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# **STUDENT HAND BOOK**

**BACHELOR OF Pharmacy**

**SEMESTER-6th**

**STUDY SCHEME-2015 onwards**

**DEPARTMENT OF  
PHARMACY**

**SWAMI VIVEKANAND  
COLLEGE OF  
PHARMACY,  
BANUR**

## STUDY SCHEME

Course Code	Course Name	L+T	P	Total Marks	
				Internal Marks	External Marks
EVSC 101	Environmental Science-	2+1	-	20	80
BPHM 601	Pharmaceutical Chemistry-VI (Medicinal Chemistry-I)	3+1	-	20	80
BPHM 602	Pharmaceutical Jurisprudence & ethics	2+1	-	20	80
BPHM 603	Pharmacology-II	3+1	-	20	80
BPHM 604	Pharmacognosy-V	2+1	-	20	80
BPHM 605	Pharmaceutical Microbiology	2+1	-	20	80
BPHM 606	Lab Pharmaceutical Chemistry-VI (Medicinal Chemistry-I)	-	3	20	80
BPHM 607	Lab Pharmacology-II	-	3	20	80
BPHM 608	Lab Pharmacognosy-V	-	3	20	80
BPHM 609	Lab Pharmaceutical Microbiology	-	3	20	80
	Total	20	12	200	800
	Grand Total	32H/W		1000	

**Author By:**

**Dr. Rahul Mishra (Principal)**

**Ms.. Sonia Pahuja (HOD)**

**DEPARTMENT OF PHARMACY**

**Department Teachers**

S. No.	Name of Teacher	Contact no.	Email-id
1.	Dr. Rahul Mishra (Principal)	8556001839	Principal.svcpl@gmail.com
2.	Ms. Sonia Pahuja (HOD)	9815613484	hodsvcp@sviet.ac.in
3.	Ms. Rupinder Kaur (A.P)	8872286999	Rupinderpharma1@gmail.com
4.	Ms.Prabhjot Kaur (A.P)	9780674548	Prabhjotk600@gmail.com
5.	Ms. Meenakshi Rana (A.P)	9459208218	Meenakshi87rana@gmail.com
6.	Ms. Chetna Kumari (A.P)	8376072089	Chetna.hemrajani@gmail.com
7.	Ms. Tripta Kumari (A.P)	9459570690	Triptasankhyan975@gmail.com
8.	Ms.Pratibha (AP)		-
9.	Mr. Varinder Singh ( Lab Technician)	7307303941	Svcparinder666@gmail.com
10.	Ms. Dinky Sharma ( Lab Technician)	8264816035	-
11.	Mr.Balvir Singh (Lab Technician)	9779758797	Sonumehmi988@gmail.com

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### Subject Teachers 6<sup>th</sup> Semester

S. No.	Name of Subject	Subject code	Subject Teachers name
1	Environmental Science	EVSC101	Ms. Tripta Kumari
2	Pharmaceutical Chemistry-VI (Medicinal Chemistry-I)	BPHM601	Ms. Prabhjot Kaur
3	Pharmaceutical Jurisprudence & ethics	BPHM602	Ms. Meenakshi Rana
4	Pharmacology-II	BPHM603	Dr. Rahul Mishra
5	Pharmacognosy-V	BPHM604	Ms. Rupinder Kaur
6	Pharmaceutical Microbiology	BPHM605	Ms. Chetna Kumari
7	Lab Pharmaceutical Chemistry-VI (Medicinal Chemistry-I)	BPHM606	Ms. Prabhjot Kaur
8	Lab Pharmacology-II	BPHM607	Dr. Rahul Mishra
9	Lab Pharmacognosy-V	BPHM608	Ms. Rupinder Kaur
10	Lab Pharmaceutical Microbiology	BPHM609	Ms. Chetna Kumari



### Whom to contact

S. No	Designation	Contact	Email ID
1.	Principal	7837300487	principal@sviet.ac.in
2.	HOD	9780909343	hodecivil@sviet.ac.in
3.	Hostel warden boys	6280553594	hostel_warden@sviet.ac.in
4.	Hostel warden girls	7837300466	-
5.	Transport In-In-charge	9988071324	transport.svgoi2018@gmail.com
6.	Student Section	9914254488	registrar@sviet.ac.in
7.	Admission Cell	9465233333	admission4@sviet.ac.in
8.	Accounts	7837300469	finance@sviet.ac.in

