Maharshi Dayanand University
Rohtak

Ordinances, Syllabus and Courses of Reading for

M.Pharmacognosy 1st to IVth Semester

Examination

Session — 2009-2010

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SCHEME OF EXAMINATIONS FOR THE PROPOSED SEMESTER SCHEME IN

MASTER OF PHARMACY PHARMACOGNOSY

2009-2010

M. PHARM. - PHARMACOGNOSY I[ST] Semester

S. No.	Name of the Subject	Theory (Teaching hours/ week)	Practical (Teaching hours/ week) per batch)
MPH-01	Modern Analytical Techniques - I	04	06
MPHPCOG-02	PHARMACOGNOSY -I	02	06
MPHPCOG-03	PHARMACOGNOSY-II	02	06
MPHPCOG-04	PHARMACOGNOSY -III	02	06
	Total =	10	24

Total=34 hrs. / week in M. Pharm. PHARMACOGNOSY Ist Semester

M.Pharm. PHARMACOGNOSY I[ST] Semester

S. No.	Name of the Subject	Theory (Total Marks)	Practical (Total Marks)
MPH-01	Modern Analytical Techniques - I	50	50
MPHPCOG-02	PHARMACOGNOSY -I	50	-
MPHPCOG-03	PHARMACOGNOSY-II	50	50
MPHPCOG-04	PHARMACOGNOSY-III	50	-
	Total =	200	100

Total=300 marks / M. Pharm. PHARMACOGNOSY Ist Semester

M.Pharm. PHARMACOGNOSY II[nd] Semester

S. No.	Name of the Subject	Theory (Teaching hours/ week)	Practical (Teaching hours/ week) per batch)
MPH-02	Modern Analytical Techniques - II	04	06
MPHPCOG-05	PHARMACOLOGY -IV	02	06
MPHPCOG-06	PHARMACOLOGY -V	02	06
MPHPCOG-07	PHARMACOLOGY -VI	02	06
	Total =	10	24

Total=34 hrs. / week in M. Pharm. PHARMACOGNOSY IInd Semester

M.Pharm. PHARMACOGNOSY II[nd] Semester

S. No.	Name of the Subject	Theory (Total Marks)	Practical (Total Marks)
MPH-02	Modern Analytical Techniques - II	50	50
MPHPCOG-05	PHARMACOGNOSY -IV	50	-
MPHPCOG-06	PHARMACOGNOSY-V	50	50
MPHPCOG-07	PHARMACOGNOSY-VI	50	-
	Total =	200	100

Total=300 marks / M. Pharm. PHARMACOGNOSY IInd Semester

M.Pharm. PHARMACOGNOSY III[rd] Semester

Research Work	35 hrs. / week
Research Work Synopis	50 marks
Presentation	150 marks
Total	200 marks

M.Pharm. PHARMACOLOGY IV[th] Semester

Research Work	35 hrs. / week
Research Work Synopis	200 marks
Presentation	200 marks
Total	400 marks

Total Marks in M. Pharm. PHARMACOGNOSY = 1200

MAHARSHI DAYANAND UNIVERSITY, ROHTAK

M.PHARMACY PHARMACOGNOSY

1st Semester

MPHPCOG- 02 **Pharmacognosy - I**

THEORY **Lectures : 2hrs. / week**

Unit-I

1. Cultivation of herbal drugs : Detailed study and recent advances in cultivation, including yield enhancers, organic farming etc. Recent advances in collection and storage of drugs. Cold chain management.
2. Indian and international regulatory requirements for standardization of crude drugs, manufacture and distri bution of herbal products.
3. Modern aspects, organizations and relation with AYUSH (Ayurvedic, Unani, Siddha and Homeopathy) System ; Compendial regulations.

Unit-II

4. Application of plant tissue culture in Pharmacognosy / production of phytopharmaceuticals :
   a) History of Plant tissue culture, totipotency, Ingredients used in plant tissue culture media. recent advances in tisue culture.
   b) Callus Culture, Suspension cultures, meristem culture, protoplant cultures, haploid cultures and immobilization, organogenesis.
   c) Regenaration of plants from tissue culture.
   d) Biosynthetic potential of tisue culture and factors affecting production of secondary metabolites by tissue culture technique.

PRACTICALS **(6 hrs.week)**

Number of practicals / assignments based on aforementioned theory.

