STUDY & EVALUATION SCHEME

FOR

TWO YEAR (FOUR SEMESTER) DIPLOMA COURSE IN PHARMACY

(Effective from the session)

I SEMESTER

Curriculum							Scheme of Examination							
Periods Per Week						S U B J E C T	Theory			Practical			Grand Total
Lecture	Tutorial	Dr.g.	Lab.	Work Shop	Total		Examination Dur.	Marks	Sess. Marks	Total Marks	Examination Dur.	Marks	Sess. Marks	Total Marks	
8	4	-	8	--	20	1.1 Bio-Chemistry & Clinical Pathology	2.5	80	20	100	3	80	20	100	200
8	4	-	8	--	20	1.2 Human Anatomy & Physiology	2.5	80	20	100	3	80	20	100	200
6	2	-	-	--	8	1.3 Health Education & Community Pharmacy	2.5	80	20	100	-	--	--	--	100
22	10	-	16	--	48	<----------TOTAL----------->	--	240	60	300	--	160	40	200	500
						Games/NCC/Social and Cultural Activity/Community Development + Discipline(15+10)									25
															525

II SEMESTER

6	2	-	10	--	18	2.1 Pharmaceutics-I	2.5	80	20	100	3	80	20	100	200
6	1	-	8	--	15	2.2 Pharmaceatical Chemistry-I	2.5	80	20	100	3	80	20	100	200
6	1	-	8	--	15	2.3 Pharmacognosy	2.5	80	20	100	3	80	20	100	200
18	4	-	26	--	48	<----------TOTAL----------->	--	240	60	300	--	240	60	300	600
						Games/NCC/Social and Cultural Activity/Community Development + Discipline(15+10)									25
															625

NOTE: (i) Each period will be of 50 minutes duration.
(ii) Each session will be of 16 weeks.
(iii) Effective teaching will be atleast 14 weeks.
(iv) Remaining periods will be utilised for revision etc.
(iv) Field visits and extension lectures are to be organized and managed well in advance at institute level as per need.

STUDY & EVALUATION SCHEME

FOR

TWO YEAR (FOUR SEMESTER) DIPLOMA COURSE IN PHARMACY

(Effective from the session)

III SEMESTER

Curriculum							Scheme of Examination							
Periods Per Week						S U B J E C T	Theory			Practical			Grand Total
Lecture	Tutorial	Dr.	Lab.	Work Shop	Total		Examination Dur.	Marks	Sess. Marks	Total Marks	Examination Dur.	Marks	Sess. Marks	Total Marks	
8	2	-	10	--	20	3.1 Pharmaceutical Chemistry-II	2.5	80	20	100	3	80	20	100	200
6	2	-	6	--	14	3.2 Pharmacology & Toxicology	2.5	80	20	100	3	80	20	100	200
6	2	-	6	--	14	3.3 Hospital & Clinical Pharmacy	2.5	80	20	100	3	80	20	100	200
20	6	-	22	--	48	<----------TOTAL---------->	--	240	60	300	--	240	60	300	600
						Games/NCC/Social and Cultural Activity/Community Development + Discipline(15+10)									25
														Total:	625

IV SEMESTER

8	4	-	16	--	28	4.1 Pharmaceuties-II	2.5	80	20	100	3	80	20	100	200
8	2	-	-	--	10	4.2 Drugs Store & Business Management	2.5	80	20	100	-	-	-	-	100
8	2	-	-	--	10	4.3 Pharmacetical Jurisprudence	2.5	80	20	100	-	--	--	--	100
24	8	-	16	--	48	<----------TOTAL---------->	--	240	60	300	--	80	20	100	400
						Games/NCC/Social and Cultural Activity/Community Development + Discipline(15+10)									25
														Total:	425
														50 % Carry Over of I & II	575
														100% Carry Over of III & IV	1050
														Total:	1625

NOTE: (i) Each period will be of 50 minutes duration.
(ii) Each session will be of 16 weeks.
(iii) Effective teaching will be atleast 14 weeks.
(iv) Remaining period will be utilized for revision etc.
(v) Field visits and extension lectures are to be organized and managed well in advance at institute level as per need.

EDUCATION REGULATIONS OF THE PHARMACY COUNCIL OF INDIA

C O N T E N T S

APPENDIX-A

SYLLABUS

1.1 Biochemistry and Clinical Pathology

1.2 Human Anatomy and Physiology

1.3 Health Education and Community Pharmacy

2.1 Pharmaceutics-I

2.2 Pharmaceutical Chemistry-I

2.3 Pharmacognosy

3.1 Pharmaceutical Chemistry-II

3.2 Pharmacology and Toxicology

3.3 Hospital and Clinical Pharmacy

4.1 Pharmaceuties-II

4.2 Drug Store and Business Management

4.3 Pharmaceutical Jurisprudence

APPENDIX-B

Description

Conditions to be fulfilled by the academic training institution

APPENDIX-C

Conditions to be fulfilled by the examining authority

APPENDIX-D

Conditions to be fulfilled by the institution to be recognised for giving practical training.

APPENDIX-E

Practical training contract form for Pharmacists.

CHAPTER-I

1. SHORT TITLE AND COMMENCEMENT:

   (A) These regulations may be called the Education Regulations, 1991.

   (B) They shall come into force on the date of their publication in the Official Gazeette.

2. QUALIFICATION FOR PHARMACIST:

   The minimum qualification required for registration as a pharmacist shall be a pass in Diploma in Pharmacy (Part-I and Part-II) and satisfactory completion of Diploma in Pahrmacy (Part-III).

   OR

   Any other qualification approved by the Pharmacy Council of India as equivalent to the above.

3. Diploma in Pharmacy Part-I and Part-II shall consist of a certificate of having passed the course of study prescribed in Chapter-II of these regulations.

4. Diploma in Pharmacy Part-III shall consist of a certificate of having satisfactorily completed course of parcical training as prescribed in Chapter-III of these regulations.

TO BE NOTIFIED IN THE CAZETTE OF INDIA PART-III SECTION(4)

PHARMACY COUNCIL OF INDIA
COMBINED COUNCILS BUILDING
KOTLA ROAD, NEW DELHI-110002

NOTIFICATION

Ref.No. :14-55/93(Part-I)/PCI/2447-2981 Dated: 28th June, 94

In exercise of the powers conferred by Section 10 of the Pharmacy Act 1948 (8 of 1948), the pharmacy council of India with the approval of the Central Government, herby makes the following amendments in the Education Regulation, 1991, namely -

1. (1) These Regulations may be called the Education(Amendment) Regulations 1994.

(2) They shall come into force from the date of their publication in the official gazette.

2. In the Education Regulations 1991 (hereinafter referred to as the said regulations) for regulation 5, the following regulation shall be substituted, namely :-

5 MINIMUM QUALIFICATION FOR ADMISSION TO DIPLOMA IN PHARMACY PART-I COURSE:

A pass in any of the followings examinations with Physics, Chemistry and Biology or Mathematics.

1. Intermediate Examination in Science.

2. The First year of the Three Year Degree Course in Science.

3. 10+2 examination (academic stream) in Science.

4. Pre-degree examination.

5. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examination.

Provided that there shall be reservation of seats for Scheduled Caste and Scheduled Tribes candidate in accordance with the instructions issued by the Central Government/ State Government/ Union Territory Admns. as the case may be, from time to time.

3. In the said regulations, in regulation 10 for table III and Table IV, the following tables shall be substituted------

CHAPTER-II
DIPLOMA IN PHARMACY (PART-I AND PART-II)

5. MINIMUM QUALIFICATION FOR ADMISSION TO DIPLOMA IN PHARMACY PART-I COURSE:

A Pass in any of the following examination with Physics,Chemistry, & Biology with 60 % marks in aggregate of the above subjects:-

A. Intermidate examination in Science.

B. The first year of the Three Year Degree Course in Science.

C. 10+2 examination (Academic Stream) in Science.

D. Pre-degree examination or

E. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

6. DURATION OF THE COURSE:

The duration of the course shall be for two academic year with each academic year a spread over a period of not less than one hundred and eighty working days in addition to 500 hours practical training spread over a period of not less than 3 months.

7. COURSE OF STUDY:
The course of study for diploma in Pharmacy Part-I and diploma in Pharmacy Part-II shall include the subjects as given in the Tables I & II below. The number of hours devoted to each subject for its teaching in theory and practical, shall not be less than that noted against it in columns 2 and 3 ot the Tables below.

TABLE-I (Diploma in Pharmacy Part-I)

SUBJECT	No. OF HOURS THEORY	No. OF HOURS PRACTICAL
Pharmaceutics-I	75	100
Pharmaceutical Chemistry-I	75	75
Pharmacognosy	75	75
Bio-Chemistry & Clinical Pathology	50	75
Human Anatomy & Physiology	75	50
Health Eduction & Community Pharmacy	50	--
TOTAL:-	400 +	375 =775

TABLE-II (Diploma in Pharmacy Part-II)

SUBJECT	No. OF HOURS THEORY	No. OF HOURS PRACTICAL
Pharmaceutics-II	75	100
Pharmaceutical Chemistry-II	100	75
Pharmacology & Toxicology	75	50
Pharmaceutical Jurisprudence	50	--
Drug Store & Business Management	75	--
Hospital and Clinical Pharmacy	75	50
TOTAL:-	450 +	275 =725

8. The syllabi for each subject of study in the said Tables shall be as specified in Appendix-A to these regulations.

9. APPROVAL OF THE AUTHORITY CONDUCTING THE COURSE OF STUDY:

The course of regular academic study prescribed under regulation 7 shall be conduted in an institution, approved by the Pharmacy Council of India under sub-section (1) of Section 12 of Pharmacy Act, 1948.

