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UNIVERSITI SAINS MALAYSIA

Second Semester Examination  
Academic Session 2007/08

April 2008

**IMK 104 – Nutrition**  
***[Pemakanan]***

Duration: 3 hours  
*[Masa: 3 jam]*

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

Answer **FIVE** questions out of seven. All questions can be answered either in Bahasa Malaysia OR English.

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

*[Jawab **LIMA** dari tujuh soalan. Semua soalan boleh dijawab dalam Bahasa Malaysia ATAU Bahasa Inggeris.]*

- (c) There are special movements to move materials in the gastrointestinal tract. List the movements involved and with diagram explain how it works.  
(5 marks)
6. Answer all parts of this question.
- (a) To function optimally, our body maintains blood glucose within the normal range. Using an illustration, explain the mechanism that occurs when blood glucose rises too high after meal and decline during fasting.  
(5 marks)
- (b) Calciferol can be synthesized in our body and is not an essential nutrient. With the aid of illustration, explain the mechanism of calciferol synthesis. Explain the consequences of calciferol deficiency.  
(10 marks)
- (c) Bile acid is only involved during digestion when our food intake contains some amount of lipid. Explain the mechanism of bile acid released and use a diagram to explain how bile acid is used efficiently in our body.  
(5 marks)
7. Answer both parts of this question.
- (a) Protein plays a main role as the building block of most body structure. However, proteins can also be used for energy and to make fat. Briefly explain the mechanism involved and the condition in which the mechanism occurs.  
(5 marks)
- (b) Owing to the various compositions and processing effects, it is important to determine the quality of protein. Methods for measuring protein quality can be either simple and rapid or complex and time consuming. List the *in vivo* bioassay methods available to measure protein quality. Briefly explain the methods and the calculation involved in each method.  
(15 marks)