

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc., Winter 2017-18 Examination

Semester: 1

Date: 22/12/2017

Subject Code: 11201102

Time: 2:00 pm to 4:30 pm

Subject Name: Microbiology

Total Marks: 60

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)** Describe the morphological, physiological and metabolic, ecological, genetic analysis and molecular characterizations of taxonomy of bacteria (08)
- Q.1. B) Answer the following questions (Any two)**
- (a) Brief note:** (04)
1. Pastuerization
 2. Endospore Staining
- (b) Describe Growth curve of Bacteria?** (04)
- (c) Differentiate between commensalism and mutualism.** (04)
- Q.2. A) Answer the following questions.**
- (a) Fill in the blanks.** (04)
1. When 100% kill rate is achieved, it is called..... whereas when pathogenic microorganisms are targeted it is called.....
 2. The two characteristic features of Spirocheates are.....and.....
- (b) Differentiate between gram positive and gram negative bacteria?** (04)
- Q.2. B) Answer the following questions (Any two)**
- (a) Multiple choice questions.** (03)
1. HTST method employs:

| | |
|------------------------|-------------------------|
| A. 63°C for 30 minutes | B. 72° C for 15 seconds |
| C. 140° for 3 seconds | D. None of the above |
 2. What is **not true** about Obligate Psychrophiles:

| | |
|--|---|
| A. Require essentially low temperatures for survival | B. Possess Unsaturated fatty acids in their cell membrane |
| C. Can grow at room temperature | D. All of the above |
 3. Single polar flagella is found in:

| | |
|------------------|------------------|
| A. Lophotrichous | B. Monotrichous |
| C. Peritrichous | D. Amphitrichous |
- (b) Describe the causative agent, symptoms and treatment of Leprosy or Plague.** (03)
- (c) Give an example each of of Thermophile, Actinomycete and Rickettsia.** (03)
- Q.3. A) Answer the following questions:** (08)
- (a) Describe economical uses of algae.
 - (b) Classify organisms based on their oxygen requirements.
- Q.3. B) Answer the following questions (Any two)**
- (a) Brief note:** (04)
1. Photolithotrophs
 2. Chemoorganotrophs
- (b) Describe food poisoning called as botulism.** (04)
- (c) Derive growth equation for bacteria with appropriate assumptions.** (04)

Q.4. A) Answer the following questions.

(a) Fill in the blanks.

(04)

1. Dengue is spread by the bite of mosquito called as.....whereas malaria spreads by.....bite.
2. HIV stands for..... and leads to a sexually transmitted disease called.....

(b) Short note on Food Spoilage.

(04)

Q.4. B) Answer the following questions (Any two)

(a) Multiple choice questions.

(03)

1. Which organism's spores are used as sterilization indicator in autoclave?

A. *Penicillium chrysogenum*

B. *Aspergillus flavus*

C. *Pseudomonas*

D. *Bacillus stercorophilus*

2. Lichens is an example of:

A. Antagonism

B. Mutualism

C. Commensalism

D. Parasitism

3. Ribotyping can be done by sequencing:

A. 5s rRNA

B. 16s rRNA

C. 50s rRNA

D. None of the above

- (b) What is Candidiasis? What is the causal agent and symptoms?**

(03)

- (c) Describe Chick embryo cultivation of Viruses?**

(03)