mrs. K. Radha	K. Radha
24.08.2021 (Tuesday)	Mrs. Ch. Anupama Swathi	A. Swathi
25.08.2021 (Wednesday)	Mrs. B. Navya	B. Navya
26.08.2021 (Thursday)	Ms. B. Lekhya	B. Lekhya


Exams Incharge

(Dr. S. Venkateswara Rao)




Principal

(Dr. K. Padmalatha)

VIJAYA INSTITUTE
PHARMACEUTICAL SCIENCES FOR WOMEN
ENIKEPADU VIJAYAWADA - 521108

INTERNAL SQUAD COMMITTEE

VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN
ENIKEPADU, VIJAYAWADA

INTERNAL SQUAD COMMITTEE 2020-21

Date: 02-11-20


ROLES & RESPONSIBILITIES:

- Strict checking of unfair means is sole responsibility of members of committee.
- Before the start of examination, the committee members should check every student.
- Care should be taken by committee members, that the students should not carry mobile phones, calculator or any sort of electronic material inside the examination hall.
- Check whether students are carrying hall tickets by committee members to maintain environment of examination. Any issue related to the unfair means should immediately report to the principal or college examination officer.

CONSTITUTION: The details of the members are as follow:

S. No	Name of the Faculty	Designation	Post
1	Dr. K. Padmalatha	Professor & Principal	Chairperson
2	Dr. S. Venkateswara Rao	Associate Professor	College Examination Officer
3	Mrs. B. Hemalatha	Assistant Professor	Member
4	Mr. M. Bala krishna	Assistant Professor	Member
5	Dr. N. Prathibha	Assistant Professor	Member




PRINCIPAL
VIJAYA INSTITUTE OF
PHARMACEUTICAL SCIENCES FOR WOMEN
ENIKEPADU, VIJAYAWADA - 521 108.

I MID

ATTENDANCE SHEET FOR I MID EXAMINATIONS

(From 23.08.2021 to 26.08.2021)

COURSE: M. Pharm

Date of Examination: 26.08.21

Time: 10.00 AM TO 12.00 PM

Room No: 01

Subject Name: Formulation Development of Pharmaceutical and Cosmetic Products

Subject Code: MPH204T

No. of Students Present: 02

No. of Students Absent: 00

S.No.	Hall Ticket No.	Name of the Student	Answer Booklet Serial No.	Signature of the Student
1	207N1S0301	EEGA SRAVANI	7N200001	E. Sravani
2	207N1S0302	ADAPA MOHANA LATHA	7N200002	A. Mohana latha
3	207N1S0303	SHAIK APSANA	7N200003	SK. APSana
4	207N1S0304	JAMPANA HARIKA	7N200004	J. Hanika

Signature of the Invigilator *Np*

Name of the Invigilator: B. Nayya

Designation: Asst. professor

[Signature]
Signature of the Principal
PRINCIPAL

VIJAYA INSTITUTE OF
PHARMACEUTICAL SCIENCES FOR WOMEN
ENIKEPADU, VIJAYAWADA - 521 109.

II MID
ATTENDANCE SHEET FOR II MID EXAMINATIONS

(From 20.09.2021 to 23.09.2021)

COURSE: M. Pharm

Date of Examination: 23.09.21

Time: 10.00 AM TO 12.00 PM

Room No: 01


Subject Name: Formulation Development of Pharmaceutical and Cosmetic Products

Subject Code: MPH204T

No. of Students Present:


No. of Students Absent:

S.No.	Hall Ticket No.	Name of the Student	Answer Booklet Serial No.	Signature of the Student
1	207N1S0301	EEGA SRAVANI	7N200001	E. Sravani
2	207N1S0302	ADAPA MOHANA LATHA	7N200002	A. Mohana Latha
3	207N1S0303	SHAIK APSANA	7N200003	Sh. Apsana
4	207N1S0304	JAMPANA HARIKA	7N200004	J. Harika

Signature of the Invigilator 

Name of the Invigilator: S Sai Tejaswini

Designation: Assistant Professor


Signature of the Principal
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Model of Evaluated Mid Exam
Answer Script

SRK FOUNDATION'S
**VIJAYA INSTITUTE OF
PHARMACEUTICAL SCIENCES FOR WOMEN**

ENIKEPADU, VIJAYAWADA



2020 - 2021

SESSIONAL BOOK

Name : A. MOHANALATHA
Class : M. pharmacy 1st year
Roll No. : 207N150302
Subject : Formulation development of pharmaceutical and cosmetic products.

