



BIOLOGY

BOOKS - AAKASH SERIES

MICROBES IN HUMAN WELFARE

Exercise I Introduction

1. Prions are

- A. Kind of bacteria
- B. Group of microbes
- C. Proteinaceous infecting agents

D. Self duplicating oligosaccharides

Answer: C



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2. Kingdom(s) containing microbes are

A. Monera

B. Protista

C. Fungi

D. 1, 2 & 3

Answer: D



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3. Which of the following are acellular infectious microbes

A. Viruses

B. Viroids

C. Prions

D. All

Answer: D



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4. Microbes can found in

- A. Thermal vents
- B. Deep in the soil
- C. Highly acidic environment
- D. All

Answer: D



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5. Which type of microbes can be grown on nutrient medium to form colonies

A. Bacteria

B. Fungi

C. Viruses

D. 1 & 2

Answer: B



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6. Select the incorrect statement

A. Microbes can cause diseases in animals and plants

B. All microbes are harmful

C. Most of the microbes are useful to human beings

D. Microbes cause a large number of diseases in human beings.

Answer: D



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Exercise I Microbes In Household Products

1. Dough is used for making

A. Dosa

B. Idly

C. Bread

D. All

Answer: B



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2. The dough which is used for making dosa and idly is fermented by

A. Algae

B. Bacteria

C. Viruses

D. Viroids

Answer: A



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3. Which is the oldest food items in which microbes were used ?

A. Cheese

B. Ice creams

C. Soups

D. All

Answer: D



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4. Cheese are classified on the basis of

A. Texture

B. Flavour

C. Taste

D. All

Answer: D



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5. Roquefort Cheese' is ripened by using

A. Bacteria

B. Algae

C. Virus

D. Fungi

Answer: D



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6. Yoghurt is produced with the help of

A. *Lactobacillus bulgaricus*

B. *Lactobacillus thermophilus*

C. *Streptococcus thermophilus*

D. Both (1) and (3)

Answer: D



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7. The vitamin whose content increases following the conversion of milk into curd by lactic acid bacteria is

A. Vitamin C

B. Vitamin D

C. Vitamin B_{12}

D. Vitamin E

Answer: C



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8. Big holes in Swiss cheese are made by a

A. A machine

B. A bacterium that produces methane gas

C. A bacterium producing a large amount of carbon dioxide

D. A fungus that releases a lot of gases during its metabolic activities

Answer: C



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9. LAB stands for

- A. Lactic Acid Bacteria
- B. Lactobacillus Acidophilus Bacteria
- C. Lactose Acetaldehyde Bacteria
- D. Laboratory

Answer: A



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10. Dosa and idli are the fermented preparations of rice and black gram fermentation is done with

A. Leuconostoc

B. Streptococcus

C. Saccharomyces

D. Ar More than one option is correct

Answer: D



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11. Name the kind of cheese which possess characteristic holes

- A. Cottage cheese
- B. Roquefort cheese
- C. Swiss cheese
- D. None of these

Answer: C



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12. The puffed-up appearance of dough is due to production of

- A. Oxygen gas
- B. CO_2 gas

C. Ethyl alcohol

D. Pyruvic acid

Answer: B



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13. Metabolic pathway that takes place during the formation of CO_2 is

A. Glycolysis

B. Fermentation

C. ETS

D. Reduction of Acetaldehyde

Answer: B



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14. Microbes are used to ferment the following to make foods from them

A. Fish

B. Soyabean

C. Bamboo shoots

D. 1,2 & 3

Answer: D



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15. Lactobacillus mediated change of milk to curd occurs due to

- A. Coagulation and partial digestion of milk fats
- B. Coagulation and partial digestion of milk proteins
- C. Coagulation of milk proteins and complete digestion of milk fats
- D. Coagulation of milk fats and complete digestion of milk proteins

Answer: B



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16. Curd, cheese and butter are produced by

- A. Penicillium
- B. Streptococcus
- C. Saccharomyces
- D. Pseudomonas

Answer: B



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17. Dosa & Idli are prepared by the action of

A. *Rhizopus oryzae*

B. *Lactobacillus*

C. *Leuconostoc mesenteroides*

D. *Saccharomyces cerevisiae*

Answer: C



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18. Fungus used in preparation of soya sauce is

A. *Penicillium glaucum*

B. *Penicillium notatum*

C. *Penicillium griseofulvum*

D. *Penicillium chrysogenum*

Answer: A



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19. Sausages are fermented

A. Meats

B. Sauce

C. Milk

D. Vegetables

Answer: A



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Exercise I Microbes In Industrial Products