**Important Links to follow:**

**Purpose**

**Website Links**

- |  |                                 |
|--|---------------------------------|
| <input type="checkbox"/> <a href="http://www.mrsptu.ac.in/">http://www.mrsptu.ac.in/</a>               | University Related Information  |
| <input type="checkbox"/> <a href="http://www.mrsstueexam.com/">http://www.mrsstueexam.com/</a>         | Examination Related Information |
| <input type="checkbox"/> <a href="http://sviet.ac.in/">http://sviet.ac.in/</a>                         | College Website                 |
| <input type="checkbox"/> <a href="http://nptel.ac.in/">http://nptel.ac.in/</a>                         | Study Material Related          |
| <input type="checkbox"/> <a href="http://www.allsubjects4you.com/">http://www.allsubjects4you.com/</a> | Old Question Papers Related     |



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**B.Pharm VI<sup>th</sup> Sem**

**EVSC 101  
Environmental Science**

Sub. Code	Subject	L+T
EVSC 101	Environmental Science	2+1

**Objective/s and Expected outcome:**

Upon successful completion of the course, students should be able to:

1. Measure environmental variables and interpret results
2. Evaluate local, regional and global environmental topics related to resource use and management
3. Propose solutions to environmental problems related to resource use and management
4. Interpret the results of scientific studies of environmental problems
5. Describe threats to global biodiversity, their implications and potential solutions

**SECTION-A**

**Introduction:** Definition and scope and importance of multidisciplinary nature of environment. Need for public awareness.

(2)

**Natural Resources:** Natural Resources and associated problems, use and over exploitation, case studies of forest resources and water resources.

(4)

**Ecosystems:** Concept of Ecosystem, Structure, interrelationship, producers, consumers and decomposers, ecological pyramids-biodiversity and importance. Hot spots of biodiversity

(4)

**Environmental Pollution:** Definition, Causes, effects and control measures of air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards. Solid waste Management: Causes, effects and control measure of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster Management : Floods, earthquake, cyclone and landslides.

(5)

## SECTION-B

**Social Issues and the Environment** From Unsustainable to Sustainable development,

Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Resettlement and rehabilitation of people; its problems and concerns. Case studies. Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies. Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of pollution) Act. Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation  
Public awareness

(5)

Human Population and the Environment, Population growth, variation among nations. Population explosion – Family Welfare Programme. Environment and human health, Human Rights, Value Education, HIV/AIDS. Women and child Welfare. Role of Information Technology in Environment and human health. Case studies

### **Suggested Readings/ Books:**

1. Agarwal, K.C. 2001. Environment Biology, Nidi Publ. Ltd. Bikaner.
2. Jadhav, H & Bhosale, V.M. 1995. Environment Protection and Laws. Himalaya Pub House, Delhi 284p.
3. Rao M. N. & Datta A.K. 1987. Waste Water Treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345 p.
4. Principle of Environment Science by Cunningham, W.P.
5. Essentials of Environment Science by Joseph.
6. Environment Pollution Control Engineering by Rao, C.S.
7. Perspectives in Environmental Studies by Kaushik, A.
8. Elements of Environment Science & Engineering by Meenakshi.



**BPHM 601**  
**Pharmaceutical Chemistry-VI (Medicinal Chemistry-I)**

Sub. Code	Subject	L+T
<b>BPHM 601</b>	<b>Pharmaceutical Chemistry-VI (Medicinal Chemistry-I)</b>	<b>3+1</b>

**Module 01**

Physicochemical and Stereochemical aspects of drugs including bioisosterism in relation to biological activity, Drug-Receptor interaction.

**Module 02**

Conventional methods of drug design, Lead, Discovery of Lead, lead optimization  
Vitamins: Water soluble and fat soluble vitamins

**Module 03**

Introduction, Structure, Stereochemistry, Nomenclature, Synthesis of specified drugs (given in parenthesis), mode of action, Structure Activity Relationships (if any) uses and Physicochemical properties of the following classes of drugs: Adrenergic hormones and drugs including biosynthesis, storage, release and metabolism of Catecholamine (Isoprenaline, Adrenaline, Salbutanol).

**Module 04**

Introduction, Structure, Stereochemistry, Nomenclature, Synthesis of specified drugs (given in parenthesis), mode of action, Structure Activity Relationships (if any) uses and Physicochemical properties of the following classes of drugs: Cholinergic and Anticholinesterases including biosynthesis, storage, release and metabolism of acetylcholine (Neostigmine bromide, Pyridostigmine Bromide)

**Module 05**

Introduction, Structure, Stereochemistry, Nomenclature, Synthesis of specified drugs (given in parenthesis), mode of action, Structure Activity Relationships (if any) uses and Physicochemical properties of the following classes of drugs: Antispasmodic and Antiulcer drugs (Propranolol hydrochloride, Dicyclomine hydrochloride) Antiparkinsonism drugs (Apomorphine).