Internal	Objective	Subjective	Assignment	Total	Staff Sign	Student Sign
I		28		28	B. Hemalatha	Mohana
II		29		29	B. Hemalatha	Mohana

Final Average : 29

B. Hemalatha
Staff Sign

HOD Sign

I. MID EXAMINATION

SECTION-A

28

30

1) Nail polish -

Nail polish is defined as the preparation of covers the surface of nails & decoration of nails. These gives the attractiveness of the nails. It is known as nail polish.

Ideal properties:-

- nail polish are not harmful for nails & skin.
- These are non-toxic, non-irritant etc.
- Nail liquor are mostly used to decoration of nails.
- It has a film forming property.

Nail polish types:-

1. Nail lacquer / nail paint / nail polish.
2. Cuticle remover
3. Lacquer remover
4. Nail strengthener.
5. Nail bleaching.
6. Nail creams.

Advantages:-

- Nail polish are decoration & attractiveness to the nails.
- These are non-toxic, non-irritating etc:-
- It is easy to apply.
- The nail lacquers are not reactive & detergents.

→ nail polish are film forming properly.

Methods of preparation:-

Plasticizers:-

plasticizers are used to preparations of nail polish in this process to uses nitrocellulose (or) cellulose nitrate to form a film former. These are given gloss of the nail paint. These plasticizers are classified into two types.

1) solvent plasticizers- Solvent plasticizers are act as a solvent film former.

Eg:- ethyl Butyl hemoleate.

2) non-solvent plasticizers- non-solvent plasticizers are used to alcohol, camphor, urea derivatives.

3) organic solvents:-

Solvents are used in combination of all ingredients form a homogeneous viscous preparation. The solvents are insoluble in water pigments. These solvents are used to give decoration of the nails.

These solvents are 3 types.

1. low B.p solvents.

2. Medium B.p solvents.

3. High B.P Solvents.

Diluents:-

Diluents are used to increase the bulk volume of the preparation.

- In this process to control the increasing property of viscosity.
- Maintain the film forming process.
- Diluents are used to strength the used ingredients.

Eg:- Ethyl alcohol, Methyl alcohol etc:-

Resins:-

Resins are used to glass & strength of the lacquer.

- These are mostly used in the preparation of nail polishes.

Eg:- Shellac, etc:-

colouring agents:-

colouring agents are the insoluble in water pigments; these are given gloss, strengthness to the nail polish.

Eg:- PbO_2 → Red

Iron oxide → Brown shade.

perbomes:-

perbomes are used to blavouring the product. It avoid the unpleasant odour.

Others:-

Kaolin, $CaCl_2$, PbO_2 are used as a stabilizers

Method of preparation:-

- Half of the solvent are transferred into the mixer tank & plasticizer are added to continuous stirring & until to obtain the solution.
- Resins are dissolved in 25% of solvent. In this add diluent with continuous stirring & to obtain the solution.
- The above two solutions are added to continuous stirring in the tank.
- In this product finally to add the colouring agent; perfumes etc:-
- Finally obtained the nail polish.

Formulations:-

1. colour
 2. viscosity
 3. Hardness
 4. Applications.
 5. non-solvent
 6. Thickness
- etc:-

Section-B

3. Dentoboles:-

These are oral preparations these are used to attempt the teeth to provide the cleaning action. These are having therapeutic purpose to maintain oral hygiene.

Dentoboles are :-

1. Tooth paste
2. Tooth powder.
3. Tooth mouth fresher.

Ideal characteristics:-

- It is used to unpleasant, cooling sensation into the mouth.
- Should be able to clean the mouth.
- non-toxic, non-irritant dentoboles.
- Should not harm the mouth.

Applications:-

- These are cooling sensation into the mouth
- used to clean the teeth.
- It is maintain the freshness of the mouth.
- These are used to kill the micro organism in presence of teeth.

Disadvantages:-

- Increase in solvents to provide irritation into the mouth.

Tooth powders:-

used for cleaning & refreshment of mouth.

Tooth powders are of 2 types.

1. White tooth powder.
2. Black tooth powder.

Ideal characteristics:-

- non-toxic, non-irritant dentifrices.
- These refresh, cooling sensation to the mouth.
- It is used to cleaning the mouth.

Applications:-

- used to cleaning the mouth.
- provides ~~clean~~ cooling sensation.
- known as dentifrices.

