

**Biomedical Engineering Program**  
**Academic Year 2017/2018**  
**Level 300**  
**Midterm Physiology Exam**

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| <b>Examiner (s) Name (s): Prof. Dr. Abdelaziz M. Hussein</b> |   |
| <b>Course Title: Medical Physiology, Level 300</b>           | <b>Exam Date: 2-04-2018</b>                 |
| <b>Exam Pages: 5 pages</b>                                   | <b>Exam Time: From 12.45 pm To 13.45 pm</b> |
| <b>Exam Total Mark: 20 marks</b>                             |   |

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| <b>Student's Name:</b> ..... | <b>Student's University ID:</b> ..... |
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| Question #                   | Question Style | Number of Question Items | Item Mark | Question Total Mark | Student's Mark |
|------------------------------|----------------|--------------------------|-----------|---------------------|----------------|
| A                            | MCQ            | 10 questions             | 0.5 mark  | 5 marks             |                |
| B1                           | Complete       |                          |           | 3 marks             |                |
| B2                           | Complete       |                          |           | 2 marks             |                |
| B3                           | Complete       |                          |           | 4 marks             |                |
| B4                           | Complete       |                          |           | 3 marks             |                |
| B5                           | Complete       |                          |           | 3 marks             |                |
| Examiner (s) Signature:..... |                |                          |           |                     |                |

**Students' Exam Instructions**

1. Commitment to the exam time is mandatory.
2. No extra exam time is allowed.
3. No extra answer sheets would be allowed.
4. The examiner will be available only for the first *10 minutes* of the exam. You are advised to glance at the exam questions in case you need more clarification from the examiner.
5. All questions are to be answered.
6. ....

**Best Wishes**

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**Question # A:** choose the best single answer

**(5 marks)**

**1) Concerning intracellular fluid, which of the following is true?**

- a) Consists of plasma and interstitial fluid
- b) Normally, it is about 28 litres
- c) Is called internal environment
- d) Contain high K ions and less Na ions

**2) A substance can leave a cell by any of the following means except**

- a) Active transport.
- b) Simple diffusion.
- c) Exocytosis.
- d) Pinocytosis.

**3) The cell membrane proteins represent:**

- a) 3 %
- b) 42 %
- c) 50%
- d) 55%

**4) The osmotic pressure of blood produced by which of the followings plasma proteins:**

- a) Albumin.
- b) Gamma globulins
- c) Prothrombin
- d) Fibrinogen.

**5) The RBCs functions include which of the followings:**

- a) They play a role defense functions against microorganisms
- b) They carry O<sub>2</sub> and CO<sub>2</sub>
- c) They play a role in haemostasis
- d) They exert osmotic pressure of blood

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- 6) The respiratory part of lung performs which of the following functions?**
- a) They are important in conditioning of inspired air
  - b) They are important in filtration of inspired air
  - c) They are important in gases exchange
  - d) They are important in moistening of inspired air
- 7) The normal respiratory rate in adults is**
- a) 2-6 breath/min
  - b) 12-16 breath /min
  - c) 25-30 breath /min
  - d) 40-60 breath /min
- 8) Which of the followings is a normal value of renal blood flow?**
- a) 4 ml /min
  - b) 120 ml/min
  - c) 1200 ml/min
  - d) 180 L/day
- 9) Which of the followings hormone is regulate Na reabsorption from distal segment of nephron?**
- a) Oxytocin
  - b) Insulin
  - c) Aldosterone
  - d) Antidiuretic hormone (ADH)
- 10) The functions of cardiac valves include**
- a) Pumps blood from atria to ventricles
  - b) Initiate the cardiac impulse (pacemaker of the heart)
  - c) Help blood flow in the heart in one direction
  - d) Help conduction of the cardiac impulses from atria to ventricles

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**Question # B:**

**1) Regarding body water (3 marks)**

a) Value in adults .....

b) Functions  
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**2) Glomerular filtration rate (2 marks)**

a) Definition  
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b) Value  
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**3) Regarding plasma proteins (4 marks)**

a) Site of synthesis .....

b) Functions include  
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**4) Enumerate factors affecting gas exchange through respiratory membrane (3 marks)**

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**5) Regarding conductivity of the cardiac muscle (3 marks)**

- a) Definition.....
- .....
- b) Velocity of transmission of cardiac impulse in different parts of the heart
- .....
- .....
- .....
- .....

**End of Exam**