### **Module 06**

Introduction, Structure, Stereochemistry, Nomenclature, Synthesis of specified drugs (given in parenthesis), mode of action, Structure Activity Relationships (if any) uses and Physicochemical properties of the following classes of drugs: Neuromuscular blocking agents (Succinylcholine chloride, Gallamine triethiodide). Prostaglandins and other Eicosanoids: Nomenclature, biosynthesis and biological activity

### **Module 07**

Introduction, Structure, Stereochemistry, Nomenclature, Synthesis of specified drugs (given in parenthesis), mode of action, Structure Activity Relationships (if any) uses and Physicochemical properties of the following classes of drugs: Antihistamines including Sodium Cromoglycate (Chlorpheniramine).

### **Module 08**

Introduction, Structure, Stereochemistry, Nomenclature, Synthesis of specified drugs (given in parenthesis), mode of action, Structure Activity Relationships (if any) uses and Physicochemical properties of the following classes of drugs: Analgesic-antipyretics and Non-steroidal Anti-inflammatory agents: (Indomethacin, and Phenylbutazone).

### **Suggested Readings / Books**

1. Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry, Eleventh Edition, edited by J. H. Block and J. M. Beale Jr., Lippincott Williams & Wilkins, Philadelphia, 2004.
2. Foye's, Principles of Medicinal Chemistry, Sixth Edition, Wolters Kluwer (India), Lea & Febiger, Philadelphia, USA, 2008.

3. Hansch, C. Comprehensive medicinal Chem. Vol.IV, Quantitative Drug Design. Pergamom Press, Oxford. 4. Singh, H. and Kapoor, V.K. Medicinal and Pharmaceutical Chemistry, Second Edition Vallabh Prakashan, Delhi,2005



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**BPHM 602**  
**Pharmaceutical Jurisprudence & Ethics**

<b>Sub. Code</b>	<b>Subject</b>	<b>L+T</b>
<b>BPHM 602</b>	<b>Pharmaceutical Jurisprudence &amp; Ethics</b>	<b>2+1</b>

**Module- 01**

**Introduction** a. Pharmaceutical Legislations- A brief review. b. Drugs & Pharmaceutical Industry- A brief review. c. Pharmaceutical Education- A brief review. **BRIEF STUDY OF THE FOLLOWING WITH SPECIAL REFERENCE TO THE MAIN PROVISIONS.**

**Module- 02** Code of Pharmaceutical Ethics Pharmacy Act 1948. Drugs Price Control Order.

**Module- 03** Drugs and Cosmetics Act 1940 and Rules 1945.

**Module- 04** Medicinal & Toilet Preparations (Excise Duties) Act 1955. Narcotic Drugs & Psychotropic Substances Act 1985 & Rules.

**Module- 05** Poisons Act 1919 Drugs and Magic Remedies (Objectionable Advertisements) Act 1954. Medical Termination of Pregnancy Act 1970 & Rules 1975.

**Module- 06** Prevention of Cruelty to Animals Act 1960. States Shops & Establishments Act & Rules. Insecticides Act 1968.

**Module- 07** AICTE Act 1987, Factories Act 1948, Minimum Wages Act 1948 & Patents Act 1970.

**Module- 08**

A brief study of the Various Prescription/Non-prescription Products, Medical / Surgical accessories, Diagnostic aids, appliances available in the market. Note: The teaching of all the above Acts should cover the latest amendments.

**Books Recommended**

1. Jain, N.K.A Textbook of Forensic Pharmacy. Vallabh Prakashan, New Delhi.
2. Mithal, B.M. A Textbook of Forensic Pharmacy. National Book Depot, Kolkatta.
3. Kokate and Gokhale, Textbook of Forensic Pharmacy, 2006, Pharma Book Syndicate, Hyderabad



## BPHM 603 Pharmacology II

Sub. Code	Subject	L+T
BPHM 603	Pharmacology II	3+1

### Module 1:

#### Pharmacology of Cardiovascular System :

Digitalis and cardiac glycosides. Antihypertensive drugs.

### Module 2:

#### Pharmacology of Cardiovascular System :

Antianginal and Vasodilator drugs, including calcium channel blockers and beta adrenergic antagonists. Antihyperlipidemic drugs

### Module 3:

#### Pharmacology of Cardiovascular System :

Antiarrhythmic drugs. Drugs used in the therapy of shock

### Module 4:

#### Drugs Acting on the Hemopoietic System :

Hematinics Anticoagulants, Vitamin K and hemostatic agents. Fibrinolytic and anti-platelet drugs Blood and plasma volume expanders.