1. Germinating Barley is employed for preparation of

A. Lactic acid

B. Wine

C. Cheese

D. Beer

Answer: D



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2. Which one of the following is used in the production of alcohol ? (A) *Saccharomyces cerevisiae* (B) *Torulopsis utilis* (C) *Clostridium botulinum* (D) *Leuconostoc citrovorum*

A. *Saccharomyces cerevisiae*

B. *Torulopsis utilis*

C. *Clostridium botulinum*

D. *Leuconostoc citrovorum*

Answer: A



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3. Baker's yeast is

- A. *Saccharomyces cerevisiae*
- B. *Saccharomyces ludwigii*
- C. *Saccharomyces octosporus*
- D. *Schizosaccharomyces*

Answer: A



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4. wine yeast is

- A. *Saccharomyces ellipsoidens*

- B. *Saccharomyces sake*
- C. *Saccharomyces pireformis*
- D. *Saccharomyces cerevisiae*

Answer: A



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5. Which of the following are produced without distillation

- A. Beer & Rum
- B. Rum & Brandy
- C. Whisky & Wine

D. Wine & Beer

Answer: D



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6. Which of the following are produced with distillation ?

A. Rum & Wine

B. Beer & Whisky

C. Rum, Brandy & Whisky

D. Wine & Beer

Answer: C



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7. Scientist first to isolate streptomycin was

A. Alexander Fleming

B. Koch

C. Burkholder

D. Waksman

Answer: D



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8. Penicillin was discovered by :

A. Fleming

B. Waksman

C. Burkholder

D. Dubois

Answer: A



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9. Penicillin inhibits bacterial multiplication because it

A. Checks RNA synthesis

- B. Checks DNA synthesis
- C. Destroys chromatin
- D. Inhibits cell wall formation

Answer: D



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10. Organic acid first, produced through fermentation is

- A. Propionic acid
- B. Lactic acid
- C. Citric acid
- D. Oxalic acid

Answer: B



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11. Citric acid is got from

- A. *Aspergillus niger*
- B. *Rhizobium nigrificans*
- C. *Penicillium citrinum*
- D. *Lactobacillus bulgaricus*

Answer: A



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12. Which one is wrongly matched

A. Streptomyces - Antibiotic

B. Coliforms - Vinegar

C. Methanogens - Gobar gas

D. Yeast - Ethanol

Answer: B



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13. Which is wrongly matched

A. Alcohol - Nitrogenase

B. Detergents - Lipase

C. Textiles - Amylase

D. Fruit juice - Pectinase

Answer: A



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14. Match the following column of bacteria and their commercially important products.

Column I

(Bacterium)

A. *Aspergillus niger*

B. *Acetobacter aceti*

C. *Clostridium butylicum*

D. *Lactobacillus*

Column II

(Product).

1. Lactic acid

2. Butyric acid

3. Acetic acid

4. Citric acid

A. i - b, ii - c, iii - d, iv - a

B. i - b, ii - d, iii - c, iv - a

C. i - d, ii - c, iii - b, iv - a

D. i - d, ii - a, iii - c, iv - b

Answer: C



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15. Which one of the following alcoholic drinks is produced without distillation? 1. Wine 2. Whisky 3. Rum
4. Brandy

A. Wine

B. Whisky

C. Rum

D. Brandy

Answer: A



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16. Match the following bioactive substances and their roles

Bioactive Substance**Role**

- | | |
|--------------------|--|
| i) Statin | a) Removal of oil stains |
| ii) Cyclosporin A | b) Removal of clots from blood vessels |
| iii) Streptokinase | c) Lowering of blood cholesterol |
| iv) Lipase | d) Immuno-suppressive agent |

A. i - b, ii - c, iii - a, iv - d

B. i - d, ii - b, iii - a, iv - c

C. i - d, ii - a, iii - b, iv - c

D. i - c, ii - d, iii - b, iv - a

Answer: D



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17. Which of the following enzyme is used in both detergent and leather industries

A. Protease

B. Lipase

C. Glucoamylase

D. Glucose isomerase

Answer: A



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18. Amylases are employed for all, except

- A. Softening of bread
- B. Clearing of turgidity in juices
- C. Preparation of cheese
- D. Desizing of textile fibres

Answer: C



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19. Chemical produced by mould *Penicillium notatum* did not allow the growth of *Staphylococci* bacteria, thus penicillin was established as antibiotic. Who established its effective potential ?

