

**PRACTICE SET**  
**End Semester Examination, Dec - 2025**

**Program: BMRIT**  
**Semester: I**  
**Course: Physiology**  
**Course Code: 42BBMRIT002**

<b>Course Outcomes</b>	<b>Description</b>
<b>CO1</b>	Explain the normal functioning of organs and systems.
<b>CO2</b>	Understand the interrelationships and interactions among various organs and systems for maintaining homeostasis.
<b>CO3</b>	Assess the relative contribution of each organ systems toward the maintenance of constant internal environment.
<b>CO4</b>	Differentiate between normal and abnormal functioning of organs and systems.
<b>CO5</b>	Understand physiological basis of pathogenesis and treatment of diseases and disorders.
<b>CO6</b>	Apply the physiological basis in the field of allied health care.

**Section- A****(30 x 5=150)**

1. List the types of white blood cells and mention their functions. [**Module-I, CO1, Remember, LOT**]
2. Define homeostasis. Illustrate the mechanisms that maintain homeostasis in the human body. [**Module-I, CO2, Remember, LOT**]
3. A patient with severe jaundice is found to have increased unconjugated bilirubin. Judge the fate of hemoglobin and the likely type of jaundice. [**Module-I, CO4, Evaluate, HOT**]
4. Compare and contrast the intrinsic and extrinsic pathways of blood coagulation. Why is vitamin K important in this process? [**Module-I, CO5, Analyze, HOT**]
5. Explain the sliding filament theory of muscle contraction with a labeled diagram. [**Module-I, CO6, Analyze, HOT**]
6. Describe the physiological anatomy and nerve supply of the heart. [**Module-II, CO1, Remember, LOT**]
7. Define cardiac output. Discuss its normal values and the factors affecting it. [**Module-II, CO3, Remember, LOT**]
8. Distinguish the phases of the cardiac cycle with a labeled diagram. Mention the mechanical events in each phase. [**Module-II, CO6, Analyze, HOT**]
9. A patient presents with bradycardia and an abnormal P wave on ECG. Recommend the likely site of pacemaker dysfunction and its significance. [**Module-II, CO4, Evaluate, HOT**]
10. Explain the role of baroreceptors in the regulation of blood pressure. Write down how does this mechanism respond to sudden hypotension. [**Module-II, CO5, Analyze, HOT**]
11. What are the functions of surfactant? Explain its role in respiratory distress syndrome. [**Module-III, CO4, Understand, LOT**]
12. Differentiate & define the following terms: Eupnea, Tachypnea, Dyspnea, Apnea, and Hyperpnea. [**Module-III, CO1, Analyze, HOT**]
13. Design the mechanics of breathing with pressure changes during a respiratory cycle. [**Module-III, CO2, Create, HOT**]
14. Explain how oxygen and carbon dioxide are transported in the blood. Add a note on chloride shift. [**Module-III, CO6, Analyze, HOT**]
15. A patient at high altitude develops increased respiratory rate and bluish discoloration of skin. Explain the physiological basis of acclimatization and cyanosis. [**Module-III, CO5, Analyze, HOT**]
16. List the steps involved in urine formation. Briefly explain ultrafiltration. [**Module-IV, CO1, Remember, LOT**]
17. Define GFR. Evaluate its normal value and factors affecting it. [**Module-IV, CO3, Evaluate, HOT**]
18. Distinguish the role of ADH and aldosterone in urine formation. What happens in their absence? [**Module-IV, CO4, Analyze, HOT**]
19. A patient presents with glucose in urine. Design the concepts of renal threshold and tubular load in this context. [**Module-IV, CO5, Create, HOT**]
20. Explain the micturition reflex and its neural control. How is it affected in spinal cord injury? [**Module-IV, CO6, Analyze, HOT**]
21. List the composition and functions of gastric juice. [**Module-V, CO1, Remember, LOT**]
22. Describe a short note on the composition and functions of bile. [**Module-V, CO1, Understand, LOT**]
23. Distinguish the process of deglutition and the control mechanisms involved. [**Module-V, CO5, Analyze, HOT**]
24. Describe the functions of the liver. Explain the physiological consequences of liver dysfunction. [**Module-V, CO4, Analyze, HOT**]
25. A patient with gallstones shows impaired fat digestion. Design the role of bile and gall bladder in fat digestion and relate this to the patient's condition. [**Module-V, CO6, Create, HOT**]
26. List the hormones secreted by the anterior pituitary and mention one function of each. [**Module-VI, CO1, Remember, LOT**]
27. Define reflex action. Explain the reflex arc with a labeled diagram. [**Module-VI, CO1, Remember, LOT**]
28. Compare and contrast the symptoms and hormonal basis of Cushing's syndrome and Addison's disease. [**Module-VI, CO4, Analyze, HOT**]
29. A patient is diagnosed with diabetes mellitus. Explain the role of insulin and glucagon in regulating blood

glucose. [Module-VI, CO5, Analyze, HOT]

30. explain the hormonal regulation of the menstrual cycle. How this knowledge applied in family planning?  
[Module-VI, CO6, Analyze, HOT]

### Section- B

(15x10=150)

