

**SULIT**



**BAHAGIAN PEPERIKSAAN DAN PENILAIAN  
JABATAN PENDIDIKAN POLITEKNIK  
KEMENTERIAN PENDIDIKAN TINGGI**

**JABATAN KEJURUTERAAN ELEKTRIK**

**PEPERIKSAAN AKHIR**

**SESI DISEMBER 2015**

**DEU3193 : ANATOMY & PHYSIOLOGY**

**TARIKH : 08 APRIL 2016**

**MASA : 8.30 PG – 10.30 PG (2 JAM)**

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Kertas ini mengandungi **TIGA BELAS (13)** halaman bercetak.

Bahagian A: Objektif (10 soalan)

Bahagian B: Struktur (4 soalan)

Bahagian C: Esei (2 soalan)

Dokumen sokongan yang disertakan : Tiada

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**JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN**

(CLO yang tertera hanya sebagai rujukan)

**SULIT**

**SECTION A : 10 MARKS**  
**BAHAGIAN A : 10 MARKAH**

**INSTRUCTION:**

This section consists of **TEN (10)** objective questions. Mark your answers in the OMR form provided.

**ARAHAN:**

*Bahagian ini mengandungi **SEPULUH (10)** soalan objektif. Tandakan jawapan anda di dalam borang OMR yang disediakan.*

CLO1  
C1

1.

ATP is required  
Does not exhibit saturation  
Solid particles are transported

Cell is the basic functional unit of all living things. Given these observations concerning a transport process into a cell, the transport process involved is

*Sel merupakan unit asas bagi fungsi semua benda hidup. Berdasarkan pemerhatian berkenaan proses pengangkutan ke dalam sel, proses pengangkutan yang terlibat adalah*

- A. Active transport  
*Pengangkutan aktif*
- B. Facilitated diffusion  
*Resapan berbantu*
- C. Passive transport  
*Pengangkutan pasif*
- D. Phagocytosis  
*Fagositosis*

CLO1  
C1

2. Organelles are found only in eukaryotic cells. The rough endoplasmic reticulum is so named because it has an abundance of \_\_\_\_\_ on it.

*Organel hanya dijumpai di dalam sel eukaryotik. Endoplasma retikulum kasar dinamakan sebegini kerana ia mempunyai banyak \_\_\_\_\_ di atasnya.*

- |  |                                       |
|--|---------------------------------------|
| A. Mitochondria<br><i>Mitochondria</i> | B. Ribosomes<br><i>Ribosom</i>        |
| C. Lysosomes<br><i>Lisosom</i>         | D. Golgi bodies<br><i>Badan Golgi</i> |



CLO1  
C3

3. There are variety of risk factors and illness that can lead to blood clot formation. What is the bleeding disorder where the number of circulating platelets decrease, causing spontaneous bleeding from small blood vessels all over the body.

Terdapat pelbagai faktor berisiko dan penyakit yang boleh menyebabkan pembentukan darah beku. Apakah penyakit pendarahan dimana bilangan plalet berkurangan, menyebabkan pendarahan spontan dari salur darah kecil ke seluruh badan?

- A. Erythropenia
- B. Leukopenia  
*Leukopenia*
- C. Leukemia  
*Leukemia*
- D. Thrombocytopenia  
*Trombositopenia*

CLO1  
C3

4. Reflex action is an automatic reaction towards stimuli. Which of these effects results from the stimulation of the parasympathetic division?

Aksi reflek adalah reaksi automatik terhadap rangsangan. Efek yang mana satukah disebabkan oleh simulasi bahagian parasimpatetik?

- A. increased heart rate  
*kadar denyutan jantung meningkat*
- B. increased blood flow to skeletal muscles  
*pengaliran darah ke otot skeletal meningkat*
- C. increased contraction of smooth muscle in the wall of the digestive tract  
*kontraksi otot lembut di dinding salur penghadaman*
- D. increased glucose in the blood  
*glukosa dalam darah meningkat*

CLO1  
C1

5. The human digestive system converts food into nutrients that the body needs. During digestion, proteins are broken down into which type of molecule?

Sistem pencernaan manusia menukarkan makanan kepada nutrisi yang diperlukan tubuh. Semasa penghadaman, jenis molekul yang manakah protin dipecahkan ?

- A. glucose  
*glukosa*
- B. fatty acid  
*asid lemak*
- C. amino acid  
*asid amino*
- D. nucleic acid.  
*asid nukleik*

CLO1  
C2

6. Human body needs automatic control system for cells to function properly. Which of the following is the best description of homeostasis?

Tubuh manusia memerlukan sistem kawalan automatik supaya sel boleh berfungsi dengan baik. Antara berikut, yang manakah deskripsi terbaik bagi homeostasis?

