



BIOLOGY

BOOKS - TARGET BIOLOGY (HINGLISH)

INTRODUCTION TO MICROBIOLOGY

Choose The Correct Alternative

1. During fermentatin, lactose sugar present in milk is converted into _____

A. lactic acid

B. acetic acid

C. ascorbic acid

D. citric acid

Answer: A



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2. Which of the following is a product of fermentation of carbohydrates by yeast ?

A. Water

B. Sugar

C. Ethanol

D. Both (B) and (C)

Answer: C



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3. microbial fermentation is used for production of which of the following product (s) ?

A. Kefir

B. Monosodium glutamate

C. Vinegar

D. All of these

Answer: D



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4. Ethanol, an alcohol is obtained by fermentation of carbon compounds with the help of which microbe ?

A. *Saccharomyes cerevisiae*

B. *Acetobacter* spp.

C. *Aspergillus niger*

D. *Lacotobacillus* spp.

Answer: A



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5. Ethanol can be obtained by fermentation of

A. sugar molasses

B. maple syrup

C. starch of roots

D. All of these

Answer: D



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6. Soy sauce is produced by fermentation of a mixture of wheat or rice and soybean with the help of _____

A. *Aspergillus oryzae*

B. *Actinomyces* spp.

C. *Streptococcus thermophilus*

D. *Lactobacillus lactis*

Answer: A



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7. _____ is obtained by fermentation of apple juice.

A. Cider

B. Wine

C. Coffee

D. Cocoa

Answer: A



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8. Citric acid used in production of beverages, toffees, chocolates is obtained by fermentation of _____ by *Aspergillus niger*.

A. grapes

B. sugar molasses

C. apple

D. coffee nuts

Answer: B



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9. _____ is obtained by microbial process
Lactobacillus delbrueckii.

A. itaconic acid

B. lactic acid

C. gluconic acid

D. citric acid.

Answer: B



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10. _____ is an antibiotic effective against tuberculosis.

A. Penicillin

B. Rifamycin

C. Gentamicin

D. Tetracycline

Answer: B



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11. Metals leaching from low quality metalloids can be converted into compound with the help of

A. Thiobacilli and Sulphobacilli

B. Lactobacilli and Pseudomonas

C. Actinomyces and Saccharomyces

D. Acetobacter and Gluconobacter

Answer: A



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12. Plastic bottles are formed from the chemical substance

A. Plymer Tetrachloro Polyester

B. Polyethylene Terephthalater Polyester

C. Polyamino Tetrameric Polyethylene

D. Polymer Tryptophan Polyester

Answer: B



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13. _____ acis is present in acid rain.

A. Acetic

B. Sulphuric

C. Lactic

D. Ascorbic

Answer: B



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14. _____ convey salts of uranium released from the atomic energy plant into insoluble salts.

A. Geobacter

B. Acetobacter

C. Gluconobacter

D. Pseudomonas

Answer: A



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15. _____, a by-product of fermentation is a biopesticide.

A. Fluoroacetamide

B. Spinosad

C. PET

D. Ethyl butyrate

Answer: B



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Complete The Paragraph

1. Fill in the blanks by selecting the correct word from the bracket and complete the given paragraph.

(Acetobacter, sweetness, sourness, Streptococcus thermophilus, fats, whey, fungi, Lactobacillus lactis, protease)

In cheese production, microbase like _____ and _____ are mixed with milk. It imparts _____ to the milk. After thia _____ needs to be removed to impart dense texture to the cheese. An enzyme _____ obtained from _____ is used to produce vegetarian cheese.



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Name The Following

1. Dairy products



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2. Varieties of butter



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3. Probiotic products



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4. Gasa released during fermentation by yeast which makes bread spongy.



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5. Ingredients used in chinese food produced by microbial fermentation.



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6. Food items in which vinegar is used as preservative.



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7. Microbial enzymes



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8. Substance obtained by microbial processing which are used as essence.



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9. Emulsifiers obtained by microbial processing.



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10. Antibiotics used against various strains of gram positive and gram negative bacteria.



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11. An alcohol which is used as a smokeless fuel.



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12. Solid biofuel



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13. Bacterial species which can decompose PET or plastic bottles.



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14. Microbial species that have the ability to decompose rubber from garbage.



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15. Bacterial which used sulphuric acid as a source of energy and can control soil pollution caused due to acid rain.



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True Or False

1. Diacetyl has a flavour of butter.



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2. acetic acid is bleached with the help of potassium ferrocyanide before pasteurization.



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3. Water content and acidity of the milk remains same during formation of cheese, yoghurt, etc.



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4. During cheese production, milk is pasteurized at the beginning to destroy lactobacilli present in it.



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5. Acetaldehyde like compounds formed due to Streptococcus give dense consistency to yoghurt.



