

**First Professional MBBS Degree Examinations August 2018**

**Physiology - Paper I**

**Time: 3 Hours**

**Total Marks: 50**

- *Answer all questions*
- *Draw Diagrams wherever necessary*

**Long essay (10)**

1. A 16 years old NCC cadet, lined up for a parade fell down unconscious. He had been standing in the hot sun for an hour. On examination, his blood pressure was 60/50 mm Hg, pulse was regular and was breathing normally. Soon, he regained consciousness from your knowledge of physiology. Answer the following:

- What is the most likely diagnosis
- What are the factors determining blood pressure
- What are the physiological principles applicable for the immediate management here
- Explain the short term regulation of blood pressure (1+3+2+4)

**Short essays (2x5 =10)**

2. Describe the characteristics of the pulmonary circulation
3. Describe the role of the kidneys in regulation of plasma pH

**Answer briefly (5x3=15)**

4. Second stage of deglutition
5. Pulmonary surfactant
6. Glomerular filtration rate
7. Erythroblastosis fetalis
8. Starlings forces

**Draw and label (2x2½ =5)**

9. Pressure volume changes in the lungs and pleural space during normal respiration
10. Mechanism of gastric acid secretion

**Explain the physiological basis of the following (5x2=10)**

11. Hyperventilation is seen when lowlanders travel to high altitude
12. Gastrectomy causes megaloblastic anemia
13. Heparin prevents coagulation of blood in vivo
14. HIV infection reduces immunity
15. Proteinuria occurs in renal diseases