

PGIHS 1571 B - 14
M.Sc. IIIrd Semester (CBCS) Degree Examination
Biochemistry
(Clinical Biochemistry & Nutrition)
Paper : HCT - 3.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer question No. 1 and any Four of the remainings

1. Answer the following : (10×2=20)
- a) Differentiate between Microcytic and Macrocytic anaemia. Under which conditions they are observed?
 - b) Mention the role of calcium in blood Coagulation
 - c) Give clinical significance of LDH
 - d) Outline classification of bile acids. Mention any one function of bile acids
 - e) What is meant by lactose intolerance?
 - f) What are Ketone bodies? Give its clinical significance
 - g) What is molecular basis of alkaptonuria?
 - h) Give structures and dietary sources of any two of the PUFAs
 - i) Give composition and importance of OR^s
 - j) What is gastric residuum? Give its significance
2. a) Give an account on various molecular events occurring during blood clotting? Add a note on blood clotting factors
- b) Discuss abnormal hemoglobins and disorders of hemoglobins (8+7)
3. a) What is meant by "Clearance". Elaborate on clearance test with reference to urea and creatinine
- b) Give an account on clinical significance of following enzymes
- i) Serum transaminases
 - ii) Acid and alkaline phosphatases (8+7)

4. a) What is Van den Bergh reaction? How is it useful in differentiating between different types of jaundice? Discuss
- b) Discuss various disorders of liver (8+7)
5. a) How is GTT conducted? Show graphically the results obtained under normal and pathological conditions.
- b) What is diabetes mellitus? Add a note on classification and diabetic complications (7+8)
6. a) Discuss different dietary sources functions and deficiency symptoms of vit. A and D.
- b) Describe the various methods used to evaluate the nutritive value of proteins (8+7)
7. Write notes on any **three** of the followings (3×5=15)
- a) Atherosclerosis
- b) Galactosemia
- c) Nutritional role of Ca and P
- d) BMR and factors affecting BMR
-

PGIIS 1573 B-14
M.Sc. IIIrd Semester (CBCS) Degree Examination
Biochemistry
(Microbial Biotechnology)
Paper - SCT 3.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:Note : Answer question **No. 1** and any **four** of the remaining.

- L** 1. Answer the following **(10×2=20)**
- a) Distinguish between surface and submerged fermentation
 - b) What is secondary metabolism? Mention its advantages
 - c) What are broad spectrum antibiotics? Give any two examples
 - d) Define GRAS microorganisms? Mention their useful properties
 - e) What are peptide antibiotics? Give two examples
 - f) What are methanogenic microorganisms? Write their characteristic properties
 - g) Mention the applications of biofertilizers
 - h) What are microbial insecticides? Give two examples.
 - i) What is BOD? Give its Significance.
 - j) Define bioremediation?
2. a) Discuss the design and operation of a laboratory scale fermenter with a neat diagram
- b) What is SCP? Discuss the stages used in its production using various carbon sources **(8+7=15)**

3. a) What is down-stream processing? Discuss the different steps available for industrial processes
- b) Explain the fermentative production of penicillin with a flow chart. Add a note on the mode or action of streptomycin (7+8=15)
4. a) Discuss the different types of fermenters used for solid substrate fermentations
- b) Describe the microbial production of acetic acid and lysine (7+8=15)
5. a) Discuss the different methods used for the immobilization of enzymes
- b) Give an account on alcoholic beverages
- c) Write a note on the production of biogas (6+4+5=15)
6. a) Discuss the strategies used in the microbial degradation of xenobiotics with an examples
- b) Describe the methods employed in the industrial waste treatment (8+7=15)
7. Write short note on any **three** of the following
- a) Biofertilizers
- b) Mold enzymes
- c) Microbial mining
- d) Biosensors (3×5=15)
-

PGIIS 1572 B-14
M.Sc. IIIrd Semester (CBCS) Degree Examination
Biochemistry
(Immunology)
Paper - HCT-3.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:Answer **Q.No 1** and any **four** of the remaining.

1. Answer in one or two sentences (10x2=20)
 - a) Define the term “antibody titer”
 - b) What are interleukins
 - c) Give the advantages of Biotinylated antibody
 - d) Why does monoclonal antibodies to myoglobin fail to precipitate
 - e) Give the importance of Bursa of fabricies in immunity
 - f) Give the action of pepsin and papain on rabbit IgG
 - g) Write the principle of immune electrophoresis
 - h) Distinguish between allotypic and idiotypic variation
 - i) What are dendritic cells
 - j) what is opsonization?
2.
 - a) What is an immunogen? Explain the factors that influence its immunogenicity
 - b) Discuss the innate defense mechanism of humans (7+8=15)
3.
 - a) Describe the B-cell activation and differentiation into plasma cells
 - b) Describe the structure and functions of spleen (7+8=15)

4. a) Explain the endocytotic pathway of antigen processing and presentation
b) Describe the structure and functions of IgM
c) Write a note on Mast cells and NK cells (3x5=15)
5. a) What are monoclonal antibodies? Describe its production
b) discuss the principle and procedure of ELISA
c) Discuss the mechanism of variable region gene rearrangement (3x5=15)
6. a) Explain the mechanism of class switching in B-cells
b) Discuss classical and alternative pathways of compliment activation (7+8=15)
7. Write short note on any three of the following
a) Anaphylactic reactions
b) Immunofluorescence
c) vaccines
d) MHC (3x5=15)
-

PGIIS 1574 B-14
M.Sc. IIIrd Semester (CBCS) Degree Examination
Biochemistry
(Fundamentals of Enzymology)
Paper - OET 3.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- i) Answer any **five** questions
- ii) **Question No 1** is compulsory and any **four** of the remaining

I. Answer the following**(10x2=20)**

- a) Define units for the expression of enzyme activity
- b) What are the criteria for the assessment of enzyme purity?
- c) How does temperature and PH influence the enzyme activity?
- d) What is meant by suicidal inhibitor? Give an example
- e) Justify, metal ions can function catalytically in several ways
- f) Define active site of an enzyme? Mention any two features of active site.
- g) How does tetrahydrofolate function as a coenzyme?
- h) What are the properties of alcohol dehydrogenase?
- i) Justify, allosteric proteins are cooperative potential
- j) Enlist the analytical applications of enzymes

2. a) Describe the classification of enzymes with suitable examples

- b) What is meant by an enzyme assay? Discuss different enzyme assay methods with their advantages and disadvantages over each other.

(6+9=15)

3. a) Explain the Michaelis-Menten theory. Justify its linear transformation.
b) Write a note on different modes of enzyme inhibition (7+8=15)
4. a) What are the covalent modifications of enzymes? Explain
b) Discuss on the general acid-base catalysis
c) How are catalytic sites enzymes of identified (5×3=15)
5. a) Explain the mechanism of action of chymotrypsin
b) Describe the mechanistic roles of biotin and thiamine pyrophosphate as coenzymes (8+7=15)
6. a) What are multi-enzyme complexes? Explain the structural composition coenzyme requirement and functions of pyruvate dehydrogenase
b) Describe the enzyme immobilization using different matrices add a note on applications of immobilized enzymes (8+7=15)
7. Write short notes on any three of the following
a) Enzyme localization
b) King-Altman procedure
c) Irreversible covalent modifications
d) Industrial applications of enzymes (3×5=15)
-