



*Murugesu*

**Avinashilingam Institute for Home Science and Higher Education for Women**  
(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD)  
Re-accredited with 'A++' Grade by NAAC. Recognised by UGC Under Section 12B  
Coimbatore - 641 043, Tamil Nadu, India

**Bachelor's Degree Examination – May 2023**  
**IV Semester**

**Class : II UG**  
**Major : Physical Education**

**Time : 3 Hours**  
**Max. Marks: 100**

**21BPEC12 Physiology of Exercise**

**Course Outcomes:**

1. Define the human anatomy and physiology.
2. Describe the kinesthetic movement and the physiological effects of exercise in human body,
3. Apply the major concepts, theories, and empirical findings in health science.
4. Compare the responses of individuals of differing levels of fitness to a variety of relative and absolute exercise intensities
5. Formulate the physiological bases for differences in exercise responses and performance

**Part A**

**10 x 1 = 10**

**Choose the Correct Answer**

1. Which component of fitness would match the  $Vo_2$  max?  
a. Aerobic capacity  
b. Muscular power  
c. Muscular Endurance  
d. Flexibility  
CO2K2
2. What system is strengthened only through proper physical exercise?  
a. Respiratory  
b. Muscular  
c. Circulatory  
d. Excretory  
CO1K1
3. The most immediate source of energy available to support exercise function is  
a. APT  
b. DPT  
c. Glycogen  
d. Phosphocreatine  
CO3K3
4. Which of the following ion is essential during the muscular contraction?  
a. Cl  
b. Ca  
c. K  
d. Na  
CO2K2
5. Most of the carbon dioxide produced in the tissues is transported to the lungs as  
a. Carbonates  
b. Bicarbonates  
c. Dissolved in the blood  
d. Attached to hemoglobin  
CO3K3
6. Which of the following is not a respiratory muscle?  
a. Diaphragm  
b. Sternocleidomastoid  
c. Soleous  
d. Intercostal  
CO2K2
7. Amount of Oxygen is carried out per 100 ml of venous blood in normal condition is:  
a. 20 ml  
b. 18 ml  
c. 19 ml  
d. 14ml  
CO3K1
8. Increase in cardiac work during high altitude exposure is due to  
a. Increased viscosity of blood  
b. Increase in heart rate  
c. Increased after load against which the heart is pumping  
d. All of the above  
CO2K2
9. AV node is present in:  
a. Lower back section of the interatrial septum  
b. Left ventricle  
c. Near the superior venacava  
d. Left atrium  
CO2K2
10. Which structure in the neuron generates the action potential?  
a. Axon terminal  
b. Axon hillock  
c. Cell body  
d. Node of Ranvier  
CO2K3

**Part B**

**5 x 6 = 30**

**Answer ALL questions**

**Each answer should not exceed 400 words or two pages**

- 11.a. What is Skeletal muscle? Draw diagram of Skeletal muscle. CO2K2  
(or)
- 11.b. Describe microscopic structure of muscle fiber with neat diagram. CO2K1
- 12.a. Describe microscopic structure of Myofibril and Actomyosin complex? CO2K3  
(or)
- 12.b. Write short notes on the following: CO2K4  
(a) Energy system for the long duration exercise  
(b) ATP-PC energy system
- 13.a. Describe the process of exchange of respiratory gases in lungs and at tissue level during exercise. CO2K3  
(or)
- 13.b. Write short notes on the following: CO1K1  
(a) Sports performance at high altitude  
(b) Ventilation during exercise
- 14.a. Describe blood pressure and heart rate. CO2K3  
(or)
- 14.b. Describe cardiac cycle and stroke volume. CO2K3
- 15.a. What is reflex action – reflex arc. CO3K4  
(or)
- 15.b. Describe neuron and its function with neat diagram. CO2K1

**Part C**

**5 x 12 = 60**

**Answer ALL questions**

**Each answer should not exceed 800 words or four pages**

- 16.a. Write meaning, nature and scope of physiology of exercise. CO2K2  
(or)
- 16.b. Explain type of muscle fiber with diagram and their physical properties. CO3K2
- 17.a. Explain sliding filament theory of muscular contraction. CO3K4  
(or)
- 17.b. Explain effects of exercise and training on muscular system. CO2K3
- 18.a. Explain lung volumes and capacities. CO3K3  
(or)
- 18.b. Explain effects exercise and training on respiratory system. CO4K1
- 19.a. Explain cardiac output and cardiac muscle with neat diagram. CO2K2  
(or)
- 19.b. Explain effects exercise and training on circulatory system. CO3K3
- 20.a. Explain nervous control of muscular movement. CO2K2  
(or)
- 20.b. Explain effects of exercise and training on nervous system. CO4K4

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