VCO: 14/10/16 **BIOTECHNOLOGY-II F.Y.B.Sc. SEM I EXAM MARKS 75 $2^{1/2}$ HRS**

- **All questions are compulsory.**
- **Draw diagram wherever necessary**

Q I. (A) Fill in the blanks. (any four) **(4)**

1. Ionic bonds are _____ bonds as compared to covalent bonds.
2. The extra energy required to melt ice and boil water may be attributed largely to extensive _____ bonding.
3. The high heat of fusion of water is _____ cal/g.
4. When the p^H of a solution decreases, the H^+ concentration _____.
5. In RNA, the pentose sugar is _____.
6. Triglycerides are also called as _____ lipids.
7. In RNA, the four possible nitrogen bases are: adenine, guanine, cytosine and _____.
8. The lipid component present on leaf surfaces to protect plants from water loss and abrasive damage are called as _____.

Q I. (B) Do as directed (any two). **(4)**

1. What are ionic bonds and give an example of the same.
2. Define: Bronsted acids.
3. What is nucleotide and give any two types of the same.
4. Give structure of triacyl glycerol.

Q I. (C) Give an account of any two of the following. **(12)**

1. Covalent bonding with an example.
2. Ionization of weak acid and weak bases.
3. Properties of RNA.
4. Properties of structural lipids with an example.

Q II. (A) Do as directed (any four): **(8)**

1. Name two types of chromatin.
2. Name the two sugar derivatives in peptidoglycan.
3. Fill in the blanks. Two types of Endoplasmic reticulum are _____ and _____
4. Fill in the blanks. The _____ salt of _____ is a major constituent of bacterial spores.

Contd/...2

5. State true or false and if false write the correct statement. "Lipopolysaccharide present in the c wall of Gram negative bacteria is also called as exo....."
6. State true or false and if false write the correct statement. "Phospholipids form 60-70% cytoplasmic membrane"
7. Explain phagocytosis.
8. Give two examples of Gram negative bacteria.

Q II. (B) Discuss any two of the following (12)

1. Cillia.
2. Cell wall of Gram positive bacteria.
3. Cytoplasmic inclusions and vacuoles.
4. Structure of nucleus and its function.

Q III. (A) Name the following (any two). (4)

1. Energy and electron sources of photolithotrophs.
2. Two examples of macronutrients.
3. Two examples of differential media.
4. Any two compounds which are growth factors.

Q III. (B) Fill in the blanks. (any two) (2)

1. An organism which is able to grow at high pH is called _____.
2. Organisms that use CO_2 as sole or principle source of carbon are called _____.
3. _____ is a sulfated polymer extracted from red algae, a sea weed, which is used as a solidifying agent in culture medium.
4. Medium in which all components are known is called as _____

Q III. (C) Define (any two) (2)

1. Selective medium
2. Microaerophile
3. Complex medium
4. Thermophiles

Contd/...3

Q III. (D) Answer the following (any two) **(12)**

1. Explain various nutritional requirements of microorganisms.
2. Give a brief account on temperature requirement and microbial growth
3. Define pure culture. Describe any two methods to obtain pure culture.
4. Describe different types of culture media used for growing microorganisms.

Q IV. Write a note on (any three) **(15)**

1. Steroids
2. Physiological buffers
3. Mesosomes
4. Culture collection centers.
5. Nutritional classification of microorganisms Nutritional requirements of microorganisms.
6. Nuclear structure of a eukaryotic cell.

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