



INDIAN SCHOOL DARSAIT

DEPARTMENT OF BIOLOGY



Subject : Biology

Topic : Microbes in Human
Welfare

Date of worksheet : 6/9/2017

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Date of Submission : _____

Name of the Student : _____

Class & Division : XII A &
B

Roll Number : ___

S.No.	Questions	Marks
1	List two advantages that a mycorrhizal association provides to the plant. (CBSE AI 2008)	1
2	Name the group of organisms and the substrate that act on to produce biogas. (CBSE Delhi 2009)	1
3	How is the presence of cyanobacteria in the paddy field beneficial to rice crop? (CBSE Delhi 2009)	1
4	Which of the following is a free living bacteria that can fix atmospheric nitrogen? Azospirillum, Oscillatoria and Spirulina. (CBSE Delhi 2009)	1
5	Given below are few impurities in urban waste water. Select two colloidal impurities: Ammonia, faecal matter, silt, bacteria, calcium. (CBSE AI 2009)	1
6	Milk starts to coagulate when Lactic Acid bacteria(LAB) is added to warm milk as a starter. Mention any two other benefits LAB provides. (CBSE AI 2009)	1
7	BOD of two samples of water A and B were 120 mg/L and 400 mg/L .Which sample is more polluted? (CBSE Foreign 2009)	1
8	Why is sewage water treated until BOD is reduced? Give a reason. (CBSE Delhi 2010)	1
9	Name any one symbiont, which serve as biofertiliser. Mention it specific role. (CBSE AI 2010)	1
10	Mention the information that the health workers derive by measuring BOD of a water body. (CBSE AI 2010)	1
11	Write the scientific name of the microbe used for fermenting malted cereals and fruit juices. (CBSE Delhi 2011)	1
12	Which of the following is baker's yeast used in fermentation? <i>Saccharum barberi</i> , <i>Sacchromyces cerevisiae</i> and <i>Sonalika</i> . (CBSE AI 2009, 2011,2012)	1
13	Mention two advantages of adding blue-green algae to paddy fields.	1

Or

State one reason for adding blue-green algae to the agricultural soil.

(CBSE AI 2011, Delhi 2014)

14 Mention the role of cyanobacteria as biofertilisers . (CBSE AI 2012) 1

15 Name the type of association that the genus *Glomus* exhibits with higher plants. (CBSE AI 2014) 1

16 How has fungus *Trichoderma polysporum* proved to be very essential to organ transplant patients? (CBSE Delhi 2008) 2

17 Name the blank spaces A,B,C and D from the table given below: (CBSE Delhi 2008) 2

Type of microbe	Name	Commercial product
Fungus	A	Penicillin
Bacterium	<i>Acetobacter aceti</i>	B
C	<i>Aspergillus niger</i>	Citric acid
Yeast	D	Ethanol

18 State the use of the following enzyme/ acids produced by the microbes 2
i)Lipase ii)Lactic acid
iii)Streptokinase iv)Pectinase (CBSE Foreign 2008)

19 Name the blank spaces A,B,C and D from the table given below: (CBSE AI 2008) 2

Type of microbe	Scientific name	Product	Medical application
Fungus	A	Cyclosporin-A	B
C	<i>Monascus purpureus</i>	Statin	D

20 Name the blank spaces A,B,C and D from the table given below: (CBSE AI 2008) 2

Type of microbe	Scientific name	Commercial product
Bacterium	A	Clot buster enzyme
B	<i>Aspergillus niger</i>	Citric acid
Fungus	<i>Trichoderma polysporum</i>	C
Bacterium	D	Butyric acid

21 Name the blank spaces A,B,C and D from the table given below: (CBSE AI 2008) 2

Type of microbe	Name	Commercial product
Bacterium	A	Lactic acid
Fungus	B	Cyclosporin-A
C	<i>Monascus purpureus</i>	Statin
Fungus	<i>Penicillium notatum</i>	D

- 22 Identify A,B,C and D in the table given below: (CBSE AI 2009) 2

Microorganisms	Product	Biological activity	Medical oilment/ Procedure
A	Streptokinase	Clot buster	D
<i>Trichoderma polysporum</i>	B	C	Transplant surgery

23. During the secondary treatment of the primary effluent .How does the significant decrease in BOD occur? (CBSE Delhi 2009) 2

- 24 Explain the change fresh milk undergoes when a small amount of curd as starter is added to it and kept at suitable temperature. (CBSE Delhi 2009) 2

Or

How does addition of a small amount of curd to fresh milk help in formation of curd? Mention a nutritional quality that gets added to the curd.

