

Topic :- Microbes In Human Welfare

- 1 **(a)**
In the process of making curd, bacteria convert milk into curd and milk protein into predigest milk protein. These bacteria then inside the growth of hostile (illness causing) bacteria inside the intestinal tract and promote beneficial bacteria needed for digestion
- 2 **(a)**
Advantage of using organic farming are, it promotes the use of crop rotation and cover crops, encourages balanced host/predator relationships, helps in soil conservation, minimize soil degradation and erosion and decrease pollution. Integrated pest and weed management and soil conservation systems are valuable tools on an organic farm
- 3 **(b)**
Saccharomyces cerevisiae is used for commercial production of ethanol. *S. cerevisiae* is a single celled eukaryotic budding yeast belonging to the Ascomycetes (a highly diverse group of fungi)
- 4 **(a)**
In the sewage treatment when Biochemical Oxygen Demand (BOD) of sewage has reduced, the effluent is passed into settling tank. Here, the bacterial flocs settle and the sediment is called activated sludge
- 5 **(a)**
Genetic diversity in agricultural crops is threatened by introduction of high yielding varieties.
- 6 **(a)**
Carbid beetles, an insect group containing ground and tiger beetles, are important biological agents

in agroecosystems. Carbid beetles play a major role in agroecosystems by contributing to the mortality of weed seeds, insects and slugs.

- 7 **(c)**
Primary or physical treatment of sewage is the physical removal of large and small particle from sewage. First, the floating debris is removed by sequential filtration by passing through wire mesh screens. Then, the grit (soil and small pebbles) are removed by sedimentation in settling tank. The sediment is called primary sludge and the supernatant is the effluent
- 8 **(a)**
Now-a-days, *Taxus*, a gymnosperm, is used as source of a recently discovered anti-cancer drug. It produces taxol, which is used against breast cancer.
- 9 **(b)**
Triticum aestivum is hexaploid with $2n = 42$.
- 10 **(c)**
In this case, the ploidy number of cross breeding plant will be 14.
- 11 **(d)**
Biochemical Oxygen Demand (BOD) measures the amount of organic matter in water by measuring the rate of oxygen uptake by microbes
- 12 **(d)**
Secondary treatment of the liquid effluent from the primary settling tank is purely a biological treatment involving microbial activity
- 13 **(b)**
Biogas is methane rich fuel gas produced through anaerobic breakdown and fermentation of biomass. It contains 50-70% CH_4 , 30-40% CO_2 and trace of H_2 , H_2S and N_2 . Whereas producer gas mainly contains CO , H_2 , and N_2 .
- 14 **(b)**
Bacillus thuringiensis (*Bt*) is a Gram positive, soil-dwelling bacterium, commonly used as a biological alternative to a pesticide, alternatively, the cry toxin may be extracted and used as a pesticide.
- 15 **(c)**

Hybrid vigour or heterosis is a phenomenon where the F_1 generation of a cross between inbred lines is superior to the parental lines. The farmers need to purchase fresh hybrid seeds every year because hybrid vigour is not long standing due to inbreeding depression.

16 **(c)**

The residue left after methane production from cattle dung is used as fertilizer

17 **(c)**

Opium is the dried latex obtained from unripe capsules of *Papaver somniferum* (poppy). Morphine, codeine are the alkaloids formed from the dried latex and have the pain relieving property.

18 **(d)**

Yeast (*Saccharomyces cerevisiae*) is used for commercial production of ethanol.

19 **(d)**

The bacteria *Bacillus thuringiensis* a wide range of insects such as (*Bt*) are used to controls butterfly caterpillars, ants, moths, etc. Some strains of this bacteria can kill animal and plant parasitic nematodes, snails, protozoans and even cockroaches

20 **(d)**

Baculovirus heliothis (a group of virus) are known to infect the larval stages of many harmful insects beetles, wasps and ants. A number of baculovirus, which are used as biopesticides belongs to the genus *Nucleopolyhedro virus* These biological weapons are not only effective as potential biological control of harmful insects, but are also harmless to non-target organisms insects (plants, birds, mammals, non-targets insects etc). They are important in organic farming because of their specific action on harmful insects without causing any damage to beneficial insects as well as to the environment. Baculoviruses are helpful in Integrated Pest Management (IPM) Programme, in which beneficial insects are conserved

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	A	A	B	A	A	A	C	A	B	C
Q.	11	12	13	14	15	16	17	18	19	20
A.	D	D	B	B	C	C	C	D	D	D

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