

Exercise - I (Conceptual Questions)

Build Up Your Understanding

1. Which one of the following is not true about antibiotics?
 (1) First antibiotic was discovered by Alexander Fleming
 (2) The term 'antibiotic' was coined by S. Waksman in 1942.
 (3) Some persons can be allergic to a particular antibiotic
 (4) Each antibiotic is effective only against one particular kind of germ.

BMH001

2. Which one of the microorganism is used for production of citric acid in industries ?
 (1) *Lactobacillus bulgaricus*
 (2) *Penicillium citrinum*
 (3) *Aspergillus niger*
 (4) *Rhizopus nigricans*

BMH002

3. Formation of vinegar from alcohol is caused by :-
 (1) *Bacillus subtilis* (2) *Clostridium*
 (3) *Acetobacter aceti* (4) *Azotobacter*

BMH003

4. Biogas consists of:-
 (1) Carbon monoxide, methane and hydrogen
 (2) Carbon dioxide, methane and hydrogen
 (3) Carbon monoxide, ethane and hydrogen
 (4) Carbon dioxide, ethane and hydrogen

BMH004

5. Biogas is produced by anaerobic breakdown of biomass of agricultural waste by methanogenic bacteria. It is a:-
 (1) One step process
 (2) Two step process
 (3) Three step process
 (4) Multistep process

BMH005

6. Beer is obtained from :-
 (1) Molasses (2) Grapes
 (3) Barley (4) Rye

BMH006

7. Maximum percentage of alcohol present in the product of yeast fermentation :-
 (1) Brandy (2) Gin
 (3) Rum (4) Wine

BMH007

8. Which of the following microorganisms use for swiss cheese ?
 (1) *Propionibacterium*
 (2) *Geotrichum*
 (3) *Penicillium*
 (4) *Streptococcus*

BMH008

9. Rate limiting material in biogas production is:
 (1) Methane (2) Cellulose
 (3) Starch (4) Acetic acid

BMH009

10. Which group is not related with petro-plantation?
 (1) Euphorbiaceae (2) Asclepiadaceae
 (3) Apocyanaceae (4) Leguminosae

BMH010

11. What are the advantage of gober gas over conventional utilization :-
 (1) More efficient source of energy
 (2) Used as good fertilizer
 (3) Reduces the chances of spreading of pathogens
 (4) All the above

BMH011

12. Milk is changed into curd by :-

- (1) *Bacillus megatherium*
- (2) *Acetobacter aceti*
- (3) *Xanthomonas citri*
- (4) *Lactobacillus acidophilus*

BMH012

13. *Saccharomyces cerevisiae* is used in the formation of :-

- (1) Ethanol
- (2) Methanol
- (3) Acetic acid
- (4) Antibiotics

BMH013

14. Modern farmers can increase the yield of Paddy upto 50% by the use of :-

- (1) Cyanobacteria
- (2) *Rhizobium*
- (3) Mycorrhiza
- (4) Farm yard manure

BMH014

15. Which one produces gas by decomposing the gobar (Dung) in gobar gas:-

- (1) Fungus
- (2) Virus
- (3) Methanogenic bacteria
- (4) Algae

BMH015

16. Which of the following is used to manufacture ethanol from starch?

- (1) Penicillin
- (2) *Saccharomyces*
- (3) *Azotobacter*
- (4) *Lactobacillus*

BMH016

17. Which of the following is the pair of biofertilizers associated with each other?

- (1) *Azolla* and BGA
- (2) *Nostoc* and legume
- (3) *Rhizobium* and grasses
- (4) *Salmonella* & *E. coli*

BMH017

18. Which bacteria is utilized in Gobar gas plant?

- (1) Methanogens
- (2) Nitrifying bacteria
- (3) Ammonifying bacteria
- (4) Denitrifying bacteria

BMH018

19. During the formation of bread it becomes porous due to release of CO₂ by the action of:-

- (1) Yeast
- (2) Bacteria
- (3) Virus
- (4) Protozoans

BMH019

20. During anaerobic digestion of organic waste, such as in producing biogas, which one of the following is left undegraded?

