



PHARMACY COUNCIL OF INDIA

(Constituted under the Pharmacy Act, 1948)

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NEW DELHI - 110 020

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23 SEP 2021

To

- All institutions approved for D.Pharm Course.
- All State Governments (Technical Education and Health Departments) and admission making authorities.
- All Examining Authorities.

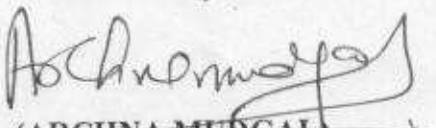
Sub: "Syllabus framed under Regulation 7, List of prescribed equipments and apparatus under Appendix-A of The Education Regulations, 2020 for Diploma Course in Pharmacy."

Sir/Madam

With reference to the subject cited above, it is informed that -

- With due approval of the Ministry of Health and Family Welfare, Government of India, PCI has notified the Education Regulations, 2020 for Diploma course in Pharmacy in the Gazette of India, Extraordinary No. 435, Part-III, Section-4, dt.16.10.2020.
- As empowered under regulation 7 and Appendix-A of ER-20, the PCI has framed the syllabus. A copy of the same titled as under is enclosed as **Annexure-I**.
"Syllabus framed under Regulation 7, List of prescribed equipments and apparatus under Appendix-A of The Education Regulations, 2020 for Diploma Course in Pharmacy."
- It is for implementation and strict compliance from 2021-2022 academic session.

Yours faithfully


(ARCHANA MUDGAL)
Registrar-cum-Secretary



Annexure - I

Pharmacy Council of India New Delhi

“Syllabus framed under Regulation 7, List of prescribed equipment’s and apparatus under Appendix-A of The Education Regulations, 2020 For Diploma Course in Pharmacy”

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Study and report the local anaesthetic, mydriatic and mitotic effects of the given drug on the rabbit eye
2. Choose appropriate animal experiment model to study the effects of the given drugs acting on the central nervous system and submit the report
3. Perform the effects of given tissues (simulated) on isolated organs / tissues and interpret the results
4. Interpret the dose dependent responses of drugs in various animal experiment models


Practical’s

Introduction to the following topics pertaining to the experimental pharmacology have to be discussed and documented in the practical manuals.

1. Introduction to experimental pharmacology

2. Study of laboratory animals
(a) Mice; (b) Rats; (c) Guinea pigs; (d) Rabbits
3. Commonly used instruments in experimental pharmacology
4. Different routes of administration of drugs in animals
5. Types of pre-clinical experiments: In-Vivo, In-Vitro, Ex-Vivo, etc.
6. Techniques of blood collection from animals

Experiments

Note: Animals shall not be used for doing / demonstrating any of the experiments given. The given experiments shall be carried- out / demonstrated as the case may be, ONLY with the use of software program(s) such as 'Ex Pharm' or any other suitable software 

1. Study of local anaesthetics on rabbit eye
2. Study of Mydriatic effect on rabbit eye
3. Study of Miotic effect on rabbit eye
4. Effect of analgesics using Analgesiometer
5. Study of analgesic activity by writhing test
6. Screening of anti-convulsant using Electro Convulsimeter
7. Screening of Muscle relaxants using Rota-Rod apparatus
8. Screening of CNS stimulants and depressants using Actophotometer
9. Study of anxiolytic activity using elevated plus maze method
10. Study of effect of drugs (any 2) on isolated heart
11. Effect of drugs on ciliary motility on frog's buccal cavity
12. Pyrogen testing by rabbit method

