



BIOLOGY

BOOKS - SANTRA BIOLOGY (BENGALI ENGLISH)

MICROBES IN HUMAN WELFARE

I Multiple Choice Question Mcq

1. Yeast is used in preparation of

A. Cheese

B. Ethyl alcohol

C. Curd

D. Acetic acid

Answer: B



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2. Penicillin was discovered by

A. Dubois

B. Flemming

C. Koch

D. Burkholder

Answer: B



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3. Germinating barley seeds are used in the preparation of

A. Wine

B. Beer

C. lactic acid

D. Cheese

Answer: B



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4. Which one is used in the production of alcohol?

A. *Leuconotoc citrovorum*

B. *sacharomyces cerevisiae*

C. *Tarulopsis utilis*

D. *clostridium botulinum*

Answer: B



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5. Pasteurisation is heating at

A. 60 -63 C for 30 minutes

B. 80 C for 30 minutes

C. 120 C for 60 minutes

D. 70 C for 60 minutes

Answer: A



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6. Which ones are involved in preparation of alcohol ?

A. Slime moulds

B. Water moulds

C. Yeasts

D. bacteria

Answer: C



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7. Antibiotics are drugs commonly used to cure diseases of

A. bacteria

B. Protozoans

C. Viruses

D. Fungi

Answer: A



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8. An enzyme produced commercially from yeast is

A. Invertase

B. Maltase

C. Lactase

D. amylase

Answer: A



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9. Fermentation ability of yeast is due to

A. Zymase

B. invertase

C. Galactase

D. Amylase

Answer: A



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10. Sterptomyces fradiae produces

A. Terramycin

B. Erythromycin

C. Aureomycin

D. Neomycin

Answer: D



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11. Commonly used in alcohol industry is

- A. puccinia
- B. Rhizopus
- C. Saccharomyces
- D. Penicillium

Answer: C



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12. Ethanol is produced from starch as a raw material by the activity of

A. Protozoa

B. yeast

C. Rickettsia

D. virus

Answer: B



13. The supply of oxygen to the biogas plant will have

- A. No effect
- B. positive effect
- C. negative effect
- D. none of them

Answer: C



14. which raw material is used in fermentation process of making beer ?

- A. Sugars in fruits
- B. protein in pulses
- C. Starch in cereals
- D. Starch in vegetables

Answer: C



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15. An enzyme that stimulates germination of barley seed is

A. a-amylase

B. protease

C. invertase

D. lipase

Answer: A



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16. Probiotics are

A. cancer inducing microbes

B. new kind of food allergens

C. safe antibiotics

D. live microbial food supplement

Answer: D



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17. Which is maintained for optimum production of vinegar

- A. aerobic conditions
- B. microaerophilic condition
- C. Temperature at 65 o C
- D. anaerobic condition

Answer: A



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18. The antibiotic inhibiting cell wall formation in bacterial cells is

A. Ergotine

B. clavacin

C. Penicillin

D. none of them

Answer: C



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19. Modern detergents contain enzyme preparation of

A. acidophiles

B. alkaliphiles

C. thermophiles

D. thermoacidophiles

Answer: B



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20. Substrate for alcohol formation is

A. galactose

B. maize

C. bajra

D. sucrose

Answer: D



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21. Sewage treatment process in which part of decomposer bacteria is recycled into starting of the process is called

- A. tertiary treatment
- B. cyclic treatment
- C. activated sludge treatment
- D. Primary treatment

Answer: C



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22. lactic acid bacteria convert milk into curd and improves its nutritiional quality by enhancing vitamin

A. D

B. C

C. B

D. A

Answer: C



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23. Fungus used for commercial production of SCP is

A. *Fusarium graminearum*

B. *Bacillus thuringiensis*

C. *Phytophthora infestans*

D. *Brassica napus*

Answer: A



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24. *Bacillus thuringiensis* is used as

- A. bioweapon
- B. biocontroller
- C. biopesticide
- D. biofungicide

Answer: C



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25. which one of the following is used as biological insecticide?