- A. Control temperature  
*mengawal suhu*
- B. Control water and ions level  
*mengawal air dan paras ion*
- C. independence of the external environment  
*tidak bergantung kepada persekitaran luaran*
- D. maintenance of the constant internal environment  
*mengekalkan persekitaran dalaman yang tetap*

CLO1  
C2

7. Diagram 1 shows a small part of human lung where exchange of gases takes place. In the options given below, determine which part of A, B, C or D is correctly identified along with its function?

*Gambarajah 1 menunjukkan sebahagian kecil paru-paru manusia dimana berlaku pertukaran gas. Antara pilihan yang diberikan dibawah, tentukan bahagian yang manakah A, B, C atau D telah dikenalpasti selaras dengan fungsinya.*

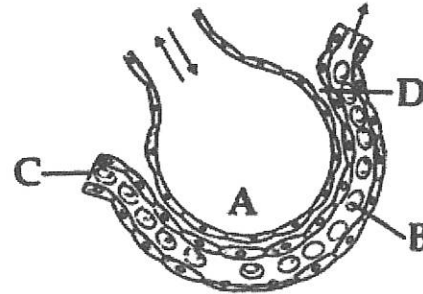


Diagram 1  
Gambarajah 1

- A. Red blood cell - transport of CO<sub>2</sub> mainly  
*Sel darah merah- mengangkut CO<sub>2</sub>*
- B. Arterial capillary - passes oxygen to tissues  
*Kapilari arteri – membawa oksigen ke tisu*
- C. alveolar cavity - main site of exchange of respiratory gases  
*ruang alveolar – tapak utama pertukaran gas respirasi*
- D. Capillary wall - exchange of O<sub>2</sub> and CO<sub>2</sub> takes place here  
*dinding kapilari – pertukaran O<sub>2</sub> dan CO<sub>2</sub> berlaku disini*

CLO1  
C2

8. The female reproductive system is made up of internal organs external structures. Based on your understanding, which of the following statements is true about the uterus?

*Sistem reproduktif wanita terdiri daripada struktur luaran organ dalaman. Berdasarkan kefahaman anda, yang manakah kenyataan yang BENAR mengenai uterus?*

- A. It becomes the placenta when the fetus is big enough.  
*Ia menjadi plasenta apabila fetus telah besar*
- B. It is connected to both the Fallopian tube and the vagina.  
*Ia terhubung dengan tiub Fallopian dan vagina*
- C. It is an endocrine gland secreting progesterone  
*Ia adalah kalenjar endokrin yang merembeskan progesterone*
- D. It produces the eggs and is the site of fertilization.  
*Ia menghasilkan telur dan adalah tapak untuk persenyawaan*

CLO1  
C1

9. The end product of all processes of urine formation is urine. What is the primary function of the ascending loop of Henle in the kidney?

*Produk akhir bagi semua proses formasi urin adalah urin. Apakah ungsi utama 'ascending loop of Henle' di dalam ginjal?*

- A. The active reabsorption of sodium  
*resapan semula aktif sodium*
- B. The active reabsorption of chloride  
*resapan semula aktif klorida*
- C. The passive reabsorption of potassium  
*resapan semula pasif potassium*
- D. The passive reabsorption of urea  
*resapan semula pasif urea*

CLO1  
C2

10. The urinary system is also known as the renal system. Which one is the effect of ADH on the distal convoluted tubule?

*Sistem urinari juga dikenali sebagai sistem renal. Yang mana satukah efek ADH keatas 'distal convoluted tubule'?*

- A. Decrease water reabsorption  
*penurunan resapan semula air*
- B. Increase water reabsorption  
*peningkatan resapan semula air*
- C. Decrease the concentration of urine  
*penurunan konsentrasi urin*
- D. Increase the urine volume  
*peningkatan isipadu urin*



**SECTION B : 60 MARKS**  
**BAHAGIAN B : 60 MARKAH**

**INSTRUCTION:**

This section consists of **FOUR (4)** structured questions. Answer **ALL** questions.

**ARAHAN:**

Bahagian ini mengandungi **EMPAT(4)** soalan berstruktur. Jawab semua soalan.

**QUESTION 1**  
**SOALAN 1**

CLO1  
C1

- a) Organelles are found only in eukaryotic cells . Based on your knowledge, describe **ONE(1)** function for each of the organelles A, B and C in Diagram 2.