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6. Parmesan is a freshly prepared cheese, hence it is always soft.



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7. Shelf life of yoghurt and its probiotic properties can be improved by pasteurization.



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8. Compressed yeast is used in commercial bakery industry.



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9. 4% acetic acid imparts sweet taste to sauce, chutneys, ketchup, etc.



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10. Glucose and fructose syrup is obtained by enzymatic action of bacilli and Streptomyces on corn flour.



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11. Xanthan is obtained by fermenting starch and molasses with the help of Geobacter spp.



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12. Glutamic acid, lysine and tryptophan are used as antioxidants.



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13. Aspartame is used as an artificial sweetener.



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14. Methane gas is obtained by microbial anaerobic decomposition of waste.



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15. Hydrogen gas is released during biophotolysis of water.



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16. Biofuels are available in liquid form only.



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17. In villages, domestic sewage is disposed off either in nearby soil or in a biogas plant.



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18. Water released after microbial treatment is environmentally safe.



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19. Fluoroacetamide like chemicals can be used in organic farming as they do not cause any harm to plants and animals.



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Odd One Out

1. Yoghurt, Cheddar cheese, Kefir, Soy sauce



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2. Lactobacillus lactis, Clostridium,
Lactobacillus cremoris, Streptococcus
thermophilus



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3. Spirulina, Chlorella, Yeast, Blue green algae



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4. Beta carotene, Lutein, Vanillin, Lycopene



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5. Neomycin, Lutein, Tetracycline, vancomycin



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Complete The Analogy

1. Yoghurt : Bacteria in Milk :: Cheese: _____



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2. Rennet : Alimentary canal of cattle ::

Protease : _____



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3. Yoghurt : Lactobacilli :: Beard : _____



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4. Coffee : Coffea arabica :: Cocoa : _____



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5. Lactobacillus delbruekii : Lactic acid ::

Aspergillus itaconius : _____



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6. Natamycin : Microbial restrictor ::

Xanthenes: _____



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7. Polysaccharides : Emulsifiers :: Xylitol :



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Answer The Following

1. What is applied microbiology ?



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2. Define industrial microbiology. Give any two examples of products formed by fermentation process in industrial microbiology.



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3. Explain the basic process for production of yoghurt, cheese and cream.



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4. Explain the steps involved in the process of yoghurt production.



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5. Write a short note on yoghurt production.



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6. List down the steps involved in the production of cheese once the whey is

separated from yoghurt.



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7. Which are the reason for increasing the popularity of probiotic products ?



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8. Why the probiotics have developed much importance in recent days ?



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9. How does the bread become spongy ?



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10. How the bread and other products produced using baker's yeast are nutritious ?



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11. What is the basic difference between production of yoghurt and bread with respect to the microbes used ?



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12. Explain the process of Vinegar production.



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13. Give uses of organic acids produced by given microbes in a tabular format.

Aspergillus niger, *Lactobacillus delbrueckii*,

Aspergillus itaconius



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14. Give examples of beverages and chemicals obtained by microbial fermentation of different organic substrates.



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15. What is xanthan gum ?



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16. State the uses of xanthan gum that is obtained by microbial process.



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17. Which plants are cultivated to obtain the fuel ?



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18. Which fuels can be obtained by microbial processes ? Why is it necessary to increase the use of such fuels ?



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19. What are the benefits of mixing ethanol with petrol and diesel?



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20. Which fuels are obtained from biomass ?



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21. Explain biofuel production with the help of a diagram



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22. Mention any four advantages of biofuels.



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23. How urban waste that is accumulated in terms of tonnes may be disposed off?



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24. Give diagrammatic representation of a modern landfill site and explain how waste is disposed off ?



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25. Write a short note on modern landfill sites for waste disposal.



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26. Why are pits lined with plastic sheets at modern landfill sites ?



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27. What is role of microbes in compost production ?



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28. Explain in detail how sewage management is done in cities ?



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29. Write a short note on sewage management in cities.



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30. Which precautions are necessary for proper decomposition of domestic waste ?



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31. How can the oil spills of rivers and oceans be cleaned ?



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32. There is an oil layer on the water surface of river in your area. What will you do?



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33. Why is it necessary to ban the use of plastic bags?



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34. How can the soil polluted by acid rain be made fertile again ?



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35. What is the role of Geobacter in pollution control ?



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36. Write four advantages of using microbial inoculants in farming.



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37. Explain the importance of biopesticides in organic farming.



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38. Rewrite the statement using correct option and explain the completed statement

Process of _____ of milk proteins occurs due to lactic acid.



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39. Rewrite the statement using correct option and explain the completed statement

Harmful bacterial like _____ in the intestine are destroyed due to probiotics.





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40. Rewrite the statement using correct option and explain the completed statement
Chemically, vinegar is _____



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41. Rewrite the statement using correct option and explain the completed statement
Salts which can be used as supplement of

calcium and iron are obtained from _____
acid.



