

UNIVERSITI SAINS MALAYSIA

Second Semester Examination
Academic Session 2006/2007

April 2007

ZMT 231/4 - Human Anatomy and Physiology
[Anatomi dan Fisiologi Manusia]

Duration: 3 hours
[Masa : 3 jam]

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

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

Instruction: Answer **FIVE** questions only. Students are allowed to answer all questions in Bahasa Malaysia or in English.

Arahan: Jawab **LIMA** soalan sahaja. Pelajar dibenarkan menjawab semua soalan sama ada dalam Bahasa Malaysia atau Bahasa Inggeris.]

1. (a) The following terms are encountered in the study of anatomy. Explain their meaning:

[Berikut merupakan sebutan yang ditemui dalam kajian anatomi. Jelaskan maksudnya:]

Parasagittal plane
[Plana parasagital]

Frontal plane
[Plana frontal]

Lateral
[Lateral]

Distal
[Distal]

Proximal
[Proksimal]

(15/100)

- (b) Outline the functions of the circulatory system.
[Ikhtisarkan fungsi sistem peredaran.]

(35/100)

- (c) With the help of diagrams, explain how material exchange takes place across cell membranes.

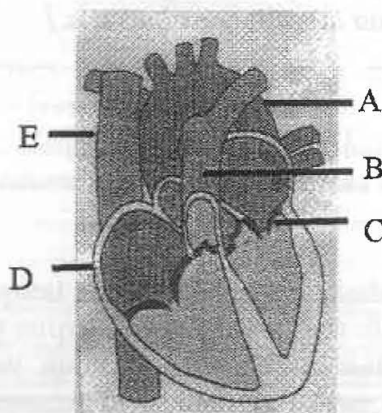
[Dengan bantuan gambarajah jelaskan bagaimana pertukaran bahan, melintasi membran sel, dapat berlaku.]

(50/100)

2. (a) Explain the differences between graded potential and action potential.
[Jelaskan perbezaan antara potensial bergred dengan potensial aksi.]

(55/100)

- (b) Label the following diagram of the heart.
[Labelkan gambarajah jantung berikut.]



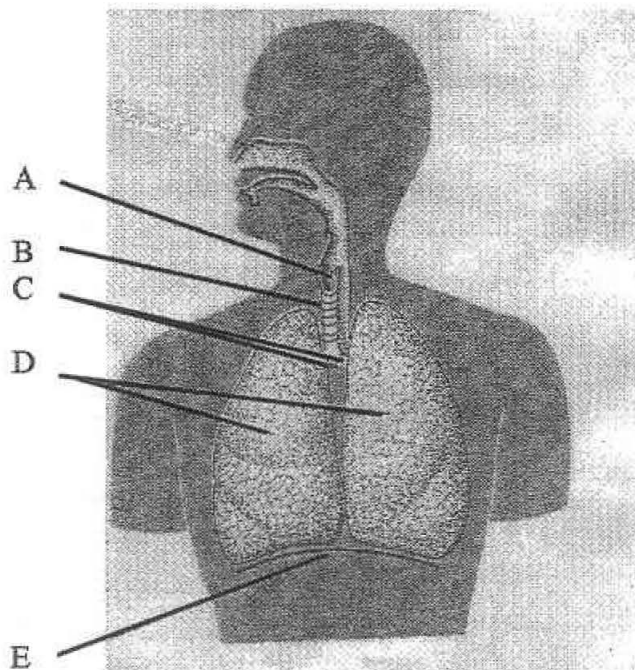
(5/100)

- (c) Write short notes on:
[Tulis nota ringkas bagi:]

Sinapse
[Sinaps]
Cerebrospinal fluid
[Bendalir serebrospina]
Sebaceous glands
[Kelenjar sebum]
Sinoatrial node
[Nodus sinoatrium]

(40/100)

3. (a) Label the following diagram of the respiratory system.
[Labelkan gambarajah sistem pernafasan berikut]



(5/100)

- (b) With the help of diagrams describe the detail structure of a skeletal muscle.
[Dengan bantuan gambarajah perihalkan secara perinci, struktur otot rangka].

(30/100)

- (c) Outline the factors that influence bone growth and development.
[Ikhtisarkan faktor-faktor yang mempengaruhi pertumbuhan dan perkembangan tulang.]

(25/100)

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- (d) Write short notes on:
[Tulis nota ringkas bagi:]

Arterioles
[Arteriol]
Sarcoplasmic reticulum
[Retikulum sarkoplasmik]
Neurons
[Neuron]
Anabolism
[Anabolisme]
Sweat glands
[Kelenjar peluh]

(40/100)

4. (a) Identify the endocrine organs indicated in diagram 1.
Describe the anatomy and physiology of any two(2) of the organs identified.
[Namakan organ endokrin dalam gambarajah 1.
Huraikan anatomi dan fisiologi dua(2) daripada organ-organ yang telah di namakan.]

