u) Define and gives biological functions of steroids. 3

v) Define and explain on saturated fatty acids 3

w) What is compound lipids. 3

x) Define and explain glycerophospholipids. 3

5. Write account on :

i) Explain secondary structure of protein. 3
ii) What is peptide bond ? 3
iii) Denaturation of protein. 3
iv) Biological function of proteins. 3

OR

v) Tertiary structure of protein. 3
vi) Building blocks of proteins. 3
vii) Renaturation of protein. 3
viii) Quaternary structure of protein. 3

6. Describe in detail the effect of pH, temperature substrate concentration and enzyme concentration on rate of enzyme catalyzed reaction. **12**

OR

What are enzymes ? Describe the kinetics of enzyme catalyzed reaction.

7. Describe in detail the steps of EMP pathway and its regulation. **12**

OR

Describe in detail protein synthesis.

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B.Sc. Part - II Semester – III

3 S : Bioinformatics : Fundamentals of Bioinformatics

P. Pages : 4

Time : Three Hours Max. Marks : 80

Notes :
1. Attempt all questions.
2. Question 1 is compulsory.
3. Draw well labelled diagrams wherever necessary.

1. a) Fill in the blanks.

i) Cellulose is a polymer of ---------- ½

ii) Electrostatic attraction between the oxygen atom of one water molecule and the hydrogen of another forms ---- ½

iii) ------- is the major component of the fluid bilayer of a plasma membrane. ½

iv) Proteins are polymer of ---------- ½

b) Choose the correct option :

i) At which pH will the concentration of hydrogen ions be equal to concentration of hydroxide ions ? ½

a) pH1 b) pH5
c) pH7 d) pH9
e) pH14

ii) Carbohydrates are - ½
a) Polyhydroxy aldehydes
b) Polyhydroxy ketones
c) Polyhydroxy acids
d) Polyhydroxy alcohols
e) A and B

iii) Cells convert glucose to pyruvate by - ½
a) Glycogenolysis b) Gluconeogenesis
c) Glycolysis d) Glycosylation

iv) Two amino acid are linked by - ½
a) Hydrogen bond b) Peptide bond
c) Glycosidic bond d) Disulphide bond

c) Write brief on :
i) Define one molar solution ? **1**

ii) What are isoenzymes ? **1**

iii) What are glycolipids ? **1**

iv) Named the storage polysaccharide in animal and plants. **1**

2. Write account on :
a) Explain water as a biological solvent. **3**

b) Explain polarity of water molecule. **3**

c) Describe role of buffer in maintaining pH of a solution. **3**

d) What is normality of a solution ? **3**

OR

p) Ionization of water. **3**

q) Gram molecular weight and equivalent weight. **3**

r) Define and explain Osmolarity. **3**

s) Weak acid and weak bases. **3**

3. Write on :
i) Define monosaccharide and give its biological importance. **3**

j) Define and explain proteoglycans. **3**

k) Explain storage polysaccharide in animals. **3**

l) Explain structure and occurrence of sucrose. **3**

OR

m) Give the biological importance of oligosaccharides. **3**

n) Define and explain monopolysaccharides. **3**

o) Give importance of glycoproteins. **3**

p) What is starch ? Structure of starch. **3**

4. Write on :
q) Define lipids and give its biological functions. **3**

r) Explain lipids nomenclature. **3**

s) Explain structure and function of simple lipids. **3**

t) What is glycolipids. **3**

OR