Provided that the Pharmacy Council of India shall not approve any institution under this regulation unless it provides adequate arrangements for teaching in regard to building, accommodation, equipment and teaching staff as specified in Appendix-B to these regulations.

10. EXAMINATIONS:

There shall be an examination for Diploma in Pharmacy (Part-I) to examine students of the first year course and an examination for Diploma in Pharmacy (Part-II) to examine student of the Second Year course. Each examination may be held twice every year. The first examination in a year shall be the annual examination and the school examination shall be supplementary examination of the Diploma in Pharmacy (Part-I) on Diploma in Pharmacy (Part-II), as the case may be. The examinations shall be of written and practical (including oral) nature, carrying maximum marks for each part of a subject, as indicated in Table III and IV below.

TABLE-III (Diploma in Pharmacy Part-I)

SUBJECT	MAX. MARKS FOR THEORY			MAX. MARKS FOR PRACTICAL		
	EXAM.	SESS.	TOTAL	EXAM.	SESS.	TOTAL
Pharmaceutics-I	80	20	100	70	30	100
Pharmaceutical Chemistry-I	80	20	100	70	30	100
Pharmacognosy	80	20	100	70	30	100
Bio-Chemistry & Clinical Pathology	80	20	100	70	30	100
Human Anatomy & Physiology	80	20	100	70	30	100
Health Eduction & Community Pharmacy	80	20	100	--	--	--
	TOTAL:-		600	+		500 =1100

TABLE-IV (Diploma in Pharmacy Part-II)

SUBJECT	MAX. MARKS FOR THEORY			MAX. MARKS FOR PRACTICAL		
	EXAM.	SESS.	TOTAL	EXAM.	SESS.	TOTAL
Pharmaceutics-II	80	20	100	70	30	100
Pharmaceutical Chemistry-II	80	20	100	70	30	100
Pharmacology & Toxicology	80	20	100	70	30	100
Pharmaceutical Jurisprudence	80	20	100	--	--	--
Drug Store & Business Management	80	20	100	--	--	--
Hospital and	80	20	100	70	30	100

Clinical Pharmacy

TOTAL:-	600	+	400	=1000

11. ELIGIBILITY FOR APPEARING AT THE DIPLOMA IN PHARMACY (PART-I) EXAMINATION:

Only such candidates who produce certificate from the Head of the Academic institutions in which he/she has undergone the Diploma in Pharmacy (Part-I) course, in proof of his/her having regularly and satisfactorily undergone the course of study by attending not less than 75% of the classes held both in theory and in practical separately in each subject shall be eligible for appearing at the Diploma in Pharmacy (Part-I) examination.

12. ELIGIBILITY FOR APPEARING AT THE DIPLOMA IN PHARMACY (PART-II) EXAMINATION:-

Only scuh candidates who produce certificate from the Head of the Academic institutions in which he/she has undergone the Diploma in Pharmacy (Part-II) course, in proof of his/her having regularly and satisfactorily undergone the Diploma in Pharmacy (Part-II) course by attending not less than 75% of the classes held both in theory and in practical separately in each subject shall be eligible for appearing at the Diploma in Pharmacy (Part-II) examination.

13. MODE OF EXAMINATIONS:

A. Each theory and practical examination in the subject mentioned in Table-III & IV shall be of three hours duration.

B. A candidate who fails in theory or practical examination of a subject shall reappear both hours duration.

C. Practical examination shall also consist of a viva voce (oral) examination.

14. AWARD OF SESSIONAL MARKS AND MAINTENANCE OF RECORDS:

1. A regular record of both theory and practical class work and examinations conduceted in an institution imparting training for Diploma in Pharmacy (Part-I) and Diploma in Pharmacy (Part-II) courses, shall be maintained for each student Internal assessment 20 marks for each theory and 30 marks for each practical subject shall be allotted as sessionals.

2. These shall be at least two periodic sessional examinations during each academic year. The highest aggregate of any two performaces shall form the basis of calculating sessional marks.

3. The sessional marks in practicals shall be alloted on the following basis. Actual performance in the sessional examination. 15 day to day assessment in the practical class work 15 Day assessment in the practical class work.

According to Pahrmacy council of India Notification No. 14-55/93 (Part-I)/RCI/2447-2981, Dated 28th June, 1994

Award of Sessional Marks and Maintenance of Records :

1. A regular record of both theory and practical class work and examinations conducted in an institution imparting training for diploma in pharmacy part-I and diploma in pharmacy-II course, shall be maintained for each student in the institution and 20 marks for each theory and 20 marks for each practical subject shall be allotted as sessional.

2. There shall be at least two periodic sessional examinations suring each academic year. The highest aggregate of any two performances shall form the basis of calculating sessional marks.

3. The sessional marks in practicals shall be allotted on the following basis :-

   (i) Actual performance in the sessional Exam. 10 Marks

   (ii) Day to day assessment in the practical Class Work. 10 Marks

15. MINIMUM MARKS FOR PASSIN THE EXAMINATION:

A student shall not be declared to have passed in Pharmacy examination unless he/she secores at least 50% marks in each of the subject separtely in the theory examination including sessional marks and least 50% marks in each or the practical examinations including sessional marks. The candidates securing 60% marks or above in aggregate all subjects in a single attempt at the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part-II) examination shall be declared to have passed in first class the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part-II) examination as the case may be candidates securing 75% marks or above in any subject or subjects shall be declared to have passed with distinction in that subject or those subjects provided he/she passes in all the subjects in a single attempt.

16. ELIGIBILITY FOR PROMOTION TO DIPLOMA IN PHARMACY:

All candidate who have appeared for all the subject and passed the Diploma in Pharmacy (Part-I) examination are eligible for promotion to the Diploma in Pharmacy (Part-II) class. However, failure in more than two subjects shall debar him/her from promotion to the Diploma in Pahrmacy (Part-II) class.

17. IMPROVEMENT TO SESSIONAL MARKS:

Candidates who wish to improve sessional marks can do so, by appearing in two additional sessional examinations during the next academic year. The average score of the two examinations shall be the basis for improved sessional marks in theory. The sessional of practicals shall be improved by appearing in additional practical examinations. Marks awarded to a candidate for day to day assessment in the practical class can not be improved unless he/she attends a regular course of study again.

18. APPROVAL OF EXAMINATIONS:

The examinations mentioned in regulations 10 to 13 and 15 shall be held by an authority herein after referred to as the Examining Authority in a State, which shall be approved by the Pharmacy Council of India under sub-section (2) of section 12 of the Pharmacy Act, 1948. Such approval shall be granted only if the Examining Authority concerned fulfil the conditions as specified in Appendix-C to these regulations.

19. CERTIFICATE OF PASSING EXAMINATION FOR DIPLOMA IN PHARMACY (PART-II):

Certificate of having passed the examination for the Diploma in Pharmacy, Part-II shall be granted by the Examining Authority to a successful student.

CHAPTER-III

DIPLOMA IN PHARMACY (PART-III)

(PRACTICAL TRAINING)

20. PERIOD AND OTHER CONDITIONS OF PRACTICAL TRAINING:

1. After having appeared in Part-II examination of Diploma in Pharmacy conducted by Board/University or other Approved Examination Body or any other course accepted as being equivalent by the Pharmacy Council of India, a candidate shall be eligibel to undergo practical training in one or more of the following institutions namely:

(i) Hospitals/Dispensaries run by Central/State Government/Municipal Corporations/Central Government Health Scheme and Employees State Insurance Scheme.

(ii) A Pharmacy, Chemist and Druggist Licensed under the Drugs and Cosmetic Rules, 1945 made under the Drugs and Cosmetics Act, 1940 (23 of 1940).

(iii) Drugs manufacturing unit licensed under the Drugs and Cosmetics Act, 1940 and rules made thereunder.

2. The institutions referred in sub-regulation (1) shall be eligible to impart training subject to the condition that the number of student Pharmacists that may be taken in any hospital, pharmacy, chemist and druggist and Drugs manufacturing units licensed under the drugs and conmetics Rules, 1945 made under the Drugs and Cosmetics Act, 1940 shall not exceed tow where there is one registered pharmacist engaged in the work in which the student pharmacits is under-going practical training, where there is more than one registered pharmacist similarly engaged, the number shall not exceed one for each additional such registered pharmacist.

3. Hospital and Dispensary other than those specified in sub-regulation (1) for the purpose of giving practical training shall have to be reconised by Pharmacy Council of Indial fulfilling the conditions specified in Appendix-I to these regulations.

4. In the course of practical training, the trainee shall have exposure to

(i) Working knowledge of keeping of records required by various acts concerning the profession of Pharmacy and

(ii) Practical Experience in

(a) the manipulation of pharmaceutical apparatus in common use.

(b) the reading, translation and copying of prescription including checking of doses;

(c) the dispensing of prescriptions illustrating the commoner methods of administering medicaments and;

(d) the storage of drugs and medical preparations.

5. The practical training shall be not less than five hundred hours spread over a period of not less than three months, provided that not less than two hundred and fifty hours are devoted to actual dispensing of prescriptions.

21. PROCEDURE TO BE FOLLOWED PRIOR TO COMMENCING OF THE TRAINING:

1. The Head of an academic training institution, on application, shall supply in triplicate "Practical Training Contract From For Qualification As A Pharmacist" (herein after refereed to as the Contract From) to candidate elegible to under- take the said practical training. The contract form shall be as specified in Appendix-E to these regulations.

2. The Head of an academic training institution shall fill Section-I of the contract form. The trainee shall fill Section-II of the said contract form and the Head of the institution agreeing to impart the training (herein after referred to as the Appendix-) shall fill Section-III of the said contract form.

3. It shall be the responsibility of the trainee to ensure that one copy (herein after refereed to as the first copy of the Contract Form) so filled is submitted to the Head of the academic training institution and the other two copies (herein after referred to as the second copy and third copy) shall be filled with the Apprentice Master (if he so desires) or with the trainee pending completion of the training.

