
UNIVERSITI SAINS MALAYSIA

First Semester Examination
2010/2011 Academic Session

November 2010

IMK 105 - BIOCHEMISTRY
[BIOKIMIA]

Duration: 2 hours
Masa: [2 jam]

Please check that this examination paper consists of FIVE pages of printed material before you begin the examination.

[Sila pastikan bahawa kertas peperiksaan ini mengandungi LIMA muka surat yang bercetak sebelum anda memulakan peperiksaan ini.]

Instructions: Answer FOUR questions. You may answer the questions either in Bahasa Malaysia or in English.

Arahan: *Jawab EMPAT soalan. Anda dibenarkan menjawab soalan sama ada dalam Bahasa Malaysia atau Bahasa Inggeris.]*

In the event of any discrepancies, the English version shall be used.

[Sekiranya terdapat sebarang percanggahan pada soalan peperiksaan, versi Bahasa Inggeris hendaklah diguna pakai.]

ANSWER FOUR (4) QUESTIONS ONLY

1. Answer all parts of this question.
 - (a) Sketch an animal cell and label each of the organelles. (10 marks)
 - (b) Describe the structure and function of the five (5) cell organelles. (15 marks)

2. Answer all parts of this question.
 - (a) Sketch and describe The Fluid Mosaic Model. (10 marks)
 - (b) Define endocytosis and exocytosis. Describe the molecule transported across the plasma membrane by this mechanism. (15 marks)

3. Answer all parts of this question.
 - (a) Briefly explain the importance of vitamins in citric acid cycle (TCA/Krebs cycle). (10 marks)
 - (b) With the aid of flow chart, briefly explain glycolysis. (15 marks)

4. Answer all parts of this question.
 - (a) List four (4) important enzymes involved during oxidation and reduction processes. Briefly explain why one (1) of these enzymes cannot use oxygen as a hydrogen acceptor. (10 marks)
 - (b) Explain the factors affecting the rates of enzyme reaction. (15 marks)

5. Answer all parts of this question.

(a) Briefly explain role of urea cycle in amino acid breakdown.

(10 marks)

(b) Classify and discuss the basic metabolic pathways for the catabolism of macronutrients.

(15 marks)

JAWAB EMPAT (4) SOALAN SAHAJA

1. *Jawab semua bahagian soalan ini.*

(a) *Lukis lakaran sel haiwan dan label organel-organel yang ada.* (10 markah)

(b) *Terangkan struktur dan fungsi lima (5) organel-organel tersebut.* (15 markah)

2. *Jawab semua bahagian soalan ini.*

(a) *Lukis lakaran dan huraikan Model Cecair Mozek.* (10 markah)

(b) *Huraikan endositosis dan eksositosis. Huraikan molekul yang diangkut merentasi membran plasma dengan kedua-dua mekanisma ini.* (15 markah)

3. *Jawab semua bahagian soalan ini.*

(a) *Secara ringkas terangkan kepentingan vitamin dalam kitaran asid sitrik (TCA/kitaran Krebs).* (10 markah)

(b) *Dengan bantuan carta alir, secara ringkas terangkan glikolisis.* (15 markah)

4. *Jawab semua bahagian soalan ini.*

(a) *Senaraikan empat (4) enzim-enzim penting yang terlibat ketika proses oksidasi dan reduksi. Secara ringkas terangkan mengapa satu (1) daripada enzim ini tidak boleh menggunakan oksigen sebagai penerima hydrogen.* (10 markah)

(b) *Terangkan faktor-faktor yang mempengaruhi kadar tindakbalas enzim.* (15 markah)

5. *Jawab semua bahagian soalan ini.*

(a) *Secara ringkas terangkan peranan kitaran urea dalam pemecahan asid amino.*

(10 markah)

(b) *Kelaskan dan bincangkan asas tapakjalan metabolik katabolisma makronutrien.*

(15 markah)