

Seat No: \_\_\_\_\_

Enrollment No: \_\_\_\_\_

**PARUL UNIVERSITY**  
**FACULTY OF AGRICULTURE**  
**B.Tech. Dairy Technology, Summer 2018 - 19 Examination**

**Semester: 2**

**Subject Code: 20104154**

**Subject Name: Fundamentals of Microbiology**

**Date: 19/04/2019**

**Time: 2:00pm to 4:00pm**

**Total Marks: 50**

**Instructions**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1**

**A) Fill in the blanks (Each of 0.5 Mark) (05)**

- i) \_\_\_\_\_ are cell structure that make protein.
- ii) \_\_\_\_\_ serve as storage vessels, it stored glycogen as source of carbohydrate and energy
- iii) Thick layer of peptidoglycan layer present in \_\_\_\_\_
- iv) Father of Microbiology \_\_\_\_\_
- v) Bacterial cell wall made up of \_\_\_\_\_
- vi) Abbreviate PDA \_\_\_\_\_
- vii) Peptidoglycan tetrapeptide of Gram Positive contain \_\_\_\_\_ amino acid.
- viii) Gram negative bacteria appear as \_\_\_\_\_ after gram staining.
- ix) Virus composed protein coat called \_\_\_\_\_.
- x) \_\_\_\_\_ is typical well-studied example of helical symmetry virus.

**B) Multiple Choice Questions (Each of 0.5 Mark) (10)**

- i) Function of cell wall
  - a) Maintain cell shape
  - b) Attachment site for bacteriophage
  - c) Protection
  - d) All of the above
- ii) Cell wall of fungi made up of
  - a) Peptidoglycan
  - b) Chitin
  - c) Glucosamine
  - d) Cellulose
- iii) Who first isolate deoxyribonucleic acid or DNA, from cell nuclei
  - a) Fedrick Meischer
  - b) Dimitri Iwanowsk
  - c) Gregor Mendel
  - d) Robert Hooke



- xiv) Intrinsic factor which affect the growth of microorganism
- a) pH
  - b) Water activity
  - c) Oxidation-reduction potential
  - d) All of the above
- xv) Fermentation is often result of
- a) Protein + proteolytic micro organisms — amino acids + amines + ammonia + H<sub>2</sub>S
  - b) Carbohydrates + fermenting microorganism's —acids + alcohols + gases
  - c) Fatty foods + lypolytic micro organisms — fatty acids + glycerol
  - d) All of the above
- xvi) Example of fermented dairy product
- a) Tofu
  - b) Yoghurt
  - c) Sauerkraut
  - d) Idli
- xvii) Stain used in negative staining
- a) Nigrosine
  - b) Methylene blue
  - c) Crystal violet
  - d) Saffranine
- xviii) Which of the following is Spore-former
- a) Lactobacillus
  - b) Coliform
  - c) Bacillus and clostridium
  - d) Salmonella
- xix) Who published his study of lactic fermentation of milk, demonstrating specific cause of milk souring
- a) Joseph Lister
  - b) Edward Jenner
  - c) Dimitri Iwanowsk
  - d) Louis Pasteur
- xx) In non-enveloped virus \_\_\_\_ provide site for attachment to host cell
- a) Envelope
  - b) Capsid
  - c) DNA
  - d) RNA

## Q.2

A) Define the following (Any five out of seven questions)

(05)

- (1) Fermentation
- (2) Taxonomy
- (3) Dichotomous key
- (4) Growth
- (5) DNA
- (6) Water activity

- (7) DNA replication
- B) Answer the following (Any five out of seven questions) (05)**
- (1) Name the amino acid present in RNA.
  - (2) Enlist the cell wall less bacteria.
  - (3) What is the linkage between NAM and NAG present in cell wall of bacteria?
  - (4) Who introduced "Central dogma of life" ?
  - (5) Enlist Carl Woese's three domain system.
  - (6) Why gram positive bacteria appear dark blue?
  - (7) Who is the father of genetics?
- Q.3 Write Short notes (Any five out of six questions) (10)**
- (1) What is numerical taxonomy
  - (2) Enlist function of cell wall of bacteria.
  - (3) Describe chemical structure of Lipopolysaccharide.
  - (4) What are the L-forms?
  - (5) What is Okazaki fragment?
  - (6) Give DNA replication model.
- Q.4 Long Questions (Any three out of four questions) (15)**
- (1) Application of microorganism in food industry. 05
  - (2) A) Give the factor affecting growth of bacteria. 03  
B) Difference between gram positive and gram negative bacteria. 02
  - (3) A) Difference between bacteria and viruses. 02  
B) Write central dogma of life. 03
  - (4) Describe the history and structure of DNA 05