

MANIPAL UNIVERSITY

M. PHARM. PART-I DEGREE EXAMINATION – MAY/JUNE 2010

SUBJECT: ADVANCED PHARMACOGNOSY AND PHYTOCHEMISTRY (PCO 601)

(SPECIALIZATION: PHARMACOGNOSY)

Thursday, May 27, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions. All questions carry equal marks.

✍ Draw neat labelled diagrams wherever necessary.

1A. Define Chemotaxonomy. Discuss the chemotaxonomic significance of alkaloids.

1B. Briefly discuss the phytochemistry of resins.

2A. Write an essay on the conservation of medicinal plants.

2B. Discuss the role of vitamins as antioxidants.

3A. Discuss the genetic factors that influence variability in crude drugs.

3B. Give the systematic method of cultivation and production of opium.

4A. Briefly discuss marine biomedicinals used as:

i) Antiinflammatory

ii) Anticancer agents

4B. Elucidate the structure of caffeine.

5. Write short notes on the following:

5A. Enzyme antioxidants

5B. Isolation and estimation of curcumin

5C. Applications of Gibberellin

5D. Pests that infect medicinal plants



MANIPAL UNIVERSITY**M. PHARM. PART-I DEGREE EXAMINATION – MAY/JUNE 2010****SUBJECT: HERBAL PRODUCT DEVELOPMENT AND FORMULATION (PCO 602)****(SPECIALIZATION: PHARMACOGNOSY)**

Friday, May 28, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions. All questions carry equal marks.**✍ Draw neat labelled diagrams wherever necessary.**

- 1A. Write an essay on the qualitative analysis of herbal raw materials by chromatographic and spectrometric methods.
- 1B. Give a detailed discussion on the use of herbs as raw materials.
- 2A. Discuss the preformulation studies for liquid orals.
- 2B. Discuss plastic as a material of construction for pharmaceutical containers.
- 3A. Write an essay on the general status and importance of herbal medicine.
- 3B. Write an essay on microscopical standardization of herbal raw materials.
- 4A. Discuss the salient features of cGMP.
- 4B. Describe the various quality control tests for tablets.
5. **Write short notes on:**
 - 5A. HPLC as a tool for the evaluation of herbal materials.
 - 5B. Diluents used in tablets.
 - 5C. Vehicles used in herbal liquid orals.
 - 5D. Role of natural products in herbal medicine.



MANIPAL UNIVERSITY**M. PHARM. PART-I DEGREE EXAMINATION – MAY/JUNE 2010****SUBJECT: BIOLOGICAL SCREENING OF HERBAL DRUGS (PCO 604)****(SPECIALIZATION: PHARMACOGNOSY)**

Monday, May 31, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Draw neat labelled diagrams wherever necessary.**

1A. Describe the various methods of screening of antiepileptic drugs.

1B. Describe the different methods of screening antiulcer agents.

(10×2 = 20 marks)

2A. Give an account on free radicals that causes oxidative damage.

2B. Describe the importance of Paired and Unpaired Student's t-test with examples.

(10×2 = 20 marks)

3. How will you organize screening of a new drug for its anti-inflammatory activity?

(20 marks)

4A. Phase II & III Clinical trial: Its role in drug evaluation.

4B. Describe the oral acute toxicity study to be performed in developing a new drug.

(10×2 = 20 marks)

5. **Write short notes on the following:**

5A. Main requirements to carry out primary bioassay screening of natural drugs.

5B. Production of transgenic animals by transfer of whole nuclei method.

5C. How should laboratory animals be maintained?

5D. Hippocratic screening for evaluation of natural products.

(5×4 = 20 marks)



MANIPAL UNIVERSITY

M. PHARM. PART-I DEGREE EXAMINATION – MAY/JUNE 2010

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

(SPECIALIZATION: PHARMACOGNOSY)

Tuesday, June 01, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

1A. Assign the given ^1H -chemical shift values to the appropriate protons in the following:

- i) δ : 2.47, 7.5 and 7.9 in acetophenone.
- ii) δ : 1.23, 1.97 and 4.06 in ethyl acetate.
- iii) δ : 2.09, 3.09 and 7.27, 7.75 in acetanilide.
- iv) δ : 2.16, 3.24, 6.37 and 6.79 in p-toluidine.

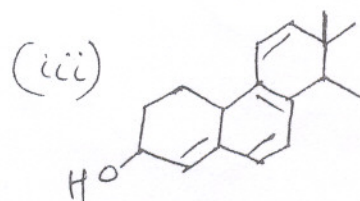
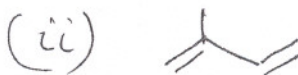
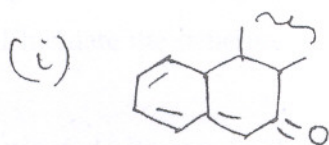
1B. Explain with the help of an example:

- i) ^1H - ^1H COSY Spectrum.
- ii) ^1H - ^{13}C COSY Spectrum

1C. Write briefly the principle of ^{13}C Spectroscopy and highlight the features of ^{13}C NMR which distinguish it from ^1H -NMR.

(8+(4+4)+4 = 20 marks)

2A. Predict the absorption maximum for the following organic compounds.



2B. Write a note on u.v. spectra of flavonoids and coumarins.

2C. Write a note on transition probability in u.v. spectroscopy.

2D. What are the advantages of applying the sample in band form over spot in HPTLC? List out the factors affecting the HPTLC separation.

(3+4+3+10 = 20 marks)

3A. Elaborate on the following aspects of HPLC:

- i) Reciprocating pump.
- ii) Injection mode.
- iii) Measurement of column performance.

3B. Explain the different columns and elution techniques used in HPLC.

(12+8 = 20 marks)

4A. Explain the mass fragmentation pattern and fragmentation characteristics of the following compounds.

- i) Benzaldehyde
- ii) 2-butanone
- iii) Coumarins
- iv) Indole

4B. Discuss the principle and techniques of GC-MS and mention the special advantages of this technique over simple MS.

(12+8 = 20 marks)

5A. Explain the role of IR Spectroscopy in identification of functional groups giving examples.

5B. Give the characteristic IR peaks for diethyl ether, glycine, cyclohexanol and apigenin.

5C. Describe the following two commonly used detectors in an elaborated manner.

- i) Flame ionisation detector (FID)
- ii) FPD

(6+8+6 = 20 marks)

