

24BP22

(Pages: 2)

Name:

Reg. No:

SECOND YEAR B.P.E. DEGREE EXAMINATION, APRIL 2026

(Regular/Supplementary/Improvement)

CC15UBPE2T7 / CC19UBPE2T7 - PHYSIOLOGY AND PHYSIOLOGY OF EXERCISE

(2015 Admission onwards)

Time: Three Hours

Maximum: 75 Marks

PART A

Answer any **one** question. Each question carries 15 marks.

1. Briefly explain skeletal muscle structure and its main contractile proteins involved in contraction and relaxation.
2. Briefly describe how exercise affects the respiratory and cardiovascular systems, including oxygen debt and second wind.

(1 × 15 = 15 Marks)

PART B

Answer **all** questions. Each question carries 5 marks.

3. Define muscle tone and fatigue, and explain their significance in sports performance and training.
4. Explain the mechanism of pulmonary (external) respiration and tissue (internal) respiration.
5. Describe the general plan of blood circulation, highlighting the concept of double circulation.

(3 × 5 = 15 Marks)

PART C

Answer **all** questions. Each question carries 5 marks.

6. Explain the role of warming up, conditioning and training in preventing injuries and improving performance, with reference to physiological principles.
7. Describe the functions of any three of the following: cerebrum, cerebellum, medulla oblongata, spinal cord, autonomic nervous system.
8. What is metabolism? Explain the metabolism of carbohydrates, fats and proteins in brief in relation to muscular work.

(3 × 5 = 15 Marks)

PART D

Answer **all** questions. Each question carries 1 mark.

Fill in the blanks:

9. The thick contractile protein filament in muscle is called _____.
10. The process of taking in air into the lungs is called _____.
11. The valve between the left atrium and left ventricle is called the _____ valve.
12. The enzyme secreted by the pancreas that acts on proteins is called _____.
13. The process of filtering blood in the kidney is known as _____.

(5 × 1 = 5 Marks)

PART E

Answer **all** questions. Each question carries 1 mark.

State True or False:

14. Actin and myosin are the main contractile proteins in skeletal muscle.
15. External respiration occurs between blood and tissue cells.
16. The heart pumps oxygenated blood through the pulmonary artery.
17. Saliva contains the enzyme salivary amylase.
18. The autonomic nervous system controls voluntary movements.

(5 × 1 = 5 Marks)

PART F

Answer **all** questions. Each question carries 1 mark.

Write answer in one word or phrase:

19. The structural and functional unit of muscle contraction.
20. The temporary shortage of oxygen during intense exercise.
21. The valve between the right atrium and right ventricle.
22. The breakdown phase of metabolism.
23. The largest part of the brain.
24. The protein pigment in muscle that stores oxygen.
25. The volume of air remaining in the lungs after maximum expiration.
26. The blood vessel that carries deoxygenated blood from the heart to the lungs.
27. The digestive enzyme secreted by the stomach.
28. The hormone secreted by the pancreas that lowers blood glucose.

(10 × 1 = 10 Marks)

PART G

Answer **all** questions. Each question carries 1 mark.

Match the following:

- | | | |
|------------------|---|-------------------------------------|
| 29. Actin | - | a. Enzyme acting on fats |
| 30. Tidal volume | - | b. Lower chambers of heart |
| 31. Ventricles | - | c. Thin contractile protein |
| 32. Lipase | - | d. Normal breathing volume |
| 33. Bile | - | e. Building up process |
| 34. Anabolism | - | f. Largest part of brain |
| 35. Cerebrum | - | g. Breaking down process |
| 36. Catabolism | - | h. Emulsifies fats |
| 37. Oxygen debt | - | i. Shortage of oxygen |
| 38. Second wind | - | j. Easier breathing during exercise |

(10 × 1 = 10 Marks)
