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SEAT No. _____

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SARDAR PATEL UNIVERSITY

M. Sc. (III Semester) (under CBCS) Examination

Monday, 22nd October 2018

Time: 2.00 p.m to 5.00 p.m.

Paper: PS 03 C BIC21 (Human Physiology)

Total Marks: 70

Q1. Give the correct answers for the following questions:

(08)

1. What prevents food from entering into windpipe?
(a) The Uvula (b) The tongue (c) self-control (d) The epiglottis
2. Do red blood cells use any of the oxygen they transport for other body cells?
(a) Yes, they use oxygen for its own metabolism and produce ATP
(b) No, they do not use any oxygen and they also lack mitochondrial ATP production
(c) It depends on energy status of red blood cells
(d) It depends on physiology of the human concerned
3. Why does entry of food initially cause the pH of the gastric juice to rise?
(a) It never rises, but lowers due to gastric juice
(b) Due to vigorous waves of peristalsis
(c) Due to buffering action of some amino acids in food proteins
(d) all of the above
4. The contractile protein of skeletal muscle involving ATPase activity is
(a) Actin (b) Myosin (c) Troponin (d) Tubulin
5. Which of the following are produced by the Leydig cells?
(a) Inhibin (c) Androgen Binding Protein
(b) Testosterone (d) All of the above
6. When does the kidneys produce very concentrated urine?
(a) When high level of ADH is secreted (c) when the length of Henle's loop increases
(b) When ADH level is very low (d) under all of the above conditions
7. What type of gated channel is activated by a touch on the arm?
(a) A ligand gated channel (c) A voltage gated channel
(b) A mechanically gated channel (d) Leakage channels
8. Which CNS neuroglia function as phagocytes?
(a) None, phagocytosis occurs only in blood
(b) Any of the neuroglia can do this for protecting nervous system
(c) Microglia function as phagocytes in CNS
(d) Oligodendrocytes resemble astrocytes but do phagocytosis in CNS

(1)

(P.T.O.)

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

1. Give examples and delineate the main difference between negative and positive feedback systems.
2. Distinguish between grey matter and white matter.
3. How do cortical nephrons and juxtamedullary nephrons differ?
4. What is the role of Androgen binding protein (ABP) in the lumen of seminiferous tubule?
5. List the type of neurons based on structural and functional classification.
6. What is fibrinolysis? What prevents clotting of blood in blood vessels?
7. Differentiate between action potentials and graded potentials.
8. List the four chambers of human heart and state the location and function of pericardium.
9. List various hormones involved in female reproductive cycle and state any four functions of estrogen.

Q.3 (a) What is erythropoiesis? Explain factors that speed up and slow down erythropoiesis. (06)
(b) Explain the physiology of vascular spasm, platelet plug formation and blood clotting. (06)

OR

Q.3 (b) Citing suitable examples, explain the positive and negative feedback loops involved in homeostasis. (06)

Q.4 (a) Enlist the four major regions of the stomach and describe the mechanical and chemical digestion in the stomach. (06)

(b) What is the role of Ca^{+2} in muscle contraction? Explain the sliding filamentous mechanism of muscles contraction in detail. (06)

OR

Q.4 (b) Describe the mechanical and chemical digestion in the small intestine. (06)

Q.5 (a) Discuss the physiological significance of Renin-Angiotensin- Aldosterone system in regulation of GFR? (06)

(b) List and name the forces that contribute to net filtration pressure (NFP) and explain how NFP is calculated. (06)

OR

Q.5 (b) Describe the mechanism of conservation of water by kidneys when water intake is low. (06)

Q.6 (a) What is nerve impulse? Explain the various phase of nerve impulse transmission. (06)

(b) Describe the basic types of ion channels and explain how they relate to graded potentials and action potentials. (06)

OR

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