

**Bachelor of Science (B.Sc.) Semester—I Examination
MICROBIOLOGY**

(Fundamentals of Microbiology) (New)

Optional Paper—1

Time : Three Hours]

[Maximum Marks : 50

N.B. :— (1) All questions are compulsory and carry equal marks.

(2) Draw diagram wherever necessary.

1. What is Biogenesis ? Explain the various Experiments in support of theory of Biogenesis. 10

OR

Discuss in detail the scope of Biotechnology and Medical Microbiology with its applications. 10
2. What is Plasma membrane ? Discuss in detail fluid mosaic model with diagram. 10

OR

What are endospores ? Explain the process of endospore formation in bacteria. 10
3. (a) Explain nutritional types of bacteria. 5

OR

(b) Write a note on basic nutritional requirements of bacteria. 5

OR

(c) Explain selective media with suitable examples. 5

(d) Explain any two fungal isolation media and give their applications. 5
4. (a) Write a short note on binary fission. 2½

(b) Write a note on Axenic culture. 2½

(c) Discuss stationary phase of bacterial growth curve. 2½

(d) Write a note on death phase of bacterial growth curve. 2½

OR

(e) Write a note on synchronous culture. 2½

(f) Draw well labelled diagram of chemostat. 2½

(g) Write a note on diauic culture. 2½

(h) Write a brief note on how temperature influences the microbial growth. 2½

Solve any **TEN** :—

- (i) What is spontaneous generation ?
- (ii) Give any two contributions of Martinus Beijerinck.
- (iii) What is Tyndalization ?
- (iv) Give the function of Pilli.
- (v) What are Myxospores ?
- (vi) What is the function of mesosomes ?
- (vii) Define differential media.
- (viii) Give the example of Enriched media.
- (ix) Give any two examples of synthetic media.
- (x) Define Budding.
- (xi) What is the use of turbidostat ?
- (xii) Define Microaerophilic Bacteria.

College Exam 100

Bachelor of Science (B.Sc.) Semester—I (C.B.S.) Examination**MICROBIOLOGY (History and Microbial Morphology)****Compulsory Paper—1**

Time : Three Hours]

[Maximum Marks : 50

Note :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw well labelled diagram and give examples wherever necessary.

1. Describe the experiments of Louis Pasteur and John Tyndall in the support of biogenesis. 10
- OR**
- Describe the scope of industrial microbiology and biotechnology. 10
2. Draw the structure of typical bacterial cell. Add a note on the structure of Gram positive bacterial Cell wall. 10
- OR**
- Explain fluid mosaic model of bacterial plasma membrane. 10
3. (a) Explain Bacterial Capsule along with its functions. 2½
 (b) Draw the Well labelled diagram of Gram negative bacterial flagellum. 2½
 (c) Diagrammatically illustrate stages of germination of Endospore. 2½
 (d) Write a note on myxospores. 2½
- OR**
- (e) What are Pili ? Give their functions. 2½
 (f) Draw the structure of Gram positive bacterial flagellum. 2½
 (g) Briefly explain asexual eukaryotic spore. 2½
 (h) Write the significance of dormancy. 2½
4. (a) Write a note on Numerical taxonomy. 5
 (b) Discuss Whittaker's five kingdom system of classification. 5
- OR**
- (c) Explain Bacterial classification based on GC : AT ratio. 5
 (d) Write a note on 16S r-RNA cataloguing and its significance. 5
5. Solve any **TEN** questions :
- (i) Define Phycology and Mycology. 1
 (ii) Who is the father of Antiseptic Surgery ? 1
 (iii) What is exobiology ? 1
 (iv) What is nucleoid ? 1
 (v) Define plasmid. 1
 (vi) Give any two examples of storage granules. 1
 (vii) Define Slime Layer. 1
 (viii) Why endospores are resistant to high temperatures ? 1
 (ix) What are exospores ? 1
 (x) Give any two significances of bacterial classification. 1
 (xi) What is intuitive classification ? 1
 (xii) Define phylogeny. 1

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
End Semester Examination (O/D Semester) Winter-2022
Shri Shivaji Education Society Amravati's
Science College Congress Nagar Nagpur
Bachelor of Science (B.Sc.) Semester-I Examination
MICROBIOLOGY PAPER-I: FUNDAMENTALS OF MICROBIOLOGY

Time: Three Hours

(Maximum Marks: 50)

Note: (1) All questions are compulsory and carry equal marks.
(2) Draw diagram wherever necessary.