- (1) Lipids
- (2) Lignin
- (3) Hemi-cellulose
- (4) Cellulose

BMH020

21. The term "antibiotic" was coined by :-

- (1) Edward Jenner
- (2) Louis Pasteur
- (3) Selman Waksman
- (4) Alexander Fleming

BMH021

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

- (1) *Anabaena*
- (2) *Tolypothrix*
- (3) *Chlorella*
- (4) *Rhizobium*

BMH022

23. The technology of biogas production was developed in India mainly due to the efforts of:

- (1) IARI
- (2) KVIC
- (3) Both (1) and (2)
- (4) WHO

BMH023

- | | |
|---|---|
| <p>24. Biogas produced by anaerobic fermentation of waste biomass consists of :-
 (1) methane
 (2) traces of H_2, H_2S and N_2
 (3) CO_2
 (4) all of these
 BMH024</p> <p>25. Which one of the following is used in making of bread ?
 (1) <i>Rhizopus stolonifer</i>
 (2) <i>Saccharomyces cerevisiae</i>
 (3) <i>Zygosaccharomyces</i>
 (4) <i>Saccharomyces ludwigi</i>
 BMH025</p> <p>26. A common biocontrol agent for the control of plant diseases caused by fungi is :-
 (1) <i>Agrobacterium</i>
 (2) <i>Glomus</i>
 (3) <i>Trichoderma</i>
 (4) Baculovirus
 BMH026</p> <p>27. Which one of the following microbes forms symbiotic association with plants and helps them in their nutrition?
 (1) <i>Glomus</i> (2) <i>Trichoderma</i>
 (3) <i>Azotobacter</i> (4) <i>Aspergillus</i>
 BMH027</p> <p>28. Lactic acid bacteria (LAB) grow in milk and convert it to curd and also improve its nutritional quality by increasing :-
 (1) Vitamin A
 (2) Vitamin B_{12}
 (3) Vitamin B_6
 (4) Vitamin C and A
 BMH028</p> | <p>29. The puffed-up appearance of dough is due to:-
 (1) Growth of LAB
 (2) Production of O_2 and ethanol
 (3) Production of CO_2
 (4) Growth of yeast <i>Monascus</i>
 BMH029</p> <p>30. Select the correct match :-
 (1) <i>Aspergillus niger</i> - Acetic acid
 (2) Streptokinase - Immunosuppressive
 (3) Cyclosporin - A - Clot buster
 (4) Statins - Blood Cholesterol lowering agent
 BMH030</p> <p>31. Biogas is the mixture of gases produced by the microbial activity. The type of the gas produced depends upon:-
 (1) type of microbes
 (2) type of organic substrate / waste
 (3) size of digester
 (4) Both (1) and (2)
 BMH031</p> <p>32. Which biocontrol agent is very common in root ecosystem & is effective against several plant pathogens?
 (1) Baculoviruses
 (2) <i>Trichoderma</i>
 (3) Nucleopolyhedro virus
 (4) Ladybird beetle & Dragonflies
 BMH032</p> <p>33. Which of the following bacterium is associated with production of bioinsecticide?
 (1) <i>Bacillus subtilis</i>
 (2) <i>Bacillus thuringiensis</i>
 (3) <i>Agrobacterium</i>
 (4) <i>Azotobacter</i>
 BMH033</p> |
|---|---|

- | | |
|--|--|
| <p>34. Biopesticide include :-
 (1) Only bioinsecticide
 (2) Only bioherbicide
 (3) Bioinsecticide & bioherbicide
 (4) Bioherbicide, bioinsecticide & biofertilisers
 BMH034</p> <p>35. <i>Bacillus thuringiensis</i> is used to control :-
 (1) Moth (2) Flies
 (3) Mosquito (4) All the above
 BMH035</p> <p>36. <i>Trichoderma</i> has proved a useful micro-organism for :-
 (1) Gene transfer in higher plants
 (2) Biological control of soil-borne plant pathogens
 (3) Bioremediation of contaminated soils
 (4) reclamation of wastelands
 BMH036</p> <p>37. Microbial insecticide is :-
 (1) <i>Bacillus polymyxa</i>
 (2) <i>Bacillus brevis</i>
 (3) <i>Bacillus subtilis</i>
 (4) <i>Bacillus thuringiensis</i>
 BMH037</p> <p>38. Ladybird is useful to get rid of:-
 (1) Aphids (2) Mosquitoes
 (3) Boll worm (4) Jassids
 BMH038</p> <p>39. The domestic sewage in large cities: -
 (1) is processed by aerobic and then anaerobic bacteria in the primary treatment in sewage treatment plants
 (2) when treated in sewage treatment plants does not really require the aerobic step as the sewage contains adequate oxygen
 (3) has very high amounts of suspended solids and dissolved salts.
 (4) has a low BOD as it contains both aerobic and anearobic bacteria
 BMH118</p> | <p>40. What is B.O.D.?
 (1) The amount of O₂ utilised by organisms in water
 (2) The amount of O₂ utilized by micro-organisms for decomposition
 (3) The total amount of O₂ present in water
 (4) All of the above
 BMH119</p> <p>41. BOD stands for :-
 (1) Biological organism death
 (2) Biochemical organic matter decay
 (3) Biotic oxidation demand
 (4) Biochemical oxygen demand
 BMH120</p> <p>42. Polluted water can be purified by using :-
 (1) Micro-organisms (2) Algae
 (3) Pesticides (4) Fishes
 BMH121</p> <p>43. When huge amount of sewage is dumped into a river, the BOD will?
 (1) Increase
 (2) Remain unchanged
 (3) Slightly decrease
 (4) Highly decrease
 BMH122</p> <p>44. A lake with an inflow of domestic sewage rich in organic waste may result in :-
 (1) Drying of the lake very soon due to algal bloom
 (2) An increase production of fish due to lot of nutrients
 (3) Death of fish due to lack of oxygen
 (4) Increased population of aquatic food web organisms
 BMH123</p> <p>45. In the treatment of waste water discharge, which treatment stage involves biological treatment :-
 (1) Primary treatment
 (2) Secondary treatment
 (3) Tertiary treatment
 (4) Reverse osmosis stage
 BMH124</p> |
|--|--|