A. Alexander Fleming

B. Ernest Chain

C. Ernest Chain and Howard Florey

D. Fleming and Waksman

Answer: C



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20. Which of the following acts as competitively inhibiting enzyme responsible for synthesis of cholesterol

A. Statins

B. Cyclosporin

C. Streptokinase

D. Lipases

Answer: A



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21. Vinegar is prepared from alcohol with the help of

A. Rhizopus

B. Mucor

C. Acetobacter

D. Both (2) & (3)

Answer: C



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22. Mucor javanicus is used in synthesis of

A. Protease

B. Amylase

C. Strepto kinase

D. Lipase

Answer: D



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23. A compound produced by an organism that inhibits the growth of another micro organism is called

- A. Antiseptic
- B. Antibiotic
- C. Anticoagulant
- D. Antibody

Answer: B



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24. Rennet is used in

- A. Bread making
- B. Fermentation
- C. Cheese making
- D. Synthesis of antibiotics

Answer: C



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25. Vitamin B_2 (riboflavin) is obtained from

- A. *Ashbya gossypi*
- B. Bakers yeast
- C. *Torula yeast*

D. All

Answer: A



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26. The important antibiotic wonder drug extracted from *Penicillium chrysogenum* is

A. Penicillin

B. Aureomycin

C. Tetramycin

D. Streptomycin

Answer: A



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27. The product of which has been commercialised for lowering blood cholesterol

A. Saccharomyces

B. Aspergillus

C. Monascus

D. Trichoderma

Answer: C



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28. Propionic bacteria is an important source of

A. Cobalamin

B. Vitamin C

C. TSH

D. Interferon

Answer: A



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29. Yeast is an important source of

A. Riboflavin

B. Ascorbic acid

C. Carbohydrate

D. Proteins

Answer: A



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30. The bottled juices are clarified by the use of

A. Lipases

B. Pectinases

C. Proteases

D. (2) & (3)

Answer: D



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31. Enzyme streptokinase obtained from bacteria *Streptococcus* is used clinically as

- A. As clot buster
- B. As Immuno suppressive agent
- C. As Blood-Cholesterol lowering agent
- D. Indetergent formulation

Answer: A



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32. In 1928, a scientist discovered the first effective antibiotic. Scientist and antibiotic are

- A. Fleming - Streptomycin
- B. Fleming - Penicillin
- C. Waksman - Penicillin
- D. Waksman - Streptomycin

Answer: B



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Exercise I Microbes In Sewage Treatment

1. A sewage treatment process in which a part of decomposer bacteria present in the waste is recycled into the starting of the process is called as

- A. Primary treatment
- B. Activated sludge treatment
- C. Cyclic treatment
- D. Tertiary treatment

Answer: B



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2. What is correct

- A. Methanobacterium is aerobic bacterium found in rumen of cattle
- B. Biogas is pure methane
- C. Activated sludge sediment is rich in aerobic bacteria
- D. Biogas is produced by activity of aerobic bacteria on animal waste

Answer: C



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3. Wastewater treatment generates a large quantity of sludge, which can be treated by

A. Anaerobic sludge digesters

B. Activated sludge

C. Chemicals

D. Hydrogen sulphide

Answer: B



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4. What is the important of measuring BOD of a water body ?

- A. Total organic matter
- B. Biodegradable organic matter
- C. Oxygen evolution
- D. Oxygen consumption

Answer: D



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5. What would happen if oxygen availability of activated sludge flocs is reduced?

- A. It will slow down the rate of degradation of organic matter
- B. The centre of flocs will become anoxic which would cause death of bacteria and eventually breakage of flocs
- C. Flocs would increase in size as anaerobic bacteria will grow around flocs
- D. Protozoa will grow in large numbers

Answer: B



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6. Activated sludge should have the ability to settle quickly so that it can

A. Be abruptly pumped back from sedimentation tank to aeration tank

B. Absorb pathogenic bacteria present in waste water while sinking to the bottom of settling tank

C. Be discarded and anaerobically digested

D. Absorb colloidal organic matter

Answer: A



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7. Which of the following is not used in the treatment of polluted water ?