MPHPCOG- 03 **Pharmacognosy - II**

THEORY **Lectures : 2hrs. / week**

Unit-I

1. Modern techniques involved in the investigation and development of biogenetic pathways. Significance of Photosynthesis, glycolysis and kreb's cycle, shikimic acid pathway, acetate malonate pathway and acetate pharmaceuticals importance.
2. Study of the following methods for quality improvement of plants :
   a) Chemodemes
   b) Hybridisation
   c) Mutation
   a) Polyploidy

Unit-II

3. Introduction to plant genetaics and Molecular Biology and its importance in Phamaceutical Industry. Recent advances and emerging trends.
4. Genetically modified plants :
   Gene transfer using Vectors of Agreobacterium
   a) Ti, co-integrative, Intermediate plasmid
   b) DNA mediated gene transfer
   c) Electroporation, Microprejectiles, Micro and macro injection. Liposomes Ultrasonication.
5. Localisation of transferred gene in genetically modified plants.
   a) Plant chromosome analysis
   b) Gene mapping
   c) Use of markers
   d) DNA hybridisation

PRACTICALS **(6 hrs.week)**

Number of practicals / assignments based on aforementioned theory.

M.PHARMACY PHARMACOGNOSY

1st Semester

MPHPCOG- 04 **Pharmacognosy - III**

THEORY **Lectures : 2hrs. / week**

Unit-I

1. Present status and Importance of standardization and control of natural products in the National and International scenario.

   Physical, chemical and biological screening methods involved in the standardization and quality control of Natural products.

2. Study of traditional and advanced qualitative / quantitative microscopic techniques used for the study of herbal products/ formulations.

3. Extraction of drugs : Conventional and recent techniques (such as citical fluid technology and SAP box) employed for extraction of active constituents from drugs.

Unit-II

4. Charcaterization and standardisation of phytoconstituents by modern instrumental analytical techniques.

PRACTICALS **(6 hrs.week)**

Number of practicals / assignments based on aforementioned theory.

M.PHARMACY PHARMACOGNOSY

IInd Semester

MPHPCOG- 05 **Pharmacognosy - IV**

THEORY **Lectures : 2hrs. / week**

Unit-I

1. Marine Pharmacognosy : Recent advances, including cultivation, collection, processing and storage. Medicinal agents / pharmaceutical additives from marine sources. Emerging trends.

2. Alkaloids : Systematic study of source, cultivation, collection, processing, commercial varieties, chemical constituents, biosynthetic pathways, substitutes, adulterants, isolation, characterization and therapeutic uses, diagnostic macroscopic and microscopic features and specific chemical tests of alkaloid containing drugs. recent advances and emerging trends.

Unit-II

3. Glycosides : Systematic study of source, cultivation, processing, comercial varieties, chemical constituents, biosynthetic pathways,substitutes, adulterants, isolation, characterization and therapeutic uses, diagnostic macroscopic and microscopic features and specific chemical tests of alkaloid containing drugs. recent advances and emerging trends.

4. Carbohydrates & derived products and lipids : Systematic pharmacognostic study of Agar, Guar gum,Gum acacia, Honey, Isabgol, Pectin, bees wax, Castor oil, Cod liver oil, Cod liver oil, Linseed oil, Shark liver oil and wool fat.

PRACTICALS **(6 hrs.week)**

Number of practicals / assignments based on aforementioned theory.

MPHPCOG- 06 **Pharmacognosy - V**

THEORY **Lectures : 2hrs. / week**

Unit-I

1. Pharmaceutical Aids : Various pharmaceutical addiitives of natural origin, such as talc, diatomaceous earth, chitosan, kaolin, bentonite, gelatin (from plant and animal sources) and natural colorants, Standards for natural pharmaceutical aids.
2. Nutraceuticals, Present status and prospects.

Unit-II

3. Volatile oils : Systematic study of source, cultivation, collection, processing, commercial varieties, chemical constituents, biosynthetic pathways, substitutes, adulterants, isolation, characterization and therapeutic uses, diagnostic macroscopic and microscopic features and specific chemical tests of alkaloid containing drugs. Recent advances and emerging trends.

PRACTICALS **(6 hrs.week)**

Number of practicals / assignments based on aforementioned theory.

MPHPCOG- 07 **Pharmacognosy - VI**

THEORY **Lectures : 2hrs. / week**

Unit-I

1. General research methodology and product development adopted for exploring & exploiting therapeutic significance of secondary metabolites present in plants.
2. Present status and future trends in herbal cosmetics in skin / hair care and aromatherapy.

Unit-II

3. Degradative, synthetic and spectroscopic methods used for the structural elucidation of :

   Morphine (alkaloid),

   Abietic acid (diterpenoid),

   Morphine (alkaloid),

   Glycyrrhizin (triterpinoid),

   Diosgenin (Steroidal saponin),

   Rutin (flavanoid),

   Xanthotoxin (coumarins) and

   Quassin (quassinoid)

   Psoralin.

PRACTICALS **(6 hrs.week)**

Number of practicals / assignments based on aforementioned theory.