46. The major source of BOD in the river Ganga is
 (1) Leaf litter
 (2) Fishes
 (3) Human waste
 (4) Aquatic plants
BMH125
47. **Assertion (A)** : Currently large number of biofertilizers are available commercially in the market and farmers use these biofertilizers in their field to replenish soil nutrients.
Reason (R) : Use of biofertilizers can reduce dependence on chemical fertilizers and so as environmental pollution.
 (1) Both A and R are true and R is the correct explanation of A
 (2) Both A and R are true but R is NOT the correct explanation of A
 (3) A is true but R is false
 (4) A is false but R is true
BMH097
48. B.O.D. is connected with :-
 (1) Organic matter (2) Microbes
 (3) Both (4) None
BMH126
49. Read the given statements and select the correct option.
Statement A: Ministry of Environment and Forest has initiated Ganga Action Plan.
Statement B: Effluent from secondary treatment cannot be released into water bodies.
 (1) Only A is correct
 (2) Only B is correct
 (3) Both A & B are correct
 (4) Both A & B are incorrect
BMH116
50. **Assertion** : Bottled fruit juice brought from market are clearer as compared to those made at home.
Reason : Bottled juice possess pectinases and proteases.
 (1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
 (2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
 (3) Assertion is True but the Reason is False.
 (4) Both Assertion & Reason are False.
BMH096

EXERCISE-I (Conceptual Questions)

ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	4	3	3	2	3	3	1	1	2	4	4	4	1	1	3
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	2	1	1	1	2	3	1	3	4	2	3	1	2	3	4
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	4	2	2	3	4	2	4	1	3	2	4	1	1	3	2
Question	46	47	48	49	50										
Answer	3	1	3	1	1										

Exercise - II (Previous Year Questions)

AIPMT/NEET

AIPMT 2014

1. What gases are produced in anaerobic sludge digesters :-
 (1) Methane and CO₂ only
 (2) Methane, Hydrogen Sulphide and CO₂
 (3) Methane, Hydrogen Sulphide and O₂
 (4) Hydrogen Sulphide and CO₂

BMH127

AIPMT 2015

2. High value of BOD (Biochemical Oxygen Demand) indicates that :-
 (1) Water is highly polluted
 (2) Water is less polluted
 (3) Consumption of organic matter in the water is higher by the microbes
 (4) Water is pure

BMH128

Re-AIPMT 2015

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

(a) <i>Saccharomyces cerevisiae</i>	(i)	Production of immunosuppressive agents
(b) <i>Monascus purpureus</i>	(ii)	Ripening of Swiss cheese
(c) <i>Trichoderma polysporum</i>	(iii)	Commercial production of ethanol
(d) <i>Propionibacterium sharmanii</i>	(iv)	Production of blood cholesterol lowering agents

- | | (a) | (b) | (c) | (d) |
|-----|-------|-------|------|-------|
| (1) | (iii) | (i) | (iv) | (ii) |
| (2) | (iii) | (iv) | (i) | (ii) |
| (3) | (iv) | (iii) | (ii) | (i) |
| (4) | (iv) | (ii) | (i) | (iii) |

BMH051

NEET-I 2016

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

	Microbe	Product	Application
(1)	<i>Trichoderma polysporum</i>	Cyclosporin A	immunosuppressive drug
(2)	<i>Monascus purpureus</i>	Statins	lowering of blood cholesterol
(3)	<i>Streptococcus</i>	Streptokinase	removal of clot from blood vessel
(4)	<i>Clostridium butylicum</i>	Lipase	removal of oil stains

BMH052

5. The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the :-

- (1) Halophiles
 (2) Thermoacidophiles
 (3) Methanogens
 (4) Eubacteria

BMH053

6. A river with an inflow of domestic sewage rich in organic waste may result in :-

- (1) Drying of the river very soon due to algal bloom.
 (2) Increased population of aquatic food web organisms.
 (3) An increased production of fish due to biodegradable nutrients.
 (4) Death of fish due to lack of oxygen.

