



WEST BENGAL STATE UNIVERSITY
B.Sc. Programme 5th Semester Examination, 2020, held in 2021

MLBGDSE02T-MOLECULAR BIOLOGY (DSE1)

GENERAL MICROBIOLOGY

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.
All symbols are of usual significance.*

1. Answer any **ten** questions from the following: 1×10 = 10
- (a) Write true/false against the following statements with proper scientific logic
- (i) Absolute alcohol shows better antibacterial potential than 70% alcohol due to its strong hydroscopic nature.
 - (ii) Pasteurization cannot be called partial sterilization as it is able to kill all the pathogens in all the form present in milk.
 - (iii) Continuous culture technique is one method of getting synchronous culture.
 - (iv) Zoospores are part of fungal asexual reproduction.
 - (v) Bacteria present at lower nutrient containing area generally rod-shaped due to acquiring greater surface area.
 - (vi) Air can be made free from bacterial contamination by filtration.
 - (vii) Mitosporic fungi are known as fungi imperfecti.
 - (viii) Microbes isolated from hot spring may be considered as thermophiles as well as acidophiles.
 - (ix) Bacterial sporulation is a classic example of sigma switching.
- (b) Answer the following questions in brief.
- (i) What is protoplast?
 - (ii) What is the special characteristic of acid-fast bacteria?
 - (iii) Give example of a bacterium which may arrange like bunch of grapes.
 - (iv) Give example of an autotrophic bacterium.
 - (v) What is chemotherapeutic agent?
 - (vi) Name the modified sugars present in the bacterial cell wall.

2. Answer any *ten* questions from the following: 2×10 = 20
- (a) What are flagella? What are the main structural parts of flagella?
 - (b) Name two terrestrial algae.
 - (c) Why fungi are called saprophyte?
 - (d) What is algal bloom?
 - (e) What is D value of antibacterial agents?
 - (f) What do you mean by haplodiplobiontic life cycle of fungi?
 - (g) To be a useful chemotherapeutic agents what are the must have qualities in antibiotic?
 - (h) What do you mean by tyndallization?
 - (i) Define capnophiles with example.
 - (j) Define Koch's postulates.
 - (k) How capsules give protection to pathogens against host immunity?
 - (l) What is the selective media? State its usefulness in cultivation of bacteria.
 - (m) Draw a typical bacterial growth curve and mention its different phases.
 - (n) Write down the significance of pH for bacterial growth.
 - (o) State the role of Fts Z ring in binary fission.

3. Answer any *two* questions from the following: 5×2 = 10
- (a) What is the generation time of bacterial growth? How many bacteria should a culture begin with to reach 10^8 cells/ml after 3 hours if the generation time is 30 minutes? 2+3
 - (b) Mention at least three different antibiotic resistance strategies by bacteria with example. Why streptomycin is known as aminoglycosidic antibiotic? 3+2
 - (c) What are the basic differences between cell wall of Gram-positive and Gram-negative bacteria? What is the basic difference between the mode of action of lysozyme and penicillin? 3+2
 - (d) State two major characteristics with one example from each of the Kingdom mentioned by Whittaker. 5

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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