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**DEPARTMENT OF MICROBIOLOGY**

B.Sc. SEMESTER II

**QUESTION BANK**

**MICROBIOLOGY PAPER I**

**(Microbial diversity)**

**Que.1 Describe general characteristics of proteobacteria. 10M**

**Que. 2 Discuss general characteristics of Mycoplasma. 10M**

**Que.3 Write a note on pathogenesis of Mycoplasma. 2.5M**

**Que.4 Describe general characteristics of Rickettsia. 05M**

**Que.5 Describe general characteristics of Chlamydia. 05M**

**Que.6 Write a note on pathogenesis of Rickettsia. 2.5M**

**Que.7 Give the general characteristics of cyanobacteria and its applications. 10M**

**Que.8 Explain the role of cyanobacteria in waste water treatment. 2.5M**

**Que.9 Describe general characteristics of anabaena. 10M**

**Que.10 Describe the general characteristics of archaebacteria. 10M**

**Que.11 Describe briefly different types of archaebacteria. 10M**

**Que.12 Write a detail account on methanogens. 05M**

**Que.13 Describe economic importance of methanogens. 05M**

**Que.14 Give two examples of Alphaproteobacteria. 01M**

**Que.15 Give two examples of Betaproteobacteria. 01M**

**Que.16 Give two examples of Gammaproteobacteria. 01M**

**Que.17 Give two examples of Deltaproteobacteria. 01M**

**Que.18 Give two examples of Epsilonproteobacteria. 01M**

**Que.19 Give two examples of Zetaproteobacteria. 01M**

**Que.20 Name any two classes of phylum Proteobacteria. 01M**

**Que.21 Who first time isolated mycoplasma. 01M**

**Que.22 What is PPLO?01M**

**Que.23 Which organism forms fried egg like colony? 01M**

**Que.24 Write the names of any two diseases caused by rickettsia. 01M**

**Que.25 What is PLT? 01M**

**Que. 26 Why cyanobacteria are also referred as blue green algae? 01M**

**Que.27 Describe the general characteristics of fungi. 10M**

**Que. 28 What are the ecological and economic benefits of fungi? 05M**

**Que. 29 Explain the general structure of mold. 05M**

**Que.30 Explain the general structure of yeast. 05M**

**Que.31 Discuss asexual reproduction in moulds. 10M**

**Que.32 Write a note on parasexual reproduction. 2.5M**

**Que.33 Describe budding in yeast. 05M**

**Que.34 Describe general characters of algae. 05M**

**Que.35 Describe in brief classification of algae. 10M**

**Que.36 Draw a typical diagram of algal cell. 2.5M**

**Que.37 Define reticulate body. 01M**

**Que.38 Give any two applications of cyanobacteria. 01M**

**Que.39 Which cells of anabaena fixes nitrogen? 01M**

**Que.40 Why actinomycetes are called as 'fungus like bacteria'? 01M**

**32. Name the substance and organism responsible for the typical odour arised from the moist earth.**

**34. Name any two antibiotics produced by Streptomyces.**

**35. What do you meant by substrate mycelium and arial mycelium?**

**36. Which organism causes scab disease in potato and beat?**

**37. What are archaea bacteria?**

**38. Give one example of each of extreme halophiles and extreme thermophiles.**

**39. Which type of organisms belongs to Euryarchaeota group?**

**40. Which type of organisms belongs to Crenarchacota group?**

**43. What are the natural habitats of methanogens?**

**44. What is meant by methanogens?**

**47. What are environmental hazards of methane gas?**

**Describe general characteristics of fungi. What are the ecological and economic benefits of Fungi?**

**What are the detrimental effects of fungi? 4. Explain the general structure of mold.**

**Explain the general structure of yeast. Discuss asexual reproduction in moulds.**

**Describe sexual methods of reproduction in Zygomycota fungi.**

**Describe sexual methods of reproduction in ascomycetes fungi.**

**10. Describe sexual methods of reproduction in basidiomycotafungi.**

**Describe the production of ascospores in fungi.**

**11. Describe the production of basidiospores in fungi.**

**12. Write a note on parasexual reproduction.**

**13 Describe in detail slide culture technique for fungal identification.**

**14. Describe budding in yeast.**

**15. Describe general characters of algae.**

**16 Describe in brief classification of algae.**

**Draw a typical diagram of algal cell.**

**18. Describe the structure of algal cell.