

MANIPAL UNIVERSITY**FIRST BDS DEGREE EXAMINATION – MAY 2008****SUBJECT: GENERAL HUMAN PHYSIOLOGY INCLUDING BIOCHEMISTRY (ESSAY)**

Saturday, May 24, 2008

Time available: 14:20 – 17:00 Hours

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. Name the various plasma proteins. Give the normal concentration of each. Describe the functions of each plasma protein.
(2+2+6 = 10 marks)
- 2A. Give a summary of the changes occurring from a stem cell to RBC during erythropoiesis. Describe the factors regulating erythropoiesis.
(2+3 = 5 marks)
- 2B. List four factors influencing venous return. Describe any one of them. What is the relation between venous return and force of contraction of heart?
(2+2+1 = 5 marks)
- 2C. Describe the regulation of salivary secretion.
(5 marks)
- 2D. Give the value of the fasting blood glucose level. Describe the actions of insulin in the regulation of blood glucose.
(5 marks)
- 2E. Draw a diagram to show the pathway for pain sensation from the face. What is referred pain?
(5 marks)
- 2F. Name the cells of gastric mucosa. Explain the functions of gastric HCl.
(5 marks)
- 2G. Define GFR. Give its normal value. Name a substance used for its measurement. Describe two factors regulating GFR.
(1+1+1+2 = 5 marks)
- 3A. List the contents of middle ear.
- 3B. Draw a diagram to show the mechanism of conduction in a myelinated nerve.
- 3C. Draw a diagram of cerebral cortex and label therein the location of sensory, motor, auditory and visual areas.

- 3D. List one action of testosterone during foetal life, and any three actions during puberty.
- 3E. Mention the site of secretion of aldosterone. List two factors which stimulate aldosterone secretion. Mention one action of aldosterone.

(2×5 = 10 marks)

SECTION – B : BIOCHEMISTRY: 25 MARKS

4. Explain the sources and metabolism of Vitamin D.

(6 marks)

5. Explain the following.

- 5A. Classification and functions of plasma lipoproteins.
- 5B. Competitive inhibition with two clinical uses.
- 5C. Kwashiorkar and Marasmus.

(3×3 = 9 marks)

6. Write short notes on:

- 6A. Sources, functions and deficiency symptoms of thiamin.
- 6B. Carnitine transport system.
- 6C. Nitrogen balance.
- 6D. Digestion of carbohydrates in the intestine.
- 6E. Denaturation of proteins.

(2×5 = 10 marks)



MANIPAL UNIVERSITY**FIRST BDS DEGREE EXAMINATION – NOV/DEC 2008****SUBJECT: GENERAL HUMAN PHYSIOLOGY INCLUDING BIOCHEMISTRY (ESSAY)**

Saturday, November 29, 2008

Time available: 14:20 – 17:00 Hours

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. Define systolic and diastolic blood pressure and give their normal values. Give the formula to determine mean arterial blood pressure. Describe the role of baroreceptors in the regulation of blood pressure.
(4+1+5 = 10 marks)
2. Name the sites where erythropoiesis occurs in adults. Explain the role of any two dietary factors needed for erythropoiesis.
(1+4 = 5 marks)
3. Enumerate the steps involved in neuromuscular transmission. Name two blockers of this junction.
(4+1 = 5 marks)
4. Define upper motor neuron and lower motor neuron. List three differences between upper motor neuron lesion and lower motor neuron lesions.
(2+3 = 5 marks)
5. Name the source of Cortisol. Describe four actions of Cortisol.
(1+4 = 5 marks)
6. Name two muscles of quiet inspiration. Describe the steps involved in air entry into the lungs.
(2+3 = 5 marks)
7. Name any two hormones acting on the distal convoluted tubules of kidneys. Describe their actions.
(2+3 = 5 marks)
8. Draw diagrams to show image formation in hypermetropia and myopia. Mention the correction for each.
(3+2 = 5 marks)

- 9A. Name the receptors for
- visual acuity
 - dimlight vision
 - hearing
 - taste
- 9B. List four factors affecting velocity of conduction of impulses in nerve fibers.
- 9C. Enumerate two features each of cerebellar lesions and basal ganglia lesions.
- 9D. List two changes occurring in the uterine endometrium during proliferative phase of menstrual cycle. Name the other phases.
- 9E. Name two hormones which are needed for lactation. Specify the role of each in lactation.
- (2×5 = 10 marks)

SECTION – B : BIOCHEMISTRY: 25 MARKS

10. Enumerate the reactions of β -oxidation of fatty acyl CoA. Add a note on its energetics.
- (4+2 = 6 marks)
11. Calculate the energy required per day by a college student to fulfill his activities whose BMR is 43 Cal/sq mt body surface area/hr and body surface area is 1.7.
- 11A. Write a short note on transamination reaction.
- 11B. What is normal serum calcium level? Write note on its homeostasis.
- (3×3 = 9 marks)
- 12A. Classify the amino acids according to its nutritional basis. Give suitable examples.
- 12B. Mention the functions of ascorbic acid.
- 12C. Explain the activation of Vitamin D.
- 12D. Discuss the classification of monosaccharide.
- 12E. Name the 6 different classes of enzyme classification.
- (2×5 = 10 marks)

