

**MANIPAL ACADEMY OF HIGHER EDUCATION**

(Deemed University)

**FIRST BDS DEGREE EXAMINATION – MAY 2006****SUBJECT: GENERAL HUMAN PHYSIOLOGY INCLUDING BIOCHEMISTRY (ESSAY)**

Friday, May 26, 2006

Time available: 14:20 – 17:00 Hours

Maximum Marks: 80

*≠ ANSWER SECTION A & B IN TWO SEPARATE ANSWER BOOKS**≠ Draw diagrams and flow charts wherever appropriate***SECTION – A : HUMAN PHYSIOLOGY: 55 MARKS**

1. Enumerate the hormones secreted from anterior pituitary. Discuss the role of growth hormone. List the differences between gigantism and acromegaly. (3+5+2 = 10 marks)
- 2A. Discuss neural regulation of respiration. (5 marks)
- 2B. Draw a labelled graph depicting hormonal changes occurring during a normal menstrual cycle. Give the role of any one of these hormones. (4+1 = 5 marks)
- 2C. Discuss the dynamics of fluid exchange in a capillary bed at the arteriolar and venular end. (5 marks)
- 2D. Enumerate the stages of erythropoiesis. Mention the hormones affecting erythropoiesis. (3+2 = 5 marks)
- 2E. List the phases of gastric secretion. Name three important components of gastric juice and give the function of each. (2+3 = 5 marks)
- 2F. Describe the role of baroreceptors in the regulation of arterial blood pressure. (5 marks)
- 2G. List the factors that influence venous return. Explain how venous return influences cardiac output. (3+2 = 5 marks)
- 3A. List four errors of refraction.
- 3B. Write two differences between skeletal and cardiac muscle.
- 3C. Mention four non-excretory functions of the kidneys.
- 3D. Draw a labelled diagram of reflex arc.
- 3E. Enumerate any four functions of hypothalamus. (2×5 = 10 marks)

**SECTION – B : BIOCHEMISTRY: 25 MARKS**

4. Name the six classes of enzymes. Give one example under each class writing the complete reaction catalysed by the enzyme and any factors required.

(6 marks)

- 5A. What is the normal fasting blood glucose level? Name the hormones involved in the regulation of blood glucose level and their one function each.

- 5B. Write the reactions of urea cycle.

- 5C. Enumerate the functions of Vitamin A in the body.

(3+3+3 = 9 marks)

6. Write briefly on:

- 6A. Functions of iron in the body.

- 6B. Specific dynamic action of food stuffs.

- 6C. Composition and function of high density lipoprotein.

- 6D. Denaturation of proteins.

- 6E. Structure and function of glycogen.

(2×5 = 10 marks)



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**FIRST BDS DEGREE EXAMINATION – JULY 2006****SUBJECT: GENERAL HUMAN PHYSIOLOGY INCLUDING BIOCHEMISTRY (ESSAY)**

Friday, July 21, 2006

Time available: 14:20 – 17:00 Hours

Maximum Marks: 80

✍ **ANSWER SECTION A & B IN TWO SEPARATE ANSWER BOOKS.**✍ **Draw diagrams and flow charts wherever appropriate.****SECTION – A : HUMAN PHYSIOLOGY: 55 MARKS**

1. Define systolic and diastolic blood pressure and give the formula to calculate mean arterial pressure. Discuss in detail short term regulation of blood pressure. (3+7 = 10 marks)
- 2A. Enumerate four functions of platelets and explain any one in detail. (2+3 = 5 marks)
- 2B. Explain glucose reabsorption in renal tubules. What is glycosuria? (5 marks)
- 2C. Name the hormones controlling plasma calcium. Add a note on the regulation of plasma calcium. (1½+3½ = 5 marks)
- 2D. Draw a neat labeled diagram to show nerve supply to salivary glands. List four functions of saliva. (3+2 = 5 marks)
- 2E. Define synapse. Enumerate two properties of synapses. Explain any one property. (1+2+2 = 5 marks)
- 2F. Explain the chemical regulation of respiration. (5 marks)
- 2G. Explain the sliding filament theory of skeletal muscle contraction. (5 marks)
- 3A. Trace taste pathway from the anterior 2/3 of tongue. (2 marks)
- 3B. Enumerate four factors controlling heart rate. (2 marks)
- 3C. Define ovulation. Name two tests to detect ovulation. (2 marks)
- 3D. Enumerate four changes that take place during erythropoiesis. (2 marks)
- 3E. Name two gastro intestinal hormones. List one action of each. (2 marks)



**SECTION – B : BIOCHEMISTRY: 25 MARKS**

4. Enumerate the reactions of citric acid cycle. Add a note on its energetics.

(4+2 = 6 marks)

5. Write short note on:

5A. Proteolytic enzymes of gastrointestinal tract.

5B. Visual cycle.

5C. Enzyme classification with one example each.

(3×3 = 9 marks)

6A. Enumerate the reactions of ketogenesis.

6B. Define BMR. Discuss the factors affecting the BMR.

6C. Name the coenzyme forms of Niacin. Give one reaction in which it is involved.

6D. Define glucose tolerance test. What is the normal fasting blood glucose level?

6E. Write a note on transamination reactions.

(2×5 = 10 marks)