A. Mazra insect

B. silkmoth

C. tiger beetle

D. caterpillar

Answer: C



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26. A common biocontrol agent for the control of plant disease

A. Glomus

B. trichoderma

C. bacillus

D. baculovirus

Answer: B



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27. Which organic compound is produced by fermentation and is used to replace fossil petrol

A. Butanol

B. Ethanol

C. Propanol

D. Methanol

Answer: B



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28. Ethanol is commercially produced through particular species of

- A. Clostridium
- B. Trichoderma
- C. Saccharomyces
- D. Aspergillus

Answer: C



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29. Yeast used in the production of

A. Lipase and pectinase

B. Citric acid and lactic acid

C. bread and beer

D. Cheese and butter

Answer: C



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30. which one of the following microbes forms symbiotic association with plants and help them in their nutrition

A. Aspergillus

B. azotobacter

C. glomus

D. trichoderma

Answer: C



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31. A nitrogen-fixing microbe associated with Azolla in rice field is

A. Anabaena

B. Spirulina

C. Tolypothrix

D. Frankia

Answer: A



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32. which one of the following is an example of carrying out biological control of pest using microbes

A. Lady bird beetle against aphids in mustard

B. Nucleopolyhedrovirus against white rust is brassica

C. Bt-cotton to increase cotton yield

D. Trichoderma against certain plant pathogens

Answer: C



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33. Measuring BOD (Biological Oxygen Demand) is a method used for

A. Working out the efficiency of RBCs, about their capacity to carry oxygen

B. Measuring the activity of yeast in producing curd on a commercial scale

C. Working out the efficiency of oil driven automobile engines

D. Estimating the amount of organic matter in sewage water

Answer: D



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34. *Monascus purpureus* is a yeast used commercially in the production of

A. Ethanol

B. Citric acid and lactic acid

C. Streptokinase for removing clots from
the blood vessels

D. Blood cholesterol lowering statins

Answer: D



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35. Transition state structure of the substrate formed during an enzymatic reaction is

- A. Transient and unstable
- B. permanent but unstable
- C. permanent and stable
- D. Transient but stable

Answer: A



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36. A good producer of citric acid is

A. Clostridium

B. pseudomonas

C. Aspergillus

D. Saccharomyces

Answer: C



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37. During sewage treatment, biogases are produced which include

A. Methane, hydrogen sulphide, carbon dioxide

B. Methane, oxygen, hydrogen sulphide

C. Hydrogen sulphide, methane sulphur dioxide

D. Nitrogen, methane hydrogen sulphide

Answer: A



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38. Disposal of waste products can be facilitated by

A. leuconostoc

B. Torulopsis

C. Bacillus

D. Trichoderma

Answer: B



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39. Symbiotic nitrogen fixing cyanobacteria

A. Azolla-Anabaena

B. Azatobacter

C. Anabanena

D. Rhizobium

Answer: A



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40. Bio-agent against mosquito larvae

A. katla fish

B. Lady bird

C. Gambusia

D. Aphids

Answer: C



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41. BGA is chiefly used as fertilizer in

A. Wheat

B. paddy

C. gram

D. Mustard

Answer: B



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42. Germinating barley seeds are used in the manufacture of

A. Wine

B. lactic acid

C. beer

D. cheese

Answer: C



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43. What is the name of methanogenic bacteria

A. Reuminococcus

B. Syntrophomones

C. Methanobacterium

D. Desulphavibrio

Answer: C



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44. what is the percentage of methane in biogas

A. 60-80%

B. 50-70%

C. 40-60%

D. 30-50%

Answer: B



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45. In the sewage waste, BOD value is

A. High

B. Very high

C. Equal

D. Low

Answer: B



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46. In which tank in sewage treatment complex organic molecules are converted into volatile organic acid

A. Detritus tank

B. Oxidation tank

C. Skimming tank

D. Sedimentation tank

Answer: B



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47. Predominant microorganism used in the house-hold food idli

A. lactobacillus mesenteroides

B. Streptococcus

C. Saccharomyces

D. none of them

Answer: A



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48. Antibiotic produced from actinomycetes