*Organel hanya dijumpai di dalam sel eukaryotik sahaja. Berdasarkan pengetahuan anda, jelaskan **SATU(1)** fungsi bagi setiap organel A,B dan C di Gambarajah 2.*

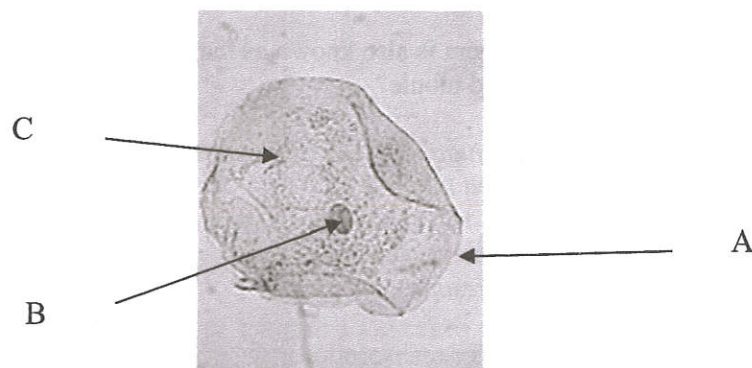


Diagram 2  
Gambarajah 2

[3 marks]  
[3 markah]

CLO1  
C2

- b) Passive transport move substances down the concentration gradient. Determine **FIVE(5)** factors that will affect rate of diffusion.

*Pengangkutan pasif mengerakkan bahan mengikut kecerunan kepekatan. Tentukan **LIMA(5)** factor yang akan mempengaruhi kadar penyerapan.*

[5 marks]  
[5 markah]

CLO1  
C3

- c) Osmosis is the diffusion of water only in and out of the cell. Diagram 3 shows the example of a plant cell. With the aid of a diagram and proper labelling, illustrate the effect of osmosis when cells are placed in the :

*Osmosis adalah resapan air masuk dan keluar sel. Gambarajah 3 menunjukkan contoh sel tumbuhan. Dengan bantuan gambarajah dan label yang betul, gambarkan kesan osmosis apabila sel diletakkan ke dalam :*

- hypertonic solution  
larutan hipertonik
- hypotonic solution  
larutan hipotonik
- isotonic solution  
larutan isotonik

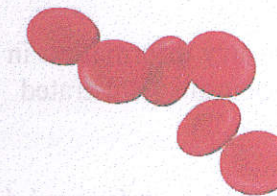


Diagram 3  
Gambarajah 3

[7 marks]  
[7 markah]

CLO1  
C1

**QUESTION 2**  
**SOALAN 2**

- a) The human blood is made up of 55% plasma and 45% blood cells. State **THREE(3)** types of granulocytes that can be found in human blood.

*Darah manusia terdiri daripada 55% plasma dan 45% sel darah. Nyatakan **TIGA(3)** jenis sel darah granulosit yang boleh dijumpai dalam darah manusia.*

[3 marks]  
[3 markah]

CLO1  
C3

- b) Blood components can be separated through centrifuged as each has different density. Based on previous learning, illustrate different blood composition based on density which is visible after centrifuged.

*Komponen darah boleh diasingkan melalui "centrifuge" kerana setiapnya mempunyai kepadatan yang berbeza. Berdasarkan pembelajaran terdahulu, gambarkan komposisi darah yang berbeza mengikut kepadatan yang boleh dilihat selepas "centrifuged".*

[5 marks]  
[5 markah]



CLO1  
C4

- c) i. The nervous system is divided into central nervous system and peripheral nervous system. With the aid of a diagram, identify different division that makes up the peripheral nervous system.

*Sistem saraf mengandungi sel saraf yang dinamakan neuron. dengan menggunakan batuan gambarajah, kenalpasti bahagian berbeza yang membentuk sistem saraf periferal.*

[5 marks]  
[5 markah]

CLO2  
C2

- ii. Neurones carry information in the form of electrical signals. As referred to the two neurons illustrated in Diagram 4 distinguish between these neurons?

*Neuron membawa informasi dalam bentuk signal elektrik. Merujuk kepada dua neuron yang digambarkan di Gambarajah 4, bezakan diantara neuron tersebut?*

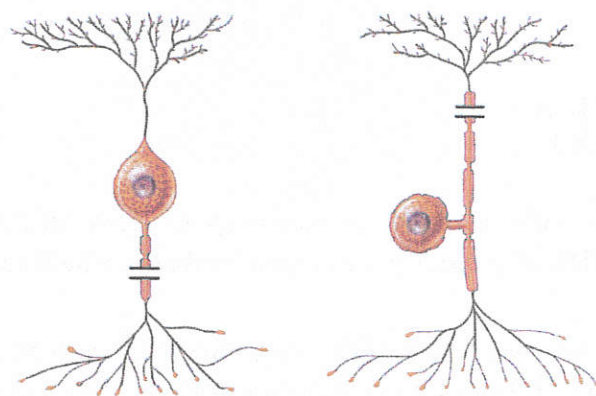


Diagram 4  
Gambarajah 4

[2 marks]  
[2 markah]

QUESTION 3  
SOALAN 3

CLO2  
C1

- a) The human digestive system converts food into nutrients that the body needs. To achieve that goal, identify **THREE(3)** major functions that takes place in human digestive system.

