



RD-7792

Seat No. _____

First Year B. P. T. Examination

February - 2019

Human Physiology

Time : **3 Hours**]

[Total Marks : **100**

Instructions :

1. Write answers of each section in separate answer book.
2. Draw diagrams wherever necessary.
3. Illegible answers will not carry marks.

SECTION – I

- 1** Discuss on any **two** : **20**
 - a. Pressure and volume changes in cardiac cycle.
 - b. Enumerate different coagulation factors and write about the intrinsic pathway of coagulation.
 - c. What is Bohr's effect? Write in detail about O₂-Hb dissociation curve.

- 2** Write briefly on any **two** : **10**
 - a. Function of Saliva.
 - b. Juxta Glomerular apparatus.
 - c. Monocyte macrophage system.

- 3** Write in short on any **five** : **10**
 - a. What is obligatory urine volume ?
 - b. What is stroke volume ? Write its normal value.
 - c. Vitamin K is essential for clotting.
 - d. Enumerate enzymes in Gastric juice.
 - e. Divers should rise to the surface slowly.
 - f. Gastric atrophy leads to Pernicious anemia.

- 4** Give the answers of the following MCQs from given options : **10**
 - 1 Which bone does not contain red bone marrow
 - A. Vertebrae
 - B. Ribs
 - C. Sternum
 - D. Clavicle

- 2 Preload of the heart is determined by
 A. End systolic volume C. Ejection systolic volume
 B. End diastolic volume D. Systolic vascular pressure
- 3 Normal volume of urine is
 A. 1-2.5 L/day C. 0.5-1 L/day
 B. 4-5 L/day D. Less than 500 mL/day
- 4 Aquaporin channels transport mainly
 A. Water C. Na⁺
 B. Calcium D. Glucose
- 5 Heart rate is maximum in normal
 A. Fetus C. Old person
 B. New born D. Adult male
- 6 Bile salts
 A. Are synthesized from cholesterol
 B. Are sodium and potassium salts of bile acids
 C. Synthesized from hepatocytes
 D. All of the above
- 7 When vital capacity is added to residual volume it is
 A. Total lung capacity
 B. Functional residual capacity
 C. Inspiratory reserve volume
 D. Inspiratory capacity
- 8 Paneth cells in GIT are rich in
 A. H⁺ C. Guanylin
 B. Mucus D. Intrinsic factor
- 9 Vitamin K is required for synthesis of which clotting factor ?
 A. Factor I C. Factor III
 B. Factor II D. Factor IV
- 10 In normal adult lung is kept dry because of
 A. Osmotic pressure C. Hydrostatic pressure
 B. Surfactant D. Tidal volume

SECTION – II

- 1 Discuss on any **two** : **20**
- a. Describe the physiology of pain. Write a note on central analgesic system.
 - b. Define and classify reflexes. Describe monosynaptic reflexes.
 - c. Enumerate hormones of anterior pituitary and write a note on growth hormone.
- 2 Write briefly on any **two** : **10**
- a. Female contraceptive methods.
 - b. Excitation contraction coupling in skeletal muscles.
 - c. Errors of refraction.
- 3 Write in short on any **five** : **10**
- a. What is "Frank sterling's" law ?
 - b. Diabetes insipidus leads to Polyuria.
 - c. Enumerate hormones secreted from adrenal cortex.
 - d. What is attenuation reflex ?
 - e. What is myasthenia gravis ?
 - f. What is synapse ?
- 4 Give the answers of the following MCQs from given options : **10**
1. Pain receptors are
 - A. Meissner corpuscle
 - B. Pacinian corpuscle
 - C. Free nerve endings
 - D. Merkel disk
 2. Function of basal ganglia
 - A. Temperature regulation
 - B. Planning and programming of movement
 - C. Gross motor activity
 - D. Equilibrium
 3. Repolarization is due to opening of which channels
 - A. Na^+
 - B. K^+
 - C. HCO_3^-
 - D. Cl^-

- 4 Node of Ranvier is seen in
A. Cell body C. Axons
B. Dendrites D. Terminal buttons
- 5 Acromegaly is due to excess of
A. Somatostatin C. Insulin
B. Somatomedin D. Growth hormone
- 6 Insulin is secreted by
A. Pancreas C. Liver
B. Heart D. Intestine
- 7 Which of the following is not a primary taste sensation ?
A. Sour C. Sweet
B. Bitter D. Pungent
- 8 Middle ear contains
A. Organ of corti
B. Tensor tympani and ossicles
C. Macula
D. All of the above
- 9 The pregnancy test is based on detection of which hormone.
A. Prolactin C. Oxytocin
B. LH D. HCG
- 10 Testosterone
A. Is derived from tyrosine
B. Is glycoprotein
C. Is a steroid
D. Is a polypeptide