A. Polymixin

B. Nocardia

C. Griseofulvin

D. Cladonia

Answer: B



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49. Rum is produced from

A. Vodka

B. Whisky

C. Molasses

D. fruit juice

Answer: C



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50. Who was the first to isolate streptomycin

A. Koch

B. Waksman

C. Flemming

D. Twont

Answer: B



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51. Sausages are fermented

A. meats

B. Sauce

C. vegetables

D. Milk

Answer: A



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52. A soyabean preparation in

A. Sofu

B. Tofu

C. Tempeh

D. All of them

Answer: D



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53. Brandy is generally a product of

A. lager beer

B. Champagne

C. Cider wine

D. Grape wine

Answer: D



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54. The common nitrogen -fixer in paddy field is

A. Frankia

B. Rhizobium

C. Azospirillum

D. Oscillatoria

Answer: C



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55. The most common fungal partners of mycorrhiza are _____ species .

A. Azotobacter

B. Glomus

C. Azolla

D. Frankia

Answer: B



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56. The most important of the symbiotic nitrogen fixing bacteria which forms nodules on the roots of legume plants is

A. Aspergillus

B. Rhizobium

C. Pencillium

D. Streptococcus

Answer: B



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57. The symbiotic association of fungi with the roots of higher plants is called

- A. Eubacteria
- B. Actinomyces
- C. Mycorrhiza
- D. None of these

Answer: C



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58. The term antibiotic was coined by

A. Howard Florey

B. John tyndall

C. Selman Waksman

D. Gerhard Domagk

Answer: C



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59. The yeast that used in alcohol production and bread making is

- A. *Escherichia coli*
- B. *Saccharomyces cerevisiae*
- C. *Bacillus subtilis*
- D. *Pseudomonas putida*

Answer: B



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60. What is the common name of *Drosophila melanogaster*?

A. Fruit fly

B. Roundworm

C. zebra fish

D. Chlamydia

Answer: A



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61. Which of the following bacterium produces butyric acid ?

- A. Acetobactor aceti
- B. Clostridium butylicum
- C. lactobacilus
- D. None of these

Answer: B



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62. Which of the following is a gram - negative bacterium?

A. *Escherichia coli*

B. *Bacillus subtilis*

C. *Streptomyces coelicolor*

D. *Mycobacterium tuberculosis*

Answer: A



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63. which of the following is symbiotic nitrogen fixer

A. Azolla

B. Glomus

C. Azotobacter

D. Frankia

Answer: D



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64. Which of the following is added to milk to curdle it or produce fermented milk products?

A. Azotobactor

B. Lactobacillus

C. Rhizobium

D. Clostridium

Answer: B



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65. Which of the following will begin fixing nitrogen only after they stop reproducing

A. Penicillium

B. Rhizobium

C. Aspergillus

D. streptococcus

Answer: B



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66. Which of the following is also called sac fungi that live parasitically and in various habitats

A. Basidiomycetes

B. Zygomycetes

C. Ascomycetes

D. None of this

Answer: C



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67. Which of the following is mainly formed by the activity of anaerobic bacteria on sewage?

- A. Marsh gas
- B. laughing gas
- C. propane
- D. Mustard gas

Answer: A



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68. Which one of the following is a wrong matching of a microbe and its industrial product, while the remaining three are correct?

A. Clostridium butylicum-lactic acid

B. Aspergillus niger-citric acid

C. Yeast statins

D. Acetobacter aceti-acetic acid

Answer: A



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69. Cyanobacteria serves as important biofertilizers in the fields of

A. rice

B. Maize

C. wheat

D. sugar cane

Answer: A



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70. Ethanol is commercially produced through a particular

- A. Aspergillus
- B. Saccharomyces
- C. Clostridium
- D. Trichoderma

Answer: B



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71. Human insulin is being commercially produced from a transgenetic species of

A. Saccharomyces

B. Escherichia

C. Mycobacterium

D. Rhizobium

Answer: B



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72. Which one of the following is not used in organic farming?