BMH129

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

- (1) Petroleum industry
- (2) Sugar industry
- (3) Domestic sewage
- (4) Dairy industry

BMH130

NEET-II 2016

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

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

Codes :

- | | | | | |
|-----|----------|----------|----------|----------|
| | a | b | c | d |
| (1) | i | iv | ii | iii |
| (2) | iii | iv | i | ii |
| (3) | iii | i | ii | iv |
| (4) | iii | i | iv | ii |

BMH054

9. The source of cyclosporin-A is :-

- (1) *Acetobacter aceti*
- (2) *Saccharomyces cerevisiae*
- (3) *Aspergillus niger*
- (4) *Trichoderma polysporum*

BMH055

10. Statins commercially used as blood cholesterol lowering agents are produced by:-

- (1) *Agrobacterium tumefaciens*
- (2) *Trichoderma polysporum*
- (3) *Monascus purpureus*
- (4) *Trichoderma viridae*

BMH056

11. Which of the following is a free-living biocontrol microbial agent for plant pathogen?

- (1) *Mucor*
- (2) *Glomus*
- (3) *Trichoderma*
- (4) *Rhizobium*

BMH057

12. Biological control agent obtained from :-

- (1) *Bacillus thuringiensis*
- (2) *E. coli*
- (3) *Agrobacterium tumefaciens*
- (4) *Meloidogyne incognita*

BMH058

NEET (UG) 2017

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

- (1) *Methanobacterium* : Lactic acid
- (2) *Penicillium notatum* : Acetic acid
- (3) *Saccharomyces cerevisiae* : Ethanol
- (4) *Acetobacter aceti* : Antibiotics

BMH059

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

- (1) Secondary treatment
- (2) Primary treatment
- (3) Sludge treatment
- (4) Tertiary treatment

BMH131

NEET (UG) 2018

15. Conversion of milk to curd improves its nutritional value by increasing the amount of

- | | |
|-----------------------------|---------------|
| (1) Vitamin D | (2) Vitamin A |
| (3) Vitamin B ₁₂ | (4) Vitamin E |

BMH060

NEET (UG) 2019

16. Match the following organisms with the products they produce :-

- | | |
|-------------------------------------|-------------------|
| (a) <i>Lactobacillus</i> | (i) Cheese |
| (b) <i>Saccharomyces cerevisiae</i> | (ii) Curd |
| (c) <i>Aspergillus niger</i> | (iii) Citric Acid |
| (d) <i>Acetobacter aceti</i> | (iv) Bread |
| | (v) Acetic Acid |

Select the **correct** option.

- | | (a) | (b) | (c) | (d) |
|-----|-------|------|-------|-------|
| (1) | (ii) | (iv) | (v) | (iii) |
| (2) | (ii) | (iv) | (iii) | (v) |
| (3) | (iii) | (iv) | (v) | (i) |
| (4) | (ii) | (i) | (iii) | (v) |

BMH061

17. Which of the following can be used as a biocontrol agent in the treatment of plant disease?

- | | |
|------------------------|--------------------------|
| (1) <i>Trichoderma</i> | (2) <i>Chlorella</i> |
| (3) <i>Anabaena</i> | (4) <i>Lactobacillus</i> |

BMH062

18. Which of the following is a commercial blood cholesterol lowering agent?

- | | |
|-------------------|-------------|
| (1) Cyclosporin A | (2) Statin |
| (3) Streptokinase | (4) Lipases |

BMH063

19. Select the **correct** group of biocontrol agents:

- | |
|---|
| (1) <i>Bacillus thuringiensis</i> , Tobacco mosaic virus, Aphids |
| (2) <i>Trichoderma</i> , <i>Baculovirus</i> , <i>Bacillus thuringiensis</i> |
| (3) <i>Oscillatoria</i> , <i>Rhizobium</i> , <i>Trichoderma</i> |
| (4) <i>Nostoc</i> , <i>Azospirillum</i> , <i>Nucleopolyhedrovirus</i> |

BMH064

NEET (UG) 2019 (Odisha)

20. A biocontrol agent to be a part of an integrated pest management should be :-

- (1) Species-specific and symbiotic
- (2) Free living and broad spectrum
- (3) Narrow spectrum and symbiotic
- (4) Species-specific and inactive on non-target organisms

BMH065

21. Which of the following statements about methanogens is not correct ?

- (1) They can be used to produce biogas.
- (2) They are found in the rumen of cattle and their excreta
- (3) They grow aerobically and breakdown cellulose-rich food.
- (4) They produce methane gas.