22. CERTIFICATE OF PASSING DIPLOMA IN PHARMACY (PART-III):

On satisfactory completion of the apprentice period, the Apprentice Master shall fill Section-IV of the second copy and third copy of the contract form and cause it to ne sent to the head of academic training institution who shall suitably enter in the first copy of the entries from the second copy and third copy and shall fill Section V of the three copies of contract form and thereafter hand over both the second copy and third copy to the trainee.

This, if completed in all respects, shall be regarded as a certificate of having successfully completed the course of

Diploma in Pharmacy (Part-III).

CHAPTER IV

23. CERTIFICATE OF DIPLOMA IN PHARMACY:

A certificate of Diploma in Pharmacy shall be granted by the Examining Authority to a successful candidate on producing certificates of having passed the Diploma in Pharmacy Part-I and Part-II and satisfactory of practical training for Diploma in Pharmacy (Part-III).

24. MISCELLANEOUS:

No course of training in pharmacy shall be considered for approval under regulation 18 unless it satisfies all the conditions prescribed under these regulations.

25. REPEAL AND SAVINGS:

1. The Education Regulations, 1981 (herein after referred to as the said regulations) published by the Pharmacy Council of India vide No. 14-55/79-Pt.I/PCI/4235-4650 dt. 8th July, 1981 is hereby repealed.

2. Not with standing such repeal,

   (a) anything done or any action taken under the said regulations shall be deemed to have been done or taken under the corresponding provisions of these reglation.

   (b) a person who was admitted as a student under the said regulations to the course of training for Diploma in Pharmacy and he had not passed the examination at the commencement of these regulations shall be required to pass the examination in accordance with the provisions of the said regulations as if these regulations had not come into force.

Provided however, the Examining Authority in a particular State may fix a date after which the examinations under the said regualtions shall not be conducted.

APPENDIX-A SYLLABUS

DIPLOMA IN PHARMACY (PART-I)
1.1 BIOCHEMISTRY AND CLINICAL PATHOLOGY

1. Identification to Bio-chemistry.

2. Brief chemistry and role of Proteins, Polypeptides and Amino acids, Classification, Qualitative tests, Biological value, Deficiency diseases.

3. Brief chemistry and role of Carbohydrates, Classification, Qualitative tests. Diseases related to crbohydrate metabolism.

4. Brief chemistry and role Lipids, Classification, Qualitatives tests. Diseases related to lipids metabolism.

5. Brief chemistry and role of Vitamins and Coenzymes.

6. Role of minerals and water in life processes.

7. Enzymes : Brief concept ofr enzymic action, Factor affecting it. Thereapeutic and pharmaceutical importance.

8. Brief concept of normal and abnormal metabolism of Proteins, Carbohydrates and lipids.

9. Introduction to Pathology of Blood and Urine.

   a. Lymphocytes and Platelets, their role in health and disease.

   b. Erythrocytes - Abnormal cells and their significance.

   c. Abnormal constitutents of Urine and their significance in diseases.

BIOCHEMISTRY AND CLINICAL PATHOLOGY

List of Practical

1. Detection and identification of Proteins, Amino acids, Carbohydrates and Lipids.

2. Analysis of normal and abnormal constituents of Blood and Urine (Glucose, Urea, Creatine, Creatinine, Cholesterol, Alkaline phosphatase, Acid Phosphatase, Bilirubin, SGPT, SGOT, Calcium, Diastase, Lipase).

3. Examination of sputum and Faeces (Microscopic and Staining).

4. Practice in injecting drugs by intramuscular, subcneous and intravenous routes. Withdrawal of blood samples.

1.2 HUMAN ANATOMY AND PHYSIOLOGY

1. Scope of Anatomy and Physiology. Definition of various terms used in Anatomy.

2. Structure of cell, Function of its components with special reference to mitochondria and microsomes.

3. Elementary tissues of the body, i.e. Epithelial tissue, Muscular tissue, Connective tissue and Nervous tissue.

4. Structure and function of skeleton. Classification of joints and their function, Joints disorder.

5. Composition of blood, function and blood elements. Blood gropu and coagulation of blood. Brief information regarding disorders of blood.

6. Name and function fo lymph glands.

7. Structure and functions of various parts of the heart. Arterial and venous system with special reference to the names and positions of main arteries and veins. Blood pressure and its recording. Brief information about cardiovascular disorders.

8. Various parts of respiratory system and their functions. Physiology of respiration.

9. Various parts of urinary system and their function, structure and functions of kindey. Physiology of Urine formation. Pathophysiology of renal diseases and oedema.

10. Structure of skeletal muscle, Physiology of muscle contraction, Names, Posistios, Attachments and functions of various skeletal muscles, Physiology of neuromuscular junction.

11. Various parts of central nervous system, brain and its parts, functions and reflex action. Anatomy and Physiology of autonomic nervous system.

12. Elementary knowledge of structure and function of the organs of taste, smell, ear, eye and skin. Physiology of pain.

13. Digestive system; names of the various parts of digest system and their functions. Structure and function of liver, physilogy of digestion and absorption.

14. Endocrine glands and Harmones. Location of the glands and their harmones and functions. Pituitary, Thyroid, Adrenal and Pancreas.

15. Reproductive System - Physiology and Anatomy of reproductive system.

HUMAN ANATOMY AND PHYSIOLOGY

List of Practical

1. Study of the human skeleton.

2. Study with the help of charts and models of the following system and organs.

   a. Digestive System

   b. Respiratory System

   c. Cardiovascular System.

   d. Urinary System.

   e. Reproductive System.

   g. Nervous System.

   h. Eye.

   I. Ear.

3. Microscopic examination of Epithelial tissue, Cardiac muscle, Smooth muscle, Skeletal muscle. Connective tissue and nervous tissues.

4. Examination of Blood films for TLC, DLC and Malarial parasite.

5. Determination of clotting time of Blood, Erythrocyte, Sedimentation rate and Heamoglobin value.

6. Recording of Body temperature, Pulse, Heart rate, Blood pressure and ECG.

1.3 HEALTH EDUCATION AND COMMUNITY PHARMACY

1. CONCEPT OF HEALTH:

   Definition of physical health, Mental health, Social health, Spiritual health - Determinants of health, Indicators of health, Concept of disease, Natural history of diseases, The disease agents, concept of prevention of diseases.

2. NUTRITION AND HEALTH:

   Classification of foods, Requirements, Diseases induced due to deficiency of proteins, Vitamins and minerals - Treatment and prevention.

3. DEMOGRAPHY AND FAMILY PLANNING:

   Demography cycle, Fertility, Family planning, Contraceptive methods, Behavioural methods, Natural family planning methods, Chemical methods, Mechanic methods, Hormonal contraceptives, Population problem of India.

4. FIRST AID:

   Emergency treatment in shock, Snake-bite, Burns, Poisoning, Heart disease, Fractures and resuscitation methods. Elements of minor surgery and dressing.

5. ENVIRONMENT AND HEALTH:

   Sources of water supply, Water pollution, Purification of water, Health and Air, Noise, Light - Solid waste disposal and control, medical entomology, Arthropod borne diseases and their control, Rodents, Animals and diseases.

6. FUNDAMENTAL PRINCIPLES OF MICROBIOLOGY:

   Classification of microbes, Isolation, Staining techniques of organisms of common diseases.

7. COMMUNICABLE DISEASES:

   Causative agents, mode of transmission and prevention.

   a. Respiratory Infections:

      Chicken Pox, Measles, Influenga, Diphtheria, Whooping cough and Tuberculosis.

   b. Intestinal Infections:

      Poliomyelitis, Hepatitis, Cholera, Typhoid, Food poisoning, Hookworm infection.

c. Arthropid Borne Infections:

Plague, Malaria, Filariasis.

d. Surface Infections:

Rabies, Trachoma, Tetanus, Leprosy.

e. Sexually Transmitted Diseases:

Syphilis, Grnorrhoea, AIDS.

8. NON-COMMUNICABLE DISEASES:

Causative agents, Prevention, Care and Control, Cancer, Diabetes, Blindness, Cardiovascular diseases.

9. EPIDEMIOLOGY:

Its scope, methods, uses, dynamics of disease transmission. Immunity and immunisation : Immunological products and their dose schedule. Principles of disease control and prevention, hospital acquired infection, prevention and control. Disinfection, Types of disinfection, Disinfection procedure, For face, Urine, Sputum, room, Linen, Dead Bodies, Instruments.

2.1 PHARMACEUTICS-I

THEORY (75 HOURS)

1. Introduction of different dosage forms. Their classification with examples - their relative applications. Familiarisation with nes drug delivery systems.

2. Introduction to Pharmacopoeias with special reference to the Indian Pharmacopoeia.

3. METROLOGY:

   System of weights and measures. Calculations including conversion from one to another system, Percentage calculations and adjustment of products. Use of alligation method in calculations. Isotonic solutions.

4. PACKAGING OF PHARMACEUTICALS:

   Desirable features of a container - types of container. Study of glass and plastics as materials for containers and rubber as a material for closures their merits and demerits. Introduction to aerosol packaging.

5. SIZE REDUCTION:

   Objectives and factors affecting size reduction, methods of size reduction - Study of Hammer mill, ball mill, Fluid energy mill and Disintegrator.

6. SIZE SEPARATION:

   Size separation by sifting, Official standards for powders. Sedimentation methods of size separation. Construction and working of cyclone separator.

7. MIXING AND HOMOGENISATION:

   Liquid mixing adn powder mixing, Mixing of semisolids. Study of Silverson Mixer-Homogeniser, Planetary Mixer; Agitated powder mixer; Triple Roller Mill; Propeller Mixer, Colloid Mill and Hand Homogeniser, Double cone mixer.

