

**KAMLA NEHRU MAHAVIDYALAYA NAGPUR**

**DEPARTMENT OF MICROBIOLOGY**

**SUMMER 2022 EXAMINATION**

**CLASS: BSC SEM IV PAPER : PAPER II ( ENVIRONMENTAL MICROBIOLOGY)**

**MCQ QUESTION BANK**

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1. The concept of putting microbes to help clean up the environment is called
- A. pasteurization
  - B. bioremediation
  - C. fermentation
  - D. biolistics

**Answer:** Option B

2. Which of the following is not employed as an oxidation method?
- A. Oxidation ponds
  - B. Trickling filters
  - C. Contact aerators
  - D. All of these

**Answer:** Option D

3. The filtering medium of trickling filters is coated with microbial flora, known as
- A. zoological film
  - B. geological film
  - C. zooglocal film
  - D. none of these

**Answer:** Option C

4. Some cyanobacteria produce potent neurotoxins that, if ingested, will kill humans. These cyanobacteria are most likely to contaminate
- A. water rich in organic carbon wastes but poor in phosphate
  - B. water that are anoxic
  - C. **water rich in phosphate wastes but poor in organic carbon**
  - D. none of the above

5. The biogas production process takes place at the temperature
- A. lesser than 25°C

- B. 25-40°C
- C. 45-60°C
- D. **all of these**

6. Advanced treatment is generally used to treat waste water to

- A. remove coarse solids
- B. remove settleable solids
- C. reduce BOD
- D. remove additional objectionable substances

Answer: Option D

7. Treatment of municipal water supplies is based upon

- A. coagulation, filtration, chlorination
- B. chlorination, filtration, coagulation
- C. filtration, coagulation, chlorination
- D. coagulation, chlorination, filtration

Answer: Option A

8. What is an anaerobic digester?

- A. New diet drink
- B. Microbe that eats hazardous waste
- C. Method to convert agricultural waste into a biogas
- D. All of the above

Answer: Option C

9. The use of microbes to break down synthetic waste products such as polychlorinated biphenyls is called

- A. bioinformatics
- B. biolistics
- C. biotechnology
- D. bioremediation

Answer: Option D

10. Activated sludge contains large number of

- A. bacteria
- B. yeasts and molds

- C. protozoa
- D. all of these

**Answer:** Option D

11. Iron bacteria can produce

- A. slime
- B. undesirable odors and tastes
- C. both (a) and (b)
- D. extreme acidity

**Answer:** Option C

12. Biomass

- A. provides the U.S. with about 50% of its energy
- B. consists largely of wood, animal, and human waste
- C. is unlikely to be a major source of energy globally
- D. offers the consumer high quality energy with low environmental impact

**Answer:** Option B

13. Composting is one of the oldest forms of disposal of waste. It is the natural process of decomposition of organic waste that yields manure or compost. One of the following is added to the compost to get better results?

- A. Ants
- B. Bugs
- C. Snakes
- D. **Worms**

14. Which is not a form of biomass energy?

- A. Incineration of solid waste
- B. Composting to produce methane
- C. Ethanol and methanol production for auto fuel
- D. **Photovoltaic production of hydrogen**

15. Which of the following statement is not correct?

- A. The use of 25-40°C temperatures allows the biogas production to be more stable
- B. The use of 25-40°C temperatures does not destroy potentially harmful bacteria
- C. **The use of 25-40°C temperatures destroys potentially harmful bacteria**

D. None of the above

16. Oxidation ponds are shallow ponds, generally designed at the depth of

A. 2 to 40 feet

B. 4 to 6 feet

C. 1 to 3 feet

D. 5 to 8 feet

**Answer:** Option A

17. Which of the following is generally not referred to the sewerage system?

A. Sanitary sewers

B. Storm sewers

C. Combined sewers

D. Solid sewers

**Answer:** Option D

18. The magnitude of BOD of wastewater is related to

A. bacterial count

B. amount of organic material

C. amount of inorganic material

D. all of the above

**Answer:** Option B

19. A dense bacterial population caught in a tangled web of fibers sticking to a surface describes

A. coagulation

B. a biodisc

C. a biofilm

D. the membrane filter technique

**Answer:** Option C

20. Biogas production is

A. a temperature-dependent process

B. a temperature independent process

C. an oxygen dependent process

D. none of the above

**Answer:** Option A

21. The acetate-utilizing methanogens are responsible for

A. 20% of methane produced in a biogas reactor

- B. 50% of methane produced in a biogas reactor
- C. 70% of methane produced in a biogas reactor
- D. 85% of methane produced in a biogas reactor

