



Name :
Roll No. :
Invigilator's Signature :

CS / M. PHARM / SEM-2 / MPT-202(1) / 2011

2011

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) Trifluoroacetic acid is used in mobile phase in chromatography as
 - a) ion pairing agent b) washing agent
 - c) spraying agent d) none of these.
 - ii) Racemic mixtures of compounds are separated by
 - a) affinity chromatography
 - b) chiral chromatography
 - c) permeation chromatography
 - d) none of these.



- iii) Which one is correct with respect to decreasing order of polarity ?
- a) Water > acetic acid > acetonitrile > methanol > ethanol
 - b) Acetic acid > water > acetonitrile > methanol > ethanol
 - c) Acetonitrile > methanol > ethanol > acetic acid > water
 - d) Methanol > ethanol > acetic acid > water > acetonitrile.
- iv) In super critical fluid extraction, extracting solvent is produced by
- a) high pressure
 - b) temperature
 - c) both (a) and (b)
 - d) microwave energy.
- v) If polarity of a mobile phase is increased in reverse phase HPLC, R_t value of the compound will be
- a) decreased
 - b) increased
 - c) remain unchanged
 - d) none of these.
- vi) van der Waals force is applicable in
- a) partition chromatography
 - b) absorption chromatography
 - c) chiral chromatography
 - d) all of these.



- vii) Polyacrylamide gel is used in
- a) size exclusion chromatography
 - b) chiral chromatography
 - c) hydrophobic chromatography
 - d) all of these.
- viii) Plant tissue culture is performed to
- a) increase the totipotency
 - b) decrease the totipotency
 - c) clone the plant tissue
 - d) increase the % of phytochemicals
 - e) (a), (c) and (d).
- ix) Electron capture detector detects positive ion in carrier gas by
- a) cathode electrode b) anode electrode
 - c) both (a) and (b) d) insulator.
- x) DNA fingerprinting is applied to
- a) identify the criminal
 - b) identify the actual father of a child
 - c) archaeological study
 - d) all of these.

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- xi) Calcium alginate is used in
- a) plant tissue culture
 - b) immobilized plant cell culture
 - c) cloning
 - d) none of these.
- xii) RFLP is used to
- a) analyze the length of the strands of the DNA molecules with repeating base pair patterns
 - b) amplifies the DNA molecules using a smaller sample
 - c) extracting of DNA
 - d) none of these.
- xiii) “Hyphenated technique” is used
- a) to compare the phytochemicals
 - b) to assay an unknown compound
 - c) for diagnosis of the disease
 - d) all 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 finger-printing. $2 + \frac{1}{2} + 1 + 1\frac{1}{2}$
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 are the principles 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 type of compounds ? Justify your answers with 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 given a sample of amino acids, enantiomers, polar compounds, recombinant proteins, acidic compounds, proteins of different sizes. What type of chromatography are you preferred to separate them ? Each cases, explain your answer with proper justifications. What is the principle of affinity chromatography, gel permeation and chiral chromatography ? Mention their applications in pharmaceutical field. $(1 \times 6) + (2 + 1) \times 3$
8. What are the principles of GLC and H.P.L.C. ? What types of detectors are used in GLC and H.P.L.C. ? 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 H.P.L.C. ? $5 + 4 + 3 + 3$
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 cultures'. Write down the necessary ingredients, 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 super critical 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) Microwave assisted phyto-extraction.

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