

Topic :- Microbes In Human Welfare

- 1 **(a)**
Green revolution is the rapid increase in agricultural production (especially wheat and rice) during 1960-1970. In march 1963, **Dr. N E Borlaug** visited India on the invitation of **Dr. B P Pal** (Director of IARI) and sent a wide range of material in September 1963. Father of green revolution in India is **M S Swaminathan. N Borlaug** is known as father of green revolution in the world.
- 2 **(d)**
Biopesticides are pesticides of biological origin, which may be of various types depending upon the types of pests killed or controlled by them, e.g., algicides, fungicides bacteriocides, herbicides or weedicides, insecticides, nematocides and rodenticides, etc. These were initially employed to protect crop plants against pests but they are non equally important for destroying or controlling vectors for various animals and human pathogens, thus, can be used for controlling various diseases also.
- 3 **(c)**
Primary treatment is the physical removal of large and small particals from sewage.
Secondary treatment of the liquid effluent from the primary settling-tank is purely a biological treatment involving microbial activity.
In the anaerobic sludge digesters, heterotrophic microbes anaerobically digest bacteria and fungi in sludge producing mixture of gases such as methane, hydrogen sulphide and CO₂, which form the biogas
- 4 **(c)**

Hybridization is defined as the crossing of two varieties or species with desirable characters and bringing together these characters in their progeny.

- 5 **(d)**
Azadirachtin, melianthol and salanin obtained from *Azadirachta indica* (neem) are insect repellent as well as antifeedant. It is perhaps the first natural insecticide used by man. Its fruits are used as biofertilizer.
- 6 **(d)**
Nitrogen-fixing bacteria, microorganisms capable of transforming atmospheric nitrogen into fixed nitrogen, inorganic compounds usable by plants.
Two kinds of nitrogen fixers are recognized
(i) Free-living (non-symbiotic) bacteria, including the cyanobacteria (blue-green algae) *Anabaena* and *Nostoc* and such genera as *Azotobacter*, *Azospirillum* and *Clostridium*
(ii) Mutualistic (symbiotic) bacteria such as *Rhizobium*, associated with leguminous plants, and *Spirillum lipoferum*, associated with cereal grasses
Pseudomonas is a common bacterium that can cause disease in animals, including humans
- 7 **(a)**
There are an estimated 2,00,000 varieties of rice in India alone. The diversity of rice in India is one of the richest in the world. Basmati rice has 27 documented varieties grown in India.
- 8 **(d)**
Cloves are dried, highly aromatic, unexpanded, flower buds of *Eugenia caryophyllus*, family-Myrtaceae.
- 9 **(d)**
Agent orange and super orange were used from 1961 to 1971. They released dioxins, which have caused harm to the health of those exposed during the Vietnam war. Agent blue and white were part of the same programme but did not contain dioxins.
- 11 **(b)**
Pollution from human excreta and organic wastes

from kitchen can be most profitably minimised by using them for producing biogas. These wastes release methane and other gases as a result of action of anaerobic microorganisms. Biogas contains methane in bulk and other gases like CO₂, H₂, N₂, and O₂.

- 12 **(b)**
Cotton is the seed surface fibre of *Gossypium*. Its processing involves ginning, bailing, picking, lapping, carding and twisting. It is used in textile industry.
- 13 **(b)**
Methanogens.
Biogas is a methane rich fuel gas produced by anaerobic breakdown or digestion of biomass with the help of methanogenic bacteria. Biogas is made up of methane, carbon dioxide with traces of hydrogen
- 14 **(d)**
Methane, CO₂ Hydrogen.
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- 15 **(a)**
Azadirachtin obtained from neem plant is used as insect repellent.
- 16 **(a)**
Triticale is the first man-made cereal crop. It has been obtained by crossing wheat (*Triticum* sp) with rye (*Secale cereale*).
- 17 **(a)**
Petroplants are the plants, which can yield large amount of latex having long chained liquid hydrocarbons. e.g., *Jatropha*, *Euphorbia* (family-Euphorbiaceae) and other members of family-Euphorbiaceae, Asclepiadaceae and Apocyanaceae.
- 18 **(c)**
Mycorrhiza shows the following benefits
(i) resistance to root borne pathogens
(ii) tolerance to salinity and drought

(iii) overall increase in plant growth and development

19 **(a)**

Aseel is an indigenous breed. Aseel is one of the best table bird but it cannot be raised on commercial purpose because of its poor growth and low fertility. The original Aseel is a medium sized aggressive bird commonly known as the Reza or the Tikra. Pure specimens of this breed are now rare and are available with some fanciers in parts of AP, Karnataka and UP.

20 **(a)**

Microbes are used to synthesise a number of products valuable to human beings. Beverages, antibiotics, bioactive molecules and enzymes are some example

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