VCD- 15/10/15 **BIOTECHNOLOGY-II F.Y.B.Sc. SEM I EXAM MARKS 75 $2^{1/2}$ HRS**

F.Y.BSc SEM I
15/10/2015

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

Q I. (A) Do as directed. (any four) (4)

1. Water molecules are connected to each other through _____ bonds.
2. Oxygen and nitrogen atoms are considered to be most electro_____ atoms.
3. The heat of vaporization of water is _____ cal/g at its boiling point.
4. At equilibrium, the product of concentrations of the product divided by the product of coneentration of reactants is a constant knows as the _____ constant.
5. In DNA, the pentose sugar is _____.
6. Nitrogen bases cytosine and thymine are _____.
7. Lipids are _____ in water.
8. Animal triacyl glycerols have high melting points and thus are semisolid or _____ at room temperature.

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

1. What are dipoles? Give an example of the same.
2. Define: pH
3. What is RNA? Give types of RNA.
4. Give structure of Adenine.

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

1. Hydrogen bonding with a suitable example.
2. Expression of Henderson-Hasselbach equation.
3. Properties of DNA.
4. Properties of storage lipids with a suitable example.

Q II. (A) Do as directed (any four) (4)

1. Name any two amino acids associated with peptidoglycan.
2. Name the mordant used for the staining of flagella and the antigen associated with flagella.

Contd/...2

3. Fill in the blanks. The outer membrane of the Gram negative_____ is anchored to the underly peptidoglycan by means of_____.
4. Fill in the blanks. The walls of_____and _____contain teichoic acids.
5. State true or false and if false write the correct statement. "Enzymes for respiratory metabolism present in mitochondria in a bacterial cell."
6. State true or false and if false write the correct statement. "Flagella are composed of proteins ca porins."
7. Explain eukaryotic cell.
8. Give two examples of Gram positive bacteria.

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

1. Flagella.
2. Cell wall of Gram negative bacteria.
3. Organization of a prokaryotic cell with a neat labelled diagram
4. Cytoskeletal filament in a eukaryotic cell.

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

1. Carbon and energy sources of photoautotroph.
2. Two enzymes that protect aerobic and facultative organisms against toxic forms of oxygen.
3. Two examples of selective media
4. 4. Two examples of cryopreservative agents

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

1. _____ is needed for synthesis of substances like amino acids, cysteine and methionine.
2. An organism which is able to grow in presence of atmospheric oxygen is called _____.
3. Microelement _____ is a component of vitamin B 12.
4. Water diffuses from a region of high concentration to a region of lower water concentration in the process of _____.

Contd/...3

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

1. Culture medium
2. Growth factors
3. Alkaliphiles
4. Mesophiles

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

1. explain different types of culture media
2. Explain the methods of isolation of microorganisms.
3. Give the nutritional classification of microorganisms.
4. Give a brief account on oxygen requirement and microbial growth.

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

1. Waxes
2. Structure of water molecule
3. Endospores
4. Lipopolysaccharide layer in Gram negative bacteria
5. Preservation methods of microorganisms
6. Nutritional requirements of microorganisms.

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