

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 × 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) $5.54 (Rt/W)^2$
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
- Indole-3-acetic acid
 - Acetic acid
 - Phenyl acetic acid
 - None of these.
- viii) *Thermus aquaticus* is used in
- PCR
 - HPLC
 - Gel Electrophoresis
 - LC-MS.
- ix) DNA fingerprinting is applied to
- identify the criminal
 - identify the actual father of a child
 - archeological study
 - all of these.
- x) Hormone is used in
- Plant tissue culture
 - Elisa
 - Cloning
 - 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 fingerprinting. 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)

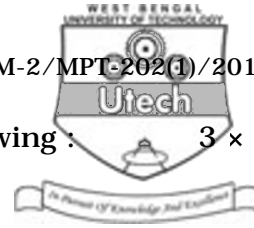
Answer any *three* of the following. $3 \times 15 = 45$

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. What 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 thermolabile compounds and volatile oils ? What are the merits and demerits of supercritical fluid extraction ? Mention the different purification steps of phytochemicals schematically.



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

- a) PCR
 - b) RFLP
 - c) Hydrophobic chromatography
 - d) Supercritical fluid extraction.
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