BMH066

22. Among the following pairs of microbes, which pair has both the microbes that can be used as biofertilizers?

- (1) *Aspergillus* and *Rhizopus*
- (2) *Rhizobium* and *Rhizopus*
- (3) *Cyanobacteria* and *Rhizobium*
- (4) *Aspergillus* and *Cyanobacteria*

BMH067

NEET (UG) 2020

23. Match the following columns and select the correct option:-

Column-I		Column-II	
(a)	<i>Clostridium butylicum</i>	(i)	Cyclosporin-A
(b)	<i>Trichoderma polysporum</i>	(ii)	Butyric Acid
(c)	<i>Monascus purpureus</i>	(iii)	Citric Acid
(d)	<i>Aspergillus niger</i>	(iv)	Blood cholesterol lowering agent

- | | (a) | (b) | (c) | (d) |
|-----|-------|-------|------|-------|
| (1) | (iv) | (iii) | (ii) | (i) |
| (2) | (iii) | (iv) | (ii) | (i) |
| (3) | (ii) | (i) | (iv) | (iii) |
| (4) | (i) | (ii) | (iv) | (iii) |

BMH068

24. Which of the following is put into Anaerobic sludge digester for further sewage treatment?

- (1) Activated sludge
- (2) Primary sludge
- (3) Floating debris
- (4) Effluents of primary treatment

BMH132

NEET (UG) 2020 (COVID-19)

25. For the commercial and industrial production of citric acid, which of the following microbes is used ?

- (1) *Aspergillus niger*
- (2) *Lactobacillus* sp.
- (3) *Saccharomyces cerevisiae*
- (4) *Clostridium butylicum*

BMH069

26. Match the following columns and select the correct option :-

Column-I	Column-II
(a) Dragonflies	(i) Biocontrol agents of several plant pathogens
(b) <i>Bacillus thuringiensis</i>	(ii) Get rid of mosquitoes
(c) <i>Glomus</i>	(iii) Narrow spectrum insecticidal applications
(d) Baculoviruses	(iv) Biocontrol agents of lepidopteran plant pests
	(v) Absorb phosphorus from soil

- (1) (a)-(iii), (b)-(v), (c)-(iv), (d)-(i)
- (2) (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)
- (3) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(v)
- (4) (a)-(ii), (b)-(iv), (c)-(v), (d)-(iii)

BMH070

27. Cyclosporin A, used as immunosuppression agent, is produced from :-

- (1) *Monascus purpureus*
- (2) *Saccharomyces cerevisiae*
- (3) *Penicillium notatum*
- (4) *Trichoderma polysporum*

BMH071

NEET(UG) 2021

28. Match List - I with List - II:-

List-I		List-II	
(a)	<i>Aspergillus niger</i>	(i)	Acetic Acid
(b)	<i>Acetobacter aceti</i>	(ii)	Lactic Acid
(c)	<i>Clostridium butylicum</i>	(iii)	Citric Acid
(d)	<i>Lactobacillus</i>	(iv)	Butyric Acid

Choose the **correct** answer from the options given below.

- | | (a) | (b) | (c) | (d) |
|-----|-------|-------|-------|-------|
| (1) | (iii) | (i) | (iv) | (ii) |
| (2) | (i) | (ii) | (iii) | (iv) |
| (3) | (ii) | (iii) | (i) | (iv) |
| (4) | (iv) | (ii) | (i) | (iii) |

BMH072

NEET (UG) 2022

29. Identify the microorganism which is responsible for the production of an immune suppressive molecule cyclosporin A?

- (1) *Clostridium butylicum*
- (2) *Aspergillus niger*
- (3) *Streptococcus cerevisiae*
- (4) *Trichoderma polysporum*

BMH073

NEET (UG) 2023 (Manipur)

30. What will happen if fresh water lake gets contaminated by addition of polluted water with high BOD ?

- (1) Amount of dissolved oxygen in the lake will decrease
- (2) The lake will remain unaffected
- (3) Number of submerged aquatic plants in the lake will increase
- (4) Number of aquatic animals in the lake will increase

BMH094

31. Select the **correct** statements regarding dissolved Oxygen and Biochemical Oxygen Demand.

- (A) BOD is inversely related to dissolved oxygen.
- (B) Low dissolved oxygen and high BOD lead to loss of aquatic life.
- (C) High BOD leads to high dissolved oxygen.
- (D) Both BOD and dissolved oxygen are indicator of health of a water body.
- (E) Both BOD and dissolved oxygen are affected by amount of organic matter in the water body.