8. CLARIFICATION AND FILTRATION:

   Theory of filtration, Filter media; Filter aids and selection of filters. Study of the following filteration equipments - Filter Press, Sintered Filters, Filter Candles, Metafilter.

9. EXTRACTION AND GALENICALS:

(a) Study of Parocolation and maceration and their modifications, continuous hot extraction - Applications in the preparation of tinctures and extracts.

(b) Introduction to Ayurvedic dosage forms.

10. HEAT PROCESS:

Evaporation - Definition, factors affecting evaporation - Study of evaporating still and Evaporating Pan.

11. DISTILLATION:

Simple distillation and practional distillation; Steam distillation and vacuum distillation. Study of vacuum still, Preparation of Purified water I.P. and water for Injection I. P. construction and working of the still used for the same.

12. INTRODUCTION TO DRUING PROCESSES:

Study of Tray Dryers: Fluidized Bed Dryer, Vacuum Dryer and Freeze Dryer.

13. STERILIZATION:

Concept of sterilization and its difference from disinfection - Thermal resistance of microorganisms. Detailed study of the following sterilisation processes.

(i) Sterilization with moist heat,
(ii) Dry heat Sterilization,
(iii) Sterilization by radiation,
(iv) Sterilization filtration and
(v) Gaseous sterilization.

Aseptic techniques - Application of sterilization processes in hospitals particularly with reference to surgical dressings and intravenous fluids. Precautions for safe and effective handling of sterilization equipments.

14. PROCESSING OF TABLETS:

Definition, Different types of compressed tablets and their properties. Processes involved in the production of tablets; Tablets excipiencts; Defects in tablets; Evaluation of tablets; Physical standards including disintegration and Dissolution. Tablet coating- Sugar coating; film coating, enteric coating and microencapsulation (Tablet coating may be dealt in and elementary manner).

15. PROCESSING OF CAPSULES:

Hard and soft gelatin capsules; different sizes of capsules; filling of capsules; handling and storage of capsules. Special applications of capsules.

16. Study of immunological products like sera, vaccines, toxoids and their preparations.

PHARMACEUTICS-I

List of Practical (100 hours)

Preparation (minimum number stated against each) of the following categories illustrating different techniques involved.

1.	Aromatic Waters	3
2.	Solutions	4
3.	Spirits	2
4.	Tinctures	4
5.	Extracts	2
6.	Creams	2
7.	Cosmetic Preparation	3
8.	Capsules	2
9.	Tablets	2
10.	Preparations involving sterilisation	2
11.	Opthalmic Preparation	2
12.	Preparations involving aseptic techniques	2

BOOKS RECOMMENDED (Latest Editions)

1. Remingtion's Pharmaceutical Sciences.

2. The Extra Pharmacopoeia - Martindale.

2.2 PHARMACEUTICAL CHEMISTRY-I

1. General discussion on the following inorganic compounds including important physical and chemical properties, medicinal and pharmaceutical use, storage conditions and chemical incompatibility.

   A. Acids, bases and buffers - Boric acids, Hydrochloric acid, Strong Ammonium Hydroxide, Calcuim Hydroxide, Sodium Hydroxide and Official buffers.

   B. Antioxidants - Hypophosphoreus acid, Sulpher Dioxide, Sodium bisulphate, Sodium Meta Bisulphite, Sodium Thiosulphate, Nitrogena and Sodium Nitrite.

   C. Gastrointestinal Agents -

      (i) Acidifying Agents - Dilute Hydrochloric Acid.

      (ii) Antacids - Sodium bicarbonate, Aluminium hydroxide gel, Aluminium Phosphate, calcium Carbonate, Magnesium Carbonate, Magnesium Trisilicate, Magnesium Oxide, Combinations of Antacid preparations.

      (iii) Protectives and Adsorbents - Bismuth subcarbonate and Kaolin.

      (iv) Saline Cathartics - Sodium, Potassium tartrate and Magnesium sulphate.

   D. Topical Agents -

      (i) Protectives - Talc, Zinc Oxide, calamine, Zinc stearate, Titanium dioxide, Silicone polymers.

      (ii) Antimicrobials and Astringents - Hydrogen peroxide, Potassium permanganate, Chlorinated lime, Iodine, Solutions of iodine, Povidone - Iodine, Boric acid, Borax, Silver Nitrate, Mild Silver Protein, Mercury, Yellow Mercuric oxide, Ammoniated mercury.

      (iii) Sulphur and its compounds - Sublimed sulphurs, Precipitated sulphur Selenium sulphide.

      (iv) Astringents - Alum and Zinc Sulphate.

   E. Dental Products - Sodium Fluoride, Stannous Fluoride, Calcium Carbonate, Sodium meta phosphate, Dicalcium phosphate, Strontium Chloride, Zinc chloride.

   F. Inhalants - Oxygen, Carbon dioxide, Nitrous oxide.

G. Respiratory Stimulants - Ammounium Chloride, Potasium iodide, Antiomny Potassium tartrate.

I. Antidotes - Sodium Nitrite.

2. Major Intra and Extracellular Electrolytes -

A. Electrolytes used for replacement therapy - Sodium chloride and its preparation, Potassium Chloride and its preparations.

B. Physiological acid base balance and electrolytes used - Sodium Acetate, Potassium Acetate, Sodium Bicarbonate injection, Sodium citrate, Potassium citrate, Sodium lactate injection, Ammonium chloride and its injection.

C. Combination of oral electrolyte powders and solutions.

3. Inorganic Official compounds of Iron, Iodine and Calcium Ferrous Sulfate and Calcium gluconate.

4. RATIO PHARMACEUTICALS AND CONTRAST MEDIA:

Radio Activity - Alpha, Beta and Gamma Radiations, Biological effects of radiations, Measurement of radio activity G.M. counter, Radio Isotopes - Their uses, Storage and precautions with special reference to the official preparations.

Radio Opaque Contrast Media - Barium Sulfate.

5. QUALITY CONTROL OF DRUGS AND PHARMACEUTICALS:

Importance of Quality control, Significant errors, Methods used for quality control, Sources of impurities in Pharmaceuticals. Limit tests for Arsenic, Chloride, Sulfate, Iron and Heavy Metals.

6. Identification tests for cations and anions as per Indian Pharmacopoeia.

PHARMACEUTICAL CHEMISTRY-I

List of Practicals

1. Identification tests for inorganic compunts particular by drugs and pharmaceuticals.

2. Limits test for Chloride, Arsenic, Iron and Heavy metals.

3. Assay of inorganic Pharmaceuticals involving each of the following methods of compounds marked with (*) under theory.

   A. Acid Base titrations (At least 3)

   B. Redox Titrations (One each of Permanganometry and iodimetry).

   C. Precipitation titrations (At least 2)

   D. Complexometric titrations (Calcium and Magnesium)

BOOKS RECOMMENDED (LATEST EDITIONS)

1. Indian Pharmacopoeia.

2.3 PHARMACOGNOSY

1. Definition, History and scope of Pharmacognosy including indigeneous system of medicine.

2. Various system of classification of drugs of natural origin.

3. Adulteration and drug evaluation; significance of Pharmacopoeial standards.

4. Brief outline of occurence, distribution outline of isolation, identification tests, threapeutic effect and pharmaceutial applications of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.

5. Occurrence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficancy of following categories of drugs.

    a. Laxative : Aloes, Rhuburb, Castor oil, Ispaghula, Senna.

    b. Cardiotonics : Digitalis, Arjuna.

    c. Carminatives & G. I. regulators - Umbelliferous fruits, Coriander, Fennel, Ajowan, Cardamon, Ginger, Black pepper, Asafoetida, Nutmeg, Cinnamon, Clove.

    d. Astringents - Catechu.

    e. Drugs acting on nervous system - Hyoscyamus, Belladonna, Aconite, Ashwagandha, Ephedra, Opium, Cannabis, Nux vomica.

    f. Antihypertensives - Rauwolfia

    g. Antitussives - Visaka, Tolu balsam, Tulsi.

    h. Antirheumatics - Guggul, Colchicum.

    i. Antitumour - Vinca.

    j. Antileprotics - Chaulmoogra oil.

    k. Antidiabetics - Pterocarpus, Gymnema, Sylvestro.

    l. Diuretics - Gokhru, Punarnava.

    m. Antidysenterics - Ipecacuanha.

    n. Antiseptics and disinfectants Benzoin, Myrrh, Nim, Curcum.

    o. Antimalarials - Cinchona.

p. Oxytocics - Ergot.

q. Vitamines - Shark liver oil and Amla.

r. Enzymes - Papaya, Diastase, Yeast.

s. Perfumes and flavouring agents - Peppermint Oil, Lemon oil, Organge Oil, Lemon Grass Oil, Sandalwood.

t. Pharmaceutical Aids - Honey, Arachis oil, Starch, Kaolin, Pectin, Olive oil, Lanolin, Beeswax, Axacia, Tragacanth, Sodium alginate, Agar, Guar gum, Gelatin.

u. Miscellaneous - Liquorice, Garlic, Picrorhize, Dioscorea, Linseed, Shatavari, Shankhupushpi, Pyrethru, Tobaco.

6. Collection and preparation of drugs for the market as examplified by Ergot, Opium, Rauwolfia, Digitalis, Senna.

7. Study of source, preparation and identification of fibres used in sutures and surgical dressings - Cotton, Silk, Wool and Regenerated fibres.

8. Gross anatomical studies of - Senna, Datura, Cinnamon, Cinchona, Fennel, Clove, Finger, Nuxvomica and Inpecacuanha.

PHARMACOGNOSY

List of Practical

1. Identification of drugs by morpholigocal characters.

2. Identification and chemical tests for evaluation of drugs wherever applicable

3. Gross anatomical studies (t.s.) of the following drugs Senna, Datura, Cianamon, Cinchona, Coriander, Fennel, Clove, Ginger, Nuxvomica, Ipecacuanha.

