

Unit 5 - Week 3 : Synthesis of Nucleobases and Nucleotides

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

● Lec 7 : Chemical synthesis purine nucleobases, Prebiotic chemistry

● Lec 8 : Synthesis of nucleosides

● Lec 9 : Solid phase DNA synthesis

○ Quiz : Assignment 3

● Lecture notes: Week 3

○ Weekly feedback form for week 3

● Solution for Assignment "3"

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

Week 11: Molecular probes and Chemistry of carbohydrates

Week 12: Chemistry of carbohydrates and Recap

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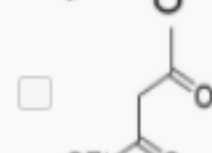
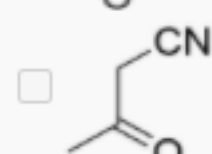
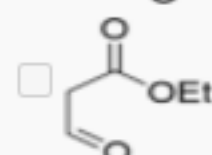
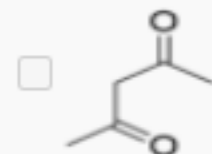
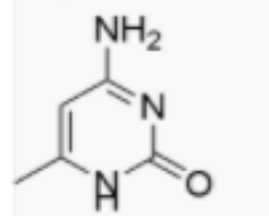
Assignment 3

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

Due on 2020-02-19, 23:59 IST.

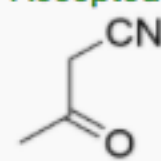
1) The following pyrimidine compound can be synthesized from the starting material

2 points



No, the answer is incorrect. Score: 0

Accepted Answers:



2) The reaction of guanidine with a β -Keto ester would yield

1 point

- A purine derivative
- A 2-amino pyrimidine derivative
- A 2-oxo pyrimidine derivative
- A cytosine nucleobase

No, the answer is incorrect. Score: 0

Accepted Answers:

A 2-amino pyrimidine derivative

3) Cytosine undergoes enzymatic hydrolysis (deamination) to produce

1 point

- Uracil
- Thymine
- 2-amino uracil
- Guanine

No, the answer is incorrect. Score: 0

Accepted Answers:

Uracil

4) Prebiotic chemistry is the study of

2 points

- Synthesis of nucleobases and amino acids in primordial soup
- Evolution of biomolecules
- Protein DNA interactions
- Industrial synthesis of biomolecules

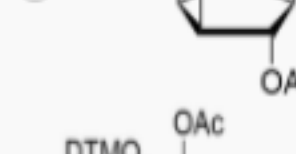
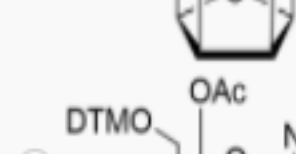
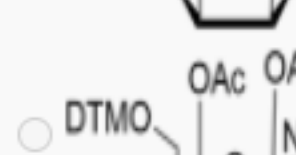
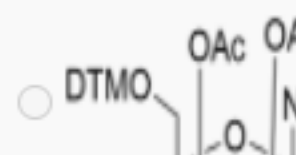
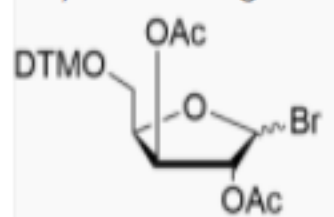
No, the answer is incorrect. Score: 0

Accepted Answers:

Synthesis of nucleobases and amino acids in primordial soup
Evolution of biomolecules

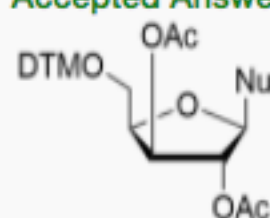
5) According to Baker's rule, nucleophilic substitution (Nu) at C1' of the following will produce

2 points



No, the answer is incorrect. Score: 0

Accepted Answers:



6) The correct statement(s) for solid phase phosphoramidite chemistry is/are

2 points

- It is a biological synthesis of DNA
- It is a protocol to manufacture shorter oligonucleotides
- It is performed in reflux condition
- It requires tetrazole as a catalyst

No, the answer is incorrect. Score: 0

Accepted Answers:

It is a protocol to manufacture shorter oligonucleotides
It requires tetrazole as a catalyst