

**MANIPAL UNIVERSITY****FIRST BDS DEGREE EXAMINATION – JUNE 2009****SUBJECT: GENERAL HUMAN PHYSIOLOGY AND BIOCHEMISTRY (ESSAY)  
(NEW REGULATION)**

Saturday, June 13, 2009

Time: 14:15 – 17:00 Hrs.

Maximum Marks: 60

- ✗ Answer Section "A" and Section "B" in two separate answer books.  
✗ Draw diagrams and flow charts wherever appropriate.

**SECTION – A : HUMAN PHYSIOLOGY: 30 MARKS**

1. Explain the Excitation Contraction Coupling in skeletal muscle. Add a note on Myasthenia Gravis. (7+3 = 10 marks)
2. **Short Notes:**
- 2A. What is deglutition? Explain the different stages of deglutition. (1+3 = 4 marks)
- 2B. Draw and explain the cystometrogram. (2+2 = 4 marks)
- 2C. Explain the role of Lymphocytes in immunity. (4 marks)
- 2D. Name the source of oxytocin and add a note on Parturition reflex. (1+3 = 4 marks)
- 2E. Define cardiac output and explain the factors regulating it. (1+3 = 4 marks)

**SECTION – B : BIOCHEMISTRY: 30 MARKS**

- 3A. Explain the dietary sources, RDA and functions of calcium. Add a note on in the regulation of plasma calcium level.
- 3B. Explain the formation of bilirubin and its fate in the body. Add a note on jaundice. (6+4 = 10 marks)
- 4A. Write the reactions of urea cycle.
- 4B. Describe the hormonal regulation of blood glucose level.
- 4C. Classify lipids with one example for each class.
- 4D. Calculate the approximate energy required per day by a male dental student, aged 22 years and having a body weight of 55 kgs. (3×4 = 12 marks)
- 5A. Explain the complete digestion of starch in the small intestine.
- 5B. Write a note on the denaturation of proteins.
- 5C. Write the coenzyme forms of:  
i) Pyridoxine    ii) Thiamin    iii) Panthothenic acid    iv) Riboflavin
- 5D. Describe the functions of Vitamin C and its deficiency symptoms. (2×4 = 8 marks)



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**SUBJECT: GENERAL HUMAN PHYSIOLOGY INCLUDING BIOCHEMISTRY (ESSAY)  
(OLD REGULATION)**

Saturday, June 13, 2009

Time: 14:20 – 17:00 Hrs.

Maximum Marks: 80

- ✍ Answer Section "A" and Section "B" in two separate answer books.  
✍ Draw diagrams and flow charts wherever appropriate.

### SECTION – A : HUMAN PHYSIOLOGY: 55 MARKS

1. Explain with the help of a diagram, the origin, course and termination of pyramidal tracts. What are the functions of pyramidal tracts? Define the terms Paraplegia and Hemiplegia. (6+2+1+1 = 10 marks)
- 2A. Define Erythropoiesis. With the help of a neat diagram describe the changes taking place during the various stages of erythropoiesis. (1+4 = 5 marks)
- 2B. Define Deglutition. Explain the different phases of deglutition. Add a note on Achalasia cardia. (1+3+1 = 5 marks)
- 2C. Draw a typical ECG recording from limb lead II and label the different waves, intervals and segments. What is normal P-R interval? What is its significance? (3+1+1 = 5 marks)
- 2D. Name the hormones secreted from the posterior pituitary gland. Explain their functions. (1+4 = 5 marks)
- 2E. Explain the transport of carbon dioxide. Add note on Haldane's effect and its significance. (4+1 = 5 marks)
- 2F. Explain Micturition reflex with the help of a neat labeled diagram. Add note on cystometrogram. (3+2 = 5 marks)
- 2G. Explain the functions of middle ear. (5 marks)
- 3A. Mention the cause and features of Cretinism. (2 marks)
- 3B. Functions of platelets. (2 marks)
- 3C. Define lung compliance. Name a condition each where compliance is decreased and increased. (1+1 = 2 marks)
- 3D. List the functions of sertoli cells. (2 marks)
- 3E. List four differences between the skeletal muscle and cardiac muscle. (2 marks)

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

4. Discuss iron metabolism under following headings:

4A. Sources and RDA.

4B. Functions.

4C. Absorption of iron.

4D. Causes of deficiency disorder.

(1+1+2+2 = 6 marks)

5A. Define BMR and give its normal value. Enumerate four factors which affect BMR.

5B. Classify the phospholipids with suitable examples. Add a note on their functions.

5C. What are ketone bodies? How they are synthesized in the body.

(3×3 = 9 marks)

6A. What are the different functions of dietary fibers?

6B. Write the coenzyme forms of following vitamins with one reaction for each.

i) Thiamin

ii) Pyridoxine

6C. Write short note on essential fatty acids.

6D. Write short note on protein digestion in gastrointestinal tract.