Choose the **most appropriate** answer from the options given below :

- (1) (A), (B), (C), (E) only
- (2) (A), (B), (D), (E) only
- (3) (A), (B), (C), (D) only
- (4) (B), (C), (D), (E) only

BMH095

NEET (UG) 2024

32. Match List-I with List-II.

List-I		List-II	
A.	<i>Clostridium butylicum</i>	I.	Ethanol
B.	<i>Saccharomyces cerevisiae</i>	II.	Streptokinase
C.	<i>Trichoderma polysporum</i>	III.	Butyric acid
D.	<i>Streptococcus</i> sp.	IV.	Cyclosporin-A

Choose the correct answer from the options given below:

- (1) A-III, B-I, C-II, D-IV
- (2) A-II, B-IV, C-III, D-I
- (3) A-III, B-I, C-IV, D-II
- (4) A-IV, B-I, C-III, D-II

BMH103

Re-NEET (UG) 2024

33. The Bt toxin in genetically engineered Bt cotton kills the pest by :

- (1) creating pores in the midgut.
- (2) damaging the respiratory system
- (3) degenerating the nervous system
- (4) altering the pH of body fluids.

BMH104

34. Match List-I with List-II relating to microbes and their products :

List-I (Microbes)		List-II (Products)	
A.	<i>Streptococcus</i>	I.	Citric acid
B.	<i>Trichoderma polysporum</i>	II.	Clot buster
C.	<i>Monascus purpureus</i>	III.	Cyclosporin-A
D.	<i>Aspergillus niger</i>	IV.	Statins

Choose the **correct** answer from the options given below :

- (1) A-II, B-III, C-IV, D-I
- (2) A-I, B-II, C-III, D -IV
- (3) A-I, B-III, C-II, D-IV
- (4) A-I, B-IV, C-II, D-III

BMH105

EXERCISE-II (Previous Year Questions)

ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	2	1	2	4	3	4	1	4	4	3	3	1	3	2	3
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	2	1	2	2	4	3	3	3	1	1	4	4	1	4	1
Question	31	32	33	34											
Answer	2	3	1	1											

Exercise - III

Master Your Understanding

(A) NCERT BASED QUESTIONS

1. Nutritionally curd is more suitable than milk. Which of the following reason does not support this view:-

- (1) It increases vitamin B₁₂
- (2) It checks disease causing microbes
- (3) LAB convert lactose into lactic acid
- (4) It provides additional proteins

BMH074

2. Large holes in "Swiss cheese" are due to production of large amount of CO₂ by bacterium:-

- (1) *Leuconostoc mesenteroides*
- (2) *Propionibacterium sharmanii*
- (3) *Thermococcus proteus*
- (4) *Staphylococcus thermophiles*

BMH075

3. Which of the following is not a product of distillation:-

- (1) Whisky
- (2) Brandy
- (3) Wine
- (4) Rum

BMH076

4. Find out odd one with reference to distillation

- (1) Beer
- (2) Wine
- (3) Both (1) and (2)
- (4) Vodka

BMH077

5. Which of the following bacteria was associated with discovery of penicillin

- (1) *Streptococcus*
- (2) *Staphylococcus*
- (3) *Saccharomyces cerevisiae*
- (4) *Propionibacterium*

BMH078

6. Full potential of penicillin as an effective antibiotic was established by:-

- (1) Alexander Flemming
- (2) Ernest Chain
- (3) Howard Florey
- (4) Both (2) and (3)

BMH079

7. Which of the following is "Clot buster":-

- (1) Citric acid
- (2) Streptokinase
- (3) Cyclosporin
- (4) Statins

BMH080

8. Which of the following chemicals is used as an immunosuppressive agent in organ transplantation:-

- (1) Streptokinase
- (2) Cyclosporin - A
- (3) Statins
- (4) Citric acid

BMH081

9. Match the following :-

- | | |
|------------------|--------------------------------------|
| A. Pectinases | i. Blood cholesterol Lowering agents |
| B. Streptokinase | ii. Immunosuppressive agents |
| C. Cyclosporin-A | iii. Clot-buster |
| D. Statin | iv. Clarifying agents |