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42. Why microorganisms are important in our
daily life ?



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Give Reasons

1. Use of mutant strains has been increased in industrial microbiology.



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2. Enzymes obtained by microbial process are mixed with detergents.



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3. Microbial enzymes are used instead of chemical catalysts in chemical industry.



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4. It is necessary to control pollution at a right time and to the right extent.



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[Complete The Given Chart Table](#)

1. Complete the following table :

Source	Microbe	Products
Sugar molasses and salt	-----	Citric acid
-----	<i>Lactobacillus delbrueckii</i>	-----
Corn steep liquor	<i>Aspergillus itaconius</i>	-----



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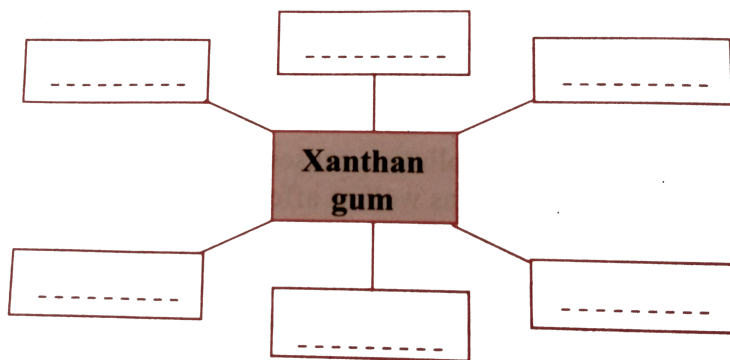
2. Complete the following table representing production of beverages.

No.	Fruit	Microbe used	Role of microbe	Name of beverage
i.	<i>Coffea arabica</i>	-----	Separating seeds from fruit	-----
ii.	-----	<i>Candida, Pichia (Hansenula), Saccharomyces</i>	Separating seeds from fruit	-----
iii.	Grapes	-----	Fermentation of juice	Wine
iv.	Apple	<i>Saccharomyces cerevisiae</i>	Fermentation of juice	-----



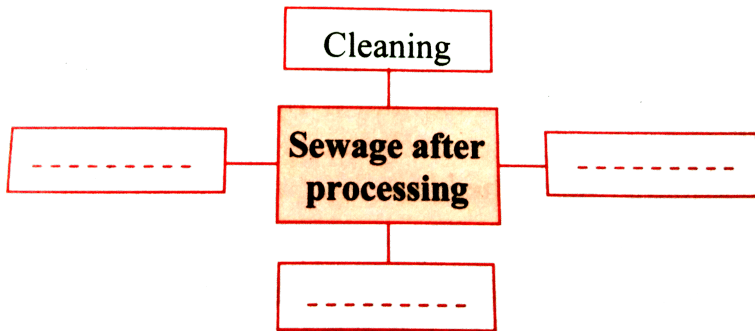
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3. Complete the following conceptual picture with respect to uses.



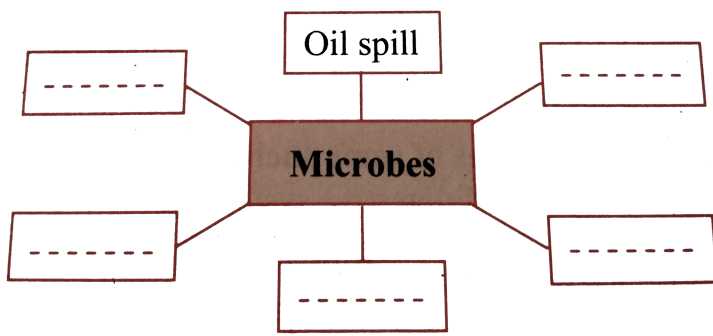
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4. Complete the following conceptual picture.



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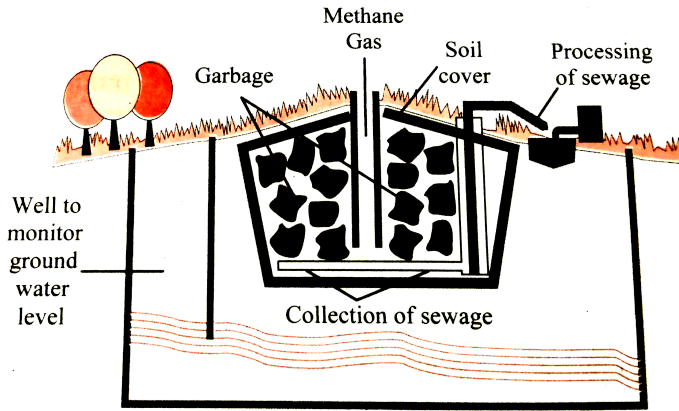
5. Complete the following conceptual picture related to environmental management.



