

**Madhya Pradesh Medical Science University,  
Jabalpur**  
**MBBS First Professional Examination Nov-2023**  
**Subject- Biochemistry**  
**Paper- II**  
**(NEW SCHEME)**

Time: 3:00 Hours

Maximum Marks :100

- 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.
- g) Subjective answer should be answered in up to 30 words per marks. For example, if a question having 2 marks should answered in up to 60 marks.

**Q1. Total MCQs: 10**

1. An amino acid required for porphyrin synthesis is

- (a) proline
  - (b) glycine
  - (c) serine
  - (d) histidine
2. A cosmid is a
- (a) large bacterial plasmid
  - (b) viral plasmid
  - (c) hybrid of plasmid and phage
  - (d) yeast plasmid
3. The most abundant immunoglobulin present in plasma is
- (a) IgA
  - (b) IgG
  - (c) IgM
  - (d) IgD
4. Normal anion gap in plasma is around
- (a) 1-5 mEq/L
  - (b) 8-12 mEq/L
  - (c) 20-25 mEq/L
  - (d) 35-40 mEq/L
5. Unit of clearance is
- (a) mg/dL
  - (b) mmol/day
  - (c) mg/min
  - (d) mL/min
6. Which of the following chemotherapeutic drugs works by inhibiting de novo purine synthesis
- ~~(a) acyclovir~~
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- (b) methotrexate
  - (c) azidodeoxythymidine
  - (d) 5-fluorouracil
7. Unconjugated bilirubin is raised mostly in
- (a) hemolytic jaundice
  - (b) obstructive jaundice
  - (c) carcinoma of pancreas
  - (d) stone in gall bladder
8. Most important physiological buffer in the blood is
- (a) hemoglobin buffer system
  - (b) acetate buffer
  - (c) phosphate buffer
  - (d) bicarbonate buffer
9. The main biological targets for attack by free radical are all EXCEPT
- (a) PUFA
  - (b) protein
  - (c) DNA
  - (d) glycosaminoglycans
10. Cigarette smoke inhibits the activity of
- (a) alpha 1-antitrypsin
  - (b) ceruloplasmin
  - (c) alpha 2-macroglobulin
  - (d) c- reactive protein

- a. A 4 years old boy suffered from pain in joints, hypotonia, developmental delay, irritability, showed signs of mental retardation and evidences of self-mutilation. On examination there was testicular atrophy and hematuria. The serum uric acid level was 10 mg/dL
- What is the probable diagnosis
  - Which enzyme is defective in this disease
  - What is the normal level of serum uric acid in humans
  - What is the mode of inheritance of this disease
  - What is the biochemical basis of this condition
- b. Classify liver function tests according to various functions of liver. Write enzymatic, non-enzymatic and urinary markers based on type of jaundice

### **Q3. Brief Answer Questions 6 x 05 = 30**

- Explain metabolic acidosis and its compensation
- Describe post translational modifications and inhibitors of this process
- Explain kidney function tests
- Explain recombinant DNA technology and its applications
- Explain eukaryotic rRNA processing
- Explain the mechanism of free radical formation and describe different antioxidants with their mechanisms

### **Q4. Short Answer Questions 10 x 2 = 20**

- a. Enumerate tumour markers
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- b. Enumerate cause of overhydration
- c. Types of RNA and their functions
- d. Enumerate derivatives of hemoglobin
- e. Write types of gout and their biochemical causes
- f. Uses of quality control in biochemistry lab
- g. Enumerate disorders due to changes in immunoglobulins
- h. Enumerate oncogenes
- i. Write various types of plasma proteins
- j. Write any two types of mutations with examples

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