- | A | B | C | D |
|---------|-----|-----|----|
| (1) iv | iii | ii | i |
| (2) iv | iii | i | ii |
| (3) iii | iv | ii | i |
| (4) i | ii | iii | iv |

BMH082

10. Match the following:-

- | | |
|------------------|-----------------------------------|
| A. Citric acid | i. <i>Streptococcus</i> |
| B. Streptokinase | ii. <i>Aspergillus niger</i> |
| C. Cyclosporin-A | iii. <i>Monascus purpureus</i> |
| D. Statins | iv. <i>Trichoderma polysporum</i> |

- | A | B | C | D |
|--------|----|-----|-----|
| (1) i | ii | iii | iv |
| (2) ii | i | iii | iv |
| (3) ii | i | iv | iii |
| (4) iv | ii | iii | i |

BMH083

(B) ANALYTICAL QUESTIONS

11. Functioning of statin is based on:-

- (1) Competitive inhibition
- (2) End product inhibition
- (3) Allosteric inhibition
- (4) Negative feedback inhibition

BMH084

12. The technology of biogas production was developed in India mainly due to efforts of :-

- (1) IARI
- (2) KVIC
- (3) IPM
- (4) Both (1) and (2)

BMH085

13. *Bacillus thuringiensis* show their inhibitory effect on which part of the insect body:-

- (1) Gut
- (2) Respiratory tract
- (3) Nervous system
- (4) Circulatory system

BMH086

14. Which of the following biological agents are used for species specific, narrow spectrum insecticidal applications:-

- (1) Adenoviruses
- (2) *Nucleopolyhedro* viruses
- (3) Retroviruses
- (4) *Trichoderma*

BMH087

15. Which of the following is one of the advantages of application of viruses as bioinsecticides?

- (1) They are less effective
- (2) They are host specific
- (3) They are costly
- (4) They cannot be obtained easily

BMH088

16. In which of the following conditions use of baculoviruses is desirable?

- (1) When they are used as part of IPM
- (2) When an ecologically sensitive area is being treated
- (3) When beneficial insects are being conserved
- (4) All of the above

BMH089

17. Use of biofertilizer is the part of:-

- (1) Inorganic farming
- (2) Organic farming
- (3) Energy cropping
- (4) Energy plantation

BMH090

18. Members of which of the following fungal genus mainly participate in the mycorrhiza formation?

- (1) *Azotobacter*
- (2) *Fusarium*
- (3) *Rhizopus*
- (4) *Glomus*

BMH091

19. Which of the following is not an advantage of mycorrhiza?

- (1) Phosphorus absorption
- (2) Resistance to root borne pathogens
- (3) Nitrogen fixation
- (4) Tolerance to salinity and drought

BMH092

20. Cultivation of which of the following crop plant specially get benefitted by application of cyanobacteria?

- (1) Maize
- (2) Legumes
- (3) Wheat
- (4) Rice

BMH093

21. Which one of the following is being tried in India as a biofuel substitute for fossil fuels ?

(1) *Jatropha* (2) *Musa*
(3) *Aegilops* (4) *Azadirachta*

BMH039

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

(1) *Aspergillus niger* - citric acid
(2) Yeast - Statins
(3) *Acetobacter aceti* - acetic acid
(4) *Clostridium butylicum* - lactic acid

BMH040

23. Read the following statement having two blanks (A and B) :

"A drug used for ____ (A) ____ patients is obtained from a species of the organism ____ (B) ____."

The one correct option for the two blanks is:-

Blank - A

Blank - B

(1) AIDS *Pseudomonas*
(2) Heart *Penicillium*
(3) Organ-transplant *Trichoderma*
(4) Swine flu *Monascus*

BMH041

24. Yeast is used in the production of :-

(1) Bread and beer
(2) Cheese and butter
(3) Citric acid and lactic acid
(4) Lipase and pectinase

BMH042

25. A patient brought to a hospital with myocardial infarction is normally immediately given :-

(1) Cyclosporin-A (2) Statins
(3) Penicillin (4) Streptokinase

BMH043

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

(1) Bt-Cotton to increase cotton yield
(2) Lady bird beetle against aphids in mustard
(3) *Trichoderma sp.* against certain plant pathogens.
(4) *Nucleopolyhedrovirus* against white rust in *Brassica*

BMH044

27. The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are ones categorised as:-

(1) Chemosynthetic autotrophs
(2) Heterotrophic bacteria
(3) Cyanobacteria
(4) Archaeobacteria

BMH045

28. *Monascus purpureus* is a yeast used commercially in the production of :-

(1) citric acid
(2) blood cholesterol lowering statins
(3) ethanol
(4) streptokinase for removing clots from the blood vessels.