6. Baby care products:-

Baby care products are pediatric preparation. They are harmless to the baby's skin. These are used in non-irritant in sweating time.

Baby products are

- 1) Baby Soaps.
- 2) Baby oils.
- 3) Baby creams.
- 4) Baby Shampoos.
- 5) Baby lotions.
- 6) Baby powders.

Ideal characteristics:-

- Should protect the baby skin.
- non-toxic, non-irritant.
- used to prevent the micro-organism.
- provides freshness to the body.
- Smoothens the baby's skin.

Baby oils:-

These are used to massage the body. In this, the oils causes growth of bones & rigidity of the bones. Baby oils are most important.

Ideal characteristics:-

- It soothes the baby skin.
- easy to apply.
- non-toxic; non-irritant.
- Harmless.

→ Has good flow property.

Formula:-

1) Mineral oils

2) vegetable oils.

Method of preparation:-

Mixture of coconut oil & vitamin E, Mineral oil are mixed thoroughly with the cotton candy spinning machine.

→ Maintains the viscosity of the oils.

Applications:-

→ pediatric preparation.

→ Non-toxic, non-irritant.

→ Harmless to baby skin.

2. Solid State Stability:-

Solid State Stability used to physical properties, thermodynamic properties.

→ Solid State Stability is a physical and chemical studies.

→ physical stability studies are hydrate form, crystalline

boom, amorphous boom, etc:-

→ chemical stability studies are oxidation, temperature, pressure etc:-

→ Here solid state stability it contains the process of dissolution, disintegration, content uniformity, thickness, hardness, stability etc:-

Crystalline boom:-

Crystalline boom of solids are low surface area. These are slowly dissolving process.

→ crystalline boom of solids are mostly soluble in organic solvents.

→ These are non-toxic process.

→ used to provide good stability studies.

→ Crystalline boom is mostly used.

Amorphous boom:-

→ Amorphous boom & crystalline boom are mostly in solid state stability studies.

→ Amorphous boom is high surface area.

→ It dissolves fastly.

→ Mostly used in physical state.

Hydrate boom:-

→ It is the most important process in the solid

State Stability Studies.

- Mostly Soluble in organic Solvents.
- It is physical stability studies.

1) cold cream:-

- It is an oil water in oil type of emulsion.
- used to apply on skin.
- Non-toxic, non-irritant.
- used to smoothen the skin.
- used to glow & soft skin is obtained.
- In this process mineral oils, liquid paraffin are used.
- vitamins are used in this preparation.
- It acts as a soft & smooth.
- It is an antimicrobial agent.
- Mostly cold creams are used to men shaving process.
- used to create freshness to the face.
- Mostly cold creams are w/o type of emulsion.
- Mainly applied on the hands.

Section-B

1) Bio-relevant media:-

The drug dissolution is an key parameter on the process to develop the formulation of drug and get most important result.

The dissolution of the drug shows the bio-relevant results.

The drug which has the low/poorly soluble nature; it does not shows the bio-relevant media results.

It is an important factors in the dissolution studies & formulation development.

Method of development of bio-relevant media is unnecessary if the formulation of drug is not completed.

Based on the some other factors; the dissolution of drug is modified.

Bio-relevant studies/media gives the correct/exact result of the dissolution method.

Poorly aqueous soluble drugs are not used for the study of bio-relevant & dissolution.

Generally aqueous soluble drugs are used; based on their solubility nature.

2) Additives:-

The substances other than the drug components which are used to formulate the product is known as additives.

The additives are of different types ; they are anti-oxidants , preservatives, Tonicity inducers, Sweetness, Flavouring agents etc:-

Additives used in solutions:-

Anti-oxidants are used to reduce the oxidation occurred after/during the formulations.

Based on the nature of drugs ; some of them may undergo rancidity and causes oxidation.

To avoid this oxidation ; the antioxidants are used.

Mainly used additives in the solutions / liquid formulations are

- Anti oxidants
- preservatives
- organoleptic additives.
- Tonicity maintainers.
- Isotonicity factors.

preservatives :-

The preservatives are used to preserve the product from the microorganism growth.

To avoid bacteriocidal / bacterostatic affects to the product ; the preservatives are used.

Organoleptic additives :-

The organoleptic additives are

- 1) colouring agents
- 2) Sweetness
- 3) Flavouring agents.

1) colouring agents -

To make the colourful look of product ; the colouring agents are used.