31. Explain the transport mechanisms across the cell membrane. Discuss with examples the role of active and passive transport in maintaining homeostasis. [Module-I, CO1, Understand, LOT]
32. Design erythropoiesis in detail. Write about the stages, essential factors, and regulation mechanisms. Add a note on physiological variations of RBCs. [Module-I, CO3, Create, HOT]
33. Describe the mechanical and electrical events of the cardiac cycle. Correlate them with heart sounds and ECG waves. [Module-II, CO2, Remember, LOT]
34. Define arterial blood pressure. Classify the intrinsic and extrinsic factors regulating blood pressure including the role of baroreceptors. [Module-II, CO3, Analyze, HOT]
35. Explain in detail the mechanics of breathing. Add a note on the role of respiratory muscles, intrapulmonary and intrapleural pressure changes during respiration. [Module-III, CO2, Understand, LOT]
36. Explain the transport of oxygen and carbon dioxide in blood. Prioritize the factors influence oxygen dissociation from hemoglobin. [Module-III, CO6, Analyze, HOT]
37. Design the structure and function of a nephron. Break down the processes of ultrafiltration, tubular reabsorption, and secretion. [Module-IV, CO3, Create, HOT]
38. Explain the hormonal regulation of urine formation. Outline the role of aldosterone and ADH in water and sodium balance. [Module-IV, CO4, Analyze, HOT]
39. Reframe the renal function tests based on urine and blood analysis. How do they help in diagnosing kidney disorders? [Module-IV, CO6, Evaluate, HOT]
40. Design the composition and functions of digestive juices from the stomach, pancreas, liver, and intestines. [Module-V, CO1, Create, HOT]
41. Explain the movements of the small intestine. Write a note on the functions of large intestine. [Module-V, CO2, Understand, LOT]
42. Explain the process of deglutition. Outline the phases involved and the nerves that regulate this process. [Module-V, CO3, Analyze, HOT]
43. Explain the functions of anterior and posterior pituitary hormones. Categorize the disorders due to hypo- or hypersecretion. [Module-VI, CO5, Analyze, HOT]
44. Design the menstrual cycle and explain its hormonal regulation. Write a note on how this knowledge is applied in family planning. [Module-VI, CO6, Create, HOT]
45. Organize the structure and functions of the cerebrum, cerebellum, basal ganglia, and thalamus. Write a note on reflex arc and its components. [Module-VI, CO4, Create, HOT]

### Section C

(10 x 20=200)

46. Explain the structure and function of the neuromuscular junction. Describe the sliding filament mechanism of muscle contraction. Add a note on the morphology and function of RBCs. [Module-I, CO1, Understand, LOT]
47. Describe the cardiac cycle in detail with all phases and events. Correlate it with heart sounds and ECG changes. Write a note on the regulation of heart rate. [Module-II, CO2, Remember, LOT]
48. Distinguish the mechanics of breathing including the roles of respiratory muscles and pressure changes. Add a note on surfactant and respiratory distress syndrome. [Module-III, CO3, Analyze, HOT]
49. Explain oxygen and carbon dioxide transport in the blood. Discuss the role of chemoreceptors and respiratory centers in the regulation of respiration. [Module-III, CO6, Analyze, HOT]
50. Classify the process of urine formation with details on ultrafiltration, tubular reabsorption, and secretion. Explain the hormonal regulation of water balance by ADH and aldosterone. [Module-IV, CO2, Analyze, HOT]
51. Critique glomerular filtration rate (GFR): normal values, regulation, and methods of measurement. Discuss renal threshold and tubular load for glucose. Add a note on renal function tests. [Module-IV, CO5, Evaluate, HOT]
52. Describe the composition and functions of saliva, gastric juice, and pancreatic juice. Explain the role of bile and succus entericus in digestion. [Module-V, CO2, Remember, LOT]

53. Explain the movements of small and large intestines. Break down the process of deglutition and its neurological control. [Module-V, CO4, Analyze, HOT]
54. Classify the functions and disorders related to anterior and posterior pituitary hormones. Add a note on thyroid gland hormones and their abnormalities. [Module-VI, CO1, Analyze, HOT]
55. Design the phases and hormonal regulation of the menstrual cycle. Discuss the physiological basis of family planning and the role of ovarian hormones. [Module-VI, CO6, Create, HOT]

### Summary Sheet

#### CO Wise

CO	Q. No	Marks
CO1	1,6,12,16,21,22,26,27,31,40,46,54	100
CO2	2,13,33,35,41,47,50,52	100
CO3	7,17,32,34,37,42,48	70
CO4	3,9,11,18,24,28,38,45,53	70
CO5	4,10,15,19,23,29,43,51	60
CO6	5,8,14,20,25,30,36,39,44,49,55	100
<b>Total</b>		<b>500</b>

#### Unit Wise

Unit	Q. No	Marks
Module- I	1,2,3,4,5,31,32,46	65
Module- II	6,7,8,9,10,33,34,47	65
Module- III	11,12,13,14,15,35,36,48,49	85
Module- IV	16,17,18,19,20,37,38,39,50,51	95
Module- V	21,22,23,24,25,40,41,42,52,53	95
Module-V	26,27,28,29,30,43,44,45,54,55	95
<b>Total</b>		<b>500</b>

#### Blooms Taxonomy Level (BTL) Wise

BTL	Q. No.	Marks
LOT	1,2,6,7,11,16,21,22,26,27,31,33,35,41,46,47,52	150
HOT	3,4,5,8,9,10,12,13,14,15,17,18,19,20,21,23,24,25,28,29,30,32,34,36,37,38,39,40,42,43,44,45,48,49,50,51,53,54,55	350
<b>Total</b>		<b>500</b>

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**Disclaimer:** - This is a Practice Set. The Question in End term examination will differ from the Practice set. This Practice set is meant for practice only.