BMH046

29. In gobar gas, the maximum amount is that of:

(1) Propane (2) Carbon dioxide
(3) Butane (4) Methane

BMH047

30. Consider the following four statements (a-d) and select the option which includes all the correct ones only:-

- (a) Single cell *Spirulina* can produce large quantities of food rich in protein, minerals, vitamins etc.
- (b) Body weight-wise the microorganism *Methylophilus methylotrophus* may be able to produce several times more proteins than the cows per day.
- (c) Common button mushrooms are a very rich source of vitamin C.
- (d) A rice variety has been developed which is very rich in calcium.

Options :

- (1) Statements (b), (c) and (d)
- (2) Statements (a), (b)
- (3) Statements (c), (d)
- (4) Statements (a), (c) and (d)

BMH048

31. A good producer of citric acid is :-

- (1) *Saccharomyces* (2) *Aspergillus*
- (3) *Pseudomonas* (4) *Clostridium*

BMH049

32. During sewage treatment, biogases are produced which include :-

- (1) hydrogen sulphide, nitrogen, methane
- (2) methane, hydrogen sulphide, carbon dioxide
- (3) methane, oxygen, hydrogen sulphide
- (4) hydrogen sulphide, methane, sulphur dioxide

BMH050

33. Sewage purification is performed by :-

- (1) Microbes (2) Fertilisers
- (3) Antibiotics (4) Antiseptics

BMH133

34. Biological Oxygen Demand (BOD) is a measure of :-

- (1) Industrial wastes poured into water bodies
- (2) Extent to which water is polluted with organic compounds
- (3) Amount of carbon monoxide inseparably combined with haemoglobin
- (4) Amount of oxygen needed by green plants during night

BMH134

35. **Assertion (A) :** *Trichoderma polysporum* is an important fungus.

Reason (R) : Cyclosporin-A is obtained from this fungus which is used as an immunosuppressive agent in organ transplant.

- (1) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
- (2) Assertion is True but the Reason is False.
- (3) Assertion is False but the Reason is True.
- (4) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

BMH117

36. **Statement-I :** Micro-organisms such as *Lactobacillus* and others commonly called lactic acid bacteria (LAB) grow in milk and convert it to curd.

Statement-II : In our stomach, the LAB play very beneficial role in checking disease causing microbes.

- (1) Both Statement-I and Statement-II are correct.
- (2) Statement-I is correct and Statement-II is incorrect.
- (3) Statement-I is incorrect and Statement-II is correct.
- (4) Both Statement-I and Statement-II are incorrect.

BMH098

37. Statement-I : Methanogens grow aerobically on cellulosic material, produces large amount of methane along with CO_2 and H_2 .

Statement-II : Human beings are not able to digest cellulose.

- (1) Both Statement-I and Statement-II are correct.
- (2) Statement-I is correct and Statement-II is incorrect.
- (3) Statement-I is incorrect and Statement-II is correct.
- (4) Both Statement-I and Statement-II are incorrect.

BMH099

38. Complete the following sentences :-

_____ are chemical substance, which are produced by some microbes and can kill or retard the growth of other microbes.

- (1) Antibiotics
- (2) Fermented Beverages
- (3) Fruit juice
- (4) Enzymes

BMH100

39. Assertion (A) : Currently large number of biofertilizers are available commercially in the market and farmers use these biofertilizers in their field to replenish soil nutrients.

Reason (R) : Use of biofertilizers can reduce dependence on chemical fertilizers and so as environmental pollution.

- (1) Both A and R are true and R is the correct explanation of A
- (2) Both A and R are true but R is NOT the correct explanation of A
- (3) A is true but R is false
- (4) A is false but R is true

BMH101

40. Find the **wrongly** matched pair.

- (1) Roquefort cheese – Ripened by a fungus
- (2) Swiss cheese – Has large holes that are produced by a fungus
- (3) Penicillin – Obtained from a mould
- (4) Ethanol – Produced by yeast

BMH102

EXERCISE - III

ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	4	2	3	4	2	4	2	2	1	3	1	4	1	2	2
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	4	2	4	3	4	1	4	3	1	4	3	2	2	4	2
Question	31	32	33	34	35	36	37	38	39	40					
Answer	2	2	1	2	4	1	3	1	1	2					