2) Sweetness / Flavouring agents.

To avoid (to mask the bad odour of the prepared product ; the ~~Sweetness~~ are used.

Flavouring agents

To mask the taste of product ; the Sweetness are used.

→ The additives should be non-toxic, non-persistent, when they consumed in large volume.

→ Should not cause interaction with the organoleptic characteristics ; when they are packed.

3) powder flow:-

The powder flow is affected by the parameters like size, shape & flow property of the product.

The size of the powder particles should be fine enough and pass the angle of repose.

The angle of repose is defined as ; the angle formed between the surface of powder and height of pile tip.

It can be calculated by using the formula

$$\tan \theta = \frac{h}{r}$$

$\tan \theta$ = angle formed between the surface & height of pile.

h = height of the pile

r = radius of the pile surface.

$$\therefore \theta = \tan^{-1} h/r$$

→ Carr's index is calculated by the formula;

$$\frac{\text{Tapped density} - \text{Bulk density}}{\text{Tapped density}}$$

→ Tapped density is the ratio of mass of powder and volume of powder.

→ Hausner's ratio is calculated by;

$$T_D / B_D$$

The ratio of tapped density & Bulk density.

→ The Carr's index is an compressibility factor.

Carr's index	value
Good (soluble)	1-10
Excellent (slightly soluble)	10-100
passable	100-1000
poorly passable	1000-10,000
slightly passable	>10,000

→ The compound (<1.25) shows more value than the compound having (>1.25).

5) In-vitro In-vivo Correlation:- (IVIVC)

IVIVC is an correlation formed between the formula formed during preparation & factors obtained after the formulation.

It is a good process of optimization ; which can modify the nature of the product.

Easy method of correlation ; which exhibits the natural value of product calculation.

General optimization is carried out in the IVIVC relation.

Some of the factors may influence the results which are obtained in the IVIVC relation.

There are some levels to modify the specification they are — level A

level B

level C

Multiple level C

level D.

Section-A:-

1) Solubility :-

Solubility can be defined in two terms ; based on their Qualitative & Quantitative nature.

Qualitatively -

The formation of microcrystalline based on the composition of two (or) more components of solvents & solute.

Quantitatively -

The nature of solubility of a ^{solute} solvent at the certain level and at constant temperature.

Importance of solubility :-

Based on the nature of solubility of particular solute / substance is calculated and selected for the preparation.

The low/poorly soluble drugs / substances are not selected ; because it does not show the bioavailability of product.

To calculate the bioavailability ; the solubility values are maintained.

Need for solubility:-

- Solubility is needed for some compounds which are poorly soluble.
- The orally administered drugs are to be maintain the particular solubility levels; it is used to calculate the bioavailability of product.
- Based on solubility; we can calculate the physical, chemical & other modifications.
- The drugs having 40-45% of solubility is not used for the formulation.
- The aqueous nature of drug solubility should be maintained; based on their pH , acidic & basic nature of drugs.

Solubility Enhancement techniques:-

There are different solubility enhancement techniques to modify the nature of product.

The types of enhancement techniques are:-

I - physical modifications

II - chemical modifications

III - other modifications

I - physical modification:-

1) solubility

2) Modification of crystals.

3) Evaluation of suspensions.

4) Formation of dispersions.

II - chemical modifications:-

1) pH

2) Acidic & Basic nature.

III - other modifications:-

1) Hydrophobicity

2) Lipophilisation

3) Micellisation.

→ Micellar formation is occurred when the emulsion & suspension get micellar formation.

→ The ternary phase formation is occurred when the different

types of emulsions are mixed with the oils & surfactants at final stage; these are mixed with the water.

- The levels of micelles are formed.
- Different types of crystals are formed when the compound is not mixed properly with hydrophilic components.
- The o/w & w/o type of emulsions are having chance to lead the formation of crystals.
- The phase inversion also occurred; if the emulsion is not formulated correctly.
- pI of the formed compound is calculated & evaluated based on their nature.
- Acidic & basic nature of the compound; should be perfect.
- Occurring of hydrophobicity is seen when the compound is mixed with the water soluble compounds in high amount.
- Solubility of compound is to be maintained; with the nature of solution/solute formed.

