

Unit 12 - Week 10: Modern techniques for biomolecules study, purification and characterization; Molecular probes

Course outline

How does an NPTEL online course work?

Week 0: Prerequisite

Week 1: Nucleic acids and proteins

Week 2: Nucleic acids and proteins

Week 3 : Synthesis of Nucleobases and Nucleotides

Week 4 : DNA Replication, Polymerases, DNA Sequencing and PCR

Week 5 : DNA Replication, Polymerases, DNA Sequencing and PCR

Week 6: DNA damage, mutation and cancer

Week 7: DNA to proteins: transcription, translation and genetic code

Week 8: Protein Sequencing and Solid Phase Peptide Synthesis (SPPS)

Week 9: Chemical Synthesis of Peptides and its therapeutic applications; Spectroscopic techniques for biomolecules.

Week 10: Modern techniques for biomolecules study, purification and characterization; Molecular probes

● Lecture 29: Spectroscopic techniques -II and Purification technique-I of biomolecules

● Lecture 30: Purification techniques-II and Characteriation techniques of biomolecules

● Lecture 31: Molecular probes : PNA and LNA-I

○ Quiz : Assignment 10

● Lecture notes: Week 10

○ Weekly feedback form for week 10

Week 11: Molecular probes and Chemistry of carbohydrates

Week 12: Chemistry of carbohydrates and Recap

Download Videos

Assignment 10

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-04-08, 23:59 IST.

1) Find the correct order of radiation in respect to their wavelength

2 points

- X-ray<UV<Visible<IR
 X-ray>UV>Visible>IR
 X-ray>UV>IR>MW
 UV<Visible<γ-ray<Radio

No, the answer is incorrect.
Score: 0

Accepted Answers:
X-ray>UV>Visible>IR
X-ray>UV>IR>MW

2) IR spectroscopy measures the transition of molecules

1 point

- Electronic
 Vibrational
 Rotational

No, the answer is incorrect.
Score: 0

Accepted Answers:
Vibrational

3) What is the result of interstate conversion in electronic transition of molecules?

1 point

- Fluorescence
 Non-radiative release of energy
 Phosphorescence

No, the answer is incorrect.
Score: 0

Accepted Answers:
Phosphorescence

4) Due to its high affinity, PNA forms invasive complex with double stranded DNA, such as-

1 point

- Triple strand
 Double duplex
 Duplex invasion
 All the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All the above

5) In reversed phase HPLC:

2 points

- a hydrophobic phase stationary phase is combined with a non-polar mobile phase
 a hydrophobic phase stationary phase is combined with a polar mobile phase
 a hydrophilic phase stationary phase is combined with a non-polar mobile phase
 a hydrophilic phase stationary phase is combined with a polar mobile phase

No, the answer is incorrect.
Score: 0

Accepted Answers:
a hydrophobic phase stationary phase is combined with a polar mobile phase

6) Which of the following statements is/are correct?

2 points

- Fluorescence spectroscopy requires more amount of sample as compared to UV-Visible spectroscopy
 Fluorescence spectroscopy is a type of emission spectroscopy.
 Sinapinic acid can be used as a matrix for proteins
 MALDI has high resolution

No, the answer is incorrect.
Score: 0

Accepted Answers:
Fluorescence spectroscopy is a type of emission spectroscopy.
Sinapinic acid can be used as a matrix for proteins

7) What is the backbone of PNA?

1 point

- Sugar phosphate
 Peptide
 Carbohydrates

No, the answer is incorrect.
Score: 0

Accepted Answers:
Peptide