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Questions Based On Diagram

1. Observe the figure and answer the question:



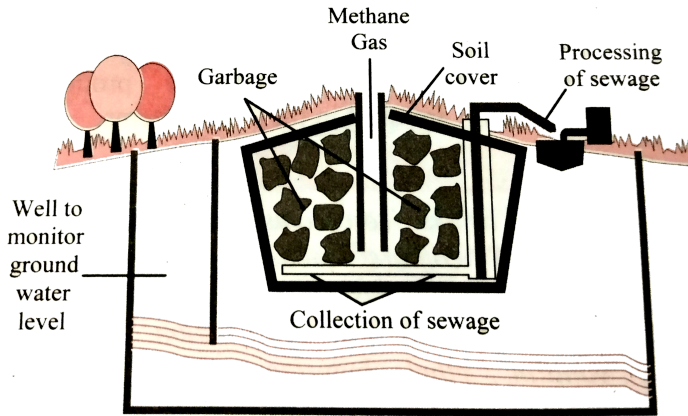
Modern landfill site

Identify the process shown in the figure.



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2. Observe the figure and answer the question:



Modern landfill site

Explain the process in short.

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Questions Based On Paragraph

1. The countries which do not have oil reserves in their land import oil from other countries. But sometimes during transporting oil through sea routes, accidental oil spilling occurs. This oil spilled in the ocean may prove fatal and toxic to aquatic animals. Therefore, removal of this spilled oil is essential for protection of aquatic life. For removing this oil layer, certain microbes like *Pseudomonas* spp. and *Alcanivarax borkumensis* are used. These microbes have the ability to destroy the pyridines and other toxic chemicals. The

hydrocarbonoclastic bacteria (HCB) are able to decompose the hydrocarbons and bring about the reaction carbon with oxygen resulting in formation of CO_2 and water.

Like oil spills cause damage to aquatic life, plastic forms the major part of the garbage on land. Plastics are difficult to degrade as they are made up of PET. By research, various species like *Vibrio* and *Idenoella sakaiensis* which can degraded PET. By research, various species like *Vibrio* and *Ideonella sakaiensis* which can degrade PET have been identified. There are certain species of microbes which

can decompose rubber from garbage.

Based on the given paragraph answer the following question.

How are aquatic organisms affected by oil spills in oceans ?



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2. The countries which do not have oil reservatirs in their land import oil from other countries. But sometimes during transporting oil through sea routes, accidental oil spilling

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Based on the given paragraph answer the following question.

Which type of chemical compounds are

degraded by microbes used for clearing oil spills ?



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Based on the given paragraph answer the following question.

Name any two species of microbes which can degrade rubber from



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Based on the given paragraph answer the following question.

Why should there be a ban on plastic bags ?



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Apply Your Knowledge

1. Which different microbes are useful to us ?



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2. Which different products can be produced with the help of microbes ?



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3. We use the fermentation process while conversion of milk into yoghurt. Which microbes are useful for this process ?



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4. Which different type of cheese are used in western food like pizza, burger, sandwich, etc. ?



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5. What is difference between those types of cheese ?



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6. Use your brain power. In earlier class, you had prepared the solution of dry yeast for observation of yeast. Which substance is prepared by its use on commercial basis ?



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7. Which functions are performed by enzymes secreted in human digestive system ?



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8. Give names of some such enzymes.



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9. Use your brain power. Food materials like cold drinks, ice creams, cakes, juices are available in various colours and flavours. Whether these colours and flavours are really derived from fruits ?



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10. Read the ingredients and their proportion printed on bottles of cold drinks and juices and wrappers of ice creams. Find out the natural and artificial ingredients.



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11. What do you mean by antibiotic ?



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12. Which precautions should be taken about their consumption ?



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13. Which different materials are decomposed in biogas plant ?



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14. Which useful materials are obtained through it? Which is the fuel out of those ?

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15. Decomposition occurs through which organisms ?

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16. Why is it asked to segregate wet and dry waste in each home ?



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17. What is done with the segregated waste ?



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18. Which is most appropriate method of disposal of dry waste ?



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19. Observe the grabage vans of gram panchayat and municipality. Nowadays, there is facility of decreasing the volume of garbgage by compaction those vans. Explain the advantages of this activity.



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20. Which materials should not be present in garbage for its proper microbial decomposition ?



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21. How the sewage generated in your house or apartment is disposed off ?



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22. You must have seen or read the news of dead fishes or oily water accumulating at the sea coasts. Why does this happen ?



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23. How the bacteria present in soil and root nodules of leguminous plants are useful ?



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24. Find the ways to implement the zero garbage system at domestic level.



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25. Which are the microbes that destroy the chemical pesticides in soil ?



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26. Collect more information about reasons for avoiding the use of chemical pesticides.



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