

# UNIVERSITY OF OSLO

Faculty of Mathematics and Natural Sciences

Exam in: **MBV2020 Laboratory course in biochemistry and molecular biology**

Day of exam: **June 10, 2008**

Exam hours: **14:30-16:30 (2 hours)**

This examination paper consists of **2** pages.

Appendices: **None**

Permitted materials: **None**

*Make sure that your copy of this examination paper is complete before answering.*

Numbers in brackets indicate the maximum number of points for each question. The maximum number of points for the entire exam is 45.

1. What were the following compounds used for in the MBV2020 course?

(answer in 1-2 sentences)

- a) Ampicillin
- b) Xylene cyanol FF
- c) RNase A
- d) Ammonium persulfate
- e) Methanol
- f) Imidazole
- g) IPTG (Isopropyl- $\beta$ -D-thiogalactopyranoside)
- h) Ammonium acetate
- i) Ni-sepharose
- j) dNTPs (deoxynucleotides)

(10)

2. Which of the following statements are **false**?

- a) Low melting point agarose melts at approximately 65°C.
- b) Large DNA fragments (>10 kb) can best be separated in an 1.5% agarose gel.
- c) Ethidium bromide binds to DNA and RNA.
- d) Cloning vectors are usually larger than 10,000 bp.
- e) The gene for the green fluorescent protein (GFP) is smaller than 1,000 bp.
- f) The *lacZ* gene codes for  $\beta$ -glucuronidase.
- g) A multiple cloning site (MCS) is also called a polylinker.
- h) SDS denatures proteins.
- i) Bromphenolblue stains proteins.
- j) Acrylamide is a neurotoxin.

(10)

3. a) Describe the steps involved in analyzing plasmid DNA by a restriction digestion. (5)  
 b) What has to be considered when setting up a ligation reaction? (5)
4. Six plasmids that have been isolated by minipreps were digested with *Bam*HI and fragments separated on an agarose gel (Figure 1 below). Try to answer the following questions:
- a) What is the size of the plasmid? (5)  
 b) Explain the fragment patterns in each of the seven lanes on the gel. (10)