6E. Discuss the difference and similarity between the starch and glycogen

(2×5 = 10 marks)



**MANIPAL UNIVERSITY****FIRST BDS DEGREE EXAMINATION – DECEMBER 2009****SUBJECT: GENERAL HUMAN PHYSIOLOGY AND BIOCHEMISTRY (ESSAY)  
(NEW REGULATION)**

Saturday, December 05, 2009

Time: 14:15 – 17:00 Hrs.

Maximum Marks: 60

- ✍ Answer Section “A” and Section “B” in two separate answer books.  
✍ Draw diagrams and flow charts wherever appropriate.

**SECTION – A : HUMAN PHYSIOLOGY: 30 MARKS**

1. Name the hormones released from the pituitary gland. Explain the functions of growth hormone. Add a note on gigantism.  
(3+5+2 = 10 marks)
2. Explain in detail the neuromuscular transmission with help of neat labeled diagram. Name two blockers of neuromuscular transmission.  
(3+1 = 4 marks)
3. Draw a neat labeled diagram of ECG in limb lead II. Write the cause for different waves. Add a note on P-R interval.  
(2+1+1 = 4 marks)
4. Explain the chemical regulation of respiration.  
(4 marks)
5. Enumerate the differences between upper motor neuron (UMN) lesion and lower motor neuron (LMN) lesion. Add a note on Bell's palsy.  
(3+1 = 4 marks)
6. Explain the phases of gastric juice secretion.  
(4 marks)

**SECTION – B : BIOCHEMISTRY: 30 MARKS**

7. Explain glycolysis with its energetics. Add a note on 2, 3 bisphosphoglycerate.  
(8+2 = 10 marks)

**8. Write briefly on:**

- 8A. Structure of DNA
- 8B. Phenyl ketonuria
- 8C. Effect of substrate concentration and pH on enzyme activity
- 8D. Lipoproteins- classification and function

(3×4 = 12 marks)

**9. Answer the following:**

9A. Write the composition of the following compounds:

- i) Triglycerides
- ii) Sucrose
- iii) Lecithin
- iv) Cellulose

9B. Name the biologically important compounds produced from glycine.

9C. Write the dietary sources, absorption, deficiency symptom and RDA of cobalamin.

9D. Define BMR and list the factors affecting BMR.

(2×4 = 8 marks)



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## FIRST BDS DEGREE EXAMINATION – DECEMBER 2009

**SUBJECT: GENERAL HUMAN PHYSIOLOGY INCLUDING BIOCHEMISTRY (ESSAY)  
(OLD REGULATION)**

Saturday, December 05, 2009

Time: 14:20 – 17:00 Hrs.

Maximum Marks: 80

- ✍ Answer Section "A" and Section "B" in two separate answer books.
- ✍ Draw diagrams and flow charts wherever appropriate.

### SECTION – A : HUMAN PHYSIOLOGY: 55 MARKS

- ✍ Draw Diagram wherever necessary.

1. With the help of a diagram, describe the origin, course and termination of pyramidal tract. What are the functions of pyramidal tracts? Mention four differences between upper motor neuron lesion and lower motor neuron lesion.
 

(5+3+2 = 10 marks)
- 2A. Draw a normal ECG from limb lead II. Give the basis for different waves. Name the two conditions where the P wave is altered.
 

(3+2 = 5 marks)
- 2B. List the steps involved in excitation contraction coupling in Skeletal muscle. Name any two neuromuscular blockers.
 

(4+1 = 5 marks)
- 2C. Explain the role of parathormone in the regulation of blood calcium level.
 

(5 marks)
- 2D. What is spermatogenesis? Enumerate the factors controlling spermatogenesis and briefly explain any one of them.
 

(1+2+2 = 5 marks)
- 2E. What is accommodation reflex? Describe briefly the components of accommodation reflex.
 

(1+4 = 5 marks)
- 2F. Explain Haldane's effect and Bohr's effect and their significance.
 

(2+2+1 = 5 marks)
- 2G. Explain the functions of middle ear.
 

(5 marks)
- 3A. Mention the cause and features of Acromegaly.
 

(1+1 = 2 marks)
- 3B. Explain immunological test for pregnancy.
 

(2 marks)

3C. Define cardiac output giving its normal value.

(1+1 = 2 marks)

3D. Mention any four functions of the saliva.

(2 marks)

3E. What is vasectomy and tubectomy.

(1+1 = 2 marks)

### SECTION – B : BIOCHEMISTRY: 25 MARKS

4. Write the reactions of anaerobic glycolysis. Add a note on its energetics.

(6 marks)

5. Explain the following:

5A. Competitive inhibition of enzymes.

5B. Sources, functions and deficiency symptoms of Vitamin A.

5C. Regulation of plasma calcium level.

(3×3 = 9 marks)

6. Write short notes on:

6A. Digestion of proteins in gastrointestinal tract.

6B. Functions and deficiency symptoms of Niacin.

6C. Essential fatty acids.

6D. Structure of starch.

6E. Sources, RDA and functions of Iron.

(2×5 = 10 marks)