### Module 5:

#### Drugs acting on urinary system:

Fluid and electrolyte balance, Diuretics

### Module 6:

#### Autacoids :

5- HT and their antagonists. Prostaglandins, thromboxanes and leukotrienes.

### Module 7:

Histamine, Pentagastrin , Cholecystikin, Angiotensin, Bradykinin and Substance P.

## **Module 8:**

### **Drugs Acting on the Respiratory System:**

Anti-asthmatic drugs including bronchodilators. Anti-tussives and expectorants. Respiratory stimulants.

### **Suggested Readings/ Books:**

1. Goodman Gilman, A., Rall, T.W., Nies, A.I.S. and Taylor, P. Goodman and Gilman's The pharmacological Basis of therapeutics. 11th Ed, 2006. Publisher Mc Graw Hill, Pergamon press.
2. Craig, C.R.&Stitzel, R.E. Modern Pharmacology. Latest edition. Publisher: Little Brown.Co
3. Katzung B.G. Basic & Clinical Pharmacology 4th edt. 2008 Churchill Livingstone New York
4. Tripathi, K. D. Essentials of medical pharmacology. 6th Ed, 2008. Publisher: Jaypee, Delhi.
5. Rang, H.P. & Dale, M.M. Pharmacology. 6th edition, 2007. Publisher: Churchill Living stone.
6. Satoskar, R.S. and Bhadarkar, S.D. Pharmacology and pharmacotherapeutics. 16th edition (single volume), 1999. Publisher: Popular, Dubai.

**BPHM 604**  
**Pharmacognosy – V (Chemistry of Natural Products)**

Sub. Code	Subject	L+T
<b>BPHM 604</b>	<b>Pharmacognosy- V (Chemistry Of Natural Products)</b>	<b>2+1</b>

**Module- 01**

Chemical and spectral approaches to simple molecules of natural origin. Concept of stereoisomerism taking examples of natural products.

**Module- 02**

Chemistry and pharmacological activity of medicinally important monoterpenes (Citral,  $\alpha$ - Terpineol, Menthol,  $\alpha$ -Pinene, Camphor), Sesquiterpenoids (Farnesol, Zinziberene), Diterpenoids (Phytol), Triterpenoids (Squalene).

**Module- 03**

Carotenoids : a- carotenoids, b- carotenes, vitamin A, Xanthophylls of medicinal importance.

**Module- 04**

Glycosides: Chemistry, pharmacological activity of digitoxin, digoxin, hecogenin, sennosides, diogenin and sarasapogenin.

**Module- 05**

Alkaloids : Chemistry and pharmacological activity of atropine and related compounds; quinine and reserpine,

**Module- 06**

Alkaloids: morphine, papaverine, ephedrine, ergot and vinca alkaloids.

**Module- 07**



Chemistry and pharmacological activity of medicinally important lignans, quassinoids and flavonoids.

### **Module- 08**

Chemistry and therapeutic activity of penicillin, streptomycin and tetracycline

### **Suggested Reading/ Books:**

1. Finar, I. L. Organic Chemistry, Volume
- 2: Stereochemistry and The Chemistry of Natural Products, 5<sup>th</sup> Edition, Dorling Kindersley (India) Pvt. Ltd., Licensees of Pearson Education in South Asia, New Delhi.
2. Agarwal, O. P. Chemistry of Organic Natural Products, Volume I, 41<sup>st</sup> Edition, Krishna Prakashan Media (P) Ltd., Meerut.
3. Agarwal, O. P. Chemistry of Organic Natural Products, Volume II, 40<sup>th</sup> Edition, Krishna Prakashan Media (P) Ltd., Meerut.
4. Bhat, S. V., Nagasapagi, B. A. and Sivakumar, M. chemistry of Natural Products, Narosa Publishing House, New Delhi.
5. Pandeya, S. N. A Textbook of Medicinal Chemistry of Natural Products, SG Publisher, Varanasi.
6. Chatwal, G. R. Organic Chemistry of Natural Products, Volume I, 4<sup>th</sup> Edition, Himal
7. Chatwal, G. R. Organic Chemistry of Natural Products, Volume II, 2<sup>nd</sup> Edition, Himalaya Publishing House, Delhi

**BPHM 605**  
**Pharmaceutical Microbiology**

<b>Sub. Code</b>	<b>Subject</b>	<b>L+T</b>
<b>BPHM 605</b>	<b>Pharmaceutical Microbiology</b>	<b>2+1</b>

**Module- 01**

**Introduction:** Historical development and scope of pharmaceutical microbiology, Structure of Bacterial Cell. **Classification of microbes and taxonomy:** Actinomycetes, Bacteria, Rickettsiae, spirochetes and viruses.