*Sistem penghadaman manusia menukarkan makanan kepada nutrisi yang diperlukan tubuh. Bagi mencapai tujuan tersebut, kenalpasti **TIGA(3)** fungsi utama yang berlaku di dalam sistem penghadaman manusia.*

[3 marks]  
[3 markah]

CLO2  
C2

- b) Homeostasis refers to metabolic balance maintained by several processes. Based on the physiological process of homeostasis, identify **FIVE(5)** different ways human body maintains homeostasis.

*Homeostasis merujuk kepada keseimbangan metabolic dikawal oleh beberapa proses. Berdasarkan proses fisiologi homeostasis, kenalpasti **LIMA(5)** cara berbeza badan manusia mengekalkan homeostasis.*

[5 marks]  
[5 markah]

CLO2  
C3

- c) i. The human digestive system converts food into nutrients that the body needs. List **TWO(2)** enzymes involved in each of the digestive organ stated below.
- stomach
  - small intestine

*Tubuh manusia memerlukan sistem kawalan automatic supaya sel boleh berfungsi dengan baik. Senaraikan **DUA(2)** enzim terlibat dalam setiap organ pencernaan yang dinyatakan dibawah.*

- perut
- usus kecil

[4 marks]  
[4 markah]



- ii. Homeostasis refers to metabolic balance maintained by several processes. Based on the physiological process of homeostasis, list **THREE(3)** different functions of large intestine.

*Homeostasis merujuk kepada keseimbangan metabolic dikawal oleh beberapa proses. Berdasarkan proses fisiologi homeostasis, senaraikan TIGA(3) fungsi berbeza bagi usus besar.*

[3 marks]  
[3 markah]

**QUESTION 4**  
**SOALAN 4**

CLO2  
C2

- a) The major function of the reproductive system is to ensure survival of the species. Describe on the process stated below.
- i. Ovulation
  - ii. Oogenesis

Fungsi utama bagi sistem reproduktif adalah untuk memastikan kemandirian spesis. Jelaskan mengenai proses yang dinyatakan dibawah.

- i. Ovulation
- ii. Oogenesis

[3 marks]  
[3 markah]

CLO2  
C3

- b) Birth control are methods or devices used to prevent pregnancy. Based on the physiological control of the system, list **FIVE(5)** methods of birth control.

*Kawalan kehamilan adalah kaedah atau peralatan yang digunakan bagi mengelakkan kehamilan. Berdasarkan pada kawalan fisiologi sistem tersebut, senaraikan LIMA(5) kaedah kawalan kehamilan.*

[5 marks]  
[5 markah]

CLO2  
C4

- c) i. The end product of all processes of urine formation is urine. Determine **THREE(3)** processes of urine formation.

*Produk akhir bagi semua proses formasi urin adalah urin. Tentukan TIGA(3) proses penghasilan urin*

[3 marks]  
[3 markah]

- ii. The urinary system is also known as the renal system. Based on the physiological control of kidneys, determine **FOUR(4)** common disorders related to kidney function.

*Sistem urinari dikenali sebagai sistem renal. Berdasarkan pada kawalan fisiologi buah pinggang, tentukan EMPAT(4) penyakit biasa yang berkaitan dengan fungsi buah pinggang.*

[4 marks]  
[4 markah]

**SECTION C : 30 MARKS**  
**BAHAGIAN C : 30 MARKAH**

**INSTRUCTION:**

This section consists of **TWO (2)** essay questions. Answer **ALL** questions.

**ARAHAN:**

*Bahagian ini mengandungi DUA (2) soalan esei. Jawab SEMUA soalan.*

CLO2  
C3

**QUESTION 1**  
**SOALAN 1**

- a) The human body has a central nervous system and a peripheral nervous system. With the aid of a diagram, illustrate how action potentials are generated to transmit nerve impulse.

*Badan manusia mempunyai sistem saraf utama dan sistem saraf periferal. Dengan bantuan gambarajah, gambarkan bagaimana aksi potensi dihasilkan untuk menghantar impuls saraf.*

[15marks]  
[15 markah]

CLO2  
C4

**QUESTION 2**  
**SOALAN 2**

Menstrual cycle is a monthly cycle of changes related to ovulation that occurs in the female body. Explain the hormonal regulation and follicle development for females.

*Kitaran haid adalah kitaran bulanan dimana perubahan berkaitan dengan ovulasi yang berlaku di dalam badan wanita. Terangkan regulasi hormon dan perkembangan folikel untuk wanita.*

[15 marks]  
[15 markah]

**SOALAN TAMAT**