

III/ BIO-TECH (iii)

2015

(3rd Semester)

BIOTECHNOLOGY

Paper No. : BT—III

(Microbiology)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

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

Answer **all** questions

1. (a) Write an account on germ theory. 7

Or

(b) Describe the contribution of John Tyndall on spontaneous generation and Alexander Fleming in penicillin development. $3\frac{1}{2}+3\frac{1}{2}=7$

2. (a) What is binomial nomenclature? Write the concept of binomial nomenclature of microbes. $1+6=7$

G16/63a

(Turn Over)

Or

(b) Illustrate the distinguishing features of archeal membrane system with suitable diagrams. 7

3. (a) Define potato dextrose agar (PDA) medium. Discuss the difference between solid and liquid medium. 1+3+3=7

Or

(b) What is chemical method of sterilization? Discuss dry heat and filtration sterilization. 1+3+3=7

4. (a) Write short notes on the following : 3½+3½=7

(i) Streak plate method

(ii) Flagella staining

Or

(b) What is gram staining? Explain the procedure and principle involved in gram staining. 1+3+3=7

5. (a) What is endospore? Write an account on sporulation process in bacteria. 1+6=7

Or

(b) Write short notes on the following : 3½+3½=7

(i) Concept of exponential growth

(ii) Dry weight cell count

2 0 1 5

(3rd Semester)

BIOTECHNOLOGY

Paper No. : BT—III

(**Microbiology**)

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

Answer **all** questions

SECTION—A

(Marks : 5)

Tick (✓) the correct answer in the brackets provided : 1×5=5

1. Which scientist first disproved spontaneous generation by showing that maggots only appear on decaying meat that has been exposed to flies?

(a) Francesco Redi ()

(b) Joseph Lister ()

(c) Louis Pasteur ()

(d) Robert Hooke ()

2. The following statements are correct with respect to nomenclature of microbes, *except*

- (a) Names of all taxa are printed in italics and should be underlined if hand written. ()
- (b) 'Sp.' is used for any of the species whereas 'Spp.' is used for a particular species. ()
- (c) The genus name is always capitalized, the species name is never capitalized. ()
- (d) Binary nomenclature (invented by Linnaeus), is consisting of a generic name and a species epithet. ()

3. The medium which is used to isolate and differentiate members of the enterobacteriaceae is called

- (a) Eosin Methylene Blue (EMB) ()
- (b) MacConkey agar ()
- (c) Blood agar ()
- (d) Mannitol salt agar ()

4. The stain that is used for capsule staining is

- (a) nigrosine dye ()
- (b) Congo red ()
- (c) malachite green ()
- (d) safrasin ()

5. Exponential phase of growth curve of bacteria is of limited duration because of

(a) raise in cell density ()

(b) accumulation of toxic products ()

(c) exhaustion of nutrients ()

(d) All of the above ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following :

3×5=15

1. Louis Pasteur's contribution in spontaneous generation

3

2. Mycelium

3. Principle of autolysis of microorganisms is based on the fact that ()
- (a) cell wall is broken down
 - (b) cell membrane is broken down
 - (c) cell contents are released
 - (d) All of the above

3. Principle of autoclave

3

Write short notes on the following

1. Louis Pasteur's contribution to spontaneous generation

- 4. (a) Pure culture 1
- (b) Advantages of acid-fast staining 1
- (c) Negative staining 1

BIO-TECHNOLOGY

Paper No. BT-III

(Microbiology)

[PART - A - SUBJECTIVE]

(Marks : 20)

The figures in the margin indicate full marks for the questions

Answer all questions

SECTION - A

(Marks : 5)

Tick (✓) the correct answer in the brackets provided : (1×5=5)

1. Which scientist first disproved spontaneous generation by showing that maggots only appear on decaying meat that has been exposed to air?

- (a) Francesco Redi ()
- (b) Joseph Lister ()
- (c) Louis Pasteur ()
- (d) Robert Hooke (**)

5. Bacterial turbidity

- (a) Advantages of acid-fast staining
- (b) Names of bacteria are given to organisms
- (c) Negative staining
- (d) 'Sp.' is used for any of the species where 'Sp.' is used for a particular species.
- (e) The genus name is always capitalized, the species name is never capitalized.
- (f) Binary nomenclature (invented by Linnaeus) is consisting of a generic name and a species epithet.

3. The medium which is used to isolate and differentiate members of the enterobacteriaceae is called

- (a) E-cin MacConkey agar
- (b) MacConkey agar
- (c) Blood agar
- (d) Mannitol salt agar

4. The stain that is used for capsule staining is

- (a) nigrosin dye
- (b) Congo red
- (c) malachite green
- (d) safranin
