

Department of Biology

**Eksamensoppgave i Bi2014 Molekylærbiologi**

**Examination paper for Bi2014 Molecular biology**

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**Permitted examination support material: None**

**Other information:**

Each question counts 25%.

Hver oppgave teller 25%.

**Language: Bokmål & English**

**Number of pages (front page excluded): 2**

**Number of pages enclosed: None**

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| **Informasjon om trykking av eksamensoppgave Originalen er:**  **1-sidig X□ 2-sidig □**  **sort/hvit X□ farger □** |

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Date Signature

**Bokmål:**

Oppgave 1.

1. Forklar hva et genom er.
2. Beskriv en metode for sekvensering av DNA.
3. Hva er en oligonucleotide primer?

Oppgave 2.

1. Hva er kodende og ikke-kodende RNAs?
2. Hva er ribozymer?
3. Beskriv prosessen der intron fjernes fra RNA ved spleising (“splicing”).

Oppgave 3.

1. Hva er kromatin?
2. Hvordan påvirker acetylering av histoner genekspresjonen i eukaryoter?
3. Hvilken rolle har DNA metylering for genaktiviteten?

Oppgave 4.

1. Hvordan brukes rapportgener for å analysere genuttrykk?
2. Hva er et transkriptom?
3. Forklar kort prinsippene bak metoder som brukes for å analysere transkriptomet?

**English:**

Question 1.

1. Explain what a genome is.
2. Describe a method for sequencing of DNA.
3. What is an oligonucleotide primer?

Question 2.

1. What are coding and non-coding RNAs?
2. What is ribozymes?
3. Describe the process where introns are removed from RNA by splicing.

Question 3.

1. What is chromatin?
2. How does acetylation of histones affect gene expression in eukaryotes?
3. Which role has DNA methylation for gene activity?

Question 4.

1. How is report genes used to monitor gene expression?
2. What is a transcriptome?
3. Explain briefly the principles behind methods used to analyze the transcriptome.