(50/100)

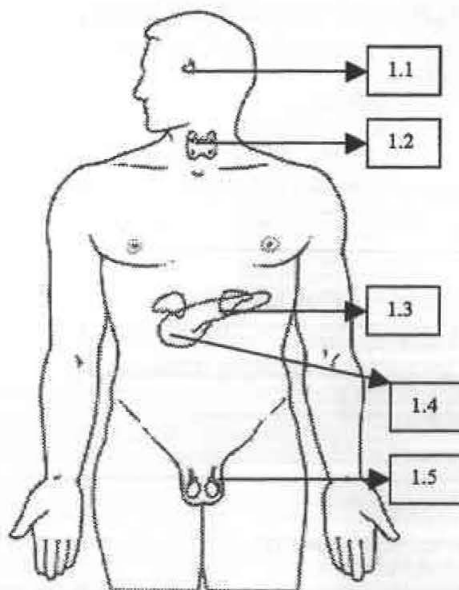


Diagram 1 [Gambarajah 1]

(b) Write short notes on the
[*Tuliskan nota ringkas mengenai*]

- (i) digestion of carbohydrates
[*pencernaan karbohidrat*]
- (ii) menopause
[*menopos*]

(40/100)

(c) Briefly explain homeostasis
[*Huraikan secara ringkas homeostasis*]

(10/100)

5. (a) Identify the structures in diagram 2 - the digestive system.
Describe the anatomy and physiology of structures (2.2) and (2.3).
[*Namakan struktur dalam gambarajah 2 – sistem pencernaan.*
Huraikan anatomi dan fisiologi struktur 2.2 dan struktur 2.3.]

(50/100)

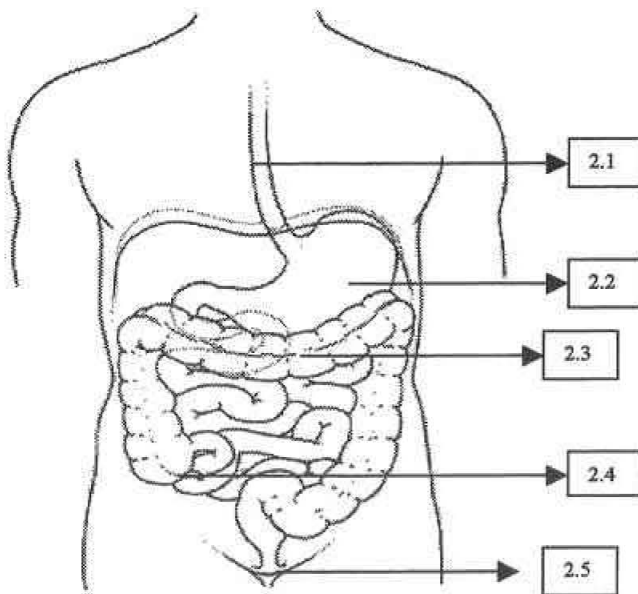


Diagram 2 [*Gambarajah 2*]

- (b) List the functions of the reproductive system.
[*Senaraikan fungsi sistem pembiakan.*]

(10/100)

(c) Write short notes on the
[Tuliskan nota ringkas mengenai]

- (i) control of blood pressure
[kawalan tekanan darah]
- (ii) thyroid
[tiroid]

(40/100)

6. (a) Identify the structures in diagram 3 - the urinary system.
Describe the formation of urine.
[Namakan struktur dalam gambarajah 3 - sistem kencing
Huraikan pembentukan air kencing.]

(50/100)

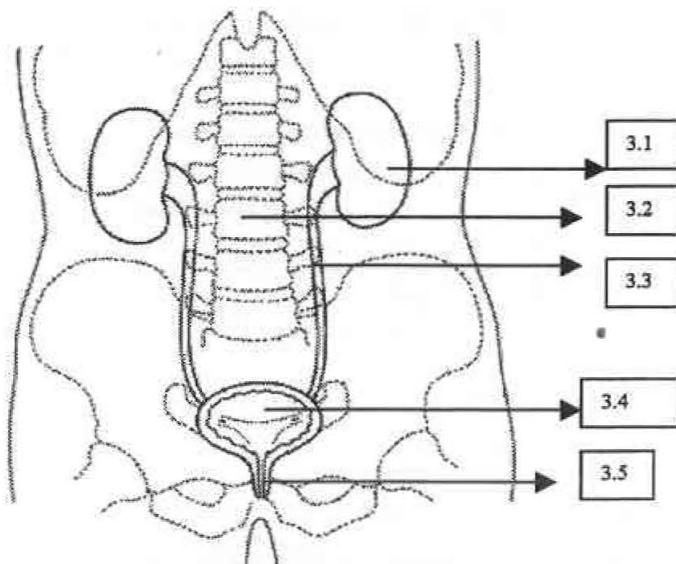


Diagram 3 [Gamarajah 3]

(b) Write short notes on the
[Tuliskan nota ringkas mengenai]

- (i) male reproductive system
[sistem pembiakan lelaki]
- (ii) pancreas
[pankreas]

(40/100)

(c) Briefly describe how the release of hormones are controlled.
[Huraikan secara ringkas pengawalan pengeluaran hormon.]

(10/100)