

**Madhya Pradesh Medical Science University,
Jabalpur**
MBBS First Professional Examination Feb-2021
Time: 3:00 Hours
Max. Marks: 75

Instructions:

- a) All questions are compulsory**
- b) Draw diagrams wherever necessary**
- c) Answers of Questions and Sub-questions must be written strictly according to serial order of question paper.**
- d) MCQ has to be answered in theory answer book**
- 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 counted in marks and action will be taken according to UFM rules of university.**

Q1. Total MCQs: 20

- 1. The term "glycocalyx" refers to what
(a) the negatively charged
carbohydrate chains that protrude
into the cytosol from glycolipids**

- and integral glycoproteins**
- (b) the negatively charged carbohydrate layer on the outer cell surface**
- (c) the layer of anions aligned on the cytosolic surface of the plasma membrane**
- (d) a mechanism of cell-cell attachment**

2. A 17-year-old soccer player sustained a fracture to the left tibia after her lower leg has been in cast for 8 weeks, she is surprised to find that the left gastrocnemius muscle is significantly smaller in circumference than it was before the fracture. What is the most likely explanation

- (a) decrease in the individual muscle fibers in the left gastrocnemius**
- (b) decrease in the blood flow to the muscle caused by constriction from cast**
- (c) temporary reduction in actin and myosin protein synthesis**
- (d) increase in glycolytic activity in the affected muscle**

3. Pinocytosis occurs

- (a) for large protein molecules**

(b) by formation of pinocytic vesicle

(c) at sites of membrane called coated pits

(d) all of the above

4. Following substances are absorbed by sodium cotransport mechanism by intestine

(a) fatty acids

(b) glucose

(c) potassium ions

(d) proteins

5. Total number of chromosomes in somatic cells is

(a) 48

(b) 46

(c) 22

(d) 26

6. Nernst potential for sodium is

(a) -94 mV

(b) -60 mV

(c) +61 mV

(d) +45 mV

7. Worn out organelles are transferred to lysosomes by which of the following

(a) autophagosomes

(b) granular endoplasmic reticulum

(c) golgi apparatus

(d) mitochondria

8. Which of the following cell organelle is responsible for producing ATP

- (a) endoplasmic reticulum**
- (b) mitochondria**
- (c) lysosomes**
- (d) golgi apparatus**

9. In a resting adult, the typical ventricular ejection fraction has what value

- (a) 20%**
- (b) 40%**
- (c) 60%**
- (d) 80%**

10. Which of the following is most likely to cause the heart to go into spastic condition

- (a) increased body temperature**
- (b) increased sympathetic activity**
- (c) decreased extracellular fluid potassium ions**
- (d) excess extracellular fluid calcium ions**

11. Normally, end-diastolic volume to the stroke volume % is

- (a) 35**
- (b) 50**
- (c) 65**
- (d) 80**

12. What is the total delay of the cardiac impulse

in the a-v node + bundle

- (a) 0.22 sec**
- (b) 0.13 sec**
- (c) 0.09 sec**
- (d) 0.16 sec**

12 What is the normal QT interval

- (a) 0.03 sec**
- (b) 0.13 sec**
- (c) 0.20 sec**
- (d) 0.35 sec**

14. Which condition will usually result in left axis deviation in an ECG

- (a) systemic hypertension**
- (b) pulmonary valve stenosis**
- (c) pulmonary valve regurgitation**
- (d) pulmonary hypertension**

15. The maximum clearance rate possible for a substance that is totally cleared from the plasma is equal to which of the following

- (a) GFR**
- (b) filtered load of that substance**
- (c) urinary excretion rate of that substance**
- (d) renal plasma flow**

16. Which change tends to increase peritubular capillary fluid reabsorption

- (a) increase in blood pressure**

- (b) decreased filtration fraction**
- (c) increased efferent arteriolar resistance**
- (d) decreased angiotensin II**

17. Which of the following would likely lead to hyponatremia

- (a) excessive ADH secretion**
- (b) restriction of fluid intake**
- (c) excess aldosterone secretion**
- (d) administration of 2 liters of 3% NaCl solution**

18. What is the volume of dead space in a normal healthy adult

- (a) 100 ml**
- (b) 150 ml**
- (c) 350 ml**
- (d) 500 ml**

19. Which of the following applies to patients with acquired immunodeficiency virus (AIDS)

- (a) able to generate a normal antibody response**
- (b) increased helper T cells**
- (c) increased secretion of interleukins**
- (d) decrease in helper T cells**

20. Platelet adhesion is mainly facilitated by

- (a) von Willebrand factor**
-

(b) fibrinogen

(c) ADP

(d) calcium

Q2. Short Answer Questions

10 x 5 = 50

- a. Describe short term regulation of blood pressure**
- b. Describe movements of small intestine**
- c. Define hypoxia, enumerate types of hypoxias and describe hypoxic hypoxia**
- d. Describe process of erythropoiesis**
- e. Define immunity and discuss humoral immunity**
- f. Explain effect of mismatched transfusions**
- g. Explain the mechanism of formation of HCl in gastric secretion**
- h. Give a brief note on milieu interior**
- i. Describe sodium potassium pump**
- j. Give a brief note on acidification of urine**

Q3. Long Answer Questions

3 x 10 = 30

- a. Discuss the transport of O₂ in blood**
 - b. Describe about pathophysiology of shock,**
-

enumerate types of shock & give brief note on cardiogenic shock

C. Define GFR & its regulation and factors affecting GFR

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