**Module- 02**

**Identification of microbes:** Stains and types of staining techniques, electron microscopy. **Nutrition, cultivation and Isolation:** bacteria, Actinomycetes, fungi and virus.

**Module- 03**

**Microbial genetics and variation :** Structure of gene, genetic code, transcription, translation, mutation and regulation of gene expression, bacterial enzymes.

**Module- 04**

**Control of Microbes :** physical and chemical methods : **Disinfectants :** Dynamics of disinfection, factors affecting the process of disinfection, Evaluation of liquid disinfectants & methods of measuring growth

inhibition (MIC). Types of chemical agents employed for disinfection, antisepsis and preservation with their full description & use.

### **Module- 05**

**Control of Microbes** : physical and chemical methods : **Principles and Practice of sterilization methods** : Introduction, sensitivity of microorganisms, typical survival curves for bacterial spores exposed to moist heat or gamma radiations, expression of resistance in terms of D value and Z value & sterility assurance. Sterilization methods ( Heat, Gaseous, Radiations & Filtration using different filter devices ) with emphasis on sterilization of items used in hospital, thermolabile drugs and injectables. Monitoring of sterilization processes. Laminar aseptic hoods and aseptic processing.

### **Module- 06**

**Sterility Testing** : Methods and media used with emphasis of the specific details of the sterility testing of parenterals and ophthalmics and other non injectable preparations such as, catgut etc.

### **Module- 07**

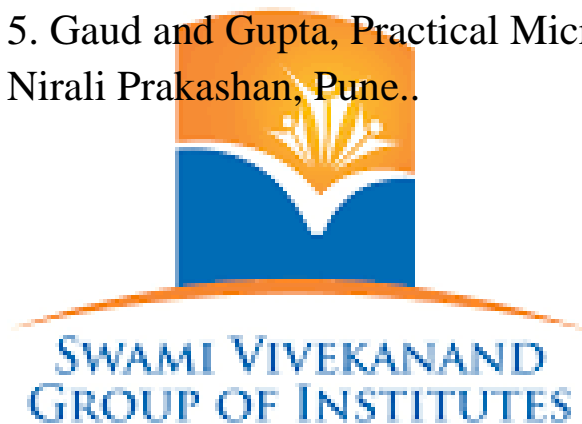
**Immunology** : Infection, Factors influencing infection, immunity-Natural and acquired, Antigen containing preparations – Diphtheria, tetanus, staphylococcus, plague and BCG vaccine, Antibody containing preparation and Diagnostic preparations.

### **Module- 08**

**Microbial assays** of antibiotics, vitamins and amino acids.

## Books Recommended

1. Hugo and Russel. "Pharmaceutical Microbiology", 6th edition, 1998, Balckwell Scientific Publication, Oxford.
2. Prescott LM, Harley GP, Klein DA." Microbiology". 5th Edition, V.C.Brown Publishers, Oxford.
3. Pelczar MJ, Chan ECS, Krieg NR. " Microbiology", 5th edition, 1993, Tata McGraw Hill Publishing company Ltd., New Delhi.
4. Ananthanarayan R, Panikar CKJ. "Textbook of Microbiology", 5tg edition, 1999, Orient Longmann Ltd, Chennnai.
5. Gaud and Gupta, Practical Microbiology, 3rd edition reprint 2008, Nirali Prakashan, Pune..



**BPHM 607**  
**Lab- Pharmacology II**

<b>Sub. Code</b>	<b>Subject</b>	<b>P</b>
<b>BPHM 607</b>	<b>Lab- Pharmacology II</b>	<b>3</b>

1. Study of some basic instruments used for isolated tissue experiments.
2. To prepare the physiological salt solution used in isolated tissue experiments.
3. Study (identification, isolation and preparation) of some commonly used standard isolated muscle preparations used for various isolated tissue experiments.
4. Effect of various agonists and antagonists and their characterization using Isolated preparations like frog's
5. rectus abdomens muscle and isolated ileum preparations of rat, guinea pig tracheal chain and rabbit jejunum.
6. Potentiation of acetylcholine responses with anticholinesterases.
7. Determination of dose ratio.
8. To record CRC of acetylcholine using guinea pig ileum / rat intestine.
9. To record the CRC of 5-HT on rat fundus preparation.
10. To record the CRC of histamine on guinea pig ileum/ rat intestine preparation.
11. To record the CRC of noradrenaline on rat anococcygeus muscle preparation.