- A. Activated carbon
- B. Trickling filter method
- C. Cyclone collector
- D. Activated sludge method

Answer: C



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8. The greater BOD of waste water

- A. Increases oxygen content of water
- B. Decreases oxygen content of water
- C. The decrease of temperature of water
- D. All of these

Answer: B



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9. the first step in biogas production is carried out with the help of

- A. Obligate aerobes
- B. Decomposers

C. Methanogens

D. Detrivores

Answer: B



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10. Before disposal, sewage is treated in sewage treatment plants (STPs). It is done by which microbes present naturally in sewage

Heterotrophic microbes

Autotrophic microbes

Aerobic bacteria

Both (2) and (3)

A. Heterotrophic microbes

B. Autotrophic microbes

C. Aerobic bacteria

D. Both (2) and (3)

Answer: A



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11. Secondary treatment in sewage treatment is

Physical

Chemical

Biological

None of these

A. Physical

B. Chemical

C. Biological

D. None of these

Answer: C



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12. High value of BOD (Biochemical Oxygen Demand) indicates that

A. Water is normal

B. Water is highly polluted

C. Water is less polluted

D. none of these

Answer: B



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13. Waste water can be passed into rivers after

A. Primary treatment

B. Secondary treatment

C. tertiary treatment

D. both 1 and 2

Answer: C



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14. Primary treatment of sewage is

- A. Biological process
- B. Physical treatment
- C. Chemical process
- D. Biochemical process

Answer: B



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15. Primary sludge is used for

- A. Primary treatment
- B. Secondary treatment
- C. Both 1 & 2
- D. Tertiary treatment

Answer: B



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Exercise I Microbes In Production Of Biogas

1. Group of bacteria used in biogas production is

- A. Eubacteria
- B. Organotrophs
- C. Methanotrophs
- D. Methanogens

Answer: D



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2. The technology of biogas production from cow dung was developed in India largely due to the efforts of

A. Gas Authority of India

B. Oil and Natural Gas Commission

C. Indian Agricultural Research Institute and Khadi
and Village Industries Commission

D. Indian Oil Corporation

Answer: C



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3. The residue left after methane production from cattle
dung is

A. Burnt

- B. Used as manure
- C. Used in civil construction
- D. Buried in land fills

Answer: B



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4. Methanogens do not produce

- A. Oxygen
- B. Methane
- C. Hydrogen sulphide
- D. Carbon dioxide

Answer: A



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5. Ganga Action Plan for controlling pollution in Ganges started in

A. 1985

B. 1981

C. 1987

D. 1989

Answer: A



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6. Biogas contains

A. 30% - 40 methane

B. 50 % – 70 % CO_2

C. 50 - 70% methane

D. 20% methane

Answer: C



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7. Methanogens grow anaerobically on cellulose material produce large amount of CH_4 , along with

CO_2 and H_2 . This technology of biogas plant was developed in India mainly by

- A. IARI
- B. KVIC
- C. IIT-Khargpur
- D. Both (1) and (2)

Answer: D



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8. Biogas is produced by

- A. Aerobic breakdown of biomass

B. Anaerobic breakdown of biomass

C. with the help of methanogenic bacteria

D. Both (2) & (3)

Answer: D



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9. Methanogenic bacteria are not found in

A. Gobar gas plant

B. Activated sludge

C. Rumen of cattle

D. Bottom of water - logged paddy fields

Answer: B



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10. Biogas consists of

- A. CO_2 , ethane, hydrogen, hydrogen sulphide
- B. CO_2 , methane, hydrogen, hydrogen sulphide
- C. CO, ethane, hydrogen, hydrogen sulphide
- D. CO, methane, hydrogen, hydrogen sulphide

Answer: B



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Exercise I Microbes As Biocontrol Agents

1. Which of the following is included in biopesticide ?

- A. Viruses and bacteria only
- B. Viruses, bacteria and fungi only
- C. Viruses, bacteria, fungi, protozoa and mites only
- D. Viruses, bacteria, fungi and protozoa only

Answer: C



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2. Which of the following can be controlled by using biopesticides ?

A. Insects

B. Diseases

C. Weeds

D. All the above

Answer: D



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3. Bt gene is

A. Cry

B. cry

C. trp

D. Trp

Answer: B



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4. Which is a microbial insecticide ?

A. Bacillus polymixa

B. Bacillus subtilis

C. Bacillus thuringiensis

D. Bacillus brevis

Answer: C



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5. 'Bt' toxin is

- A. Intracellular lipid
- B. Intracellular crystalline protein
- C. Extracellular crystalline protein
- D. Lipid

Answer: B



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6. *Trichoderma harizianum* has proved to be a useful microorganism for

- A. Bioremediation
- B. Gene transfer
- C. Reclaiming waste lands
- D. Biocontrol of soil borne plant pathogens

Answer: D



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7. The free-living fungus *Trichoderma* can be used for

A. Killing insects

B. Biological control of plant diseases

C. Controlling butterfly caterpillars

D. Producing antibiotics

Answer: B



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8. Match the items in column 'A' and column 'B' and choose correct answer.

