Reg. No.										

MANIPAL UNIVERSITY

M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: ADVANCED PHARMACOGNOSY AND PHYTOCHEMISTRY (PCO 601)

(SPECIALIZATION: PHARMACOGNOSY)

Thursday, May 24, 2012

Time: 10:00 – 13:00 Hrs. Max. Marks: 100

- **Answer ALL the questions. All question carry equal marks.**
- **Draw neat labeled diagrams wherever necessary.**

1A. What are gibberellins? Describe its structure, occurrence, biosynthesis, mechanism of action and biological effects.

1B. Describe the extrinsic factors which influence the production of crude drugs.

2A. Describe the systematic method of cultivation and post harvest technology employed for lemongrass oil.

2B. Discuss the classification of pesticides. What are their ideal requirements?

3. Briefly discuss the distribution of alkaloids and their significance in taxonomy with reference to evidence from their basic moiety.

4A. Give a brief account of antidiabetic phytopharmaceuticals.

4B. Describe the structural elucidation of atropine.

5. Write short notes on the following:

5A. Non-nutritional antioxidants.

5B. Classification of endangered plant species with examples.

5C. Common diseases of medicinal and aromatic plants.

5D. Applications of chemotaxonomy.

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: HERBAL PRODUCT DEVELOPMENT AND FORMULATION (PCO 602)

(SPECIALIZATION: PHARMACOGNOSY)

Saturday, May 26, 2012

Time: 10:00 – 13:00 Hrs. Max. Marks: 100

- **Answer ALL the questions. ALL question carry equal marks.**
- **Draw neat labeled- diagrams wherever necessary.**

1A. Discuss the development of monoherbal and polyherbal liquid oral formulations with their merits and demerits.

1B. Describe the various quality control tests for tablets.

2A. What do you mean by standardization of herbal raw materials? Describe methods used for physical and chemical standardization of herbal raw materials.

2B. Write an essay on the quantitative analysis of herbal raw materials by chromatographic and spectrometric methods.

3A. Discuss glass as a material of construction for pharmaceutical containers.

3B. Explain the biological methods of standardization of liquid herbal extracts.

4A. What do you mean by extraction of herbs? Discuss in detail methods used for the extraction of herbal raw materials.

4B. Discuss in detail the determination of pesticide content in herbal raw materials.

5. Write short notes on:

5A. Accelerated stability studies.

5B. Monoherbal formulations, their merits and demerits.

5C. WHO policy on herbal medicine.

5D. Packaging and storage of herbal raw material.

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: MEDICINAL PLANT BIOTECHNOLOGY (PCO 603)

(SPECIALIZATION: PHARMACOGNOSY)

Tuesday, May 29, 2012

Time: 10:00 – 13:00 Hrs. Max. Marks: 100

- **Answer ALL the questions.**
- **Answer should be specific to the questions.**
- **Draw neat labeled diagrams and chemical structures wherever necessary.**

1. Classify culture types. What are the techniques adopted in plant tissue culture and write a note on nutritional requirements.

(20 marks)

2. How gene is identified, localized and sequenced? Explain how ELISA methods help to recognize pathogens in plants.

(20 marks)

3A. Explain the role of precursors and elicitors on biomedicinal production.

3B. Discuss in detail cryopreservation.

(10+10 = 20 marks)

4A. List various factors that influence micropropogation. Give their role, advantages and disadvantages.

4B. Explain somoclonal variation and genetic stability in plant cell cultures.

(10+10 = 20 marks)

5A. Classification of immobilization techniques.

5B. Applications of plant tissue culture in pharmacy and allied fields.

5C. Cloning methods.

5D. Applications of hairy root culture.

(5×4 = 20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: BIOLOGICAL SCREENING OF HERBAL DRUGS (PCO 604)

(SPECIALIZATION: PHARMACOGNOSY)

Thursday, May 31, 2012

Time: 10:00 – 13:00 Hrs. Max. Marks: 100

✍ **Answer ALL the questions. Draw neat labelled diagrams wherever necessary.**

1A. Describe the salient features of a modern animal facility to house animals for research.

1B. Write a precise note on CPCSEA guidelines to perform experiments on animals.

(10+10 = 20 marks)

2A. Explain the various methods for the induction of ulcer in experimental animals. Discuss the important models used in the screening of anti ulcer drugs.

2B. Discuss the different models and the techniques in the screening of anti microbial agents.

(10+10 = 20 marks)

3. Describe the major pre-clinical screening procedure for the following:

3A. Anti inflammatory agents

3B. Anti hepatotoxic agents.

(20 marks)

4A. Discuss the importance of placebo, blind and cross over techniques in clinical trials.

4B. Illustrate various methods involved in high throughput screening of natural products.

(10+10 = 20 marks)

5. Write short notes on the following:

5A. Objectives and principles of ICH guidelines.

5B. Limitations preclinical screening methods.

5C. Student's t-test

5D. Central tendency.

(5×4 = 20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: SPECTROSCOPIC AND CHROMATOGRAPHIC TECHNIQUES FOR NATURAL PRODUCTS (PCO 605)

(SPECIALIZATION: PHARMACOGNOSY)

Saturday, June 02, 2012

Time: 10:00 – 13:00 Hrs. Max. Marks: 100

Answer all the questions:

1A. Sketch the mass spectrum of the following compounds and identify the different fragments with appropriate comments.

i) 2-Butanone ii) Acetophenone iii) Benzaldehyde iv) Nitrobenzene

1B. Explain the following ionization techniques in mass spectrometry, commenting on the advantages over conventional EI method.

i) Chemical Ionization ii) Electrospray ionization.

1C. What are the factors affecting chemical shifts in ^{1}H NMR? Explain.

(8+9+3 = 20 marks)

2A. Sketch the ^{13}C NMR spectra of the following compounds and assign chemical shift values to the different carbons.

i) Anisole ii) 2- butanol iii) Pyridine. iv) Ethyl methyl ketone

2B. Write a brief account of the following :

i) Nuclear overhauser effect. ii) Deuterium exchange. iii) Double resonance.

(8+12 = 20 marks)

3A. With an example, explain vibrational coupling in IR spectroscopy.

3B. Write the expected infrared absorption band values for the following compounds:

i) p-benzoquinone ii) sulphonamide iii) Diethyl ether

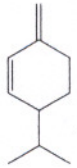
3C. How do you determine polymers and aggregates in plasma proteins solution using size exclusion chromatography?

(6+6+8 = 20 marks)

4A. Discuss about the various types of electronic transitions in ultra violet spectroscopy and explain how solvent polarity affect these transitions.

4B. Applying Woodward-Fieser rule, calculate the absorption maxima for the following compounds.

A



B

4C. Enlist the factors that affect resolution in an HPTLC analysis. Write note on activation of pre-coated HPTLC plates.

4D. Discuss in detail about effect of Eddy diffusion on band spreading.

(7+3+7+3 = 20 marks)

5A. With a neat diagram explain the functioning of Evaporative light scattering detector and Refractive index detector.

5B. What does derivatization accomplish? Explain. Enlist the advantages of alkylation as a GC derivatisation technique.

(8+12 = 20 marks)