

M. B. PATEL SCIENCE COLLEGE, ANAND
S. Y. B. Sc. - Third Semester
Internal Theory Examination – 2011
US03CMiC02

Date : 20/9/2011, Tuesday.
Time : 2:00 to 5:00 p.m.

Total marks : 60

Q : 1 Answer any twelve multiple choice questions out of fifteen. (12)

1. E. H. Haeckel proposed the following kingdom for unicellular microorganisms that were typically neither plants nor animals.
(A) Monera (B) Protista (C) fungi (D) none of these
2. Five kingdom system of classification based on ways to obtain nutrition was proposed by
(A) C. Darwin (B) C. Linnaeus (C) R. H. Whittaker (D) E. H. Hackel
3. Which of the following is a basic taxonomic unit ?
(A) Kingdom (B) Class (C) family (D) Species
4. Sulfur is not needed for which of the following amino acid biosynthesis.
(A) tryptophan (B) cystine (C) cysteine (D) methionine
5. Which organisms make use of carbon dioxide as their sole source of carbon?
(A) Heterotrophs (B) Autotrophs (C) Obligate parasites (D) Chemotrophs
6. If the exact chemical composition of a medium is known, the medium may be described as
(A) Complex (B) Enriched (C) Selective (D) Chemically defined
7. Microorganisms pathogenic for humans and other warm-blooded animals grow the best at temperature of _____.
(A) 42°C (B) 37°C (C) 25°C (D) 30°C
8. Optimum pH for growth of fungi is generally _____.
(A) Basic (B) Acidic (C) Neutral (D) Any of these.

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9. Liquid nitrogen used for culture preservation is having temperature of ____.
- (A) -150°C (B) -100°C (C) -196°C (D) -273°C
10. Growth means ____
- (A) Increase in size
(B) Increase in mass
(C) Increase in population
(D) All of the above
11. Logarithmic phase is also known as ____
- (A) Adaptation phase
(B) Exponential phase
(C) Stationary phase
(D) None of these
12. Bacteria are generally reproduced by ____
- (A) Sexual reproduction
(B) Asexual reproduction
(C) Protoplast fusion
(D) Sporulation
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13. The genetic material of all viruses is made up of ____
- (A) only DNA (B) only RNA (C) either DNA or RNA (D) both DNA and RNA
14. Contractile sheath in T_4 bacteriophage is made up of ____
- (A) 44 ring (B) 24 ring (C) 30 ring (D) 14 ring
15. Which of the following is a plant virus ?
- (A) TMV (B) $\Phi X174$ (C) T_4 bacteriophage (D) Influenza virus

(P.T.O)

Q - 2. Give answer in short (any six).

(12)

- 1) Enlist the names of divisions included in Bergey's Manual of Systematic Bacteriology.
- 2) Classify the bacteria at division level.
- 3) What are minerals? Why they are important for growth of microorganisms.
- 4) What is enriched media?
- 5) Enlist the methods of maintenance and preservation of microbial cultures.
- 6) What are the four physiological groups of microorganisms based on response to gaseous oxygen?
- 7) Draw the labeled diagram of typical bacterial growth curve.
- 8) Define. (a) Generation time (b) Colony
- 9) Draw the labeled diagram of T₄ bacteriophage.
- 10) Define. (a) Plaque (b) Capsid

➤ Give answers of **any four** out of following **five** questions (Q - 3 to Q - 7).

Q - 3 (A) Write a short note on 'Whittakers five kingdom concept'. (6)

(B) Write about the three kingdom classification of Haeckel. Which kingdom contained microorganisms? (3)

OR

Q - 3. (A) Explain briefly about any three major characteristics of microorganisms used for classification. (6)

(B) Describe the important characteristics of bacteriophages. (3)

Q - 4 (A) Discuss the types of bacteria on the basis of energy requirements. (6)

(B) What is agar-agar powder? Describe its source and use in media. (3)

OR

Q - 4 (A) Explain the use of dual purpose medium with suitable example. (5)

(B) Write about the different carbon and nitrogen sources required for the growth of microorganisms. (4)

(P.T.O)

- Q-5 (A) Describe the groups of microorganisms based on temperature range. (5)
(B) Explain the chemical basis for oxygen toxicity. (4)

OR

- Q-5 (A) Enlist the methods of isolating pure cultures and describe any one in detail. (5)
(B) Write a short note on 'Lyophilization'. (4)

- Q-6 (A) Explain the standard plate count method for enumeration of bacteria. (6)
(B) Discuss in brief 'Lag phase'. (3)

OR

- Q-6 (A) Describe the mathematical expression of bacterial growth. (5)
(B) Write a short note on 'Synchronous growth'. (4)

- Q-7 (A) Discuss the process of adsorption and penetration of T₄ bacteriophage lytic cycle in *E. coli*. (5)
(B) Write about the cultivation of animal viruses by tissue culture technique. (4)
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OR

- Q-7 (A) Describe lysogenic cycle. (5)
(B) Write about the cultivation of animal viruses by Chick embryo technique. (4)

Best of Luck.....!!!!!!