

63/1 (SEM-3) CC6/BITHC3066

2023

BIOTECHNOLOGY

Paper : BITHC3066

(Microbiology)

Full Marks : 60

Pass Marks : 24

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Choose the correct answer from the following (any five) : 1×5=5

(a) Who is known as the father of bacteriology?

(i) Louis Pasteur

(ii) Antonie van Leeuwenhoek

(iii) Robert Koch

(iv) Edward Jenner

(b) Who discovered penicillin?

(i) Robert Koch

(ii) Alexander Fleming

(iii) Louis Pasteur

(iv) Edward Jenner

- (c) The cell wall of fungi is made up of
- (i) chitin
 - (ii) glycan
 - (iii) mucilage
 - (iv) pectin
- (d) Which of the following organisms can produce methane?
- (i) Cyanobacteria
 - (ii) Archaeobacteria
 - (iii) Halobacteria
 - (iv) Fungi
- (e) The process by which organic carbon compounds in soil are degraded by microorganisms is called
- (i) decomposition
 - (ii) degradation
 - (iii) ammonification
 - (iv) denitrification
- (f) AIDS is caused by
- (i) hepatitis B virus
 - (ii) human immunodeficiency virus
 - (iii) rabies virus
 - (iv) simian virus 40

- (g) Who was the first to obtain pure culture of bacteria using serial dilution method in liquid media?
- (i) Robert Koch
 - (ii) B. Brefeld
 - (iii) Joseph Lister
 - (iv) Louis Pasteur
- (h) The branch of microbiology that deals with the study of fungi is referred to as
- (i) virology
 - (ii) mycology
 - (iii) immunology
 - (iv) phycology
- (i) Which one of the following micro-organisms is found in polluted water habitat?
- (i) Euglena
 - (ii) *E. coli*
 - (iii) Dinoflagellates
 - (iv) Diatoms
- (j) Which one of the following is known as 'bacteria-eating virus'?
- (i) Bacteriophages
 - (ii) Mycovirus
 - (iii) Protozoa
 - (iv) Mycorrhiza

(4)

2. Answer any *five* of the following questions :

2×5=10

- (a) What is meant by aerobic and anaerobic fermentation?
- (b) Give examples of two archaebacteria that contain glycoproteins in their cell wall.
- (c) Write the name of two viruses which cause cancer.
- (d) What do you mean by phagocytosis?
- (e) Write the name of two fungi that transmit viruses.
- (f) What do you mean by coliform bacteria?
- (g) Write two salient features of fungi.

3. Answer any *five* of the following questions :

5×5=25

- (a) Write a note on the importance and scope of microbiology in human welfare.
- (b) Define germ theory of disease. Write the conditions of germ theory of disease.

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(Continued)

(5)

(c) Briefly discuss about the distinguished characters of cyanobacteria.

(d) "Archaeobacteria is known as the most primitive type of bacteria." Why? Describe.

(e) Why are deuteromycetes called fungi imperfecti? Explain.

(f) Draw and describe the growth curve of bacteria.

(g) Write an essay on single-cell protein and its commercial production.

(h) Distinguish between Gram-positive and Gram-negative bacteria.

(i) Write a short note on any *one* of the following :

(i) Mycoplasma

(ii) Viroids

(iii) Pour plate method

4. Answer any *two* of the following questions :

10×2=20

(a) Briefly discuss the concept of five kingdom classification with diagram. Mention its merits and demerits. 7+3=10

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(Turn Over)

- (b) Describe the methods used to measure microbial growth. Discuss the factors that influence the growth of micro-organism. $6+4=10$
- (c) Give a concise account of various airborne microorganisms. Write an account on the impact of airborne microorganisms on living being. $5+5=10$
- (d) What do you mean by microbial nutrition? Describe the various nutritional requirement forms of micro-organism. $2+8=10$

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