

DEVI AHILYA VISHWAVIDYALAYA, INDORE
UNDER GRADUATE SEMESTER WISE SYLLABUS
Syllabus of B.Sc. Pharmaceutical Chemistry
Session 2016-2017 & Onwards

SCHEME OF MARKS

<u>Semester V</u>	Max. Marks
Paper: Medicinal chemistry	100 marks
Practical	50 marks

<u>Semester VI</u>	Max. Marks
Drug Analysis	100 marks
Practical	50 marks
Internship (Project)	100 marks

15 Marks CCE+ 85 Marks Semester Examination= 100 Marks for Each Paper

B.Sc. Semester V

Paper Title	Max. Marks	Min. Marks
Medicinal Chemistry	85	28
Practical	50	17
CCE	15	05

B.Sc. Semester VI

Paper Title	Max. Marks	Min. Marks
Drug Analysis	85	28
Practical	50	17
CCE	15	05
Internship (Project)	100	

Handwritten signature and date: 30/7/2014

बी.एससी (स्नातक) कक्षाओं के लिये सेमेस्टर अनुसार पाठ्यक्रम
B.Sc (Graduate) semester wise Syllabus
2016-2017 & Onwards

Max. Marks / अधिकतम अंक : 85

Min. Marks: 28

Class / कक्षा

:B.Sc / बी.एससी

Semester / सेमेस्टर :

: V

Title of Subject Group / विषय समूह का शीर्षक : **Pharmaceutical Chemistry**

Paper Title/प्रश्न पत्र शीर्षक

: **MEDICINAL CHEMISTRY**

Compulsory / अनिवार्य

: **Compulsory**

Particular / विवरण

UNIT I	Drug Design and Drug Metabolism: Biotransformation, Factors Affecting Drug Metabolism, Pathway of Drug Metabolism- Phase-I, Phase-II and Conjugation Reaction, Significance of Drug Metabolism in Medicinal Chemistry. : A general study of the Physio-Chemical properties in relation to biological activities. Stereochemistry and Drug Action. Isosterism and Bioisosterism, Concept of Lead Compound. Computer Aided Drug Design and Molecular Modeling.
UNIT II	<p>(a) Antibiotics: Introduction, Classification and uses of Penicillin and Semisynthetic Penicillins. Study of structures and uses of Streptomycin, Neomycin, Kanamycin. Tetracycline - SAR and uses.</p> <p>(b) Antitubercular Drugs: Introduction, Synthesis and Mode of action of PAS, INH, Ethambutol. Ethionamide.</p> <p>(c) Classification of Antibiotics: like macrolides, Aminoglycosides , Fluoroquinolones and broad-spectrum antibiotics.</p>
UNIT III	<p>(a)Cardiovascular Drugs: Introduction, Classification of Cardiovascular Drugs, Cardiovascular Diseases, Synthesis, Mode of Action, Uses and Side Effects of Amyl Nitrate, Sorbitrate, Verapamil, Atenolol.</p> <p>(b)Drugs acting on cardiovascular system: Cardiac glycoside, Anti-Arrhythmic agents, Anti-Anginal drugs, Anti-Hypertensive, Anti-Hyperlipidemic drugs.</p>

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UNIT IV	<p>(a)Antiviral: Introduction, Replication and Transformation, Classification. Synthesis and Uses of Amantidine HCl, Idoxuridine, Methisazone, Anti-HIV agents.</p> <p>(b)Antimalarials: Classification, SAR of 4-Aminoquinolines and 8-Aminoquinolines. Synthesis, Mode of action and uses of Chloroquine, Amidoquine, Pamaquine, Pyrimethamine.</p>
UNIT V	<p>(a)Antineoplastic Agents: Classification, pathophysiology of cancer. Synthesis and Mode of action of 5-Flouroureacil, 6-Thioguanine, Thiotepa, Melaphalan, Busulfan.</p> <p>(b)Antiamoebics: Synthesis and uses of Biallyl Unical, Metronidazole, Mentamide, Iodoquinol</p>

Books Recommended

1. Harkishan Singh, V.K. Kapoor, Medicinal and Pharmaceutical Chemistry ,Vallabh Prakashan, Delhi.
2. John H.Block, John M. Beak,Jr., Organic Medicinal and Pharmaceutical Chemistry, Lippincot Williams & Wilkins.
3. Harkishan Singh, V.K. Kapoor, Organic Pharmaceutical Chemistry, Vallabh Prakashan, Delhi.
4. Pandya, Text book of Medicinal Chemistry, Vol-I & II.
5. Ashutosh Kar, Medicinal chemistry,New Age International(P)Limited, Publishers.
6. O.P.Agrawal, Advanced Organic Practical. Goyal Publishing House, Meerut (U.P.)
7. Gurdeep Raj, Advanced Inorganic Practical, Goyal Publishing House, Meerut (U.P.)
8. Stenlake and Beckett, Practical Pharmaceutical Chemistry Part I, CBS Publishers and Distributors. New Delhi.
9. Ashutosh Kar,Medicinal chemistry, New Age International(P)Limited, Publishers.
10. G.R.Chatwal, Pharmaceutical Chemistry Organic Vol. II, Himalaya Publishing House, Bombay.

