

KATHMANDU UNIVERSITY
End of Semester Examination
August/September, 2017

SEP 03 2017

Level : B. Tech.
Year : III
Time : 2 hrs. 30 mins.

Course : BIOT 308
Semester : II
F. M. : 55

SECTION "C"

[6Q × 5 = 30 marks]

Attempt *ANY SIX* questions:

1. How does Enzymuria occur? What are the major conditions to be fulfilled in clinical diagnosis to measure the best enzyme activity? [1+4]
2. What are resolving and stacking gels? How does gel electrophoresis functions? [2+3=5]
3. What are the steps involved in identifying and detection of amino acid composition of an amide linkage using acid hydrolysis? [5]
4. Outline the scheme for "Indirect" determination of amino acid sequence of a protein. What are the major problems encountered and their solutions in determining the amino acid sequences? [2+3=5]
5. Draw the interconvertible forms of phosphorylase in presence of ATP. What are the common features of ligand induced conformational changes in enzymes? [1+4=5]
6. How the regulation of activity of hexokinase does happen? Explain. [5]
7. What is a biosensor? How it functions? Draw the pattern of separation of L-amino acid from its racemic mixture. [1+2+2=5]
8. How is phosphorylase switched off to prevent the unnecessary depletion of glycogen reserves? [5]

SECTION "D"

Attempt *ANY THREE* questions.

9. How do the enzyme γ -glutamyltransferase is diagnosed in liver disease? What are the conditions to be fulfilled for the measurement of an enzyme activity to be useful as a routine diagnostic clinical method? [2+4=6]
10. Explain the control mechanism of carbamoyl phosphate synthesis of *E.coli* with proper drawing. [6]
11. What are epimerases? Draw the mechanisms of ways of epimerization. [1+5=6]
12. Derive Michaelis-Menten equation and explain the need of lineweaver – Burk plot. [4+2=6]

SECTION "E"

13. Write explanatory short notes on: [3.5 × 2=7]
 - a. Covalent catalysis
 - b. Competitive inhibitor



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SECTION "A"

[16 Q × 0.75 = 12 marks]

Select the correct answer of the following:

1. Malonate is a _____ inhibitor of the reaction catalyzed by succinate dehydrogenase in conversion of succinate to fumarate.
a. Competitive b. Uncompetitive c. Non-competitive d. Irreversible
2. For the hydrolysis of Phenyl-β-D-glucopyranoside, base catalysis proceeds via abstraction of a proton followed by nucleophilic attack of -O- group on _____.
a. C-1 b. C-2 c. C-3 d. C-4
3. Cytochrome P450 in interaction with heme ligand _____ the O₂.
a. Activates b. Polarizes c. Binds d. Synthesize
4. Which of the following nucleoside triphosphate do not help for nucleotidyl transferase to G-1-P ?
a. TTP b. UTP c. ATP d. GTP
5. Phosphorylase helps to produce _____ from glycogen.
a. G-6-P b. G-1-P c. D-glucose d. F-1,6-BP
6. The inhibited carbonyl phosphate synthase enzyme in carbonyl phosphate synthesis in *E.coli* is antagonized by _____.
a. L- aspartate b. Citrulline c. L-ornithine d. Pyrimidine
7. The enzyme phosphorylase in glycogen pathway converts _____.
a. G-1-P to Glycogen b. G-1-P to UDP-glucose
c. UDP-glucose to glycogen d. glycogen to G-1-P
8. Phosphorylase 'b' present in muscles gets activated in presence of _____.
a. ATP b. AMP c. ADP d. UDP
9. Which of the protein phosphatases groups do not belong to PPP gene family?
a. PP1 b. PP2A c. PP2B d. PP2C
10. The whole cell immobilized product _____ has high value an ultra-violet filter.
a. Aspartate b. Citrulline c. Fumarate d. Urocanic acid

25. All kinases have _____ metal ion which orients P groups and shields negative charges of P groups.
26. Chemical denaturants such as Urea can also form _____ with the protein backbone, and aromatic side-chains.
27. In clinical words, alaline aminotransferase (ALT) in written as _____
28. γ -glutamyltransferase is assayed by measuring the release of 4-nitroaniline at _____ nm
29. Elevated serum levels of _____ can be used to help diagnose carcinoma of the prostate after metastasis.
30. During electrophoresis, the position of a protein on the support is determined by using a reagent named _____
31. Electrophoresis is a used to separate molecules based on their size and charge using an equation $V = Ez / f$, where f is frictional force in the molecule and is defined as $F = \text{_____}$?
32. The molecular formula of SDS is _____