4. Identification of fibres and surgical dressigns.

3.1 PHARMACEUTICAL CHEMISTRY-II

1. Introduction to nomenclature of organic chemical system with particular reference to Hetero-Cyclic System containing upto 3 rings.

2. The chemistry of following Pharmaceutical organic compounds covering their nomeclature, chemical structure, uses and the improtant Physical and Chemical properties (Chemical structure of only those compounds marked with asterisk (*).

   The stability and storage conditions and the different types of Pharmaceutical formulations of these drugs and their popular brand names.

   ANTISEPTICS AND DISINFECTANTS:

   Proflavine *, Benzalkonium chloride, Cetrimide, Chlore Cresol *, Chloroxylene, Formaldehy solution, Hexachlorophene, Liquified phenol, Nitro funantoin.

   SULFONAMIDES:

   Sulfadiazine *, Sulfaguanidine *, Pythalyl sulfathiazole, Succinyl sulfathiazcle, Sulfadimethoxine, Sulfamethoxy pryidazine, Sulfa methoxazole, Co-trimoxazole, Sulfacetamide *.

   ANTILEPROTIC DRUGS:

   Clofazimine, Thiambutosine, dapsone *, Solapsone.

   ANTI-TUBERCULAR DRUGS :

   Isoniazid *, PAS *, Streptomycin, Rifampicin, Ethambutol *, Thiacetazone, Ethionamide, Cycloserine, Pyrazinamide *.

   ANTIAMOEBIC AND ANTHELMINTIC DRUGS:

   Emetine, Metronidazole *, Halogenated hydroxyquinolines, Diloxanide furoate, Paromomycil Piperazine *, Mebendazole, D.E.C.*.

   ANTIBIOTICS:

   Benzyl, Penicillin*, Phenoxy methyl, Penicillin*, Benzathine penicillin, Ampicillin*, Cloxacillin, Carbenicillin, Gentamycin, Neomycin, Erythromycin, Tetracycline, Cephalexin, Cephaloridine, Cephalothin, Griseofulvin, Chloramphenicol.

   ANTIMALARAIL AGENTS:

   Linecylenic acid, Tolnaflate, Nystatin, Amphoterecin,

Hamycin.

ANTIMALARAIL DRUGS:

Chloroquine*, Amodiaquine, Primaquine, Proguanil, Pryimethamine*, Quinine, Trimethoprim.

TRANQUILIZERS:

Chlorpromazine*, Prochlor, Perazine, Trifluo, Perazine, Thiothixene, Haloperidol*, Triperidol, Oxypertine, Chlordiazepoxide, Diazepam*, Lorazopam, Meprobamate.

HYPNOTICS:

Phenobaritone*, Butobarbitone, Cyclobarbitone, Nitrazepam, Glutethimide*, Methyprylon, Paraldehyde, Triclofossodium,

GENERAL ANAESTHETICS:

Halothane*, Cyclopropane*, diethyl Ether*, Metho-Hexital Sodium, Thiopental Sodium, Trichloro Ethylene.

ANTIDEPRESANT DRUGS:

Amitrptyline, Nortryptyline, Imipramine*, Phenelzine, Tranyl Cypromine.

ANALEPTICS:

Theophylline, Caffeine*, Coramine*, Dextroamphetamine.

ADRENERGIC DRUGS:

Adrenaline*, Noradrenaline, Isoprenaline*, Phenylephrine, Salbutamol, Terbutaline, Ephedrine*, Pseudoephedrine.

ADRENERGIC ANTAGONIST:

Tolazoline, Propranolol*, Practalol.

CHOLINERGIC DRUGS:

Neostigmine*, Pyridostigmine, Pralidoxime, Pilocarpine, Physiostigmine*.

CHOLINERGIC ANTAGONISTS:

Atropine*, Hyoscine, Homatropine, Propantheline*, Benztropine, Tropicamide, Biperiden.

DIURETIC DRUGS:

Furosemide*, Chlorothiazide, Hydrochlorothiazide,

Benzthiazide, Urea*, Mannitol*, Ethacrynic Acid.

CARDIOVASCULAR DRUGS:

Ethyl nitrite*, Glyceryl Trinitrate, Alpha Methyl Dopa, guanethidine, Clofibrate, Quinidine.

HYPOGLYCEMIC AGENTS:

Insuline, Chlorpropamide*, Tolbutamide, Glibenclamide, Phenformin*, Metformin.

COAGULANTS AND ANTI COAGULANTS:

Heparin, Thrombin, Menadione*, Bishydroxycoumarin, Warfarin Sodium.

LOCAL ANAESTHETICS:

Lignocaine*, Procaine*, Benzocaine.

HISTAMINE AND ANTI-HISTAMINIC AGENTS:

Histamine, Diphen Hydramine*, Promethazine, Cyproheptadine, Mepyramine, Pheniramine, Chlorpheniamine*.

ANALGESICS AND ANTI-PYRETICS:

Morphine, Pethidine*, Codeine, Methadone, Aspirin*, Paracetamol*, Analgin, Dextropropoxyphene, Pentazocine.

NON-STERIODAL ANTI-INFLAMMATORY AGENTS:

Indomethacir*, Phenylbutazone*, Oxyphen Butazone, Ibuprofen.

THYROXINE AND ANTI-THYROIDS:

Thyroxine*, Methimazole, Methyl Thiouracil, Propylthiouracil.

DIAGNOSTIC AGENTS:

Iopanoic Acid, Propyliodone, Sulfobromophtha Sodium, Indigotindisulfonate Sodium (Indigo Carmine), Evans Blue, Congo Red, Fluoreseein Sodium*, Anticonvulsants, Cardiac Glysosides, Antiarrhythmic Antihypertensives and Vitamins.

STEROIDAL DRUGS:

Betamethazone, Cortisone, Hydrocortisone, Prednsolone, Progesterone, testosterone, Oestradiol Nandrolone.

ANTI-NEOPLASTIC DRUGS:

Actinomycins, Azathioprine, Busulphan, Chlorambucil, Cisplatin Cyclophosphamide, Daunorubicin, Hydrochloride, Fluorouracil, Mercaptopurine, Methotrexate, Mytomycin.

PHARMACEUTICAL CHEMISTRY-II

List of Practical

1. Systematic qualitative testing of organic drugs involving Solubility determination, melting point and/or boiling point, detection of elements and functional groups (10 Compounds).

2. Official identification tests for certain groups of drugs included in the I.P. like Barbiturates, Sulfonamides, Phenothiazines, Antibiotics etc. (8 Compounds).

3. Preparation of three simple organic preparation.

BOOKS RECOMMENDED :(Latest Editions)

1. Pharmacopoeia of India.

2. British Pharmaceutical Codex.

3. Martindale's Extra Pharmacopoeia.

3.2 PHARMACOLOGY AND TOXICOLOGY

1. Identification of Pharmacology, scope of Pharmacology.

2. Routies of administration of drugs, their advantages and disadvantages.

3. Various processes of absorption of drugs and the factors affecting them. Metabolism, distribution and excretion of drugs.

4. General mechanism of drugs action and the factor which modify drug action.

5. Pharmacological classification of drugs. The discussion of drugs should emphasise the following aspects :

   (i) Drugs acting on the Central Nervous System :

      (a) General anaesthetics, adjunction to anaesthesia, intraveuous anaesthetics.

      (b) Analogesic and non-steroidal, anti-inflammatory drugs, Narcotic analgesics. Antirheumatic and antigout remedies. Sedatives and Hypnotics, Psychopharmacological agents, anti convulsants, analeptics.

      (c) Centrally action muscle relaxants and antiparkinsonism agents.

   (ii) Local anaesthetics.

   (iii) Drugs acting on autonomic nervous system.

      (a) Cholinergic drugs, Anticholinergic drugs, Anticholinesterase drugs.

      (b) Adrenergic drugs and Adrenergic recepter blockers.

      (c) Neurone blockers and Ganglion blockers.

      (d) Neuromuscular blockers, Drugs used in Myasthenia gravis.

   (iv) Drugs acting on eye, Madriatics, Drugs used in glaucoma.

   (v) Drugs acting on respiratory system - Respiratory stimulants, Bronchodilators, Nasal decongestants, Expectorants and Antitussive agents.

   (vi) Antacids, Physiological role of histamine and serotonin, Histamine and Antihistamines, Prostaglandins.

(vii) Cardio Vascular Drugs, Cardiotonics, Antiarrhythmic agents, Antianginal agents, Antihypertensive agents, Peripheral Vasodilators and drugs used in Atherosclerosis.

(viii) Drugs acting on the blood and blood forming organs. Haematinics, Coagulants and Anticoagulants, Haemostatics, Blood substitutes and Plasma expanders.

(ix) Drugs effecting renal function - Diuretics and Antidiuretics.

(x) Harmones and Hormone Antagonists - Hypoglycemic Agents, Antithyroid drugs, Sex harmones and Oral centraceptives corticosteroids.

(xi) Drugs Acting on Digestive System - Carminatives, Digestants Bitters, Antacids and drugs in pepticulcer, Purgatives and Laxatives, Antidiarrhoeals, Emetics, Antiemetics, Antispasmodics.

6. Chemotherapy of microbial diseases : Urinary antiseptics, Sulphonamides, Penicillins, Streptomycin, Tetracyclines and other antibiotics.

   Autitubercular agents, Antifungal agents, Antiviral drugs, Antileprotic drugs.

7. Chemotherapy of protozoal diseases. Anthelmintic drugs.

8. Chemotherapy of Cancer.

9. Disinfectants and Antiseptics.

   A detailed study of the action of drugs on each organ is not necessary.

