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Total number of printed pages : 03

B.Tech
PCE5H001

5th Semester Regular Examination 2017-18

Biotechnology

BRANCH : CHEM

Time : 3 Hours

Max Marks : 100

Question Code : B228

Answer Question No.1 and 2 which are compulsory and any four from the rest.

The figures in the right hand margin indicate marks.

Assume suitable notations and any missing data wherever necessary.

Answer all parts of a question at a place.

Q1. Answer the following questions : (2x10)

- a)** Which of the following character is seen in prokaryotes?
i. Presence of mitochondria
ii. Presence of endoplasmic reticulum
iii. Absence of complex cell wall
iv. Absence of chloroplast
- b)** Which of the following is not the function of capsule?
i. Prevent the attachment of bacteriophages
ii. Protects the bacteria cell against desiccation
iii. Plays a major role in locomotion
iv. It inhibits engulfment
- c)** Among all which is not a major characteristic of microorganism?
i. Morphological
ii. Metabolic
iii. Chemotaxis
iv. Ecological
- d)** Whittaker's 5 kingdom classification is based on
i. Mode of absorption
ii. Mode of nutrition
iii. Mode of reproduction
iv. Mode of respiration
- e)** Which technique is not suitable for isolation of pure culture?
i. Isolation by expose to air
ii. Isolation by expose to water
iii. Isolation by inoculating in animals
iv. Isolation by selective or enrich media
- f)** Which of the following is not coming under antagonistic interaction?
i. Amensalism
ii. Commensalism
iii. Parasitism
iv. Competition
- g)** The microorganism growing optically at temperature between 25°C to 35°C are known as:
i. Psychrophiles
ii. Mesophiles
iii. Thermophiles
iv. Hyper thermophiles
- h)** The presence of coliform bacteria in water is not confirmed by
i. The presumptive test

- ii. The complete test
 - iii. The turbidity test
 - iv. The confirmed test
- i)** Which of the following method is not applicable for general methods of classifying bacteria?
- i. The intuitive method
 - ii. Numerical taxonomy
 - iii. Predictability
 - iv. Genetic relatedness
- j)** Colony consistency is appeared to be milky cloudy, it can be referred by the term:
- i. Pellicle
 - ii. Sediment
 - iii. Turbid
 - iv. Butyrous

Q2. Answer the following questions : (2x10)

- a)** What is ammensalism?
- b)** What are barophiles?
- c)** What is nucleoid? How it differs from nucleus?
- d)** What do you mean by ecosystem?
- e)** What are coliform bacteria? Where are they found?
- f)** What do you mean by biological oxygen demand?
- g)** Define the terms autotrophs and heterotrophs.
- h)** What is freeze-Etching?
- i)** What is budding?
- j)** What is type strain?

- Q3. a)** Distinguish between
- i. Phototrophs and Chemotrophs
 - ii. Lithotrophs and Organotrophs
- b)** What do you mean by trace elements? Give some examples of trace elements. **(4)**
- c)** Briefly explain the applications of microbiology in different field. **(8)**

- Q4. a)** If the bacterial cell count increases from 10^3 to 10^9 in 10 hours, determine the generation or doubling time "G". **(5)**
- b)** Discuss the major characteristics of microorganism. **(10)**

- Q5. a)** Draw a typical bacterial growth curve and label the various phases. Discuss those factors which determine the beginning and end of each phase. **(10)**
- b)** Write a short note on bacterial reproduction. **(5)**

- Q6. a)** What do you mean by antagonism? Briefly explain about different types of antagonistic actions. **(7)**
- b)** Define the term Biotropic nutrition. **(4)**
- c)** What is Clay-Humus-Microbe Interaction? **(4)**

- Q7. a)** What are the microorganisms found in contaminated water? Describe briefly about the purification process of sewage water? **(10)**
- b)** Write a note on IMViC test. **(5)**