**Answer:** Option C

22. Which of the following is responsible for the corrosion problem?

- A. Iron bacteria
- B. Sulfur bacteria
- C. Slime forming bacteria
- D. All of these

**Answer:** Option B

23. Water testing relies on the detection of certain indicator organisms known as

- A. acid-fast bacteria
- B. bacteroids
- C. coliforms
- D. dinoflagellates

**Answer:** Option C

24. The death of a river by environmental pollutants ultimately results from

- A. the overpopulation of algae
- B. the overabundance of toxic proteins
- C. the depletion of oxygen
- D. the buildup of sediment on the river bottom

**Answer:** Option C

25. Which of the following forms of water is the most contaminated?

- a) Underground water
- b) Rainwater
- c) Surface water**
- d) Water stored in ice caps

26. . Alum is used for which of the following purification process?

- a) Sedimentation**
- b) Filtration
- c) Disinfection
- d) Ozonation

27. The potability of water can be checked by sanitary surveys.

- a) True
- b) False**

28. The coliform group of bacteria includes all the \_\_\_\_\_ bacilli.

- a) aerobic
- b) anaerobic
- c) aerobic, non-sporulating
- d) aerobic, gram-negative, non-sporulating**

29. Which of the following organism does not belong to coliform group of bacteria?

- a) Salmonella
- b) Serratia
- c) Enterobacter**
- d) Proteus

30. . Coliforms are natural inhabitants of the large intestine of human and animals.

- a) True**
- b) False

31.. Which of the following acts as a carbon source for Enterobacter aerogenes?

- a) Peptone
- b) Sodium citrate**
- c) Yeast extract
- d) Tryptone

32. What will be the plate count of good quality water?

- a) 10 per ml
- b) 50 per ml
- c) 100 per ml**
- d) 1000 per ml

33. Among the following which microorganism acts as a representative of fecal streptococci group?

- a) Streptococcus faecalis**
- b) Streptococcus bovis
- c) Streptococcus equinus
- d) Streptococcus faecium

34. Thiobacillus can produce an acidity in the range of pH \_\_\_\_\_

- a) 7
- b) 5
- c) 3
- d) 1**

35. Which of the following sewerage systems carry domestic and industrial wastewater?

- a) sanitary sewers**
- b) storm sewers
- c) combined sewers
- d) storm and combined sewers

36. The more oxidizable organic material, the lesser the BOD.

a) True

**b) False**

37. In which of the following treatment involve oxidation of organic constituents of the wastewater?

a) Primary treatment

**b) Secondary treatment**

c) Advanced treatment

d) Final treatment

38. The upper region of the trickling filter is favorable for the growth of \_\_\_\_\_

a) fungi

b) protozoa

**c) algae**

d) bacteria

39. Activated sludge usually employs an aeration period of \_\_\_\_\_

a) 1 hour

b) 24 hours

c) 10-15 hours

**d) 4-8 hours**

40. Oxidation ponds are very deep ponds.

a) True

**b) False**

41. Trickling filter is used in which of the following wastewater treatment processes?

a) Primary treatment

**b) Secondary treatment**

c) Advanced treatment

d) Final treatment

42. Which of the following gases are produced in large amounts during sludge digestion?

**a) methane**

b) carbon-dioxide

c) hydrogen

d) nitrogen

43. Which of the following insecticides ?

(A) Bacillus thuringiensis (B) Bacillus popilliae

**(C) Both (A) and (B)✓** (D) None of the above

44. A substance that can elicit an immune response only when combined with another carrier–

(A) O antigen **(B) Haptan✓**

(C) Adjent (D) Immunogen

45. P' solubilizing bacteria–

- (A) **Bacillus megatherium**✓ (B) Clostridium pasteurianum  
(C) A. Niger (D) Micrococcus sp

46. Fermenting organism involved in Yoghurt

- (A) **Streptococcus**✓ (B) Aspergillus  
(C) Podiococcus (D) None of these

47. Red pigment produced by–

- (A) **Serratia**✓ (B) Micrococcus  
(C) Both (D) None of these

48. Rhizosphere was coined by–

- (A) **Hiltner**✓ (B) Beijernick  
(C) Winogradsky (D) None

49. Test organism for pasteurization is–

- (A) **Coxicella bumetti**✓ (B) Clostridium pasteurizantum  
(C) Bacillus subtilis (D) Bacillus steareothermophilus