12. To record the CRC of oxytocin using rat uterus preparation.
13. Determination of pD<sub>2</sub> value.
14. To demonstrate study the ionotropic and chronotropic effects of drugs on isolated Rat/Rabbit/frog heart.
15. To demonstrate study the effects of drugs on normal and hypodynamic Rat/Rabbit/frog heart.
16. Demonstrate Blood Pressure of anaesthetized Dog/Cat/Rat: To demonstrate the effects of various drugs on the B.P. and respiration including the Vasomotor Reversal of Dale and nicotinic action of acetylcholine.

### **Suggested Readings/ Books:**

1. Macleod, L.J. Pharmacological experiments on intact preparations. Latest edition, Publisher: Churchill livingstone.
2. Ian Kitchen. Textbook of in vitro practical pharmacology. Latest edition, Publisher: Black well Scientific.
3. Ghosh, M.N. Fundamentals of Experimental Pharmacology. Scientific Book Agency, Kolkatta.
4. Grover J.K., Experiments in Pharmacy & Pharmacology, CBS Publishers, New Delhi.
5. Kulkarni S.K., Hand Book of Experimental Pharmacology, Vallabh Prakashan, Delhi.
6. Goyal R. K., Practical in pharmacology, B.S. Shah Prakasan ,Ahmedabad

## BPHM 609

### Lab - Pharmaceutical Microbiology

Sub. Code	Subject	P
BPHM 609	Microbiology Lab - Pharmaceutical	3

1. To Study Compound microscope and its parts.
2. To Study different equipments in microbiology laboratory.
3. To Study the motility of microbes by hanging drop method.
4. To Prepare Bacterial Smear from both a liquid broth and agar medium.
5. To study given sample of microorganisms by simple staining
6. To study given sample of microorganisms by Gram's staining method
7. To study given sample of microorganisms by Negative staining method
8. To Determine the Phenol-Coefficient of market disinfectants with the help of standard disinfectant.
9. To prepare and sterilize culture medium such as Nutrient agar media and nutrient broth medium for the growth of bacteria.
10. To prepare Nutrient broth medium and to determine the bacterial population.
11. To sterilize the given sample of powder/glassware's by using hot air oven
12. To sterilize the given sample of Rubber gloves/surgical cotton by using Moist heat sterilization.

13. To determine the potency of antibiotic by biological assay by diffusion method
14. To carry out sterility testing for tap water, sterilized water and water for injection.
15. To prepare the pure culture from the mixed culture by streak plate method.
16. To Study the working of air flow bench and aseptic transfer.

### **Practical/Books Recommended**

1. R.S. Gaud and G.D. Gupta, Practical Microbiology, (2008), 3rd edition, Nirali Prakashan, Pune.
2. K. R. Aneja, Experiments in microbiology, plant pathology and tissue culture, wishwa prakashan.
3. R. K.Chandrakant, pharmaceutical microbiology experiments and technique, (2008), 2nd edition, Carrer publication,

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## BPHM 608

### Lab -Pharmacognosy – V (Chemistry of Natural Products)

Sub. Code	Subject	P
<b>BPHM 608</b>	Lab -Pharmacognosy – V (Chemistry of Natural Products)	<b>3</b>

1. To isolate the total alkaloidal content of the given drug, confirm by chemical tests and report its per cent yield.
2. To isolate the total flavonoidal content of the given drug, confirm by chemical tests and report its per cent yield.
3. To isolate the total tannin content of the given drug, confirm by chemical tests and report its per cent yield.
4. To isolate the total saponin content of the given drug, confirm by chemical tests and report its per cent yield.
5. To isolate atropine from belladonna leaves and report its per cent yield.
6. To perform TLC profile of the isolated atropine to check its purity.
7. To isolate nicotine picrate from tobacco powder and report its per cent yield.
8. To perform TLC profile of the isolated nicotine picrate to check its purity.
9. To isolate calcium citrate from lemon juice.
10. To isolate pectin from orange peel.
11. To isolate hesperidine from orange peel.

12. To perform TLC profile of hesperidine with reference standard.
13. To isolate starch from potato.
14. To isolate volatile oil from cardamom and perform its TLC.
15. To isolate volatile oil from lemon grass and perform its TLC.

### **Suggested Reading/ Books:**

1. Kokate, C. K. Practical Pharmacognosy, 4th Edition, Vallabh Prakashan, Delhi.
2. Khandelwal, K. R. Practical Pharmacognosy, 19th Edition, Nirali Prakashan, Pune.



