Mentor Guru

Class 12 – Biology

Chapter 8 – Microbes in Human Welfare

Very Short Types Question with Answer

Q.1. Why are there big holes in 'Swiss cheese'?

A.1. It is because of the bacterium named *Propionibacterium shermanii* that releases large amounts of carbon dioxide.

Q.2. What is a fermentor?

A.2. To cater to large scale production of biotechnological products such as beverages and antibiotics in industries, microbes are grown in large vessels known as bioreactors or fermentors.

Q.3. Give an example of a microbe that is used in statin production. How do they lower blood cholesterol level?

A.3. Statins are produced by yeasts named Monascuspurpureus and are bioactive molecules. They have been commercialized as agents that aid in lowering the blood cholesterol levels. It competitively inhibits the action of the enzymes that synthesize cholesterol.

Q.4. Why is secondary wastewater treatment referred to as biological approach?

A.4. It is because microbes are involved in the breakdown of organic matter in this stage of wastewater management. Primary effluents are passed into aeration tanks where organic matter contained in it is absorbed by aerobic microbes which are later digested by anaerobic fungi and bacteria in sludge digesters.

Q.5. State the use of Nuclear Polyhedrosis Virus.

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A.5. They are excellent candidates for narrow-spectrum, species-specific insecticidal applications which have shown to have no negative impact on mammals, plants, birds, fish or even non-target insects that is desirable when beneficial insects are being conserved to promote the Integrated Pest Management (IPM) programme.

Q.6. What is the significance of antibiotics in medicine?

A.6. They are chemical substances, produced by a few microbes that have the potential to kill or retard the growth of disease-causing microbes. They have greatly enhanced human capacity to treat deadly diseases such as plague, diphtheria, leprosy, whooping cough etc.

Q.7. Why do we distil to produce a few alcoholic drinks?

A.7. It is because distillation raises the alcohol content in a few alcoholic drinks.

Q.8. Name the common trait shared between *Clostridium butylicum, Lactobacillus* and *Aspergillus niger*.

A.8. As part of their metabolic activities, they produce organic acids which can be used for their industrial and commercial production. *Clostridium butylicum* – butyric acid, *Lactobacillus*-lactic acid and *Aspergillus niger* – citric acid.

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Q.9. What if human intestine nourished microbial flora correctly equivalent to the one found in the rumen of cattle?

A.9. We would be able to digest cellulose in our food as microbes(methanogens) present in the cattle's rumen can digest cellulose since they contain the enzyme cellulase.

Q.10. Name two microbes beneficial in biotechnology.

A.10. *Escherichia coli* and *Bacillus thuringiensis*

Q.11. Name the organism responsible for Eco RI, restriction endonuclease?

A.11. *Escherichia coli* strain RY 13

Q.12. List any crop that is genetically modified.

A.12. Bt cotton developed by inserting a gene from *Bacillus thuringiensis* is genetically modified to resist attack from insect pests.

Q.13. Why are blue-green algae not as popular as biofertilizers?

A.13. It is due to several environmental constraints such as infrastructural, technological, financial, quality marketing, unawareness etc.

Q.14. Roquefort cheese is obtained from which of the species of Penicillin?

A.14. Fungi *Penicillium roqueforti*

Q.15. Which states are involved in the Ganga action plan?

A.15. Jharkhand, UP, Bihar, West Bengal.

Q.16. List two industrially significant enzymes.

A.16.

(i) Proteases and pectinases are used in making commercial fruit and vegetable juices are clarifying agents

(ii) They are helpful in removing oily stains from the laundry as upases are used in detergent formulations.

Q.17. List an immune immunosupressive agent.

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A.17. The fungus Trichodermapolysporum produces Cyclosporin-A which is used as an immunosuppressive agent in organ transplant patients.

Q.18. Name a rod-shaped virus.

A.18. Tobacco mosaic virus

Q.19. Name the class of bacteria found both in the sludge of sewage treatment and in the rumen of cattle.

A.19. Methanogens (Methanobacterium)