Column A

Column B

(i) Lady bird

(A) Methanobacterium

(ii) Mycorrhiza

(B) Trichoderma

(iii) Biological control

(C) Aphids

(iv) Biogas

(D) Glomus

The correct answer is A. (i)-B (ii)- D (iii)-C (iv)-A B. (i)-C (ii)-

D (iii)-B (iv)-A C. (i)-D (ii)-A (iii)-B (iv)-C D. (i)-C (ii)-B (iii)-A

(iv)-D

A. i - b, ii - d, iii - c, iv - a

B. i - c, ii - d, iii - b, iv - a

C. i - d, ii - a, iii - b, iv - c

D. i - c, ii - b, iii - a, iv - d

Answer: B



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9. A biodegradable insecticide has been obtained from

- A. Sunflower
- B. Sweet Clover
- C. Chrysanthemum
- D. 1 & 3

Answer: D



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10. Biological control means

- A. The control of harmful insects

B. The control of weeds

C. The control of pests and weeds through some specific organisms

D. None of the above

Answer: C



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11. NPV based insecticide has been found to eliminate bollworms which causes extensive damage to

A. Coconut palms

B. Cotton

C. Wheat

D. Mango

Answer: B



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12. A biological control being developed for use in treatment of plant diseases is Trichoderma. It is a

A. Free-living fungus

B. Parasitic bacteria

C. Symbiotic fungus

D. Baculovirus

Answer: A



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13. Biopesticides are

- A. The chemicals which are used to destroy the pests
- B. The living organisms or their products which are used for the pest control
- C. The organisms which destroy the crops
- D. None of the above

Answer: B



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14. An ideal pesticide is one which

- A. Brings about complete control of a specific pest
- B. Is non-toxic and biodegradable
- C. Is non-persistent
- D. All of these

Answer: D



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15. IPM involves

- A. Tissue culture
- B. Confusion technique
- C. Biofertilizers
- D. Biocontrol

Answer: D



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16. Baculoviruses do not show harmful effect on

- A. Plants
- B. Mammals & birds
- C. Non targeted insects

D. All

Answer: D



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Exercise I Microbes As Biofertilizers

1. Which of the following helps in absorption of phosphates from the soil by plants

A. Yeast

B. Glomus

C. Nostoc

D. Rhizobium

Answer: B



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2. Biofertilizers include

A. Blue-green algae, Rhizobia, Other nitrogen-fixing bacteria and Mycorrhizae

B. Blue-green algae, Rhizobia and Other nitrogen fixing Bacteria only

C. Rhizobia, Other nitrogen-fixing bacteria and Mycorrhizae only

D. Blue-green algae, Rhizobia and Mycorrhiza only

Answer: A



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3. Aquatic fern which is an excellent biofertilizer used in paddy fields

A. Azolla

B. Salvinia

C. Marsilea

D. Pteridium

Answer: A



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4. Most famous bacterial biofertilizer is

A. Nitrosomonas

B. Nitrobacter

C. Nitrosococcus

D. Rhizobium

Answer: D



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5. A free-living nitrogen-fixing cyanobacterium which can also form symbiotic association with the water fern *Azolla* is :

- A. *Rhizobium*
- B. *Anabaena*
- C. *Nostoc*
- D. All the above

Answer: B



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6. Which one of the following is not a nitrogen- fixing organism?

A. Anabaena

B. Nostoc

C. Azotobacter

D. Pseudomonas

Answer: D



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7. An associated symbiotic bacterium responsible for nitrogen fixation and secretion of growth promoting

substances is

- A. Klebsiella
- B. Azotobacter
- C. Clostridium
- D. Azospirillum

Answer: D



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8. Glomus is a

- A. Cyanobacterium
- B. Symbiotic nitrogen fixing bacterium

C. Endomycorrhizal fungus

D. Non symbiotic nitrogen fixing bacterium

Answer: C



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9. Azolla is useful as biofertilizer in rice fields mainly by virtue of its

A. Symbiosis with Nostoc

B. Ability to live in water

C. Symbiosis with Anabaena azollae

D. Akinetes and Heterocysts are found

Answer: C



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10. Akinetes and Heterocysts are found in

A. Rhizobium

B. Anabaena

C. Glomus

D. Azospirillum

Answer: B



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11. Which of the following is a non-symbiotic biofertiliser ?

