

2020

**PHYSIOLOGY OF EXERCISE**

**Paper: MPCC 102**

**Full Marks: 70**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words*

*as far as practicable.*

**Answer all questions**

1. Describe microscopic structure of Myofibril. What is Actomyosin complex? 12+3

**Or,**

What is sarco-tubular system? Describe the structure of neuro-muscular junction. 5+10

2. Describe the properties and functions of special junctional tissues of the heart. What is Cardiac output? 10+5

**Or,**

Explain the effects of exercise on cardiovascular system. 15

3. Describe the process of exchange of respiratory gases in lungs and at tissue level. 10+5=15

**Or**

What are the effects of exercise on respiratory system? 15

4. **Write short notes on the following (any two):** 7.5x2

- a) Energy system for the long duration exercise
- b) ATP-PC energy system
- c) Sports performance at high altitude
- d) Physiological adjustments during exercise

**Please Turn Over**

(2)

5. Answer the MCQs by choosing the right option given below and write it on your answer script (any ten)

1x10

(i) Which of the following ion is essential during the muscular contraction?

- a) Cl
- b) Ca
- c) K
- d) Na

(ii) Study the events given below minutely which may occur during muscular contraction and choose the correct arrangement from the provided alternatives.

- I. H-zone disappears
- II. A band widens
- III. I band shortens
- IV. Width of A band is unaffected
- V. M line and Z line get closer

- (a) I, II and III
- (b) I, III, IV and V
- (c) II, IV and V
- (d) I, II and V

(iii) Which of the following is correct for the partial pressure of oxygen in alveoli?

- a) less than carbon dioxide
- b) less than the blood
- c) more than the blood
- d) equal to that of the blood

(iv) Which of the following is a chronic respiratory disorder caused by smoking?

- a) Asthma
- b) Emphysema
- c) Respiratory alkalosis
- d) Respiratory acidosis

(v) 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

**Please Turn Over**

(3)

- (vi) The gaseous exchange in alveoli is a type of
- simple diffusion
  - osmosis
  - active transport
  - passive transport
- (vii) The linings that separate air contained in lungs from venous blood is
- squamous epithelium and tunica media
  - squamous epithelium and endothelium
  - transitional epithelium and tunica externa
  - none of the above
- (viii) Which of the following organs only receives oxygenated blood?
- Lungs
  - Gills
  - Liver
  - Spleen
- (ix) The ventricular muscles accepts impulses directly from
- AV node
  - Bundle of His
  - Right and left bundle branches
  - Purkinje system
- (x) The sport Shot Put relies primarily on what energy system?
- ATP-CP
  - Lactic acid
  - Aerobic
  - All the above
- (xi) What is drawback of the ATP-CP system of Energy production?
- It produces lactic acid
  - It is not very powerful
  - It is last only about 10 seconds
  - It is a very lengthy process
- (xii) Which component of fitness would match the lactic acid energy system?
- Aerobic capacity
  - Muscular power
  - Muscular Endurance
  - Flexibility
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