

Note: Answer to all questions (including multiple choice questions) should be written in the provided answer book only.

Number of Printed Pages = 2

SARDAR PATEL UNIVERSITY
M.Sc (IV Semester) Examination (CBCS)
Friday, 7th December, 2012
10:30 am to 1:30 pm
Biotechnology
PS04EBIT05 – Human Physiology

TOTAL MARKS: 70

Q.1 Tick mark / select the correct answer for the following. (Only correct option against given question number needs to be written in provided answer book) (08 Marks)

- 1) The hematocrit is composed of:
 - a) WBC
 - b) Platelets
 - c) RBC
 - d) Plasma
- 2) Which of the following plasma proteins plays a role in blood clotting?
 - a) Albumins
 - b) Globulins
 - c) Fibrinogens
 - d) Prostaglandins
- 3) Which of the following processes is the primary function of the villi of the small intestine?
 - a) Ingestion
 - b) Secretion
 - c) Absorption
 - d) Mixing and propulsion
- 4) Why do emotions such as anger or fear slow digestion?
 - a) Because they stimulate the parasympathetic nerves supplying the GI tract
 - b) Because they stimulate the somatic nerves that supply the GI tract
 - c) Because they stimulate the sympathetic nerves that supply the GI tract
 - d) They do not affect digestion
- 5) Which of the following is a waste product normally excreted by the kidneys?
 - a) urea
 - b) glucose
 - c) insulin
 - d) cholesterol
- 6) The ascending loop of Henle is impermeable to
 - a) water
 - b) urea
 - c) albumin
 - d) sodium
- 7) The function of the epididymis is:
 - a) Sperm maturation
 - b) Produce sperm
 - c) Spermatid storage
 - d) Provide nutrition to sperm
- 8) This type of neuron has one main dendrite and one main axon.
 - a) Bipolar neuron
 - b) Multipolar neuron
 - c) Unipolar neuron
 - d) Purkinje cell

Q.2 Answer any seven from the following:

(14 marks)

- What are the factors on which GFR depends?
- What would happen if free iron concentration increases in blood plasma?
- Differentiate between (Inhibitory post synaptic potential)IPSP and EPSP (Excitatory post synaptic potential)
- State the various cells types found in blood
- Name the major hormones of the digestive system
- What is the difference between isotonic and isometric contraction
- Explain the term 'All or none principle'
- Name any four hormones of anterior pituitary with their function.
- Why menstrual cycle does not occur in females until she attains puberty.

Q.3 A: Describe the propagation of nerve impulse through a chemical synapse

(6 marks)

Q.3 B: Describe the hormonal changes occurring in the various phases of menstrual cycle in human females

(6 marks)

OR

Q.3 B: Write an overview on the organization of nervous system

(6 marks)

Q.4 A: What is Micturation? How does micturation reflex occur

(6 marks)

Q.4 B: Describe the sequence of events involved in the physiology of muscle contraction

(6 marks)

OR

Q.4B: Give a diagrammatic overview of the blood-clotting cascade and write the important features of intrinsic, extrinsic and common pathway.

(6 marks)

Q.5 A: Describe the absorption of carbohydrates, proteins and lipids in the wall of small intestine? (6 marks)

Q.5 B: State the routes of bile secretion in small intestine.

(6 marks)

OR

Q.5 B: How do hormones of hypothalamus and pituitary control the processes of spermatogenesis in males

(6 marks)

Q.6 A: State the various functions of blood and explain any one disease associated with defective components of blood

(6 marks)

Q.6 B: Write is GFR? Explain the physiological significance of angiotensin II and atrial natriuretic peptide (ANP) in regulation of GFR

(6 marks)

OR

Q.6 B: Write a shortnote on the composition and function of pancreatic juice.

(6 marks)

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