## BPHM 606

### Pharmaceutical Chemistry-VI (Medicinal Chemistry-I)

Sub. Code	Subject	P
BPHM 606	Lab -Pharmaceutical Chemistry-VI (Medicinal Chemistry-I)	3

1. To determine the partition coefficient of succinic acid between ether and water.
2. To determine the optical rotary power of given solution.
3. To determine the refractive index of given liquid.
4. To study the stereochemical aspects of given organic compounds using models.
5. To prepare the models of given drugs e.g. Ephedrine, Salbutamol and study the effect of stereoisomerism on their pharmacological activity.
6. To calculate pKa value for 4-methyl-3,5-dimethylbenzoic acid, 3-methoxy-4-hydroxy benzoic acid, p-nitrobenzoic acid, 3-methyl-4-nitrobenzoic acid using Hammett equation.
7. To calculate the Molecular connectivity index (MCI) for drugs like Ibuprofen, Epinephrine, Atropine, Propranolol.
8. To formulate QSAR (using simple regression method) between activity of given samples.
9. To synthesize and submit Aspirin.

10. To establish the pharmacopoeial standards of synthesized Aspirin.
11. To carry out the spectral analysis of synthesized Aspirin.
12. To synthesize and submit Paracetamol.
13. To synthesize and submit p-Bromoacetanilide.
14. To synthesize and submit metamfepramone hydrochloride.
15. To synthesize and submit methyl dopa.
16. To establish the pharmacopoeial standards of synthesized methyl dopa.
17. To synthesize and submit 7-hydroxy-4-methylcoumarin.



### **Suggested Readings / Books:**

1. Aurther I. Vogel, Elementry practical organic chemistry Part 2. qualitative organic analysis 2nd edition, 1987, CBS publishers and distributors.
2. B. D. Khosla, V. C. Garg, Adarsh Gulati, Senior practical physical chemistry 12th edition, 2006, R.Chand and company, New Delhi.
3. Robert Thronton Morrison, Robert Neilson Boyd, Organic chemistry, 6th edition, 1992, Prentice Hall of India.
4. S. S. Kadam, K. R. Mahadik, K. G. Bothara, principles of meidcinal chemistry vol. I and II, 19th edition, 2009, Nirali parkashan, Pune.
5. Ashutosh Kar, advanced practical medicinal chemistry, Ist edition, 2004, New age intenational limited.
6. Aurther I. Vogel, Elementry practical organic chemistry Part 1. small scale preparations 2nd edition, 1987, CBS publishers and distributors.

7. B. S. Furniss, A. J. Hannaford, P. W. G. Smith, A. R. Tatchell, Vogel's textbook of practical organic chemistry, 5th edition, 2006, Dorling Kindersley publishers.

8. Indian Pharmacopoeia, An official book by govt. of India Ministry of health and family welfare, 6th edition Vol. II, 2010, published by Indian pharmacopoeia commission Ghaziabad.



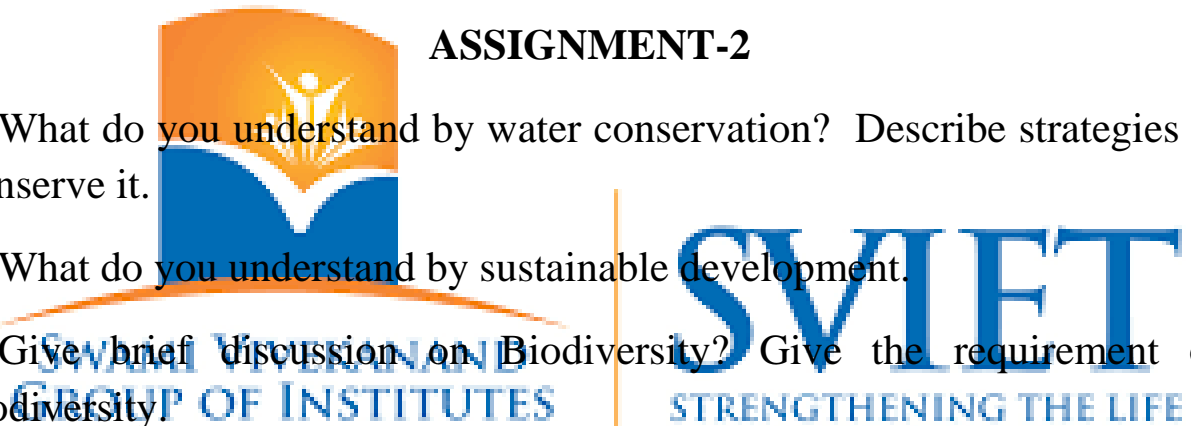
**SVIET**  
STRENGTHENING THE LIFE

**ASSIGNMENT-1**

1. Give a brief account on environmental pollution with causes and cure.
2. What are natural resources? Describe the types of natural resources.
3. Give the importance of ecosystem.
4. What are nuclear hazards and how they affect ecosystem.