- A. AM fungi
- B. Azolla pinnata
- C. Azotobacter
- D. Azospirillum

Answer: C



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12. Resistance against environmental stresses increases with the usage of this biofertilizer

A. Glomus

B. Azolla

C. Nostoc

D. Rhizobium

Answer: A



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13. Biofertilizer organism which occurs both on rhizoplane as well as in the rhizosphere of cereal crops

A. Rhizobium

B. Azospirillum

C. Azotobacter

D. Glomus

Answer: B



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14. The nodulated roots are found in

A. Apple

B. Mustard

C. Pulses

D. Mango

Answer: C



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15. Mycorrhizal hyphae prove useful to the plant by

- A. Protecting them from microbial infection
- B. Providing them additional support
- C. Enhancing the water absorption and uptake of minerals
- D. Storing the minerals

Answer: C



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16. Which one of the following is free living, nitrogen fixing cyanobacterium ?

A. Nitrosomonas

B. Rhizobium

C. Stigonema

D. Nitrobacter

Answer: C



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17. Major sources of biofertilizers are

- A. Selected symbiotic micro-organisms
- B. Only nitrogen fixing bacteria
- C. Only nitrogen fixing cyanobacteria
- D. Bacteria, cyanobacteria and fungi

Answer: D



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18. Mycorrhiza is a

- A. Symbiotic association of fungi with algae

- B. Symbiotic association of fungi with angiosperms
- C. Symbiotic association of fungi with gymnosperms
- D. Symbiotic association of fungi with the roots of certain seed-bearing plants

Answer: D

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Exercise II

1. Scientist first to isolate streptomycin was

A. Fleming

B. Koch

C. Burkholder

D. Waksman

Answer: D



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2. Erythromycin and Chloramphenicol are got from

A. Penicillium species

B. Aspergillus species

C. Streptomyces species

D. Bacillus species

Answer: C



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3. Terramycin is got from

- A. *Streptomyces griseus*
- B. *Streptomyces venezuelae*
- C. *Streptomyces aureofaciens*
- D. *Streptomyces ramosus*

Answer: D



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4. Besides dung, the weed which can be used in biogas production is

A. Hydrilla

B. Solanum nigrum

C. Eichhornia crassipes

D. Parthenium hysterophorus

Answer: C



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5. Streptomyces venezuelae produces antibi-otic

A. Chloramphenicol

B. Aureomycin

C. Tetracycline

D. Streptomycin

Answer: A



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6. Streptomyces griseus produces antibiotic

A. Terramycin

B. Chloramphenicol

C. Neomycin

D. Streptomycin

Answer: D



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7. Vinegar is prepared from alcohol with the help of

A. Lactobacillus

B. Acetobacter

C. Azotobacter

D. Rhizobium

Answer: B



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8. Rennin employed in cheese industry is

- A. Inhibitor
- B. Alkaloid
- C. Enzyme
- D. Vitamin

Answer: C



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9. Penicillin inhibits bacterial multiplication because it

- A. Checks RNA synthesis
- B. Checks DNA synthesis
- C. Destroys chromatin
- D. Inhibits cell wall formation

Answer: D



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10. Biogas production from waste biomass with the help of methanogenic bacteria is

- A. One-step process
- B. Two step process

C. Three step process

D. Multistep process

Answer: C



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11. Bacterization, deals with

A. The culturing of bacteria on suitable nutrient media

B. The seed dressing with nitrogen fixing bacteria

C. The seed treatment with biopesticides

D. The control of endo-pathogenic bacteria of plants

Answer: B



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12. Pioneer of Algalization technology in India is

A. M.S. Swaminathan

B. Venkataraman

C. K.C. Mehta

D. Iyengar

Answer: B



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13. Rhizobium inoculants are applied to the seeds with

- A. Sodium alginate
- B. Mercuric chloride
- C. Gum or carboxy methyl cellulose
- D. 2, 4, 5 - T

Answer: C



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14. AM Fungi mostly increase

- A. Phosphate absorption

B. Potassium absorption

C. Nitrogen absorption

D. Both phosphate and nitrogen absorption

Answer: A



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15. Which of the following plants is commonly used as green manure in India ?

A. Sun hemp

B. Sesbania

C. Cow pea

D. All of the above

Answer: D



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16. Ectomycorrhiza absorbs and stores N, P, K and Ca in

A. Root hairs

B. Fungal mantle

C. Host epidermis

D. Host cortex

Answer: D



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17. in which stage of sewage treatment is desallination and chlorination of water done ?

