



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours 1st Semester Examination, 2020, held in 2021

**MCBACOR02T-MICROBIOLOGY (CC2)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.*

**Answer Question No. 1 and any four questions from the rest**

1. Answer any **four** questions from the following: 2×4 = 8
  - (a) Define selective media. Give one example of a selective media.
  - (b) Write down the use of HEPA filter.
  - (c) What are obligate anaerobes? Give one example.
  - (d) What are photoheterotrophs?
  - (e) What is the function of mordant?
  - (f) What is the difference between acidic and basic dyes?
  - (g) What are inclusion bodies?
  
2.
  - (a) Classify bacteria according to their temperature requirement for growth. 2
  - (b) Why is the steaming process required during endospore staining? 2
  - (c) What do you mean by differential staining? 2
  - (d) State the role of the counter stain in Gram staining process. 2
  
3.
  - (a) What is acid fast staining? 2
  - (b) Why is the cell wall of bacteria negatively charged? What is pseudomurein? 1+1
  - (c) What is diauxic growth? 2
  - (d) What are microaerophilic bacteria? What are capnophiles? 1+1
  
4.
  - (a) Draw the schematic diagram to explain the formation of endospore. Label your diagram properly. 3
  - (b) Differentiate between spread plate technique and pour plate technique. 2
  - (c) Which one is more effective for sterilization – moist heat or dry heat? Give reasons for your answer. 2
  - (d) Mention an example of capsulated bacteria. (Both genus and species are to mentioned) 1

5. (a) Write the mode of action of alcohol that is used for microbial control. 2  
(b) *E. coli* has a generation time of 20 minutes. If you start with 10 cells how many will you have after 5 hrs? 3  
(c) Differentiate between protoplast and spheroplast. 2  
(d) Define 'growth rate' of bacteria. 1
6. (a) What is the purpose of negative staining? 2  
(b) Differentiate between the cell wall structure of Gram positive and Gram negative bacteria. 3  
(c) What are barophiles? Give two examples of barophilic bacteria. 2+1
7. (a) Why are Mycoplasma not affected by penicillin? 2  
(b) What is differential media? Give an example of such a media. 2  
(c) What are auxotrophs? 2  
(d) Differentiate between a stain and a dye. 2
8. (a) Explain the different structural parts of a bacterial flagella. 3  
(b) Differentiate between chemostat and turbidostat. 3  
(c) How does dessication help in controlling microbial growth? 2

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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