

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST YEAR B.Sc. N.M.T./ B.Sc. R.T. DEGREE EXAMINATION – AUGUST 2006

**SUBJECT: PHYSIOLOGY
(NEW REGULATION)**

Wednesday, August 16, 2006

Time: 3 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

- 1A. Give the normal respiratory rate at rest. Name the respiratory muscles involved in quiet breathing.
- 1B. Draw a neat labelled diagram of spirogram to show lung volumes and capacities.
(3+7 = 10 marks)
- 2A. Give the source and four actions of thyroxine. Draw a neat labelled diagram to show regulation of thyroxine.
- 2B. Name the disease caused by increase and decrease in thyroxine in children and adults.
- 2C. Name the ion required for thyroxine synthesis.
(6+3+1 = 10 marks)
- 3A. Give normal heart rate at rest. Name the nerves supplying the heart with their actions.
- 3B. Name the plasma proteins. Give its normal value. List four functions of plasma proteins.
- 3C. Define:
i) synapse ii) reflex action iii) paralysis iv) ascending tract
- 3D. Draw a neat labelled diagram of a nephron. List the functions of renal tubules.
- 3E. Draw a neat labelled diagram of a sarcomere. Name the contractile proteins in skeletal muscle.
- 3F. Define cardiac cycle. Give its normal duration. Name the phases of cardiac cycle.
- 3G. Draw a neat labelled diagram of dorsal column pathway. Name the sensations carried by this pathway.
- 3H. List two functions each of liver and large intestine.
- 3I. List the functions of kidney. Name two hormones that act on the kidney.
- 3J. Explain the intrinsic pathway of blood coagulation.
(4×10 = 40 marks)
- 4A. Give the normal value for:
i) RBC count ii) WBC count iii) Platelet count iv) PCV
- 4B. Name the bile salts. Give two functions of it.
- 4C. Give the differences between diabetes mellitus and diabetes insipidus.
- 4D. Name the hormone required for:
i) milk ejection ii) milk production
- 4E. Give the normal body temperature and location of thermoregulatory centre.
- 4F. Define hypovolemic shock. Give two features of it.
- 4G. Give normal haemoglobin concentration in an adult female. List two functions of haemoglobin.
- 4H. Define and give normal value for:
i) Blood volume ii) Stroke volume
- 4I. Define: i) hypoxia ii) cyanosis
- 4J. List two properties of a nerve fiber.
(2×10 = 20 marks)



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FIRST YEAR B. Sc. RT./B.Sc. N.M.T. DEGREE EXAMINATION – AUGUST 2006

SUBJECT: BIOCHEMISTRY

Thursday, August 17, 2006

Time: 1½ Hrs.

Max. Marks: 40

✍ Answer all questions.

1. Define Km of an enzyme. Write its significance.
2. Explain the role of vitamin D in calcium metabolism.
3. Write the steps involved in the synthesis of nor-epinephrine (nor adrenaline) in the body.
4. Briefly explain the role of kidney in the maintenance of acid base balance.
5. Define BMR. Name the factors which influence BMR.
6. Name any four hormones involved in the blood glucose level regulation. Write their functions.
7. What are essential fatty acids? Name them. Write their important functions.
8. Write the difference between DNA and RNA.
9. Write the deficiency manifestations of iron.

(4×9 = 36 marks)

10. Write normal levels of the following in blood/serum:

- 10A. Urea.
- 10B. Sodium.
- 10C. Creatinine.
- 10D. Glucose.
- 10E. Cholesterol.
- 10F. Albumin.
- 10G. Direct bilirubin.
- 10H. ALT.

(½×8 = 4 marks)

