Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M.PHARM/SEM-2/MPT-202(1)/2013

2013

ADVANCED PHARMACOGNOSY – II

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

i) In size exclusion chromatography, stationary phase consists of

a) Polyacrylamide gel b) Alumina

c) Charcoal d) All of these.

ii) Mathematical expression of theoretical plate in HPLC is

a) $16 (Rt/W)^2$ b) $5{\cdot}54 (Rt/W)^2$

c) $4 (Rt/W)^2$ d) $16 (Rt)^2 / W$.

iii) Different size of proteins are separated by

a) Adsorption chromatography

b) Chiral chromatography

c) Gel permeation chromatography

d) None of these.

iv) Protein can be identified by

a) Western blot b) Southern blot

c) Northern blot d) None of these.

v) TLC compounds are migrating upward direction through absorbent stationary phase in TLC plate due to

a) surface tension

b) capillary action

c) van der Waals force

d) all of these.

vi) Optically active compound can be separated through

a) size exclusion chromatography

b) chiral chromatography

c) hydrophobic chromatography

d) none of these.

vii) Auxin is chemically known as

a) Indole-3-acetic acid

b) Acetic acid

c) Phenyl acetic acid

d) None of these.

viii) *Thermus aquaticus* is used in

a) PCR

b) HPLC

c) Gel Electrophoresis

d) LC-MS.

ix) DNA fingerprinting is applied to

a) identify the criminal

b) identify the actual father of a child

c) archeological study

d) all of these.

x) Hormone is used in

a) Plant tissue culture

b) Elisa

c) Cloning

d) None of these.

xi) RFLP is used to

a) analyze the length of the strands of the DNA molecules with repeating base pair patterns

b) amplify the DNA molecules using a smaller sample

c) extract DNA

d) none of these.

xii) Non-ionizing electromagnetic waves of frequency between 300 MHz to 300 GHz are called as

a) Laser ray b) Microwave

c) *X*-ray d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Define DNA fringerprinting. What is VNTR ? How does it influence DNA fingerprinting ? Mention four applications of DNA fingerprinting. $2 + \frac{1}{2} + 1 + 1\frac{1}{2}$

3. Write down the principle of TLC. Enumerate the difference between TLC and HPTLC. $2 + 3$

4. What is the principle of maceration ? Differentiate between infusion and decoction. Why is frequently shaking necessary during maceration ? $2 + 1\frac{1}{2} + 1\frac{1}{2}$

5. What is the principle of supercritical fluid extraction and microwave assisted extraction ? What are the limitations of soxhlet assisted extraction ? $1\frac{1}{2} + 1\frac{1}{2} + 2$

6. What is the difference between Normal phase and Reverse phase chromatography ? What type of chromatography will be preferred, while you detect steroid, tannin and flavonoid types of compounds ? Justify your answers mentioning the mobile phase composition. 1 + 4

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. You have been given a sample of amino acids, enantiomers, polar compounds, recombinant proteins, acidic compounds, proteins of different size. What type of chromatography will you prefer to separate them ? In each case, explain your answer with proper justifications. What is the principle of affinity chromatography, gel permeation and chiral chromatography ? Mention their application in pharmaceutical field. $(6 \times 1) + 3 \times (2 + 1)$

8. Wha is the principle of GLC and HPLC ? What type of detectors are used in GLC and HPLC ? Write down their applications. What is the difference between conventional column chromatography and high performance liquid chromatography ? What is the role of 'guard column', 'priming' and 'purging' in HPLC ? 5 + 4 + 3 + 3

9. Define explants. What is the choice of explants ? What are the pharmaceutical applications of plant tissue culture ? Define the term 'immobilized cell techniques' and 'multiple shoot culture' ? Write down the necessary ingredients and factors and laboratory apparatus for ideal plant tissue culture. 2 + 2 + 3 + 3 + 5

10. Classify different types of extraction. What are the necessary criteria for selection of solvents for extraction ? What category of extraction is suitable for themolabile compounds and volatile oils ? What are the merits and merits of supercritical fluid extraction ? Mention the different purification steps of phytocompounds schematically.

11. Write short notes on any *three* of the following : 3 × 5

a) PCR

b) RFLP

c) Hydrophobic chromatography

d) Supercritical fluid extraction.