

**Madhya Pradesh Medical Science University,
Jabalpur
MBBS First Professional Examination Nov-2023
Subject- Physiology
Paper-I**

Time: 3:00 Hours

Maximum Marks :100

Instructions:

- a) All questions are compulsory
- b) Answers of Questions and Sub-questions must be written strictly according to serial order of question paper.
- c) MCQ has to be answered in theory answer book
- d) Draw diagrams wherever necessary
- e) Please write MCQ answer neatly and in serial order with black or blue pen in brackets; for example: - 1. (a) 2. (c)
- f) MCQ has to be answered only once, any kind of repetition or cutting or erasing or whitener will be considered as malpractice, such answers will not be
- g) savitelje anskerndartine wilbertakarug fonding tray
Fibers. Furie&Griple, if a question having 2 marks should answered in up to 60 marks.

Q1. Total MCQs: 10

1. The normal osmolarity of plasma is $10 \times 1 = 10$
 - (a) 100 osmoles/L
 - ~~(b) 200 osmoles/L~~
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- (c) 300 osmoles/L
(d) 400 osmoles/L
2. Immediate source of energy for muscle contraction is
(a) ATP
(b) ADP
(c) glucose
(d) creatine phosphate
3. Auerbach's plexus in intestine lies
(a) beneath the mucosa
(b) within the sub mucosa
(c) between longitudinal and
(d) beneath the serosal coat
circular muscles
4. Which of the following is an attachment protein in skeletal muscle
(a) actin
(b) alpha actinin
(c) tropomyosin
(d) myosin
5. The density of sodium channels is maximum at
(a) surface of myelin
(b) soma
(c) nodes of ranvier
(d) dendrite
6. The normal pulmonary ventilation air in a 70 kg adult male is
(a) 6000 mL
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- (b) 4200 mL
(c) 4800 mL
(d) 3000 mL
7. What is chyle
- (a) food mixed with saliva
(b) food mixed with gastric secretion
(c) food mixed with pancreatic enzymes
(d) none of the above
8. Hemophilia B is caused by deficiency of
- (a) factor I
(b) factor IX
(c) factor VIII
(d) calcium
9. Mayer waves are caused by
- (a) respiration
(b) chemoreceptor discharge
(c) increased pO₂
(d) tachycardia
10. The most common site for myocardial infarction is
- (a) left atrial muscle
(b) epicardium
(c) right ventricular muscle
(d) left ventricular sub endocardium

Q2. Long Answer Questions

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- a. Describe in detail neural regulation of respiration

$$2 \times 20 = 40$$

b. 30-year-old industrial worker met with an accident and sustained a crush injury of thigh which cut across femoral artery

with loss of 1.5 L of blood. He was brought to casualty by his co-workers. On examination; pulse: 120/min, BP: 80/60

mmHg, respiratory rate: 12/min, urine output was decreased. On investigation; PCV: 32%

- i. What could be the probable diagnosis of this case
- ii. What are the various stages of his condition
- iii. Describe the compensatory reflexes during the compensatory stage
- iv. What will be the physiological basis for his treatment

Q3. Brief Answer Questions

- a. Mechanism of cell mediated immunity $6 \times 05 = 30$
- b. Baroreceptor reflex
- c. Mechanism HCL secretion in stomach
- d. Structure of neuro-muscular junction and transmission of impulse at neuro-muscular junction
- e. Define homeostasis. Explain mechanisms regulating homeostasis
- f. Physiological basis of generation of resting membrane potential

Q4. Short Answer Questions

- a. Fick's principle $10 \times 2 = 20$
- b. Hypertension
- c. All or none law
- d. Graded potential
- e. Peristalsis
- f. Osmotic pressure
- g. Pernicious anemia
- h. Marey's law
- i. Enumerate types of hypoxias
- j. Tight junction

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