**

**19. Write a note on distribution of algae.**

**20. Discuss the industrial importance of algae.**

**21. Explain the terms Encystment and excystment. 22. Describe in brief classification of protozoa.**

**23 Describe general characteristics of protozoa.**

**24 Describe life cycle of E. histolytica?**

**Short Answer Questions:**

**1. Why fungi are osmotrophic?**

**3. Write any two harmful effects of fungi.**

**4. What are coenocytic hyphae?**

**Define the following terms**

**a) Arthrospores**

**b) Chlamydospores**

**Sporagiospores**

**sporangia**

**e) conidiophores (conidia)**

**f) Blastospores zygospore**

**g) Ascospore**

**h) Basidiospores**

**7. Give two examples of each of the following**

**a) Zygomycota**

**b) Ascomycota**

**c) Basidiomycota**

**d) Deuteromycota**

**Name any two media used for cultivation of fungi.**

**9. What is the main component of the fungal cell wall?**

**10. What is dikaryotic stage?**

**What are dimorphic fungi?**

**12. Name any two dimorphic fungi.**

**13. Name the media commonly used for cultivation of fungi.**

**14. Define Planktonic, benthic and neustonic algae.**

**15. Give the function of pyrenoids.**

**16. Give the function of thylakoids.**

**17. Name any two color pigments found in algae. 18. What is diatomaceous earth?**

**19. Name the algae used to extract agar.**

**20. What is the industrial use of Algae Chondrius and Carrageenan?**

**21. Name the algae which yield iodine.**

**22. What is Funori?**

**23. What is chlorellin?**

**24. What is holozoic nutrition?**

**25. What is saprozoic nutrition?**

**26. What is Encystment?**

**27. What is Excystment?**

 **Describe general characters of viruses.**

**Write a note on polyhedral symmetry of viruses.**

**6. Write a note on complex symmetry of viruses.**

**Discuss classification of viruses. Write a note on LHT system of classification.**

**Write a note on Baltimore classification system.**

**Describe the life cycle of temperate (lysogenic) phage.**

**Describe the life cycle of virulent (lytic) phage.**

**Describe the life cycle of lambda phage.**

**13. Discuss the different methods for cultivation of animal viruses. various methods of detection of viral growth.**

**15. Diagrammatically illustrate lysogenic cycle of viruses.**

**17. Describe tissue culture technique of virus cultivation. 18. Draw well labeled diagram of T4bacteriophage.**

**16. Explain the process of adsorption and penetration of host cells by viruses.**

**22. Describe haemagglutination test for virus detection.**

**21. Discuss different types of cytopathic effects produced by virus growth in cell culture.**

**23. Explain transformation for detection of oncogenic viruses.**

**19. Draw well labeled diagram lambda phage.**

**How viruses are cultivated in embryonated egg.**

**24. Write a note on inclusion bodies.**

**25. How bacteriophage growth is detected?**

**Short Answer Questions:**

**2. Who first time crystallized viruses?**

**Give the contribution of Martinus Beijernick in virus discovery.**

**3. Who first discovered bacteriophages?**

**4. What is virion?**

**5. What is Capsid?**

**6. Name one example of each of polyhedral with naked and enveloped symmetry.**

**7. What is capsomer?**

**8. Name one example of each of helical with naked and enveloped symmetry.**

**9. Give two examples of viruses with complex symmetry.**

**10. Who proposed LHT system of classification of viruses?**

**11. What is the long form of ICTV.**

**Name any two RNA viruses.**

**Name any two DNA viruses.**

**14. Define lytic cycle.**

**15. What is ghost?**

**16. What is eclipse period?**

**17. Define temperate phage.**

**18. What is prophage?**

**19. What is the significance of early proteins in lytic cycle?**

**Describe the life cycle of virulent (lytic) phage Describe the life cycle of temperate (lysogenic) phage.**

**Describe the life cycle of lambda phage.**

**different methods for cultivation of animal viruses. 14. Esplain various**

**13. Discuss themethods of detection of viral growth.**

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**Discuss different types of cytopathic effects produced by virus growth in cell culture. test for virus detection.**

