

Seat No.

Enrollment No.

THE CHARUTAR VIDYA MANDAL UNIVERSITY
BACHELOR OF PHYSIOTHERAPY – SEMESTER 1
APR 2025 (REGULAR) EXAMINATION

Course Title: Human Physiology-1

Course Code: BPT 102

Total Printed Pages: 03

Date: 03/04/2025

Time: 10.00 am to 01.00 pm

Maximum Marks: 80

Instructions:

1. There are total 4 Questions given in this paper.
2. All the answer should be written in the answer book.
3. Marks on the right side suggest the total marks of that question.
4. Draw the figure where necessary.

Q.1 Multiple Choice Questions: (MCQs)

(15 × 1 = 15)

1. What percentage of the total blood volume is plasma?
a) 3.5%
b) 45%
c) 55%
d) 92%
2. Nerve signals are transmitted by:
a) Miniature endplate potential
b) Action Potential
c) Resting Membrane Potential
d) Post Tetanic Potential
3. Contractile unit of muscle is called:
a) Sarcolemma
b) Sarcoplasm
c) Sarcomere
d) Sarcoplasmic reticulum
4. SA node is _____ of Heart.
a) A valve
b) A vein
c) A muscle
d) A pacemaker
5. The normal pH of Human Blood is:
a) 6.8
b) 7.0
c) 7.4
d) 8.0
6. Which protein binds to calcium during muscle contraction?
a) Myosin
b) Actin

- c) Tropomyosin
d) Troponin
7. **White Blood Cell (WBC) Often called "Policeman of the body" Because they:**
a) Transport oxygen to tissues
b) Help to blood clotting
c) Defend against infection or foreign invaders
d) Produce energy for muscle
8. **The absolute refractory period of a nerve action potential is due to:**
a) Inactivation of sodium channels
b) Opening of potassium channels
c) Closure of calcium channels
d) Increased chloride permeability
9. **Which ion is essential for the release of neurotransmitters at the synaptic cleft?**
a) Sodium (Na^+)
b) Potassium (K^+)
c) Calcium (Ca^{2+})
d) Chloride (Cl^-)
10. **The duration of action potential in a skeletal muscle fiber is typically:**
a) 5 ms
b) 25 ms
c) 200 ms
d) 250 ms
11. **Which of the following fibers having greatest threshold?**
a) Touch
b) Pain
c) Pressure
d) Cold
12. **Anemia is defined as a decrease in which of the following?**
a) White blood cell count
b) Platelet count
c) Hemoglobin concentration
d) Plasma volume
13. **Which of the following conditions results from GH deficiency in childhood?**
a) Gigantism
b) Acromegaly
c) Cushing's syndrome
d) Dwarfism
14. **Diastolic blood pressure represents:**
a) The pressure in arteries when the heart is at rest
b) The pressure during ventricular contraction
c) The lowest pressure in the veins
d) The total blood volume in circulation
15. **The Myelin sheath around an axon serves to:**
a) Increase speed of nerve impulse conduction
b) Reduce neurotransmitter release
c) Produce cerebrospinal fluid
d) Regenerate damage neuron



Q. 2. Short answers (5 out of 7) (Answer not exceeding 50 words) (5 × 2 = 10)

- a. Define Cardiac Output.
- b. Write about any four physiological variations of Blood pressure.
- c. Enlist the types of Hypoxia.
- d. List out any four functions of Respiratory system.
- e. What is the composition of Saliva?
- f. List out any four functions of pancreatic secretion.
- g. What are the physical properties of Bile?

Q. 3. Short Notes (5 out of 6) (Answer not exceeding 150 words) (5 × 5 = 25)

- a. Describe Cardiac Cycle.
- b. Explain Renal control of Blood Pressure.
- c. Discuss the diffusion of Respiratory gases across respiratory membrane.
- d. Elaborate Neural regulation of Respiration.
- e. Write about the regulation of Gastric Juice.
- f. Explain the Enteric Nervous System.

Q. 4. Essay (3 out of 4) (3 × 10 = 30)

- a. Explain the structure and function of the neuromuscular junction (NMJ). Describe the sequence of events that occur during neuromuscular transmission and discuss the role of acetylcholine in this process.
- b. What is Erythropoiesis? Describe its stages and factors regulating erythropoiesis.
- c. Classify and explain the major hormones secreted by the anterior and posterior pituitary, along with its functions and also Discuss the consequences of pituitary dysfunction
- d. Differentiate between active and passive transport. Explain in details its mechanisms, energy requirements and its type.

Handwritten marks and scribbles at the bottom of the page, possibly indicating a score or student information.