Ex Pharm – Software

Trade Mark Registration Number - 2967042

List of Experiments

01. Experiment on effects of various drugs (Mydriatic, Miotic and Local Anaesthetic) on rabbit's eye.

- Epinephrine
- Atropine
- Ephedrine
- Physostigmine
- Lignocaine

02. Study of Analgesic activity with the help of "Tail Flick Apparatus" (Analgesiometer).

03. Study of Analgesic activity with the help of "Hot Plate Apparatus" (Analgesiometer).

04. To study analgesic activity by writhing test.
05. Study of Antihistaminic drugs/Anti allergic drugs by mast cell stabilization method with help of "Histamine Chamber"
06. Study of Muscle Relaxant activity with the help of "Rota-Rod Apparatus".
- 07 Study of CNS Depressants & Stimulants Using "Actophotometer".
08. Study of Drugs acting on CNS (Including Anxiolytic Activity) using following modules
 - Elevated Plus Maze Method
 - Pole Climbing Method
09. Study of anticonvulsant activity using "Electro Convulsimeter".
10. To study PTZ induced convulsions in mice
11. Study of effect of hepatic microsomal enzyme inducers on the phenobarbitone sleeping time in mice.
12. To study the action of strychnine/ anaesthetic on frog neurons (excitability).
13. Simulation of pupil control
 - Simulation of the effects of the physiological stimuli and drugs on the papillary reflexes.
 - Simulation of the control in patient with partial parasympathectomy.
14. Test for pyrogens using rabbits.
15. Effect of drugs on isolated guinea pig ileum (in-vitro).
16. To study respiratory depression effect on rabbit.
17. Study of stereotype and anti-catatonic activity of drugs on mice.
18. Experiments on thyroid and antithyroid drugs
 - The effect of thyroxin, TSH, propylthiouracil, on metabolism.
19. Experiments on blood sugar
 - The effect of insulin (hypoglycemic activity) and alloxan on blood glucose.
20. Study of anti-inflammatory activity using carrageenan induced paw oedema method
21. Study of diuretic activity using metabolic cage
22. Experiment on Effect of various drugs on Isolated Frog's Heart. (DRC- Dose Response Curve)
 - Epinephrine
 - Norepinephrine
 - Isoprenaline
 - Calcium Chloride
 - Propranolol
 - Acetylcholine
 - Potassium chloride
 - Atropine sulphate
23. Experiments on effect of different drugs on dog BP & heart rate.
 1. Virtual Practice- Effects of drugs on the dog BP and Heart Rate.
 2. Effects of Vasopressor and Vasodepressor with appropriate blockers.
 - a. Virtual Practice- Reversal action of adrenaline on blood pressure and heart rate.

b. Virtual Practice- Reversal action of acetylcholine on blood pressure and heart rate.

24. Experiments on Legendorff's Apparatus

- Effect of coronary vasodilators on isolated heart
- Effect of parasympathomimetics

25. Experiment on Bioassay of Histamine on the Ileum of Guinea Pig.

26. Bioassay of Acetylcholine on the isolated rectus abdominis muscle of frog

(a) By Matching Method, (b) By Interpolation Method, (c) By 3 Point Method, (d) By 4 Point Method.

27. Bioassay of oxytocin on the isolated rat uterine horn by following methods

(a) By Matching Method, (b) By Interpolation Method, (c) By 3 Point Method, (d) By 4 Point Method.

28. Bioassay of serotonin on the isolated rat fundus strip by following methods

(a) By Matching Method, (b) By Interpolation Method, (c) By 3 Point Method, (d) By 4 Point Method.

29. To record the DRC and to determine the PD₂ value for acetylcholine on frog rectus abdominis muscle.

30. Study of anti-ulcer activity - using pylorus ligation method.

31. Evaluation of effect of acetylcholine (spasmogens) using rabbit jejunum

32. Evaluation of effect of different drugs on ciliary motility.

33. Evaluation of effect of saline purgatives on frog intestine.

34. Determination of acute irritation of a test substance.

- Skin irritation (Including edema formation)
- Eye irritation

*** Examination mode will also be provided for modules.**

With the above mentioned list of Interactive Software Experiments, Modules will also be provided for following Study of different routes of drugs administration in mice/rats.

Common laboratory techniques of blood withdrawal, anaesthesia and euthanasia.