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B.Sc (Graduate) semester wise Syllabus
2016-2017 & Onwards

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Max. Marks / अधिकतम अंक : 50

Min. Marks: 17

Class / कक्षा

:B.Sc / बी.एससी

Semester / सेमेस्टर :

: V

Title of Subject Group / विषय समूह का शीर्षक

: **Pharmaceutical Chemistry**

Paper Title/प्रश्न पत्र शीर्षक

: **PRACTICAL**

Compulsory / अनिवार्य

: **Compulsory**

Particular / विवरण

Examination: 4 Hours

I. Preparations and Synthesis:	12 Marks
(i) Vicks.	
(ii) Eosin.	
(iii) Cold Cream.	
(iv) 7-Hydroxy-4-Methyl Coumarin.	
(v) Sodium Chloride Injection.	
II. Assay:	12 Marks
(i) Lithium Carbonate.	
(ii) Ammonium Chloride.	
(iii) Citric Acid	
III. Analysis of Solid dosage forms by Instrumentation:	06 Marks
(i) Friability,	
(ii) Dissolution Time,	
IV. Chromatography:	06 Marks
(i) TLC	
(ii) Column Chromatography.	
V. Viva-voce:	06 Marks
VI. Practical Record:	08 Marks

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2016-2017 & Onwards

Max. Marks / अधिकतम अंक : 85

Min. Marks: 28

Class / कक्षा

:B.Sc / बी.एससी

Semester / सेमेस्टर :

: VI

Title of Subject Group / विषय समूह का शीर्षक : **Pharmaceutical Chemistry**

Paper Title/प्रश्न पत्र शीर्षक

: **Drug Analysis**

Compulsory / अनिवार्य

: **Compulsory**

Particular / विवरण

UNIT I	Chromatography: Principles of Separation Processes and Application of such Techniques Viz Thin Layer Chromatography, Gas Chromatography. Paper Chromatography, Ion Exchange Chromatography and HPLC.
UNIT II	Instrumental Techniques: Definition, Principles, Instrumentation, Pharmaceutical Applications of Amperometry, Nephelometry and Turbidimetry. Potentiometry, Conductometry, Polarography, Colorimetry.
UNIT III	Spectroscopic Method: Principle, Instrumentation and Applications of NMR and Mass Spectroscopy, UV-Vis, IR.
UNIT IV	Statistical Validation: Errors: Introduction, Classification. Statistical Validation: Distribution of Random Numbers, Significant Figures, Comparison of Results, Methods of Least Square, method of collection of data, graphical representation of data, frequency, polygon, histogram, measure of central tendency, mean, median, mode, dispersion, standard deviation, variance.
UNIT V	Methods for determination of purity of pharmaceutical compounds: Introduction, types of impurity, methods of checking purity. Volumetric and Gravimetric Assay Procedures of following Compounds from Pharmacopoeia of India, Acetazolamide, Adrenaline, Amitryptaline Dichloride, Amidoquine, Chloquinephosphate, Diazepam, Ethacrynic acid, Griseofulvin, Hydrazine Hydrochloride, Isoniazid, Calcium Gluconate and Ferrous Fumarate

J.P.S.
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Books Recommended

1. F.S.K.Barar, Essentials of Pharmacotherapeutics, S.Chand and Company Ltd. New Delhi.
2. Stenlake & Beckett, Practical Pharmaceutical Chemistry Part I, CBS Publishers and Distributors. New Delhi.
3. R.S. Satoshkar, S.Bhandarkar, S.S. Ainapuri, Pharmacology & Pharmacotherapeutics, Mumbai popular prakashan.
4. O.P.Agrawal, Advanced Organic Practical, Goyal Publishing House, Meerut (U.P.)
5. Gurdeep Raj, Advanced Inorganic Practical, Goyal Publishing House, Meerut (U.P.)
6. Stenlake and Beckett, Practical Pharmaceutical Chemistry Part I, CBS Publishers and Distributors. New Delhi.
7. Gurdeep Raj Chatwal and Sham K. Anand, Instrumental methods of chemical analysis, Himalya Publishing House.
8. J.M. Hollas, Modern Spectroscopy, John Wiley
9. G.W Ewing, Instrumental Methods of Chemical Analysis, Mc Graw Hill Book Company.
10. G. Aruldas, Molecular structure and spectroscopy, Phi Learning Pvt. Ltd.

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B.Sc (Graduate) semester wise Syllabus
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Max. Marks / अधिकतम अंक : 50


Min. Marks: 17

Class / कक्षा : B.Sc / बी.एससी
Semester / सेमेस्टर : VI
Title of Subject Group / विषय समूह का शीर्षक : **Pharmaceutical Chemistry**
Paper Title/प्रश्न पत्र शीर्षक : **Practical**
Compulsory / अनिवार्य : **Compulsory**

Particular / विवरण

Examination: 4 Hours

- | | |
|--|-----------------|
| I. Preparations and Synthesis: | 12 Marks |
| (i) Methyl Red. | |
| (ii) Benzil | |
| (iii) Benzoic Acid | |
| (iv) Dextrose Injection | |
| (v) Calamine Lotion | |
| (vi) Vanishing Cream | |
| II. Assay: | 12 Marks |
| (i) Milk of Magnesia. | |
| (ii) Ascorbic Acid | |
| III. Analysis of Solid dosage forms by Instrumentation: | 06 Marks |
| (i) Weight Variation, | |
| (ii) Hardness. | |
| (iii) Disintegration Time. | |
| IV. Chromatography: | 06 Marks |
| (i) o and p - Nitro Aniline by TLC. | |
| (ii) Inorganic ions by Radial Chromatography. | |
| V. Viva-voce: | 06 Marks |
| VI. Practical Record: | 08 Marks |


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