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**18. What is prophage**

**19**

**[7:37 PM, 2/25/2024] Vinita Chauhan: What is the significance of late proteins in lytic cycle?**

**21. Define lysogeny.**

**22. Define latent period.**

**23. What is a burst size?**

**24. What is temperate phage?**

**25. Name any two methods of cultivation of viruses. 26. What is continuous cell line?**

**27. Give two examples of continuous cell line.**

**28. What is semi continuous cell line?**

**29. What is cyto pathic effect?**

**30. What is meant by multinucleated cells? 31. What is meant by Guarnieri bodies?**

**32. What is meant by Negri bodies?**

**33. Give example of viruses which forms Guarnieri bodies.**

**34. Give example of viruses which forms Negri bodies. 35. What is plaque?**

**36. Give the use of eagle medium.**

**37. Why antibiotics are added in the cell culture medium of viruses**

**[7:38 PM, 2/25/2024] Vinita Chauhan: Discuss various positive microbial associations with suitable examples.**

**Discuss various negative microbial associations with suitable examples.**

**Describe mutualism and commensalism with suitable examples.**

**Describe parasitism and antagonism with suitable examples.**

**5. Write a note on Mycorrhizas.**

**6.**

**Explain Syntrophism with examples.**

**7. Discuss predation with suitable examples.**

**8. Write a note on Amensalism.**

**9. Explain competition with suitable example.**

**10. Describe mutualism with examples.**

**11. Describe commensalism with examples.**

**12. Define antagonism and give suitable examples.**

**13. Explain the protist-protist interaction between Bdellovibrio and E. coli.**

**14. Describe the life-cycle of Bdellovibrios.**

**15. Discuss the microbial interaction in rumen.**

**17. Desribe the process of formation of root nodules.**

**8. Write a note on bioluminescence.**

**19. Describe the working of rumen.**

**20. Describe the significance of rumen bacteria.**

**22. Describe termite gut microbial interaction.**

**Short Answer Questions:**

**1. What is positive microbial interaction?**

**2. What is negative microbial interaction?**

**Define mutualism.**

**What is Lichen?**

**5. What is mycobiont in lichen?**

**6. What is phycobiont in lichen?**

**[7:38 PM, 2/25/2024] Vinita Chauhan: Define syntrophism.**

**Define antagonism?**

**10. Define amensalism.**

**1. What is synergism?**

**12 Define commensalism.**

**13. Name the enzyme is responsible for bioluminescence?**

**14. Define bioluminescence.**

**15 Define Mycorrhiza.**

**16. What is VAM?**

**17. What is ecto mycorrhiza and endo mycorrhiza?**

**18. Give two examples of rumen bacteria.**

**19. Give two examples of insect midgut bacteria.**

**20. Define antibiosis.**

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**DEPARTMENT OF MICROBIOLOGY**

B.Sc. SEMESTER II

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**MICROBIOLOGY PAPER I**

**(Food Microbiology and Milk Microbiology)**

**[7:39 PM, 2/25/2024] Vinita Chauhan: What are the causes of spoilage of foods? Classify foods based on the ease of spoilage.**

**ation of food. In Describe the changes that occur in the nitrogenous content of foods. 6. Describe the changes that occur in the non-nitrogenous content of foods.**

