

SARDAR PATEL UNIVERSITY  
M.Sc (III Semester) Examination (CBCS)  
Thursday, 6<sup>th</sup> December, 2012  
2:30 pm to 5:30 pm  
Biochemistry  
PS03CBIC03 – Human Physiology

TOTAL MARKS: 70

Q.I Choose the correct answer for the following and write in your answer sheet (*Only correct option against given question number needs to be written in provided answer book*) (08 Marks)

1. Erythropoiesis is controlled by  
(a) Number of erythrocytes (b) O<sub>2</sub> carrying capacity of blood  
(c) Erythrocyte membrane integrity (d) Chemotaxis
2. Which structure of nephron reabsorbs the most substances?  
(a) LOH (b) PCT (c) Collecting duct (d) Ascending limb
3. Pancreatic juice enter the duodenum by  
(a) Pancreatic duct (b) Duodenum papillae  
(c) Hepatopancreatic ampulla (d) Hepatic Duct
4. Bile is produced in  
(a) Liver (b) Gall Bladder (c) Pancreas (d) RBC
5. Most vitamins are absorbed by  
(a) Diffusion (b) active transport (c) facilitated diffusion (d) by carrier proteins
6. A sensory neurons receives the senses through its  
(a) dendrites (b) Cell body (c) Axons (d) myelin sheath
7. The liver receives oxygenated blood via the hepatic artery and the nutrient rich deoxygenated blood via \_\_\_\_\_  
(a) it doesn't receive deoxygenated blood (c) hepatic portal vein  
(b) pulmonary vein (d) none of the above
8. Maintenance of balanced state in the body's internal environment by hormonal and other regulatory systems is called  
(a) equilibrium (c) Hemostasis  
(b) Homeostasis. (d) Endocrinology

Q.II Answer **any SEVEN** of the following questions briefly:

(14 marks)

1. Name major secretory cells in the small intestine along with their secretion.
2. Differentiate between phagocytosis by neutrophils and phagocytosis by macrophages.
3. Narrate in brief three basic functions performed by nephrons.
4. By which cells erythropoietin is produced? What is its major function?
5. Describe the duct system connecting the pancreas, liver and duodenum.
6. What are the basic differences between cortical and juxtamedullary nephrons?
7. Give in brief the functions of following hormones in regulating glomerular filtration or tubular reabsorption.
  - i. Angiotensin II
  - ii. Atrial Natriuretic Peptide
8. Describe the parts of a neuron and the function of each.
9. Explain the structural diversity of neurons.

Q.III. Answer the following questions in detail.

(48 marks)

1. (a) Describe the shape, size, functions and life cycle of RBCs. (06)  
(b) Describe formation of prothrombin activators. (06)  
OR  
(b) Describe how HCl is secreted by cells in gastric mucosa? (06)
2. (a) How is secretion of saliva regulated? (06)  
(b) Describe the mechanical and chemical digestion in the stomach. (06)  
OR  
(b) (i) Describe the composition of a mucous membrane (mucosa), lining the GI tract. (03)  
(ii) What are the major regions of large intestine? (03)
3. (a) Describe the reabsorption and secretion in the proximal convolute tubule. (06)  
(b) Describe the pressures that promote and oppose glomerular filtration. Calculate the NFP. (06)  
OR  
(b) Explain different muscle cell types and their functions. (06)
4. (a) Explain the role of anterior pituitary and ovarian hormones during normal female reproductive cycle. (06)  
(b) Explain the major structures of the nervous system. Give a schematic diagram of organization of the nervous system. (06)  
OR  
(b) Describe various types of ion channels used for nerve impulse transmission. (06)