(CBSE Delhi 2010)

- 25 How do plant benefit from having mycorrhizal symbiotic association? (CBSE Foreign 2010) 2

- 26 Why are some molecules called bioactive molecules? Give two examples of such molecules. (CBSE AI 2011) 2

- 27 Give the scientific name of the microbes from which cyclosporine-A and Statin are obtained. Write one medical use of each one of these drugs. 2

(CBSE Foreign 2011)

Or

Name the source of Statin and state its action on the human body.

(CBSE Foreign 2012)

- 28 Name the source of Cyclosporin-A. How does this bioreactive molecule function in our body? (CBSE AI 2012) 2

- 29 Why is Rhizobium categorized as a symbiotic bacterium? How does it act as a biofertiliser? (CBSE Delhi 2012) 2

- 30 How do methanogens help in producing biogas? (CBSE Delhi 2012, AI 2015) 2

- 31 How do mycorrhizae act as biofertilisers ?Explain. Name a genus of fungi that forms a mycorrhizal association with plants. (CBSE Delhi 2012) 2

- 32 Mention the importance of lactic acid bacteria to humans other than setting milk to curd. (CBSE Delhi 2012) 2

- 33 Name the enzyme produced by streptococcus bacterium. Explain its importance in medical sciences. (CBSE AI 2011) 2

Or

- Name the source of streptokinase. How does this bioreactive molecule function in our body? (CBSE Delhi 2012)
- 34 Name the bacterium responsible for the large holes seen in swiss cheese. What are these holes due to ? (CBSE Delhi 2008, AI 2013) 2
- 35 Why is 'starter' added to set the milk into curd? Explain. (CBSE AI 2014) 2
- 36 Name the two groups of organisms which constitutes 'Flocs'. Write their influence on the level of BOD during biological treatment of sewage. (CBSE Delhi 2014) 2
- 37 Draw a labelled sketch of a typical biogas plant. (CBSE Delhi 2014) 2
- 38 How are baculoviruses and *Bacillus Thuringiensis* used as biocontrol agents? Why are they preferred over readily available chemical pesticides? (CBSE Delhi 2014) 2
- 39 What are methanogens? Name the animals in which methanogens occur and the role they play there. (CBSE Delhi 2014) 2
- 40 Explain the significant role of the genus Nucleopolyhedrovirus in an ecological sensitive area. (CBSE Foreign 2014) 2
- 41 Mention a product of human welfare obtained with the help of each of the following microbes:
 i) LAB ii) *Saccharomyces cerevisiae*
 iii) *Propionibacterium sharmanii* iv) *Aspergillus niger* (CBSE Delhi 2015) 2
- 42 Explain the different steps involved during primary treatment phase of sewage. (CBSE 2015) 2
- 43 Explain the process of secondary treatment given to the primary effluent up to the point it shows significant change in the level of biological oxygen demand (BOD) in it. (CBSE 2015) 2
- 44 Explain the function of " anaerobic sludge digester" in a sewage treatment plant. (CBSE AI 2015) 2
- 45 List the events that lead to biogas production from waste water whose BOD has been reduced significantly. (CBSE Delhi 2016) 2
- 46 Distinguish between the roles of flocks and anaerobic sludge digesters in sewage treatments. (CBSE Delhi 2016) 2
- 47 List the events that reduce the Biological Oxygen Demand (BOD) of a primary effluent during sewage treatment. (CBSE Delhi 2016) 2

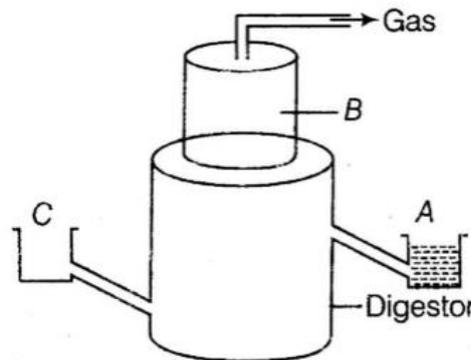
- 48 Name a free-living and a symbiotic bacterium that serve as biofertilisers. Why are they so called? (CBSE AI 2016) 2
- 49 Lower BOD of a water body helps reappearance of clean-water organisms. Explain. (CBSE Foreign 2016) 2
- 50 Sewage discharge into a clean-water body leads to increased fish mortality. Explain. (CBSE Foreign 2016) 2
- 51 How does the application of the fungal genus, *Glomus*, to the agricultural farm increase the farm output? (CBSE Delhi 2017) 2
- 52 How does the application of cyanobacteria help to improve agricultural output? (CBSE Delhi 2017) 2
- 53 How do mycorrhizae help the plants to grow better? (CBSE Delhi 2017) 2
- 54 Name a bioactive molecule, its source organism and the purpose for which it is given to organ transplant patients. (CBSE Foreign 2017) 2
- 55 Why should biological control of pests and pathogens be preferred to the conventional use of chemical pesticides? Explain how the following microbes act as biocontrol agents?
i) *Bacillus thuringiensis* ii) Nucleopolyhedrovirus (CBSE Delhi 2008) 3
- 56 Explain the role of baculoviruses as biological control agents. Mention their importance in organic farming. (CBSE AI 2008) 3
- 57 i) Baculoviruses are excellent candidates for integrated pest management in an ecologically sensitive area. Explain giving reasons.
ii) What is organic farming? Why is it suggested to switch over to organic farming? (CBSE Foreign 2008) 3
- 58 i) Expand BOD.
ii) At a particular segment of a river near a sugar factory, the BOD is much higher than the normal level. What is it indicative of? What will happen to the living organism in this part of the river?
iii) Under what conditions will the BOD be lowered in the river? How will it affect the aquatic life? (CBSE Foreign 2008) 3
- 59 How are flocs produced in the secondary treatment plant of the sewage? Explain their role. (CBSE AI 2009) 3
- 60 i) Why do organic farmers not recommend eradication of insect pests? Explain giving reasons.
ii) How do ladybird beetles and dragonflies act as biocontrol agents? (CBSE Delhi 2009) 3

