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UNIVERSITI SAINS MALAYSIA

First Semester Examination  
Academic Session 2008/2009

November 2008

**ZCT 531/4 – Human Anatomy and Physiology**  
*[Anatomi dan Fisiologi Manusia]*

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

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Please ensure that this examination paper contains **FOUR** printed pages before you begin the examination.

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

**Instruction:** Answer **ANY FIVE (5)** questions only. Students are allowed to answer all questions in Bahasa Malaysia or in English. Please use different answer book for each section.

**Arahan:** Jawab **MANA-MANA LIMA (5)** soalan sahaja. Pelajar dibenarkan menjawab semua soalan sama ada dalam Bahasa Malaysia atau Bahasa Inggeris. Sila guna buku jawapan berasingan untuk setiap bahagian.]

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## SECTION A [BAHAGIAN A]

1. (a) Describe the anatomy and physiologi of the female reproductive system in a 30 year old.  
*[Huraikan anatomi dan fisiologi sistem reproduktif wanita yang berumur 30 tahun.]*  
 (50/100)
- (b) Write short notes on  
*[Tuliskan nota ringkas tentang]*
- i) hormones of the anterior pituitary gland  
*[hormon pituitary anterior]*
- ii) the stomach  
*perut / gaster*  
 (40/100)
- (c) List the clinical investigations that can be done of the renal system  
*[Senaraikan siasatan klinikal yang boleh dijalankan bagi sistem renal]*  
 (10/100)
2. (a) Describe anatomy and physiology of the thyroid gland.  
*[Huraikan anatomi dan fisiologi kelenjar tiroid.]*  
 (50/100)
- (b) Write short notes on:-  
*[Tuliskan nota ringkas tentang:-]*
- i) digestion of carbohydrates  
*[pencernaan karbohidrat]*
- ii) role of the kidneys in blood pressure control  
*[peranan ginjal dalam kawalan tekanan darah]*  
 (40/100)
- (c) List the differences between the mitosis and meiosis  
*[Senaraikan perbezaan antara mitosis dan meiosis.]*  
 (10/100)

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3. (a) Describe the anatomy and physiology of the right kidney  
*[Huraikan anatomi dan fisiologi organ ginjal kanan]*  
 (50/100)
- (b) Write short notes on  
*[Tuliskan nota ringkas tentang:]*
- (i) adrenal gland  
*[kelenjar adrenal]*
- (ii) hormone changes in menopause  
*[perubahan hormon semasa menopause]*  
 (40/100)
- (c) List the functions of the small intestine.  
*[Senaraikan fungsi usus kecil.]*  
 (10/100)

## SECTION B [BAHAGIAN B]

4. (a) Explain briefly the steps involved in the synthesis of protein.  
*[Terangkan secara ringkas langkah-langkah yang terlibat dalam sintesis protein.]*  
 (20/100)
- (b) Describe the various anatomical features of human skin and explain how they can provide protection, heat regulation, sensation and excretion.  
*[Perihalkan pelbagai ciri anatomi kulit manusia dan terangkan bagaimana ianya memberikan perlindungan, pengawalan haba, deria rasa dan pengumuhan.]*  
 (50/100)
- (c) Write a short note on important macromolecules found in human system.  
*[Tulis nota ringkas tentang makromolekul penting yang terdapat di dalam sistem manusia.]*  
 (30/100)
5. (a) List the important bones and their functions in human skeletal system.  
*[Senaraikan tulang-tulang penting dan fungsi-fungsinya di dalam sistem skeletal.]*  
 (25/100)

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- (b) Detail the three types of neurons found in the human body and with the help of diagrams, explain how they are useful in conducting a nerve impulse. Use the concept of action potential and resting potential to explain your answer.  
*[Perincikan tiga jenis neuron yang terdapat di dalam badan manusia dan berbantuan gambarajah, terangkan bagaimana iannya berguna dalam mengendalikan suatu impuls saraf.]*  
 (60/100)
- (c) Explain the terms 'threshold' and 'refractory period' in nerve conduction.  
*[Terangkan istilah 'ambang' dan 'tempoh refraktori' dalam pengendalian saraf.]*  
 (15/100)
6. (a) Write a short note on a) Meninges, b) Cerebro spinal fluid and c) Spinal cord  
*[Tulis suatu nota ringkas mengenai a) Meninges, b) Bendalir spina serebro dan c) korda spina ]*  
 (20/100)
- (b) Discuss the role of various valves in the pumping action of heart in blood circulation using suitable diagrams.  
*[Bincangkan peranan pelbagai injap dalam tindakan pengepaman jantung dalam pengedaran darah menggunakan gambarajah yang sesuai.]*  
 (30/100)
- (c) Mention the various events taking place during a normal cardiac cycle.  
*[Sebutkan pelbagai peristiwa yang berlaku semasa kitaran kardiium normal.]*  
 (20/100)
- (d) Explain the physiological mechanisms involved in the process of respiration.  
*[Terangkan mekanisme fisiologi yang terlibat dalam proses pernafasan.]*  
 (30/100)

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