- A. Primary treatment
- B. Secondary treatment
- C. Tertiary treatment
- D. Both (1) and (2)

Answer: C



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18. The presence of E. coli in water indicates

- A. Water is clear
- B. Water is fully polluted
- C. Inorganic pollution
- D. Faecal pollution

Answer: D



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19. Antibiotic obtained from lichens is

- A. Nystatin

B. Usnic acid

C. Polymixin

D. Viridin

Answer: B



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20. which bacteria is used in Bioremediation process ?

A. Rhizobium sp.

B. Pseudomonas putida

C. Bacillus licheniformis

D. Streptococcus

Answer: B



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21. Rotenone ,a natural insecticide ,is obtained from

- A. Azadirachta indica
- B. Derris sp.
- C. Bacillus thuringiensis
- D. Phytophthora palmivora

Answer: B



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22. Fermented beverage with maximum alcohol content is

A. Beer

B. Brandy

C. Whisky

D. Gin

Answer: B



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23. Match the lists and find the correct match

I (part of nephron)	II (function)
(a) Proximal convoluted tubule	I. Impermeable to sodium ions
(b) Distal convoluted tubule	II. Impermeable to water
(c) Descending limb of Henle's loop	III. Facultative reabsorption of H_2O , Na^+
(d) Ascending limb of Henle's loop	IV. Reabsorption of nutrients and Na^+

A. a b c d
 iv iii ii i

B. a b c d
 iv ii iii i

C. a b c d
 iii iv i ii

D. a b c d
 iii iv ii i

Answer: D



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24. Identify the examples of fungal ectotrophic mycorrhizae is/are

A. Boletus

B. Amanita

C. Scleroderma

D. All

Answer: D



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25. VAM is characterized by

- A. intracellular vesicles
- B. intracellular arbuscules
- C. both (1) and (2)
- D. Associative symbiosis

Answer: C



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26. Ectomycorrhiza is found in

- A. on the roots of maize
- B. on the roots of groundnut
- C. on the roots of rice

D. on the roots of trees like pine and oak

Answer: D



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27. Farmyard manure is prepared from

A. Cattle dung

B. Crop residues

C. Cattle dung and crop residues

D. Decomposed vegetable

Answer: C



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28. Vesicular arbuscular mycorrhizae are

- A. Certain symbiotic fungi which live only on the surface of root of higher plants.
- B. Mycorrhizae which are found within the roots
- C. Endomycorrhizae which live between the cells of root cortex and send special branches into the cells
- D. All of the above

Answer: C



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29. Which of the following alkaloids are good plant insecticides ?

- A. Nicotine
- B. Pyrethrum
- C. Cinerin
- D. All of these

Answer: D



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30. Aulsoria is a

- A. Edible fungus
- B. Biofertilizers
- C. SCP
- D. Biopesticide

Answer: B



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31. Yield of soybean and red gram could be increased by employing the following as biofertilizer

(I) Glomus (II) Azospirillum

(III) Cyanobacteria (IV) Rhizobium

A. I only

B. I and II

C. I, II and IV

D. I & IV

Answer: D



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32. A new crop triticale has been evolved by intergeneric hybridization between-

(a) Wheat and Aegilops

(b) Wheat and rice

(c) Rice and Maize

(d) Rye and wheat

A. A and B only

B. A and C only

C. B and C only

D. A, B and C

Answer: D



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1. Which of the following in sewage treatment removes suspended solids?

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

Answer: C



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2. Which of the following is correctly matched for the product produced by them ?

- A. Acetoacter aceti : Antibiotics
- B. Methanobacterium : Lactic acid
- C. Penicillium notatum : Acetic acid
- D. Sacchromyces cerevsiae : Ethanol

Answer: D



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3. Match Column - I with Column - II and select the correct option using the codes given below :

Column-I		Column-II
a. Citric acid	(i)	Trichoderma
b. Cyclosporin A	(ii)	Clostridium
c. Statins	(iii)	Aspergillus
d. Butyric acid	(iv)	Monascus

A. a-i,b-iv,c-ii,d-iii

B. a-iii,b-iv,c-i,d-ii

C. a-iii,b-i,c-ii,d-iv

D. a-iii,b-i,c-iv,d-ii

Answer: D



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4. Biochemical Oxygen Demand (BOD) may not be a good index for pollution for water bodies receiving effluents from

A. Petroleum industry

B. Sugar Industry

C. Domestic sewage

D. Dairy industry

Answer: A



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5. Which of the following is wrongly matched in the given table ?

A.

	Microbe	Product	Application
1)	Trichoderma polysporum	Cyclosporin A	Immunosuppressive drug

	Microbe	Product	Application
B. 2)	Monascus purpureus	Statins	Lowering of blood chloolesterol

C.