List of Practical

The student Six of the following experiments will be done by the students while the remaining will be demonstrated by the teacher

1. Effect of K+, Ca+, Acetyl Choline and Adrenaline on Frog's heart.
2. Effect of Acetyl Choline on rectus abdominis muscle of Frog and Guinea Pig Ileum.
3. Effect of Spasmogens and relaxants on Rabbits intestine.
4. Effect of local anaesthetics on Rabbits Cornea.
5. Effect of mydriatics and mlotics on Rabbits Eye.
6. To study the action of Strychnine on Frog.
7. Effect of degitalis on Frog's heart.
8. Effect of hypnotics in mice.
9. Effect of convulsants and anticonvulsant in mice or rats.
10. Test for Pyrogens.
11. Taming and Hypnosis potentiating effect chlorpromazine in Mice/Rats.
12. Effect of diphenhydramine in experamentally produced asthma in guinea pigs.

3.3 HOSPITAL AND CLINICAL PHARMACY

PART-I HOSPITAL PHARMACY:

1. Hospicare and Definition, Function, Classifications base various criteria, Organisation, Management and health delivery, System in India.

2. Hospital Pharmacy :

   (a) Definition

   (b) Functions and objection of Hospital, Pharmaceutical services.

   (c) Location, Layout, Flow chart of materials and men.

   (d) Personnel and facilities requirements including equipments based on individual and basic needs.

   (e) Requirements and abilities required for Hospital pharmacists.

3. Drug Distribution system in Hospitals :

   (a) Out patient services.

   (b) In patient services -

      (i) Types of services

      (ii) Detailed discussion of Unit Dose System, Floor Ward Stock System, Statelaite Pharmacy Service, Central Sterile Services, Bed Side Pharmacy.

4. Manufacturing :

   (a) Economical considerations, estimation of demand.

   (b) Sterile manufacture - Large and small volume parenteral facilities requirements, Layout, Production planning, man-power requirements.

   (c) Non-Sterile Manufacture - Liquid orals, Externals, Bulk concentrates.

   (d) Procurement of stores and testing of raw materials.

5. Nomenclature and uses of surgical instruemts and hospital equipments and health accessories.

6. P. T. C. (Pharmacy Therapeutic Committee), Hospital Formulary System and their organisation, Functioning,

Composition.

7. Drug Information service and Drug Information Bulletin.

8. Surgical dressing like cotton, gauze, bandages and adhesive tapes including their pharmacopoeial tests for quality. Other hospital supply e.g. I.V. sets, B. G. sets, Ryals tubes, Catheters, Syringes etc.

9. Application of computers in maintenance of records, inventory, medication monitoring, drug information and data storage and retrieval in hospital and retail pharmacy establishments.

PART-II CLINICAL PHARMACY:

1. Introduction to Clinical Pharmacy Practice - Definition, Scope.

2. Modern Dispensing Aspects - Pharmacists and Patient counselling and advice for the use of common drugs, medication history.

3. Daily terminology used in the practice of Mediaine.

4. Disease manifestations and pathophysiology including salient symptoms to understand the disease like Tuberculosis, Hepatitis, Rheumatoid Arthritis, Cardio-Vascular diseases, Epilepsy, Diabetes, Peptic Ulcer, Hypertension.

5. Physiological parameters with their significance.

6. Drug Interactions :

   (a) Definition and Introduction.

   (b) Mechanism of Drug Interaction.

   (c) Drug - Drug interaction with reference to Analgesions, Diuretics, Cardio Vasular Drugs, Gastro - Intestinal agent vitamins and Hypoglycemic agents.

   (d) Drug -Food interaction.

7. Adverse Drugs Reactions :

   (a) Definition and significance.

   (b) Drugs - Induced diseases and Teratogenicity.

8. Drugs in Clinical Toxicity - Introduction, General treatment of Poisoning, Systematic antidotes. Treatment of insecticide poisoning, Heavy metal poison, Narcotic drugs, Barbiturate, Organophosphourus poisons.

9. Drugs dependenes, Drugs abuse, Addicitive drugs and their treatment, Complications.

10. Bio-availability of drugs, including factors affecting it.

HOSPITAL AND CLINICAL PHARMACY

List of Practical

1. Preparation of transfusion fluids.

2. Testing of raw materials used in (1).

3. Evaluation of surgical dressings.

4. Sterilization of surgical instruments, glass ware and other hospital supplies.

5. Handling and use of data processing equipments.

BOOKS RECOMMENDED (Latest Editions)

1. Romington's Pharmaceutical Sciences.

2. Martindale's Extra Pharmacopoeia.

4.1 PHARMACEUTICS-II

1. DISPENSING PHARMACY:

(i) Prescription:

Reading and understanding of prescriptions; Latin terms commonly used (Detailed study is not necessary), Modern methods of prescribing, adoption of metric- system Calculations involved in dispensing.

(ii) Incompalinilities in Prescriptions:

Study of various types of incompatibilities - Physical, Chemical and therapeutic.

(iii) Posology:

Dose and dosage of drugs, Factors influencing, Dose, Calculation of doses on the basic of age, sex and surface ares, Veterinary doses.

2. DISPENSED MEDICATIONS:

Note:

A detailed study of the following dispensed medication is necessary. Methods of preparation with theoretical and practical aspects, use of appropriate containers and closures. Special labelling requirement and storage conditions sholud be high-lighted

(i) Powders:

Types of powder, Advantages and disadvantages of powders, Granules, Cachets and Tablet triturates. Preparation of different types of powders encountered in prescriptions. Weighing methods, possible errors in weighing, minimum weighable amounts and weighting of a material below the minimum weighable amount, Geometric dilution and proper usage and care of dispensing balance.

(ii) Liquid Oral Dosage Forms:

(a) Monophasic:

Theoretical aspects including commonly used vehicles, essential adjunts like stablizers, colourants and colourants and flavours, with examples.

Review of the following monophasic liquids with details of formulation and practical methods.

LIQUIDS FOR INTERNAL ADMINISTRATION	LIQUIDS FOR EXTERNAL ADMINISTRATION USED ON MUOUS MEMBRANES
Mixtures and Concentrates	Gargles
Syrups	Mouth Washes
	Throat Paints
	Douches
Elixirs	Nasak Eye drops and Sprays
	Liniments
	Lotions

b. Biphasic Liquid Dosage Forms:

(i) Suspensions (elementary Study):

Suspensions containing diffusible solids and liquids and their preparation. Study of the adjuvants used like thickening agents, wetting agents, their necessity nd quantity to be incorporated.

Suspensions of precipitate forming liquids like tinctures, their preparation and stability. suspensions produced by chemical relation. An introduction to flocculated/non-flocculated suspension system.

(ii) Emulsions:

Types of emulsions, identification of emulsion system, formulation of emulsions, selection of emulsifying agents. Instabilities in emulsions. Preservation of emulsions.

(iii) Semi-Solid Dosage Forms:

(a) Qintments:

Types of ointments, Classification and selection of dermatological vehicles. Preparation and stability of ointments by the following processes :

(i) Trituration

(ii) Fusion
(iii) Chemical reaction
(iv) Emulsification

(b) Pastes:

Differences between ointments and pastes, Bases of pastes. Preparation of pastes and their preservation.

(c) Jellies:

An introduction to the differnt types of jellies and their preparation.

(d) An elementary study of poultice.

(e) Suppositories and Pressaries - Their relatives merits and demerits, Types of suppositories, suppository bases, classification ,properties, preparation and packing of suppositories.Use of suppositories for drug absorption.

(iv) Dental and Cosmetic Preparations:

Introduction to Dentrifices, Facial cosmetics, Deodornats, Antoperspirants, Shampoos, Hair dressings and Hair removers.

(v) Sterile Dosage Forms:

(a) Parenteral Dosage Forms:

Definition, General requirements for parenteral, dosage forms. Types of parenteral formulations, vehicles, adjuvants, processing, personnel, facilities and quality control. Preparation of Intravenous fluids and admixtures- Total parenteral nutrition, Dialysis fluids.

(b) Sterility testing, Particulate matter monitoring faulty seals packaging.

(c) Orhthalmic Products:

Study of essential characteristics of different ophthalmic preparation. Formulation additives/special precautions in handling and storage of ophthalmic products.

PHARMACEUTICS-II

List of Practical

Dispensing of at least 100 products covering a wide range of preparation such as mixtures, emulsions, lotions, liniments, E.N.T. preparation, ointments, suppositories, powders, incompatible prescription etc.

Books Recommended :(Latest Editions)

1. Indian Pharmacopoeia.
2. British Pharmacopoeia.
3. National Formularies (N. F. I., B. N. F.)
4. Remington's Pharmaceutical Sciences.
5. Martindale's Extra Pharmacopoeia.

4.2 DRUG STORE AND BUSINESS MANAGEMENT

PART - I COMMERCE

1. INTROCUTION:

   Trade, Industry and Commerce, Functions and subdivision of Commerce, Introduction to Elements of Economic and Management.

2. Forms of Business organisations.

3. Channels of Distribution.

4. DRUG HOUSE MANAGEMENT:

   Selection of site, Space Lay-out and legal requirements.

   Importance and objectives of Purchasing selection of suppliers, Cerdit information, Tenders, Contracts and Price determination and legal requirements thereto.

   Codification, Handling of drugs stores and other hospital supplies.

5. INVENTROY CONTRL:

   Objective and importance, Modern techniques like ABC, VED analysis, the lead time, Inventry carrying cost, Safety stock, Minimum and maximum stck levels, Economic order quantity, Scrap and surplus disposed.

6. Sales promotion, Market Research, Salesmanship, Quality of a saleman, Advertising and Window Display.

7. Recruitment, Training, Evaluation and Compensation of pharmacits.

8. BANKING AND FINANCE:

   Service and functions of bank, Finance Planning and sources of finance.