50. In given below which all are free living nitrogen fixers except?

- A. Azotobacter  
B. Azospirillum  
C. Clostridium  
D. all of these

Ans: B

51. In mycorrhizal association the advantage of plants is?

- A. protection  
B. Food  
C. A&B both  
D. increased mineral absorption and disease protection

Ans: D

52. By producing the endospore name of the bacteria is?

- A. xanthomonas  
B. E. coli  
C. bacillus  
D. all of these

Ans: C

53. Which one is not the biofertilizers producing bacteria?

- A. clostridium  
B. nostoc  
C. A&B both  
D. anabaena

Ans: A

54. By using Vam with plant the major advantage is

- A. increased M absorption

- B. increased P absorption
- C. Increased N absorption
- D. increased MN absorption

Ans:B

55. In the following one is capable of oxidizing sulfur to sulfates?

- A. rhodospirillum
- B. rhodomicrbium
- C. Thiobacillus thiooxidans
- D. B&C both

Ans: C

56. . Screening and comminution are preliminary treatment processes.

a) True

b) False

57.. \_\_\_\_\_ represents the heavier inert matter in wastewater.

a) Debris

b) Waste

c) Screens

d) Grit

ANS : D

58. Which of the following is not used as a bio-fertiliser?

- a) Bacteria
- b) Algae**
- c) Cyanobacteria
- d) Fungi

59. *Rhizobium* is a free-living bacterium that fixes atmospheric nitrogen.

a) True

**b) False**

60. Which of the following is not a free-living Nitrogen-fixing bacteria?

- a) *Azotobacter*
- b) *Clostridium*
- c) *Klebsiella*
- d) *Xanthomonas***

61. Presence of which of the following elements is required for nitrogen fixation?

- a) Phosphorus**
- b) Carbon
- c) Silver
- d) Oxygen

62. Which of the following statements is not related to mycorrhiza?

- a) Many members of genus *Glomus* forms mycorrhiza
- b) Fungal symbiont absorbs nitrogen**
- c) Plants show resistance to root-borne pathogens
- d) There is an overall increase in plant growth and development

63. What is the full form of VAM?

- a) Vesicular-arbuscular mycorrhiza**
- b) Venom Azolla mycorrhiza
- c) Venom-arbuscular mycorrhiza
- d) Vesicular-azollae mycorrhiza

64. In paddy fields, cyanobacteria serve as an important bio-fertiliser.

- a) True**
- b) False

65. What are bio-insecticides?

- a) Insects
- b) Living organisms that kill specific insects**
- c) Insects that kill other big insects
- d) Fungi

66. Microbially catalyzed redox reaction leads to metal \_\_\_\_\_

- a) Mobilization**
- b) Immobilization
- c) Reduction
- d) Oxidation

67. Which of the following is the most common bacteria used for bioleaching?

- a) Spirillum
- b) Coccus
- c) Bacillus**
- d) Streptococcus

68. What kind of bacteria benefits the most from direct leaching?

- a) Autotrophs**
- b) Heterotrophs
- c) Chemotrophs
- d) Chemolithotrophs

69. Which genera helps in bioaccumulation?

- a) Bacillus
- b) Aspergillus**
- c) Agaricus
- d) Mycenae

70. What kind of pH is most suitable for bioleaching in majority of the metals?

- a) At very low pH

- b) At very high pH
- c) At low pH**
- d) At high Ph

71. The maximum temperature that may reach in the interior dump of copper bioleaching is

- 
- a) 120°C
  - b) 100°C
  - c) 90°C**
  - d) 70°C

72. Which of the following mechanism is used for bioleaching of uranium?

- a) Direct Leaching Mechanism
- b) Indirect Leaching Mechanism**
- c) Acid Leaching Mechanism
- d) Alkali Leaching Mechanism

73. Acidithiobacillus sp. is used to extract what kind of metal ore?

- a) Oxide
- b) Carbonate
- c) Silicate
- d) Sulphate**

74. Which of the following is an indirect method for measuring bacterial growth?

- a) Cell count
- b) Cell mass
- c) Cell activity**
- d) Both Cell mass and Cell activity

75. Which of the following method is used for a viable count of a culture?

- a) Direct microscopic count
- b) Plate-count method
- c) Membrane-filter count
- d) Plate-count method and membrane-filter count**