

**Department of Biochemistry**  
**GMERS Medical College Valsad**  
**MBBS 1<sup>st</sup> Year Preliminary examination 2015-16**  
**Biochemistry Paper 2**

*Time: 2hr 20 min*  
*Marks: 40*

- Instructions:** 1 *Figure to the right indicate full marks*  
2 *Draw neat diagrams wherever necessary*  
3 *Answer shall be legible and to the point*  
4 *Write each section in separate answer books*

**Section 1**

**Q.1 Write Short Notes (Attempt any two)**

**(Marks- 08)**

1. Metabolic fate of phenylalanine and tyrosine.
2. Name the active form of Vitamin D, how it is formed in the body? Explain its metabolic functions, deficiency manifestation and RDA.
3. Describe the process of DNA Replication with inhibitor.

**Q.2 Describe in Brief (Attempt any four)**

**(Marks- 12)**

1. Clinical aspects of nucleotides
2. Genetic code
3. PCR
4. ELISA
5. Sickle cell anemia
6. Enzyme Inhibition

**Section 2**

**Q.3 Case Study**

**(Marks-10)**

A 38 year old man complained of severe joint pain especially in the big toes in the early morning hours. His joints were swollen. The consultant decided to get his uric acid level in serum to be estimated which was 12.0 mg/dl. The case was diagnosed as gout and the doctor advised the patient to consume a lot of fluids, avoid alcohol & non vegetarian diet. He was also prescribed to take allopurinol.

1. What is the normal level of serum uric acid?
2. Differentiate primary and secondary gout.
3. What is Lesch-Nyhan syndrome?
4. Why the consultant advised the patient not to take alcohol?
5. How allopurinol is helpful?

**Q.4 Answer in few lines (Attempt any five.)**

**(Marks-10)**

1. Telomerase is essential for dividing cell
2. Glutathion & NADPH play important role for maintain RBC membrane.
3. Vitamin C is involved in post-translational modification of collagen.
4. DNA ligase is essential in lagging strand synthesis
5. CK-MB is better diagnostic index of MI.
6. Biotin is known as anti egg white injury factor
7. Proline and glycine are frequently found in beta-bends of secondary structure of protein.

## MULTIPLE CHOICE QUESTIONS

(Marks-10)

Roll no. \_\_\_\_\_

10 min.

### Q-5 .Tick mark the correct option

**1. Chaperone proteins play a role in**

- (A) Protein folding (B) Protein misfolding  
(C) Denaturation (D) All the above

**2. The pentose sugar present in DNA**

- (A) Ribose (B) Deoxyribose  
(C) Arabinose (D) All of the above

**3. The following enzyme is widely used in recombinant DNA technology**

- (A) DNA polymerase (B) Telomerase  
(C) Restriction endonuclease (D) none of the above

**4. In competitive inhibition of enzymes**

- (A)  $K_m$  increases whereas  $V_{max}$  decrease (B)  $K_m$  increases whereas  $V_{max}$  unchanged  
(C)  $V_{max}$  increase while  $K_m$  decreases (D)  $V_{max}$  decrease while  $K_m$  unchanged

**5. The levels of ALT and AST are elevated in**

- (A) Hemolytic jaundice (B) Hepatocellular jaundice  
(C) Obstructive jaundice (D) none of the above

**6. Formiminoglutamate (FIGLU) is formed in the metabolism of**

- (A) Aspartate (B) Glutamate  
(C) Arginine (D) Histidine

**7. In albinism the following substance is either absent or defective**

- (A) Noradrenalin (B) Biopterin  
(C) Melanin (D) Dopamine

**8. DNA damage is caused by**

- (A) Uncorrected replication error (B) Free radical  
(C) Radiation and chemical (D) All of the above

**9.  $\beta$ -thalassemia occurs due to**

- (A) Faulty editing (B) Faulty splicing  
(C) Excess methylation (D) All of the above

**10. The pattern of DNA sequence of the following is (are) used in DNA finger printing**

- (A) RFLPs (B) VNTRs  
(C) Both (D) None