61. i)How does activated sludge get produced during sewage treatment? 3
 ii)Explain how this sludge is used in biogas production? (CBSE AI 2009)
- 62 Describe how biogas is obtained from the activated sludge. (CBSE Foreign 2010) 3
- 63 Mention the product and its use produced by each of the microbes listed below 3
 i)Streptococcus
 ii)Lactobacillus
 iii)Sacchromyces cerevisiae (CBSE AI 2010)
- 64 An organic farmer relies on natural predation for controlling pests and diseases. Justify giving reasons , why this is considered to be a holistic approach?(CBSE Foreign 2010) 3
- 65 Identify A,B,C,D,E and F in the table given below 3

Organism	Bioactive molecule	Use
<i>Monascus purpureus</i> (yeast)	A	B
C	D	Antibiotic
E	Cyclosporin-A	F

- 66 Explain the different steps involved in sewage treatment before it can be released into natural bodies. (CBSE Foreign 2011) 3
- 67 i)Why do farmers prefer biofertilisers to chemical fertilisers these days? 3
 ii)How do Anabaena and mycorrhiza act as biofertilisers? (CBSE Delhi 2011)

- 68 3



The diagram above is that of a typical biogas plant. Explain the sequence of events occurring in a biogas plant. Identify A, B and C. (CBSE Delhi 2011)

- 69 Name the genus to which baculoviruses belong. Describe their role in the integrated pest management programme. (CBSE Delhi 2011, Foreign 2011) 3
- 70 Name the two different categories of microbes naturally occurring in sewage water. Explain their role in cleaning sewage water into usable water. (CBSE Delhi 2012) 3
- 71 How is the Bt cotton plant created as a GM plant? How is it protected against bollworm infestation? (CBSE Delhi 2013) 3

72 Identify A, B, C, D, E and F in the table given below: (CBSE Foreign 2014) 3

Scientific name of the organism	Product produced	Use in human welfare
<i>Streptococcus</i>	Streptokinase modified	A
B	Cyclosporin-A	C
<i>Monascus purpureus</i>	D	E
<i>Lactobacillus</i>	F	Sets milk into curd

73 Choose any three microbes, from the following which are suited for organic farming which is in great demand these days for various reasons. Mention one application of each one chosen. (CBSE Delhi 2015) 3

74 "Determination of Biological Oxygen Demand (BOD) can help in suggesting the quality of a water body." Explain. (CBSE Delhi 2015) 3

75 How can sewage be used to generate biogas ? Explain. (CBE Foreign 2015) 3

76 Given below is a list of six micro-organisms. State their usefulness to humans. (CBSE Delhi 2016) 3

- Nucleopolyhedrovirus*
- Saccharomyces cerevisiae*
- Monascus purpureus*
- Trichoderma polysporum*
- Penicillium notatum*
- Propionibacterium sharnanii*

77 Describe how do 'flocs' and 'activated sludge' help in sewage treatment. (CBSE Delhi 2017) 3

78 Explain the process of sewage treatment before it can be discharged into natural water bodies. Why is this treatment essential? (CBSE AI 2014) 5

79 i) Name the category of microbes naturally occurring in sewage and making it less polluted during the treatment. 5

ii) Explain the different steps involved in the secondary treatment of sewage. (CBSE Foreign 2014)

80 Describe the process of waste- water treatment under the following heads: 5
 (a) Primary treatment.
 (b) Secondary treatment. (CBSE Foreign 2016)
 (a) Primary treatment

81 (a) How does *Bacillus thuringiensis* act as a biocontrol agent for protecting *Brassica* and fruit trees ? Explain. (CBSE Foreign 2017) 5

(b)

(i) List the components of biogas.

(ii) What makes methanogens a suitable source for biogas production ?