A. Snail

B. glomus

C. Earthworm

D. Oscillatoria

Answer: A



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73. One of the Free living anaerobic nitrogen - fixer is

A. Azotobacter

B. Berijerinckia

C. Rhodospirillum

D. Rhizobium

Answer: C



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74. Organisms like *Escherichia coli* and *Chlamydia trachomatis* fall into which domain ?

A. Eukarya

B. Archaea

C. Bacteria

D. Animalia

Answer: C



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75. organisms called methanogens are most abundant in a

- A. Hot spring
- B. Sulphur rock
- C. Cattle yard
- D. Polluted stream

Answer: C



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76. Physical removal of large and small particles from the sewage through filtration and sedimentation is called

- A. Primary treatment
- B. Secondary treatment
- C. Tertiary treatment
- D. Quaternary treatment

Answer: A



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77. Some hyperthermophilic organisms that grow in highly acidic (pH 2) habitats belong to the groups

- A. Liverwort and yeasts
- B. Eubacteria and Archaea
- C. Cyanobacteria and diatoms
- D. Protists and mosses

Answer: B



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78. Semi conservative replication of DNA was first demonstrated in

- A. salmonella typhimurium
- B. Drosophila melanogaster
- C. Eschrichia coli
- D. Streptococcus pneumoniae

Answer: C



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79. Select the correct statement from the following

A. Activated sludge-sediment in settlement tanks of sewage treatment plant is a rich source of aerobic bacteria

B. Biogas is produced by the activity of aerobic bacteria on animal waste

C. Methanobacterium is an aerobic bacterium found in rumen of cattle

D. Biogas, commonly called gobar gas, is
pure methane

Answer: A



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80. Secondary sewage treatment is mainly a

A. Biological process

B. Physical process

C. mechanical process

D. Chemical process

Answer: A



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ii Choose More Than One Correct Answers For The Following

1. Cheese products prepared from

A. Lactobacilus

B. leuconostoc

C. streptococcus

D. penicillium

Answer: B::C::D



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2. From the creamed milk butter is produced from

A. leuconostoc

B. Streptococcus

C. lactobacilus

D. Candida

Answer: A::B::C



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3. Single cell protein (SCP) is obtained from

A. *Fusarium graminearum*

B. *Pseudomonas*

C. *Spirulina*

D. lactobacillus

Answer: A::C



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4. name two antibiotics which help in the disruption of the wall synthesis

A. Cephalosporin

B. Streptomycin

C. Tetracycline

D. Penicillin

Answer: A::D



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5. Secondary transformation of alcohol to acetic acid by

A. yeast

B. Azotobacter

C. Guconobacter

D. Acetobacter

Answer: C::D



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6. Citric acid is obtained through the fermentation carried out by

A. Ascobolus

B. Mucor

C. Penicillium

D. Torulopsis

Answer: B::D



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7. Proteases are commercially obtained from

A. Mucor

B. bacillus

C. Azotobacter

D. Aspergillus

Answer: B::D



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8. Name two methods which are used in the secondary treatment

A. Trickling filter

B. Grit

C. Biodise system

D. Oxidation tanks

Answer: A::C



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9. Key processes of anaerobic Digestion are

- A. Stabilization
- B. heating
- C. Methanogenesis
- D. hydrolysis

Answer: C::D



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10. The nitrogen fixing symbiotic bacteria are

A. Rhizobium

B. azotobacter

C. Frankia

D. Thiobacillus

Answer: A::C



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iii Fill In The Blanks

1. Aquatic fern ____ is an excellent biofertilizer.



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2. VAM is important for ___ nutrition .



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3. _____ is non-symbiotic nitrogen fixer.



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4. _____ can use molecular nitrogen as nutrient.



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5. Commercial acetic acid is used in the preparation of _____.



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6. ____ extracted from stomach of calf and used in cheese making.



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7. ____ used for steroid synthesis.



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8. Spirulina is a _____.



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9. Enzyme _____ is used for dissolving blood clots.



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10. A major component of gobar gas is _____.



