UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Kedua
Sidang Akademik 2002/2003

Februari/Mac 2003

BMT204E/3 - Bacteriology
BMT204E/3 - Bakteriologi

Masa : [3 jam]

Please ensure that this examination paper contains FOUR printed pages.

Answer FIVE out of SIX questions. Candidates are allowed to answer all questions in English **or** Bahasa Malaysia or combination of both.

Each question carries 20 marks.

Sila pastikan bahawa kertas peperiksaan ini mengandungi EMPAT muka surat yang bercetak sebelum anda memulakan peperiksaan ini.

*Jawab LIMA daripada ENAM soalan yang diberikan. Calon dibenarkan menjawab semua soalan dalam Bahasa Inggeris **atau** Bahasa Malaysia atau kombinasi kedua-duanya.*

Tiap-tiap soalan bernilai 20 markah.

....2/-

03' Feb 03'

1. (a) Draw a diagrammatic representation showing the differences in the gross structure between a gram negative and a gram positive rod-shaped bacterial cell wall. Show all the microstructures that are possibly present, and label all parts.

Secara gambarajah, lukiskan perbezaan antara struktur kasar dinding sel bakteria gram negatif dan gram positif yang berbentuk rod. Tunjukkan semua struktur halus yang mungkin wujud, dan label semua bahagian.)

(12 marks/*markah*)

(b) What will happen if this structure is exposed to the action of lysozyme?

Apakah yang akan berlaku sekiranya struktur ini didedahkan kepada tindakan lisozim?

(8 marks/*markah*)

2. (a) What are the nutritional needs of a bacterial cell? What is the function of each of the components added to a medium?

Apakah keperluan nutrisi suatu sel bakteria? Apakah fungsi setiap komponen yang dimasukkan ke dalam medium?

(12 marks/*markah*)

(b) List the contents of nutrient broth. How can this medium be improved?

Senaraikan kandungan kaldu nutrient. Bagaimanakah medium ini dapat diperbaiki?

(8 marks/*markah*)

...3/-

03'

3. (a) Describe the structure of a bacterial growth curve. What is the importance of exponential growth?

Terangkan struktur lengkok pertumbuhan bakteria. Apakah kepentingan pertumbuhan eksponen?

(12 marks/*markah*)

(b) What stimulates the initiation of each of the growth phases?

Apakah yang meransangkan permulaan setiap fasa pertumbuhan?

(8 marks/*markah*)

4. (a) What is Archaebacteria? Discuss the importance of extreme thermophilic microorganisma to mankind.

Apakah Archaebacteria? Bincangkan kepentingan mikroorganisme termofili lampau kepada manusia.

(10 marks/*markah*)

(b) What is coliform bacteria?. Discuss in detail the importance of coliforms in water quality determination.

Apakah bakteria koliform? Bincangkan kepentingan koliform dalam penentuan kualiti air.

(10 marks/*markah*)

5 Discuss in detail the formation of a typical bacterial endospore, including the enzyme involved in the process

6 Short notes
a) Enterobacteriaceae
b) Methanogens
c) Halophilic bac
d) Thermoacidophilic bac

...4/-

5. Discuss in detail the formation of a typical bacterial endospore, including the enzymes involved in the process.

Bincangkan pembentukan suatu endospora bakteria yang lazim, termasuk penglibatan enzim di dalam proses tersebut.

(20 marks/*markah*)

6. Write short notes on:

(a) Enterobacteriaceae
(b) Methanogens
(c) Halophilic bacteria
(d) Thermoacidophilic bacteria

Tuliskan nota ringkas tentang:

(a) Enterobacteriaceae
(b) Methanogen
(c) Bakteria halofili
(d) Bakteria termoasidofili

(20 marks/*markah*)

- ooo O ooo -