	Microbe	Product	Application
3)	Streptococcus	Streptokinase	Removal of clot from blood vessel

	Microbe	Product	Application
D. 4)	Clostridium	Lipase	Removal of oil stains
		butylicum	

Answer: D



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6. Match the following list of microbes and their importance:-

(1)	<i>Sacharomyces cerevisiae</i>	(i)	Production of immunosuppressive agents
(2)	<i>Monascus purpureus</i>	(ii)	Ripening of Swiss cheese
(3)	<i>Trichoderma polysporum</i>	(iii)	Commercial production of ethanol
(4)	<i>Propionibacterium sharmanii</i>	(iv)	Production of blood cholesterol lowering agents

A. *a* *b* *c* *d*
 iii *i* *iv* *ii*

B. *a* *b* *c* *d*
 iii *iv* *i* *ii*

C. *a* *b* *c* *d*
 iv *iii* *ii* *i*

D. *a* *b* *c* *d*
 iv *ii* *i* *iii*

Answer: B



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7. What gases are produced in anaerobic sludge digesters?

A. Methane and CO_2

B. Methane, hydrogen sulphide and CO_2

C. Methane, hydrogen sulphide and CO

D. Hydrogen sulphide and CO_2

Answer: B



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8. 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. Hydrogen sulphide, nitrogen, methane

Answer: A



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9. A good producer of citric acid is

- A. Aspergillus
- B. Pseudomonas
- C. Clostridium

D. Saccharomyces

Answer: A



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10. monascus purpureus is a yeast used commercially in the production of

A. Citric acid

B. Blood cholesterol lowering statins

C. Ethanol

D. Streptokinase for removing clots from the blood vessels

Answer: B



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11. A patient brought to a hospital with myo -cardial infarction is normally immediately given

A. Cyclosporin-A

B. Statins

C. Penicillin

D. Streptokinase

Answer: D



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12. Which one of the following microorganisms forms symbiotic association with plants and helps them in their nutrition?

A. Glomus

B. Trichoderma

C. Azotobacter

D. Aspergillus

Answer: A



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13. Yeast is used in the production of

- A. Bread and beer
- B. Cheese and butter
- C. Citric acid and lactic acid
- D. Lipase and pectinase

Answer: A



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14. A nitrogen fixing microbe associated with Azolla in rice fields is

A. Frankia

B. Tolypothrix

C. Spirulina

D. Anabaena

Answer: D



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15. Which one of the following is an example of carrying out biological control of pests/diseases using microbes

A. Bt-cotton to increase cotton yield

B. Lady bird beetle against aphids in mustard

C. Trichoderma sp. against certain plant pathogens

D. Nucleopolyhedrovirus against white rust in
Brassica

Answer: A



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16. Which one of the following is not a biofertiliser?

A. Mycorrhiza

B. Agrobacterium

C. Rhizobium

D. Nostoc

Answer: B



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17. Which one of the following microbes forms symbiotic association with plants and helps them in their nutrition

A. Anabaena

B. Glomus

C. Rhizobium

D. Frankia

Answer: B



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18. A common biocontrol agent for the control of plant diseases is

- A. Baculovirus
- B. *Bacillus thuringiensis*
- C. Glomus
- D. Trichoderma

Answer: D



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19. The common nitrogen-fixer in paddy fields is

- A. Rhizobium
- B. Azospirillum
- C. Oscillatoria
- D. Frankia

Answer: B



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

A. Glomus

B. Earthworm

C. Oscillatoria

D. Snail

Answer: D



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21. *Trichoderma harizianum* has proved to be a useful microorganism for

A. Gene transfer in higher plants

B. Biological control of soil-borne plant pathogens

C. Bioremediation of contaminated soils

D. Reclamation of wastelands

Answer: B



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22. Cry 1 endotoxins obtained from *Bacillus thuringiensis* are effective against

A. Nematodes

B. Bollworms

C. Mosquitoes

D. Flies

Answer: B



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23. Probiotics are

- A. Live microbial food supplement
- B. Safe antibiotics
- C. Cancer inducing microbes
- D. New kind of food allergens

Answer: A



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24. Which one of the following parts is wrongly matched?

A. Coliforms - Vinegar

B. Methanogens - Gobar gas

C. Yeast - Ethanol

D. Streptomyces - Antibiotic

Answer: A



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25. Which of the following is true pair of biofertilizers : -

A. Azolla and BGA

B. Nostoc and legume

C. Rhizobium and grasses

D. Salmonella and E.Coli

Answer: A



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