1. .
- (a) Describe the scope of Biotechnology and Medical microbiology? 5
 - (b) Explain Geomicrobiology and Industrial microbiology? 5
- OR
- (c) Explain the work of Louis Pasteur in support of theory of biogenesis? 5
 - (d) Give the contribution of Beijerinck & John Tyndall? 5
- 2.
- (a). Describe various types of flagellar arrangement in bacteria ? 2½
 - (b). Diagrammatically illustrate the process of Endospore formation? 2½
 - (c). What is the significance of dormancy? 2½
 - (d). Describe the R plasmid? 2½
- OR
- (e). Describe the structure of Lipopolysaccharid? 2½
 - (f). Describe mesosome and its function. 2½
 - (g). Draw well labelled diagram of Flagella? 2½
 - (h). Why endospore are resistant to the action of chemical and temperature? 2½
3. What is culture media? Describe synthetic media and complex media with example? 10
- OR
- Give the classification of bacteria on the basis of nutritional requirement? 10
4. Give mathematical expression of bacterial growth curve? 10
- OR
- What is continuous culture? Describe various methods to obtain it? 10
5. Solve any Ten (10) (1 x 10)= 10
- (i) Give the name of any two endospore producing bacteria?
 - (ii) Who isolate the first Nitrogen fixing bacteria?
 - (iii) Name any two storage granules found in bacteria?
 - (iv) Where is Tichoic acid present in bacteria?
 - (v) What is slime layer?
 - (vi) What is mycology?
 - (vii) Define a biogenesis?
 - (viii) What is nucleoid?
 - (ix) What is F plasmid?
 - (x) Give any two example of Eukaryotic spores?
 - (xi) Who is the father of Microbiology?
 - (xii) Who gives Fluid Mosaic model?

10-12-22

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Time: Three Hours

(Maximum Marks: 50)

Note: (1) All questions are compulsory and carry equal marks.
(2) Draw diagram wherever necessary.

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1. Describe the contributions of Louis Pasteur in the field of Microbiology. 10
OR
What is Microbiology? Give Scope of various branches of Microbiology. 10
2. Draw a well labelled diagram of bacterial Endospore? Describe the process of its formation and Germination. 10
OR
Define Plasmid? Describe various types of plasmids and its function. 10
3. (a). Classify bacteria on the basis of Energy and Carbon Source. 5
(b). What are selective and Enrichment media? Explain with suitable example. 5
OR
(c). Describe Synthetic media and Non synthetic media. 5
(d). Give the classification of Nutrients. 5
4. (a). What is Diauxic growth? 2½
(b). Explain the classification of bacteria on the basis of temperature with example 2 ½
(c). Draw a well labelled diagram bacterial growth curve? 2½
(d). What is Chemostat? 2½
OR
(e). What is synchronous culture? 2½
(f). Explain classification of bacteria on the basis of pH with example 2½
(g). What is Axenic culture? 2½
(h). Write down the name of technique used to cultivate anaerobic bacteria. 2½
5. Solve any Ten (10) (1 x 10)= 10
- (i) Who is the father of antiseptic surgery?
(ii) What is nucleoid?
(iii) Enlist any two storage granules found in bacteria?
(iv) What is myxospore?
(v) What is pilli?
(vi) What is Svedberge constant?
(vii) Write any two significance of Dormancy?
(viii) Give the contribution of Alexander Fleming?
(ix) What is glycocalyx?
(x) Write the name of asexual spores in fungi?
(xi) Give the subunit of 70S ribosome?
(xii) Peptidoglycan layer is made up of which subunits?