

Code No: A109212304

R09

Set No. 2

II B.Tech I Semester Examinations, MAY 2011
MICROBIOLOGY
Bio-Technology

Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is simple staining? What information it infers.
(b) Explain Indole production test. [8+7]
2. What are the T series of bacteriophages? Explain the process and application of page-typing. [15]
3. What are the different types of infections observed in various disease conditions? Explain the reasons for the different kinds of growth observed. [15]
4. What is plaque assay? Explain how it is performed and what inference one can draw from it? [15]
5. Elaborate on the carbon and energy sources for bacterial growth. [15]
6. Compare and contrast Carl Woese's and Whittaker's classification of living organisms. [15]
7. Write a note on how microorganisms were discovered. [15]
8. How does the yield of virus particles per cell compare between a phage infected bacterium and a virus infected animal or plant cell? [15]

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Set No. 4

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MICROBIOLOGY
Bio-Technology

Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. Explain the process of Grams staining in detail. [15]
2. Describe the sequence of events that occurs when T-even phages penetrate an E.coli cell. [15]
3. Explain how a typical retrovirus replicates. [15]
4. Explain what a bacteriophage type means and what is bacteriotyping? How is this technique utilized in typing the bacteriophages? [15]
5. What is meant by Classification system? What are the major classification systems? [15]
6. How do microorganisms convert nutrients to energy through aerobic metabolism? [15]
7. What is the main virulence factor of *Haemophilus influenzae*? Why is "Hib" not so much of a problem now as it was ten years ago? [15]
8. Sequentially explain how experiments carried out by various scientists led to formation of "Theory of Spontaneous generation" and how it was finally disproved. [15]

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Set No. 1

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Bio-Technology

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Answer any FIVE Questions
All Questions carry equal marks

1. Describe the main postulates of Koch's "Germ Theory of diseases". [15]
2. Explain the principle of culturing microorganisms on selective and differential media. Give suitable examples. [15]
3. Explain important tests used to select viral growth in cell cultures. [15]
4. Name two *Haemophilus* species or biotypes that cause human diseases in each case, also explain its pathologic states. [15]
5. Which staining technique is used to visualize flagella under a microscope? Discuss the importance of flagellar staining. [15]
6. How is one step growth experiment carried out? Explain what happens during this process at each phase. [15]
7. Describe the process of transcriptases in Phage T4 infection with respect to immediate early, delayed early and late gene products. [15]
8. Citing appropriate characteristic features, explain how Archaeobacteria can survive under extreme conditions. [15]

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Set No. 3

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MICROBIOLOGY
Bio-Technology

Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
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1. (a) Describe Carl Woese three Domain classifications.
(b) Describe five Kingdom classifications as proposed by Whittaker. [7+8]
2. Explain the significance of Louis Pasteur's and Robert Koch's experiments in the field of Microbiology. [15]
3. (a) How are microorganisms classified on the basis of their oxygen requirement?
(b) Discuss the procedure of Flagella staining. [8+7]
4. Write short notes on:-
 - (a) Receptor site
 - (b) Hydroxymethyl cytosine.
 - (c) Concatamers
 - (d) Scaffolding proteins. [15]
5. What are the special techniques used to remove oxygen during cultivation of anaerobic microorganisms? [15]
6. Define the terms:-
 - (a) capsid and nucleocapsid
 - (b) cytopathic effects (CPE)
 - (c) temperate phage
 - (d) prophage. [15]
7. Contrast the type of infection caused by *Staphylococcus aureus* with that caused by *Clostridium perfringens* in terms of the ability of the organisms to spread through tissues. [15]
8. Explain what is a Widal test; how is Hemagglutination used in clinical diagnosis? [15]
