

SEAT No. _____

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[21/A-24]

SARDAR PATEL UNIVERSITY

M. Sc. (IV Semester) Biotechnology Examination

Friday, 20th April 2018

Time: 10.00 am to 1.00 pm.

Paper: PS 04 E BIT05 (Human Physiology)

MIC07

Total Marks: 70

Q1. Give the most correct answers for the following questions: (08)

1. Each of 250 million Hb molecules in RBCs can bind to ___ molecules of O₂.
(a) 250 million (b) 4 (c) 1 (d) 250
2. Which of the following is not an accessory structure of digestive system?
(a) Liver (b) Gall bladder (c) Pancreas (d) Spleen
3. All of the following substances are found in pancreatic juice except
(a) Pepsin (b) trypsin (c) amylase (d) lipase
4. The first portion of the large intestine is the
(a) colon (b) cecum (c) anal canal (d) rectum
5. Which of the following is a nonsteroidal hormone secreted by the atria of the heart and helps regulate blood pressure
(a) Erythropoietin (b) Antidiuretic hormone (c) Thyroxine (d) Atrial natriuretic hormone
6. A dendrite conducts nerve impulses _____ the cell body.
(a) away from (b) toward (c) both toward and away from (d) around
7. Which of the following carry impulses from brain or spinal cord to the muscles?
(a) Sensory nerves (b) Motor nerves (c) mixed nerves (d) all of the above
8. During muscular contraction
(a) actin and myosin filaments slide past each other.
(b) ATP supplies energy.
(c) calcium ions (Ca⁺⁺) are involved.
(d) all of the above

C.P.T.O.)

Q.2 Answer **any seven** of the following questions briefly: (14)

1. Which cells remove worn out (dead) red blood cells from the circulation? What happens of iron and the hemoglobin?
2. What is the cause and symptoms of pernicious anemia?
3. What is the role of Androgen binding protein (ABP) in the lumen of seminiferous tubule?
4. Name the hormones involved in regulation of volume of urine.
5. Draw figure and show component parts of a neuron cell.
6. Why peristaltic contractions in the small intestine are weaker compared with those in esophagus and stomach?
7. Which hormone prepares the endometrium of the uterus for implantation of a fertilized ovum?
8. Differentiate between action potentials and graded potentials.
9. Name three major salivary glands. Which gland secretes salivary amylase?

Q.3 (a) Explain the structure and functions of various types of cells present in the blood. (06)

(b) What is erythropoiesis? Which factors speed up or slow down erythropoiesis? (06)

OR

Q.3 (b) Explain how clotting of blood occurs. (06)

Q.4 (a) Explain the organization and functions of four major layers of GI tract. (06)

(b) Explain the digestion and absorption of lipid biomolecules in the intestinal gut. (06)

OR

Q.4 (b) List major hormones that control digestion and describe their functions. (06)

Q.5 (a) Describe the structure and functioning of nephron (06)

(b) Explain the structure of a filtration membrane. (06)

OR

Q.5 (b) What is net filtration pressure? Write the equation and calculate NFP. (06)

Q.6 (a) Explain the factors that affect the speed of propagation of impulses. (06)

(b) Describe various types of ion channels used for nerve impulse transmission. (06)

OR

(b) What are the roles of FSH, LH, testosterone and inhibin in the male reproductive system? (06)

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