QB365 Question Bank Software Study Materials

Zoology - Microbes in Human Welfare Important 2 Marks Questions With Answers (Book Back and Creative)

12th Standard

Biology

Total Marks : 40

2 Marks

20 x 2 = 40

1) Give any two bioactive molecules produced by microbes and state their uses.

Answer : Enzymes - Produced from Yeast (Saccharomyces cerevisiae) and bacteria

(i) Eg: pectinase, protease and cellulase - Bottled juices are clarified.

(ii) Rennet - separate milk into solid curds for cheese making.

(iii) Streptokinase (from Streptococcus) - Clot busier - (removing clots from the blood vessels of patients who have undergone myocardial infarction patients).

Cycloporin 'A' - Immuno suppressant used in organ transplantation (produced from the fungus Trichoderma Polysporum).

2) List the advantages of biogas plants in rural areas.

Answer : (i) Biogas is a mixture of different gases produced by the breakdown of organic matter in the absence of oxygen.

(ii) The slurry is drained through another outlet and is used as fertilizer.

(iii) Biogas is used for cooking and lighting.

3) Define the following terms:

a) Antibiotics

b) Zymology

c) Superbug

Answer : a) Antibiotics

An antibiotic is a type of antimicrobial substance active against bacteria. It is the most important type of antibacterial agent for fighting bacterial infections, and antibiotic medications are widely used in the treatment and prevention of such infections. They may either kill or inhibit the growth of bacteria.

b) Zymology

Zymology, also known as zymurgy is an applied science which studies the biochemical process of fermentation and its practical uses. Common topics include the selection of fermenting yeast and bacteria species and their use in brewing, wine making, fermenting milk, and the making of other fermented foods.

c) Superbug

Superbugs are strains of bacteria, viruses, parasites and fungi that are resistant to most of the antibiotics and other medications commonly used to treat the infections they cause. A few examples of superbugs include resistant bacteria that can cause pneumonia, urinary tract infections and skin infections.

4) What is biological oxygen demand?

Answer : BOD stands for Biological Oxygen Demand. BOD refers to the amount of oxygen that would be consumed if all the organic matter in one liter of water were oxidized by bacteria. The greater the BOD of the waste water, the more is its polluting potential.

5) What are probiotics? Give examples.

Answer : Probiotics are live microorganisms intended to provide health benefits when consumed, generally by improving or restoring the gut flora Lactic acid bacteria in milk.

6) What are prebiotics?

Answer : Prebiotics are compounds in food (fibers) that induce the growth or activity of beneficial microorganisms.

7) What is zymology?

Answer : **Zymologys** an applied science which deals with the biochemical process of fermentation and its practical uses.

8) Write the equation for fermentation of glucose

Answer : $\underset{(Glucose)}{C_6H_{12}O_6} \xrightarrow[Fermentation]{Yeast} 2C_2H_5 + 2CO_2 \uparrow$

9) What are biopesticides?

Answer : The use of a microbes or other biological agents to control a specific pest is called a biopesticide. Biopesticides are used to control insect pests. The lady bird beetle and dragonflies are useful to control aphids and mosquito larvae respectively.

10) Give reason. (a) Flavour in Yogurt
(b) Large holes in Swiss Cheese

Answer : (a) The flavor in yogurt is due to acetaldehyde formation.
(b) Large holes in Swiss Cheese is due to more CO_2 production by Propionibacterium shermanii

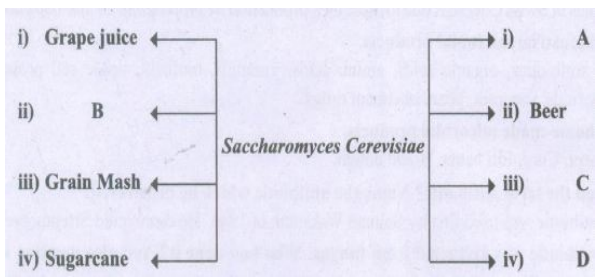
11) Name few home-made microbial products.

Answer : Yogurt, Paneer, Curd, Idli batter, Bread dough

12) Compare Broad spectrum antibiotics with narrow-spectrum antibiotics

Answer : Broad-spectrum antibiotics act against a wide range of disease-causing bacteria.
Narrow-spectrum antibiotics are active against a selected group of bacterial types.

13) Saccharomyces Cerevisiae is a widely used fungus in making beverages. Considering this complete the table by mentioning the raw material and respective product.



Answer : A - Wine,
B - Germinated barley,
C - Whisky,
D - Rum

14) Pseudomonas putida and pollution abatement - comment.

Answer : Pseudomonas putida is a genetically engineered, multi plasmid hydrocarbon-degrading bacterium. These bacteria can digest the hydrocarbons in the oil spills helps to over come water pollution.

15) Oxygen inhibits the fermentation process. Why?

Answer : Fermentation is a biological process which converts sugars into carbon dioxide and ethanol. Higher concentration of oxygen inhibits ethanol production so there is inhibition of fermentation (anerobic process).

16) Do you think microbes can also be used as a source of energy? If yes how?

Answer : (i) Yes, microbes can be used to produce energy.
(ii) The biogas production involves methanogens like Methanobacterium which produces methane.

17) What is today?

Answer : Toddy is a traditional drink made by fermenting sap from palms.

18) Why are molecules called bioactive molecules? Give two examples of such molecules.

Answer : (i) Certain molecules produced by living organisms perform certain functions in the body of other organisms and modify the metabolism. Hence they are called bioactive molecules.
(ii) Stains, cycloporin A and streptokinase are bioactive molecules.

19) Name the source of cycloporin A. How does this bioactive molecule function in our body?

Answer : (i) Trichoderma polysporum is the source of cyclosporin A.

(ii) Cyclosporin A is used an immune suppressive agent in the patients who need organ transplantation.

20) Which is referred to as industrial alcohol? why?

Answer : (i) Ethanol is referred to as industrial alcohol.

(ii) It is used for industrial, laboratory and fuel purposes.

(iii) The principal substrates for the commercial production of industrial alcohol include molasses or corn, potatoes and wood wastes.

(iv) Saccharomyces cerevisiae is the major producer of ethanol (C_2H_5OH).

(v) The process of ethanol production starts by milling a feed stock followed by the addition of dilute or fungal amylase (enzyme) from Aspergillus to break down the starch into fermentable sugars.

(iv) Yeast is then added to convert the sugars into ethanol which is then distilled off to obtain ethanol which is upto 96 percent in concentration.