   PART -II ACCOUNTANCY:

1. Introduction to the accounting concepts and conventions, Double entry, Book keeping, Different kinds of accounts.

2. Cash Book.

3. General Ledger and Trail Balance Sheet.

4. Profit and Loss Account and Balance Sheet.

5. Simple techniques of analysing financial statements.

6. Introduction to Budgetting.

BOOKS RECOMMENDED (Latest Editions)

1. Remingtion Pharmaceutical Sciences.

4.3 PHARMACEUTICAL JURISPRUDENCE

1. Origin and nature of Pharmaceutical legislation in India, its scope and objectives. Evolution of "Concept of Pharmacy" as an integral part of the Health Care System.

2. Principles and significance of Professional Ethics. Critical study of the code of Pharmaceutical Ethics Drafted by Pharmacy Council of India.

3. Pharmacy Act, 1948 - The General study of the Pharmacy Act with special reference to Eduction Regulations, working of State and Central Councils, constitution of these councils and functions. Registration procedures under the Act.

4. The Drugs and Cosmetics Act 1940 - General study of the Drugs and Cosmetics Act and the Rules thereunder. Definitions and salient features related to retail and whole sale distribution of drugs. The powers of Inspectiors, the sampling procedures and the procedures and formalitics i ontaining licances under the rule. Facilities to be provided for running a Pharmacy effectively. General study of the schedules with special reference to schedules C,C1,F,G,J,H,P and X and salient features of lanelling and storage conditions of drugs.

5. The Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954 - General study of the Act, objectives special reference to be laid on Advertisements, Magic remedies and objectionable and permitted advertisements - diseases which can not be claimed to be cured.

6. Narcotic Drugs and Psychotropic Substances Act, 1985 - A brief study of the act with special reference to its objectives, offences and punishment.

7. Brief introduction to the study of the following acts :

   (i) Latest Drugs (Price Control) Order in force.

   (ii) Poisons Act, 1919 (as amended to date).

   (iii) Medicinal and Toilet Preparations (Excise Duties) Act, 1955 (as amended to date).

   (iv) Medical Termination of Pregnancy Act, 1971 (as amended to date).

BOOKS RECOMMENDED (Latest Editions)

Bore Acts of the said publised by the Government.

APPENDIX-B
(See Regulation-9)

CANDIDATE TO BE FULFILLED BY THE ACADEMIC TRAINING INSTITUTION

Any authority in India applying to the Pharmacy Council of India for approval of courses of study for Pharmacists under sub-section (1) of section 12 of the Pharmacy Act, 1948 shall provide.

(A) ACCOMMODATION:

Suitable and sufficient accommodation with adequate ventilation lighting and other hygienic conditions should be provided to the rooms for Principal/Head of the department, office, class room, linrary, staff commom room, students common room, meseum stores etc.

As least four laboratories specified below should ne provided for :

1. Pharcaceuties Lab.
2. Pharm. Chemistry Lab.
3. Physiology, Pharmacology and Pharmacognosy Lab.
4. Bio-chemistry, Clinical Pathology, Hospital and Clinical Pharmacy Lab.

In addition to the Laboratories, Balance room, Aseptic room or Cabinet, Animal house, A machine room are also to be provided for.

Floor area of the laboratory should not be less than 30 square feet per student required to work in the laboratory at any given time subject to minimumof 500 square feet.

Laboratories should be fitted and constructed in a manner that these can be kept reasonably clean. Gas and water fittings, Shelves, Fume cupboards be provided wherever necessary.

(B)STAFF:

Principal/Director/Head of the Department may be engaged in teaching upto Eight hours a week, and the work load of other teaching staff should not be more than 16 hours per week.

Staff student ratio should not exceed 1:60 in theory classes and 1:20 in practical classes. There should be two teachers for a batch of 30 students in practicals.

According to the above norms, the following staff is required for an intake of 60 students :

He may also work as Principal or Head of the Department, as the case may be

*	Professor/Reader	One
	Senior Lectures/Lectures	Seven

* He may also work as principal or Head of the department, as the case may be.

The minimum qualifications of the Principal/Director/Head of the Institution/Department and the teachers be as given below.

Principal/Director/Head of Institution/Department (Professor/Reader)	Basic degree in Pharmacy and Post graduate in any dicipline of pharaceutical Science with not less than 5 years experience in teaching.
Lecturer	M. Pharm or B.Pharm with 3 years teaching professional experience.

Provided that the above qualifications shall not apply to the incumbents appointed under the repealed Education Regulations.

According to Pharmacy Council of India Notification No. 14-55/93 (Part-I)/PCI/2447-2981, Dated 28th June 1994

In the said regulations, in appendix-B, in paragarph(B) under the heading Staff, the following entries shall be added namely :

"Lecturer

(1)	Antomy & Physiology	M. Pharm
(2)	Biochemistry & Clinical Pathology	B Pharm with 3 years Teaching/Professional experience or M.B.B.S

The pay scale of teaching staff shall be as prescribed by the all India Council for Teaching Education for teaching staff of Polytechnics from time to time

NON TEACHING STAFF:

List of Non-teaching staff for the D.Phar. Course

1.	Laboratory Technician (Qualification Diploma in Pharmacy)	2
2.	Laboratory Attendent	4
3.	Office Superintendent	1
4.	Clerk Cum Accountant	1
5.	Store Keeper	1
6.	Typist	1
7.	Asstt. Librarian	1
8.	Peons	2
9.	Cleaners/Sweepers	4
10.	Gardener	1

1. LIST OF EQUIPMENTS FOR

PHARMACEUTIES LABORATORY

S.No.	Speical Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
1.	Continuous Hot Extraction Equipment	5	10
2.	Conical Percolators	20	40
3.	Tincture Press	1	1
4.	Hand Grinding Mill	5	5
5.	Disintegraton	1	1
6.	Ball Mill	1	1
7.	Hand Operated Tablet Machines	3	3
8.	Tablet Coating Pan Unit with Hot Air Blower Labora-tory size.	1	1
9.	Polishing Pan Laboratory Size	1	1
10.	Tablet Hardness Tester (Mansato Type)	3	3
11.	Tablet Hardness Tester (Pfizer Type)	3	3
12.	Disintegration Test Unit	2	2
13.	Dissolution Rate Test Apparatus	1	1
14.	Granulating Sieve Sets	20	40
15.	Tablet Counter Small Size	5	5
16.	Friability Tester	1	1
17.	Collapsible Tube Filling and Sealing Equipments	2	2
18.	Capsule Filling Machine (Laboratory Size)	2	2

S.No.	Speical Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
19.	Prescription Balance	40	60
20.	Balance Torsion Type with Removable Glass Pan Sansitivity water.	5	5
21.	Distillation equipment for distilled water	2	2
22.	Water deionization Unit	1	2
23.	All glass distillation unit for making water for injection	2	4
24.	Ampoule Washing machine	1	1
25.	Ampoule Filling and Sealing Machine.	1	1
26.	Sintered Glass Filters for (4 Different Grades) Bacteria Proof Filtration.	20 Each Grades	20 Each Grades
27.	Millipore Filters 3 Grades	2 Each Grades	2 Each Grades
28.	Autoclaves	2	2
29.	Pressure Cookers	5	10
30.	Hot Air Sterlizer	2	3
31.	Incubators	2	2
32.	Aseptic Cabinet	2	3
33.	Rabbit Cages and Holders	10	10
34.	Amposule Clarity Test Equipments	2	2
35.	Blender	2	3
36.	Sieves Set (Pharmacopoeial Standard)	10	10
37.	Laboratory Centrifuge	2	3
38.	Ointment Slabs	40	40

S.No.	Speical Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
39.	Ointment Spatulas	40	40
40.	Pestle and Mortar (Porcelain)	40	40
41.	Pestle and Mortar (Glass)	10	10
42.	Suppository Moulds of 3 Size.	20 Each	20 Each
43.	Refrigerator	1	1
B.	General Glassware	Adequate	Adequate
C.	Chemical,Appliances and Laboratory Facilities	Adequate	Adequate

2. LIST OF EQUIPMENTS FOR

PHARMACEUTICAL CHEMISTRY LABORATORY

S.No.	Speical Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
1.	Refractometer	1	1
2.	Polarimeter	1	1
3.	Photo Electric Colorimeter	1	1
4.	PH meter	2	2
5.	Atomic Model Sets	10	10
6.	Analytical Balance and weight box sets	10	15
7.	Physical Balance and Weight Box	5	5
8.	Platform Balance	2	2
9.	Periodic Table Chart	2	2
B.	General Glassware	Adequate	Adequate
C.	Misc.,Appliances,Chemical and Laboratory Facilities	Adequate	Adequate

3. LIST OF EQUIPMENTS FOR PHYSIOLOGY/PHARMACOLOGY LABORATORY

S.No.	Speical Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
1.	Haemoglobinometer	20	30
2.	Haemocytometer	10	20
3.	Student's Organ Bath	5	10
4.	Sherrigngton Ratating Drum	5	10
5.	Frog Boards	10	20
6.	Trays (dissecting)	10	10
7.	Frontal Writing Levers	15	30
8.	Aeration Tube	20	40
9.	Telethermometer	1	2
10.	Pole Climbing Apparatus	1	2
11.	Histamine Chamber	1	2
12.	Simple Levers	15	30
13.	Starling Heart Levers	10	20
14.	ECG Machine		
15.	Aerators	5	10
16.	Histological Slides	25	25
17.	Sphygmomanometer (B.P. Appratus)	5	5
18.	Stethoscope	5	5
19.	First Aid Equipments	5 Sets	5 Sets
20.	Contraceptive Device	5 Sets	5 Sets
21.	Dissecting (Surgical) Instruments	20 Sets	30 Sets
22.	Operation table (Small)	2	2
23.	Balance For Weighting Small Animals	1	2

