

[A-82]

SARDAR PATEL UNIVERSITY
M.Sc (III Semester) Examination (Under CBCS)
Monday, 27th April, 2015
2:30 pm to 5:30 pm
Biochemistry
PS03CBIC03 – Human Physiology

TOTAL MARKS: 70

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

- 1) This plexus is located between the longitudinal and circular smooth muscle layers of the muscularis.
 - a) ENS
 - b) Myenteric plexus
 - c) Submucosal plexus
 - d) Digestive plexus

- 2) This is smooth dense irregular connective tissue that is continuous with the outer coat of the ureter?
 - a) adipose capsule
 - b) renal capsule
 - c) renal hilus
 - d) renal cortex

- 3) This is a test to measure kidney function.
 - a) Plasma creatinine
 - b) Renal study
 - c) Kidney assay
 - d) Dialysis

- 4) This is the ovarian phase between the end of menstruation and beginning of ovulation.
 - a) Menstrual phase
 - b) Preovulatory phase
 - c) Proliferative phase
 - d) Follicular phase

- 5) If a neurotransmitter depolarizes the postsynaptic membrane it is referred to as:
 - a) Spatial
 - b) Inhibitory
 - c) Excitatory
 - d) Temporal

- 6) Which of the following reduces blood loss?
 - a) Platelet
 - b) Erythrocyte
 - c) Lymphocyte
 - d) Basophil

- 7) Which of the following is an anticoagulant?
 - a) Fibrinogen
 - b) Protease
 - c) Prostacyclin
 - d) Heparin

- 8) Which of the following is not a type of channel used in production of electrical signals in neurons?
 - a) Voltage-gated channel
 - b) Ligand-gated channel
 - c) Mechanically gated channel
 - d) Ion-gated channel

- Q.2** Answer **any seven** from the following: **14**
- a) List and describe any four functions of blood
 - b) Draw the structure of a typical neuron and write any two function of nervous system.
 - c) What are the functions of gastric lipase and lingual lipase in the stomach?
 - d) What is the function of transferrin?
 - e) Why does damaged endothelium present an increased risk of blood clotting?
 - f) Name some substances that are absorbed into the blood from stomach?
 - g) What factors determine the speed of propagation of action potential?
 - h) Why is menstruation inhibited in pregnancy?
 - i) Distinguish between (Excitatory post synaptic potential) EPSP and inhibitory post synaptic potential (IPSP).
- Q.3** (A) Describe the structure and functions of different types of white blood cells. **6**
- (B) What is erythropoiesis? Explain the negative feedback regulation of erythropoiesis. **6**
- OR**
- (B) Describe the formation and destruction of RBC. **6**
- Q.4** (A) Describe the end products of chemical digestion of carbohydrates, proteins and lipids during the absorption of digested nutrients across the small intestine. **6**
- (B) Describe the structure and function of four basic tissue layers of the GI tract that are commonly found from stomach to the anus. **6**
- OR**
- (B) What is defecation? Describe the physiology of absorption, feces formation and feces elimination in the large intestine. **6**
- Q.5** (A) What is GFR? Briefly explain the physiological role of 'myogenic mechanism', 'tubuloglomerular feedback' and significance of atrial natriuretic peptide (ANP) in regulation of GFR. **6**
- (B) List and name the forces that contribute to net filtration pressure (NFP) and explain how NFP is calculated. Describe the three main ways angiotensin II affects renal physiology. Include the role of Aldosterone. **6**
- OR**
- (B) Describe features of the endothelial-capsular membrane that allow it to act as a filter. **6**
- Q.6** (A) Explain the sequence of events that allow an action potential on an axon to be transmitted into a graded potential on a postsynaptic membrane in a chemical synapse. **6**
- (B) Describe the hormonal changes during menstrual cycle. **6**
- OR**
- (B) Which are the three major components of the nervous system. Give a flow chart of the organization of nervous system and explain its three basic functions. **6**