**Pseudomonas, Ener sed for cooling pa**

**arolytic and prote8**

**erant. Hence they at**

**ntamination through**

**amount of fermented**

**anned fruits, jams,**

**tative yeasts. Comm**

**3. How does the physical state and structure of food influence the spoilage of foods?**

**Describe how the chemical properties of foods decide the number and type of Microorganisms?**

**Discuss the contamination of fruits and vegetables.**

**Give the general types of microbial spoilage of fruits and vegetables.**

**9. Write notes on the spoilage of fruit and veget…**

**[7:41 PM, 2/25/2024] Vinita Chauhan: Illustrate the chief methods of food preservation.**

**2. Give the principles of food preservation.**

**3. Write a note on precaution for storage of food.**

**4. What is asepsis?**

**5. Write notes on the removal of microorganisms in foods.**

**6. Explain the process involved in preventing the growth of aerobes.**

**7. Write notes on microbial decomposition of foods.**

**8. Classify preservation factors with their modes of action.**

**9. Describe the thermal death point, thermal death time and decimal reduction time.**

**10. Describe the factors that determine the time required for the sterilization of canned foods.**

**11. Describe the preservation of food by canning.**

**12. List the methods of preservation that supplement pasteurization.**

**13. Why are foods blanched or scalded?**

**14. Describe the changes during freezing…**

**[7:41 PM, 2/25/2024] Vinita Chauhan: List the characteristics of an ideal antimicrobial preservative.**

**21 . List the groups of antimicrobial preservatives added to foods.**

**22. Write notes on organic acids and their salts in the preservation of foods.**

**23. Describe the use of nitrites and nitrates in food industry.**

**24. List the antibiotics and their importance in food preservation.**

**25. Write notes on important solutes in the preservation of foods.**

**27. Write notes on sulphur-containing compounds in preservation.**

**28. What are developed preservatives?**

**[7:41 PM, 2/25/2024] Vinita Chauhan: Give the composition of milk.**

**Write detailed notes on the sources of contamination of milk. What is pasteurization? Describe.**

**4. Describe in detail microbial Spoilage of milk and milk products 5. Write notes on the color defects caused by microbes in milk.**

**6. List the causal organisms producing flavor defects.**

**1. Write notes on the spoilage of butter.**

**8. Write notes on the spoilage of cheese.**

**9. What are the color changes seen in milk?**

**10. Write notes on the decomposition of milk fat.**

**11. What is ropiness? Describe.**

**12. Describe Low Temperature Holding Method.**

**13. Write a note on flash pasteurization.**

**14. What is HTST?**

**16. How is the efficiency of Pasteurization of Milk determined?**

**15. What is UHT?**

**17. Write a note on MBRT test.**

**18. Describe methods for production of Dahi.**

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**[7:42 PM, 2/25/2024] Vinita Chauhan: Classify food-borne diseases.**

**2. What is botulism? Describe.**

**3. Discuss salmonellosis in detail.**

**4. What are the conditions necessary for the outbreak of staphylococcal food poisoning?**

**3. Discuss staphylococcal food intoxication.**

**6. Write notes on Clostridium perfringens illness.**

**7. What is EEC infection?**

**infants,**

**doda**

**which desce**

**diagram shoul**

**8. Describe Bacillus cereus gastroenteritis k is to verify the**

**deration shed**

**9. What are mycotoxins? Give examples.**

**10. Write detailed notes on aflatoxins.**

**11. Discuss the significance of patulin in foods. eration to ve**

**12. Give the structure of aflatoxin.**

**13. What is ochratoxin? Describe.**

**[7:42 PM, 2/25/2024] Vinita Chauhan: What are the implications of mycotoxins?**

**15. What are the principal food control options available?**

**16. What is HACCP?**

**17. List the methods to minimize contamination in keeping the quality of the product.**

**18. Write a note on objectives and responsibilities of FDA**

**19. What is BIS? Give its responsibilities.**

**20. Discuss the objectives of FSSAI.**

**21. Give the benefits of HACCP.**

**22. Write the seven principles of HACCP system.**