**Mid exam marks scored by students
are entered in the Mother register**

SUB: REGULATORY AFFAIRS (MPH104T)

S.No	Register No	Name of the student	Theory		Average of two	Practicals	Remarks
			I mid	II mid			
1.	207NISO301	Eega Sravani	25	24	25	N	
2.	207NISO302	A. Mohana Latha	25	25	25	P	
3.	207NISO303	Sk. Apsana	24	25	25	a	
4.	207NISO304	Tampana Harika	25	23	24	t	
						c	
						a	
						i	
						a	
						1	

Entered By: CH. A. Swathi

Exam Section Incharge


PRINCIPAL

VIJAYA INSTITUTE OF
PHARMACEUTICAL SCIENCES FOR WOMEN
ENIKEPADU, VIJAYAWADA - 521 108.

**Mid exam marks uploaded to
JNTUK University online portal**



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

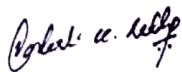
Internal marks for M.Pharm II Semester
College: VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN:7N

Date:16-11-2021

HTNO	SUBJECT	MID_1	MID_2	FINAL	SUB_TYPE
207N1S1601	MPA201T	23	23	23	T
207N1S1602	MPA201T	24	23	24	T
207N1S1603	MPA201T	23	24	24	T
207N1S1604	MPA201T	24	24	24	T
207N1S1601	MPA202T	24	21	23	T
207N1S1602	MPA202T	24	24	24	T
207N1S1603	MPA202T	25	24	25	T
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207N1S1604	MPA205PB	24	24	24	L
207N1S1601	MPA206S	0	0	88	S
207N1S1602	MPA206S	0	0	85	S
207N1S1603	MPA206S	0	0	95	S
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207N1S0301	MPH201T	23	23	23	T
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207N1S0304	MPH201T	22	21	22	T
207N1S0301	MPH202T	21	21	21	T
207N1S0302	MPH202T	17	22	20	T
207N1S0303	MPH202T	23	21	22	T
207N1S0304	MPH202T	17	23	20	T
207N1S0301	MPH203T	18	22	20	T
207N1S0302	MPH203T	19	19	19	T
207N1S0303	MPH203T	15	22	19	T
207N1S0304	MPH203T	18	20	19	T
207N1S0301	MPH204T	25	23	24	T
207N1S0302	MPH204T	24	25	25	T

HTNO	SUBJECT	MID_1	MID_2	FINAL	SUB_TYPE
207N1S0303	MPH204T	24	25	25	T
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207N1S0301	MPH205PA	23	24	24	L
207N1S0302	MPH205PA	23	23	23	L
207N1S0303	MPH205PA	24	24	24	L
207N1S0304	MPH205PA	23	23	23	L
207N1S0301	MPH205PB	22	24	23	L
207N1S0302	MPH205PB	24	24	24	L
207N1S0303	MPH205PB	23	23	23	L
207N1S0304	MPH205PB	23	24	24	L
207N1S0301	MPH206S	0	0	85	S
207N1S0302	MPH206S	0	0	90	S
207N1S0303	MPH206S	0	0	86	S
207N1S0304	MPH206S	0	0	85	S
207N1S0601	MPL201T	24	24	24	T
207N1S0602	MPL201T	22	16	19	T
207N1S0603	MPL201T	24	23	24	T
207N1S0604	MPL201T	21	23	22	T
207N1S0601	MPL202T	24	24	24	T
207N1S0602	MPL202T	21	21	21	T
207N1S0603	MPL202T	23	24	24	T
207N1S0604	MPL202T	23	23	23	T
207N1S0601	MPL203T	23	23	23	T
207N1S0602	MPL203T	19	22	21	T
207N1S0603	MPL203T	24	23	24	T
207N1S0604	MPL203T	22	21	22	T
207N1S0601	MPL204T	21	23	22	T
207N1S0602	MPL204T	19	22	21	T
207N1S0603	MPL204T	20	23	22	T
207N1S0604	MPL204T	23	22	23	T
207N1S0601	MPL205PA	24	24	24	L
207N1S0602	MPL205PA	24	24	24	L
207N1S0603	MPL205PA	23	23	23	L
207N1S0604	MPL205PA	24	24	24	L
207N1S0601	MPL205PB	22	24	23	L
207N1S0602	MPL205PB	23	23	23	L
207N1S0603	MPL205PB	23	23	23	L
207N1S0604	MPL205PB	23	23	23	L
207N1S0601	MPL206S	0	0	95	S
207N1S0602	MPL206S	0	0	94	S
207N1S0603	MPL206S	0	0	85	S
207N1S0604	MPL206S	0	0	92	S


 Verified by: **PRINCIPAL**
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