



**JAS-003-2011016**

Seat No. \_\_\_\_\_

**First Year B. Sc. (Microbiology) (Sem. I)  
(CBCS) Examination**

**December - 2019**

**Fundamentals of Microbiology : Paper - 101**

**Faculty Code : 003**

**Subject Code : 2011016**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.  
(2) The right side figure indicates marks of the question.  
(3) Draw figure wherever required.

- 1 (A) Answer the following : 4
- (1) In prokaryotic cell nuclear material is known as \_\_\_\_\_.
  - (2) Study of heredity and variation is known as \_\_\_\_\_.
  - (3) Unicellular fungus is known as \_\_\_\_\_.
  - (4) The organisms that require high sugar concentration are known as \_\_\_\_\_.
- (B) Answer in brief : (Any **One** out of Two) 2
- (1) What are Extremophilic bacteria?
  - (2) Draw a typical well labelled diagram of Prokaryotic cell
- (C) Answer in detail : (Any **One** out of Two) 3
- (1) Explain Acellular organisms
  - (2) Explain Germ theory of Diseases

- (D) Write a note on : (Any **One** out of Two) 5
- (1) Distribution of microorganisms in nature
  - (2) Applied area of Microbiology
- 2 (A) Answer the following : 4
- (1) Which lens is used for observation of bacterial stained preparation ?
  - (2) Numerical aperture NA = \_\_\_\_\_
  - (3) Electron microscope was discovered by \_\_\_\_\_
  - (4) Give two examples of dyes which are used as indicators as well.
- (B) Answer in brief : (Any **One** out of Two) 2
- (1) What is Resolution of Microscope?
  - (2) What are Mordants ? Give example.
- (C) Answer in detail : (Any **One** out of Two) 3
- (1) Write about Shadow casting technique
  - (2) Write about Capsule staining
- (D) Write a note on : (Any **One** out of Two) 5
- (1) Electron Microscope
  - (2) Differential Staining
- 3 (A) Answer the following : 4
- (1) Vibrio cholerae has sheath which is composed of \_\_\_\_\_
  - (2) Flagella distributed on the entire surface bacterial body is known as \_\_\_\_\_
  - (3) What is main function of ribosome ?
  - (4) Who gave Fluid Mosaic model for the structure of plasma membrane. ?

- (B) Answer in brief : (Any **One** out of Two) **2**
- (1) Write any two functions of surface layers.
  - (2) What are Inclusion bodies ?
- (C) Answer in detail : (Any **One** out of Two) **3**
- (1) Give comparison of gram positive and gram negative bacteria.
  - (2) What is pilli and fimbriae ?
- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Bacterial Spore
  - (2) Structures internal to bacterial cell wall
- 4 (A) Answer the following : **4**
- (1) Define Phototrophs
  - (2) What are aerobic bacteria ?
  - (3) Enlist major elements required by bacteria for nutrition.
  - (4) \_\_\_\_\_ are obligate intracellular parasite.
- (B) Answer in brief : (Any **One** out of Two) **2**
- (1) Give types of bacteria on the basis of pH requirement.
  - (2) What is Oxygen toxicity ?
- (C) Answer in detail : (Any **One** out of Two) **3**
- (1) Cultivation of anaerobes
  - (2) Selective methods to obtain Pure cultures
- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Bacteriological media
  - (2) Nutritional types of Bacteria

- 5 (A) Answer the following : 4
- (1) The Generation time of E.coli is \_\_\_\_\_ minutes
  - (2) Give formula to calculate growth rate of bacteria.
  - (3) Give full form of CFU
  - (4) The growth of bacteria showing two lag phases is called \_\_\_\_\_ growth.
- (B) Answer in brief : (Any **One** out of Two) 2
- (1) What is Fragmentation ?
  - (2) What is Synchronous growth ?
- (C) Answer in detail : (Any **One** out of Two) 3
- (1) Discuss any two methods of bacterial growth measurement.
  - (2) Discuss phases of Bacterial Growth Curve
- (D) Write a note on : (Any **One** out of Two) 5
- (1) Continuous cultivation of Bacteria
  - (2) Reproduction in Bacteria
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