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SEAT No. _____

No. of Printed Pages : 2

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SARDAR PATEL UNIVERSITY

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

Tuesday, 19th March, 2019, 02:00 pm to 05:00 pm 2-5 PM

PS03CBIC21 – Human Physiology

TOTAL MARKS: 70

Q.I Choose the most correct answer for the following and write in your answer sheet. (08 Marks)

- In which of the following conditions does erythropoietin level increase in the blood?
(a) In hypoxia situation (c) When blood volume is low
(b) In anemia (d) in all of the above conditions
- What prevents food from entering into windpipe?
(a) The Uvula (b) The tongue (c) self-control (d) The epiglottis
- In which organ of the digestive system, food is thoroughly mixed with its own digestive juices by a vigorous, to-and-fro churning motions caused by contractions of strong muscle in its wall?
(a) Liver (c) Stomach
(b) small intestine (d) there is no such treatment to food
- Sympathetic stimulation during stress _____ salivation.
(a) increases (b) decreases (c) stops (d) activates
- Which of the following Ion Channel is opened by neurotransmitters in the membrane of a neuron cells?
(a) K⁺ Leakage channel (c) A mechanically gated channel
(b) A ligand-gated channel (d) A voltage gated channel
- Which hormone stimulates Leydig cells of seminiferous tubules to secrete testosterone?
(a) FSH (c) LH
(b) Androgen Binding Protein ABP (d) GnRH
- Most vitamins are absorbed by
(a) Diffusion (b) active transport (c) facilitated diffusion (d) by carrier proteins
- Which hormones stimulate the production of pancreatic juice and bicarbonate?
(a) angiotensin and epinephrine (c) gastrin and insulin
(b) cholecystokinin and secretin (d) insulin and glucagons

Q.II Answer any SEVEN of the following questions briefly: (14 marks)

- Which hormones influence the production of erythrocytes and thrombocytes?
- Name major secretory cells in the small intestine along with their secretion.
- What is the significance of high and low WBC counts? Do WBCs live longer in healthy individuals or infected individuals?
- Which part of the nephron plays important role during concentration of urine?
- Narrate the digestive functions of liver.

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6. Differentiate between phagocytosis by neutrophils and phagocytosis by macrophages.
7. Narrate in brief three basic functions performed by nephrons.
8. Name any four organ sites where erythropoiesis occur before or after the birth.
9. Which cells form myelin sheath on axons? How?

Q.III. Answer the following questions in detail.

3. (a) Describe the shape, size, functions and life cycle of RBCs. (06)
(b) Describe the regulation of formation red blood cells. (06)
OR
(b) Explain biochemical mechanism of blood coagulation. (06)
4. (a) How much saliva is secreted each day and how is secretion of saliva regulated? (06)
(b) Describe the mechanical and chemical digestion in the stomach. (06)
OR
(b) Describe the major hormones that regulate digestive activities. (06)
5. (a) What is countercurrent multiplication? How does a kidney produce concentrated urine in summer? (06)
(b) Describe the pressures that affect glomerular filtration. Calculate the NFP. (06)
OR
(b) Describe the routes and mechanisms of tubular reabsorption and secretion. Which substances are reabsorbed most and which substance is not reabsorbed at all? (06)
6. (a) What are the roles of FSH, LH, oestrogen and progesteron in the female reproductive system? (06)
(b) Explain the major structures of the nervous system. Give a schematic diagram of organization of the nervous system. (06)
OR
(b) Explain the factors that affect the speed of propagation of impulses (06)

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