S.No.	Speical Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
24.	Kymograph Paper	Adequate	Adequate
25.	Activity Cage (Actophotometer)	1	1
26.	Analgesiometer	1	1
27.	Thermometers	20	20
28.	Distilled Water Stills	2	2
29.	Plastic Anamal Cages	10	10
30.	Double Unit Organ Bath With Thermostat	1	1
31.	Refrigerator	1	1
32.	Single Pan Balance	1	1
33.	Charts	Adequate	Adequate
34.	Human Skelton	1	1
35.	Anatomical Specimen (Heart Brain, Eye, Ear, Reproductive System etc.)	1 Set	1 Set
36.	Electro-Convulsometer	1	1
37.	Stop Watches	10	10
38.	Clamp, Bossheads, Screw Clips	Adequate	Adequate
39.	Symes Cannula	20	40
B.	General Glassware	Adequate	Adequate
C.	Chemical,Appliances and Laboratory Facilities (Neddles, Thread, Plasticin, tubing, Burners,Polythene, Tubes, Syringes etc.)	Adequate	Adequate

4. LIST OF EQUIPMENTS FOR

BIO-CHEMISTRY AND CLINICAL PATHOLOGY LABORATORY

S.No.	Speical Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
1.	Colorimeter	2	2
2.	Microscopes	20	20
3.	Permanent Sliders (Skin, Kidney, Pancreas, Smoothmuscle, Liver etc.)	Adequate	Adequate
4.	Watch Glasses	25	50
5.	Centrifuge	1	1
6.	Microscope with oil immersion	5	5
B.	General Glass Ware	Adequate	Adequate
C.	Bio-Chemical Reagents for analysis of normal and Pathological Constituents of Urine and Blood and Facilities.	Adequate	Adequate

5. LIST OF EQUIPMENTS FOR

PHARMACOGNOSY LABORATORY

S.No.	Speical Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
1.	Dissecting Microscope	20	20
2.	Charts (Different Types)	100	100
3.	Models (Different Types)	50	50
4.	Permanent Slides	100	100
5.	Slides and Cover Slips	Adequate	Adequate
B.	General Glassware	Adequate	Adequate
C.	Misc.,Appliances,Chemical and Laboratory Facilities	Adequate	Adequate

6. LIST OF EQUIPMENTS FOR HOSPITAL AND CLINICAL PHARMACY PRACTICE LABS

S.No.	Equipments & Instruments	Quantity
1.	Water Still	1
2.	Mixing Vat With Stirrer	2
3.	Filtration Equipment	2
4.	Filling Machine	1
5.	Sealing Machine	1
6.	Autoclave Sterilizer	1
7.	Mombrane Filter	1 Unit
8.	Sintered Glass Funnel with Complete Filtering Assembly.	10 Units
9.	Small Glass Funnel With Filters for IV Admixture Filtration.	Adequate
10.	Laminar Air Flow Bench	1
11.	Vacuum Pump	1
12.	Ovens	2
13.	Surgical Dressing	2
14.	Incubator	1
15.	Karl Fischer Apparatus for Moisture Content determination.	1
16.	Flame Photometer	1
17.	PH Meter	1
18.	Dissolution Apparatus	1
19.	Disintegration Test Apparatus	1
20.	Hardness Tester	1
21.	Centrifuge	1
22.	Magnetic Stirrer	1
23.	Thermostatic Bath	1
24.	Experimental Animals	Adequate

7. LIST OF EQUIPMENTS FOR EQUIPMENTS

S.No.	Equipments & Instruments	No. of Required 60 Students	No. of Required 120 Students
1.	Distilled Water Still	2	2
2.	Vacuum Pump	2	3
3.	Refrigerator	1	2
4.	General Filling Equipments For the Museum	Adequate	Adequate
5.	Compound Microscopes	20	20
6.	Oil Immersion Microscope	1	2
7.	Over Head Projector	1	1
8.	Slide Cum Strip Projector	1	1
9.	Projection Screen	1	1

MUSEUM

Every institution shall maintain a museum of Crude drugs, Harbarium sheets, Botanical specimens of the frugs and plants mentioned in the course. In addition, the following are recommended -

1. Coloured Slides of Medicinal Plants,
2. Display of polular patent medicines and
3. Containers of common usage in medicines.

LIBRARY

Every institution shall maintain a Library which should contain books mentioned in the syllabus and also the current Pharmaceutical journals. there should be adequate place in the library for students and staff to refer books.

NOTE:

The above requirements are the minumum requirements and the institute is free to provide more physical and teaching facility.

APPENDIX-C
(See Regulation 18)

CANDIDATE TO BE FULFILLED BY THE EXAMINING AUTHORITY

1. The Examining Authority shall be either a statutory Indian university or a body constituted by the Central or State Government. It shall ensure that discipline and decorum of the examinations are Strictly observed at the examination centres.
2. It shall permit the Inspector or Inspectors of the Pharmacy Council of India to visit and inspect the examinations.

3. It shall provide :

   (a) Adequate rooms with necessary furniture for holding written examinations;
   (b) Well equipped laboratories for holding practical examinations;
   (c) An adequate number of qualified and responsible examiner and staff to conduct and invigilate the examinations; and
   (d) Such other facilities as may be necessary for efficient and proper conduct of examinations.

4. It shall, if so required by a candidate, furnish the statement of marks secured by a candidate in the examinations agter payment of prescribed fee, if any the Examining Authority.
5. It shall appoint examiners whose qualification should ne similar to those of the teachers in the respective subject as shown in Appendix-B.
6. In pursuance of sub section(3) of section 12 of the Pharmacy Act, 1948, the Examining Authority shall communicate to the Secretary, Pharmacy Council of India not less than six weeks in advance the dates fixed for examinations, the time table for such examinations, so as to enable the Council to arrange for inspection of the examinations.

According to Pharmacy Council of India Notification No. 14-55/93 (Part-I)/PCI/2447-2981, Dated 28th June 1994

In the said regulations in Appendix-C after paragrph 6 the following paragraph shall be added namely :-

7. The Chairman and at least one expert member of examining committee of the Examining Authority Concern with appointment of examiners and conduct possessing pharmacy qualifications

Signature

(Devinder K. Jain)
Secretary-cum-Registrar

APPENDIX-D
(See Regulation 20(3))

CONDITIONS TO BE FULFILLED BY THE INSTITUTIONS TO BE RECOGNISED FOR GIVING PRACTICAL TRAINING

1. The institution, where practical training is given to student Pharmacists, Shall from time to time, if required, furnish such information as may be needed by the Pharmacy Council of India about the staff, accommodation and equipement of the institution concerned and its working.

2. The Institution shall permit the Inspectors of the Pharmacy Council of India to inspect the premises at any reasonable time while the work is proceding therein.

3. The institution shall entrust some member or members of its staff, who shall be registered Pharmacist (s), to look after the student pharmacists. Such members of the staff shall be responsible in this behalf to the Head of the Institution concern.

4. The Institution shall provide such opportunity, accommodation, apparatus, materials and books of reference as may be required to enable the student pharmacists to undergo the practical training properly.

5. The number of student pharmacists that may be taken in any Hospital, Pharmacy, Chemist and Druggist and a drugs manufacturer licensed under the Drugs and Cosmetics Rules, 1945 made under the Drug and Cosmetics Act 1940 shall not exceed two where there is one registered pharmacist engaged in the working in which the student pharmacist is undergoing practical training; where the number shall not exceed one for each additional such register pharmacist.

6. The Institution wishing to be recognised under regulation 20 shall apply in writing to the Secretary, Pharmacy Council of India stating ists desire, to be so recognised.

7. Having satisfied that the institution shall follow the conditions laid down in these rules, the Pharmacy Council of India shall grant such recongnition.

8. In the event of any question arising as to the interpretation or observance of these ccoditions the decision of the Pharmacy Council of India shall be final.

APPENDIX-E
(See Regulation 21(I))

PRACTICAL TRAINING CONTRACT FORM FOR PHARMACISTS

SECTION-I

This form has been issued _____

(Name of Student Pharmacist)

Son of/Daughter of _____ residing at _____ who has produced evidence before me that he/she is entitled to receive the Practical Training as set out in the Education Regulations framed Under Section 10 of the Pharmacy Act, 1948.

DATE : The Head of the Academic Training Institution

SECTION-II

I _____ accept
(Name of Student Pharmacist)

_____ of _____
(Name of Apprentice Master) (Name of Institution)

_____

(Hospital or Pharmacy) as my Apprentice Master for the above training and agree to obey and respect him/her during the entire period of my training.

_____
(Student Pharmacist)

SECTION-III

I, _____ accept
(Name of the Apprentice Master)

_____ as a
(Name of the Student Pharmacist)

trainee and I agree to give him/her training facilities in my organisation so that during his/her training he/she may acquire :-

1. Working knowledge of keeping of records required by the various Acts affecting the profession of pharmacy; and
2. Practical experience in -

(i) The manupulation of Pharmaceutical apparatus in common use;

(ii) The reading, translation and copying of prescription including the checking of doses'

(iii) The dispensing of prescriptions illustrating the commoner methods of administering medicaments; and

(iv) The storage of drugs and medicinal preparations.

I also agree that Registered Pharmacist shall be assigned for his/her guidance.

(Apprentice Master)
(Name & Address of the Institution)

SECTION-IV

I certify that _____ has
(Name of student Pharmacist)

undergone _____ hours training spread over _____ _____ months in accordance with the details enumerated in Section-III

_____

(Head of the organisation or
Pharmaceutical Division)

SECTION-V

I certify that _____ has
(Name of student Pharmacist)

completed in all respect his practical training under regulation 20 of the Education Regulations framed under section 10 of the Pharmacy Act, 1948. He had his practical training in an Institution approved by Pharmacy Council of India.

Date : _____

(Head of the Academic Institution)