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11. Yeast is an important source of _____.



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12. _____ having capability to fix anaerobic nitrogen.



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13. _____ is useful in dairy and curdling of milk.



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14. ____ are drugs.



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15. Yeast are used in the production of _____.



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16. _____ reduces the growth of cactus.



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17. _____ is a free living autotrophic microbes.



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18. _____ is a fermentation tank.



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19. Amylase is obtained from _____.



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20. Symbiotic nitrogen- fixing cyanobacteria is _____.



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iv Mentiion True Or False

1. Mention True or False: Mycorrhiza promotes plant growth by absorbing inorganic ions from the soil .



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2. Mention True or False: Bt-toxin is intracellular crystalline protein.



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3. Mention True or False: α -amylase stimulates the germination of barley seeds.



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4. Mention True or False Rennet was isolated by pasteur.



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5. Mention True or False: Methanobacterium used in the production of biogas.



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6. Mention True or False: Beer is an undistilled alcoholic beverage produced from fruit-juice fermentation.



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7. Mention True or False spirulina is a biofertilizer.



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8. Mention True or False: The antibiotic cephalosporin is obtained from fungus.



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9. Mention True or False Streptokinase helps in clearing blood clots.



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10. Mention True or False: Leavened bread is produced with the help of Rhizopus.



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11. Mention True or False: Torulopsis utilis is a food yeast.



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12. Mention True or False: Citric acid was first produced from microbial fermentation.



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13. Mention True or False: Genetically engineered human insulin is synthesized with the help of E. coli.



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14. Mention True or False: Aspergillus is useful in the preparation of roquefort cheese.



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15. Mention True or False: Nodule with nitrogen fixing bacteria are present in gram.



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Very Short Answer Type Questions

1. Which microorganism is employed in reduction of dextran?



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2. what is bioreactor?



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3. By using which chemical yeast cells can be immobilised?



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4. What is enzyme immobilisation ?



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5. From which microorganism, cyclosporin is obtained ?



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6. From which microbe, butter milk is obtained?



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7. what is Tofu?



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8. what is toddy.



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9. what is antibiotics?



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10. Mention the mode of action of griseofulvin.



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11. mention the activity of pencillin.



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12. From which fungi, amylase is obtained ?



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13. What is rennet?



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14. Name an insect which reduces the growth of cactus.



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15. What are the scientific names of sun hemp and cow pea?



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16. Name the active nitrogen fixer in the paddy field.



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17. Name one phosphate solubilizing soil microorganism.



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18. Name one microorganism which secretes antibiotics.



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19. Name two microorganisms, those are found in temperate climate.



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20. Name two free living autotrophic microbes.





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Short Answer Type Questions

1. what are dairy products?



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2. Define bread.



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3. what is alcoholic fermentation.



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4. Mention the use of antibiotics.



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5. what are enzymes?



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6. what is biogas?



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7. What is monomer?



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8. what is biofertilizer?



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9. What is associative mutualism?



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10. Mention two importances of mycorrhiza in agriculture and forestry.



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11. Brief notes on single cell protein (SCP)



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12. what are the uses of alcohol?



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13. what are the uses of amylase enzyme?



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14. What are lipases, lactases and rennet ?



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15. Briefly describe different types of biopesticides.



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16. Briefly mention different types of bioinsecticides.



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17. What is endomycorrhiza?



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18. Mention the difference between manure and biofertilizer.



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19. Briefly state about the applications of biogas.



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20. Difference between primary and activated sludge. What is sludge?



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Long Answer Type Question

1. Describe the different steps of alcoholic fermentation.



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2. What are antibiotics? Describe different types of antibiotics with their sources and mode of actions.



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3. Describe about different types of organic acids with their source.



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4. Describe about different kinds of enzymes with their industrial and chemical uses.



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5. Briefly describe different stages of sewage treatment.



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6. what is biogas? What are the different stage of biogas production with proper schematic representation.



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7. what is biofertilizer? Describe about different types of fertilizer of biological origin.



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8. What are the utility of biofertilizer.



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