**ASSIGNMENT-2**

1. What do you understand by water conservation? Describe strategies to conserve it.
2. What do you understand by sustainable development.
3. Give a brief discussion on Biodiversity? Give the requirement of biodiversity.
4. What are the value of biodiversity conservation?



**BPHM601**  
**PHARMACEUTICAL CHEMISTRY- VI**  
**(MEDICINAL CHEMISTRY)**

**ASSIGNMENT-1**

1. Give brief account on vitamins. Explain water soluble and fat soluble vitamins.
2. Give Physicochemical and Stereochemical aspects of drugs including bioisosterism in relation to biological activity, Drug-Receptor interaction.
3. What are Antiparkinsonism drugs? Give the classification with structure.
4. Give the SAR and mechanism of action of Apomorphine.



**ASSIGNMENT-2**



1. What are NSAIDS?
2. Give the classification of NSAIDS with examples and structures.
3. What are Antihistamins ? classify antihistamins
4. Write the mechanism of action of Antispasmodic drugs.

**BPHM602**  
**PHARMACEUTICAL JURISPRUDENCE & ETHICS**

**ASSIGNMENT-1**

1. What is Schedule 'M'? Give the essentials requirements of Schedule 'M'.
2. Give a brief account on POISON ACT.
3. What do you understand by Drug and Cosmetics Act?
4. What is Pharmacy Act?



**ASSIGNMENT-2**

1. What do you mean by Pharmaceutical legislation?
2. Discuss about the history of Drug legislation.
3. Write a short note on Pharmaceutical ethics.
4. Discuss about Medical termination of Pregnancy Act.

SWASTH VIVEKANAND  
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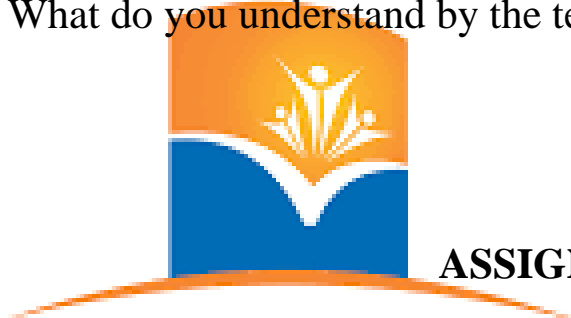

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**BPHM603**  
**PHARMACOLOGY - II**

**ASSIGNMENT-1**

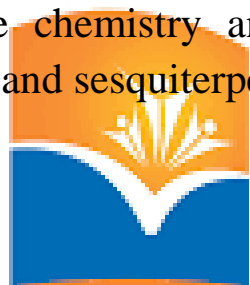
1. What is Hypertension? Discuss the Pharmacotherapy of hypertension and recent advances.
2. Describes about the Drugs acting on urinary system.
3. Give a brief note on Antianginal drugs.
4. What do you understand by the term HEMATINICS?

- 
- ASSIGNMENT-2**
1. What do you understand by Blood and plasma volume expanders?
  2. Write about the Anti- asthmatic drugs along with Bronchodilators.
  3. Give a brief discussion on Autacoids.
  4. Discuss about the Pharmacology of drugs acting on Cardiovascular system
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**BPHM604**  
**PHARMACOGNOSY - V**  
**(CHEMISTRY OF NATURAL PRODUCTS)**

**ASSIGNMENT-1**

1. What are Alkaloids? Give the biosynthesis of Alkaloids.
2. What are Terpenoids ? Give the classification of terpenoids.
3. What are Carotenoids ? Give medicinal importance of it.
4. Give the chemistry and pharmacological activity of monoterpenes ,diterpenes and sesquiterpenes.



**ASSIGNMENT-2**

1. Write the chemistry and pharmacological activity of Morphine and Vinca alkaloids.
2. Write about the chemistry and pharmacological activity of Digitoxin and Sennosides.
3. Give a brief account on Antibiotics. Discuss about Penicillin, Tetracycline and streptomycin.
4. Discuss about the chemistry and pharmacological activity of Atropine and related compound.

SWAMI VIVEKANANDA  
GROUP OF INSTITUTES

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**BPHM605**  
**PHARMACEUTICAL MICROBIOLOGY**

**ASSIGNMENT-1**

1. Write a note on Nutrition, Cultivation, and isolation of Actinomycetes .
2. Give a distinction between Disinfectants and Antiseptics.
3. What is MIC? Explain the methods for determining MIC.
4. What do you understand by Stain? Discuss the various types of staining techniques.



**ASSIGNMENT-2**

1. Give detail account on Microbial assay for Vitamins.
2. Discuss sterility testing for catgut.
3. Describe the methods to control microbial growth.
4. Give a brief note on Microbial genetics and variation.

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