

**Topic :- Microbes In Human Welfare**

- 1 **(d)**  
All of these.  
*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 *Nucleopolyhedrovirus*. 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.
- 2 **(b)**  
*Atropa belladonna* (Solanaceae) is the source of drug atropine. Atropine is an alkaloid obtained from leaves and is used in eye testing by dilating pupil of eye.
- 3 **(a)**  
In terminator gene technology, the plants are introduced a gene, called terminator gene, which causes failure of seed setting after one generation. It will give the seed producer a monopoly over a particular variety.
- 4 **(c)**  
In this case, more number of genes for high yielding milk are inherited from both the parents.
- 5 **(b)**  
CFCL is situated at Faridabad (Haryana).

- 6 **(b)**  
The chemical, which kills or inhibits the growth of insects is called **insecticide**. These chemicals control insects by acting upon the respiratory system or nervous system.
- 8 **(b)**  
Cyanobacteria or blue-green algae is the most suitable source of biofertiliser, particularly in rice fields, *e.g.*, *Nostoc*, *Anabaena*  
*Rhizobium* is a symbiotic bacterium that lives in the root nodules of legumes and fixes atmospheric nitrogen into organic compound  
*Azospirillum* and *Azotobacter* are free-living bacteria which absorb free nitrogen from soil, air and convert it into salts of nitrogen like amino acids and enrich soil nutrients
- 9 **(b)**  
Supari is obtained from the plant *Areca catechu*.
- 10 **(d)**  
The bacterium *Xanthomonas campestris* is the causative agent of plant disease, black rot of cabbage.  
*Bacillus thuringiensis*, *T. harzianum* and NPV are biopesticides.
- 11 **(d)**  
*Agrobacterium* is a Gram negative bacterium that cause tumours in plants. It is well known for its ability to transfer DNA between itself and plants, and for this reason it has become an important tool for genetic engineering. *A. tumefaciens* causes crown-gall disease in plants. It has Ti-plasmid.
- 12 **(d)**  
Streptokinase is used as clot-buster for removing clots from blood vessels of patients who have undergone myocardial infarction
- 13 **(a)**  
Endogenic species live in deep soil up to 10-30 cm and feed on humic matters and mineral matters, *e.g.*, *Octochaetona serrata*.  
*Lampito mauriti* is epigenic variety.
- 14 **(a)**  
Biogas production involves three steps-(a)

- breakdown of polymers (b) conversion of monomers into organic acids by fermentation microbes (c) generation of methane by methanogenic bacteria (conversion of organic acids into CH<sub>4</sub> and CO<sub>2</sub>).
- 15 **(a)**  
Plant species that are efficient users of solar energy for converting CO<sub>2</sub> into biomass, which can be used as a source of energy are called energy crops, e.g., plant species, which can produce bioethanol, biodiesel, biogas, etc.
- 16 **(b)**  
The centre of flocs will become anoxic, which would cause death. Without oxygen the microbes cannot survive  
There are certain bacteria that live in anoxic conditions, example *Clostridium tetani*
- 17 **(a)**  
Asafoetida (Heeng) is obtained from the secretion of roots or rhizomes of *Ferula asafoetida* (family-Umbelliferae). It is a resin plant.
- 18 **(c)**  
Green manuring is a farming practice where a leguminous plant which has derived enough benefits from its association with appropriate species of *Rhizobium* is ploughed into the soil and then non-legume is grown and allowed to take benefits of already fixed nitrogen.  
Some common green manuring crops are *Sesbania aculeate*, *Cyamopsis*, *Tetragonoloba*, *Crotalaria Juncea*, *Vigira sinensis*, *Lens esculenta*, *Macrotyloma uniflorum*, etc.
- 19 **(a)**  
When we inoculate *Rhizobium* in wheat field there is no increase in production and the nitrogen content of soils remains same because *Rhizobium* is a symbiotic bacterium that lives in root nodules of legumes and fixes atmospheric nitrogen into organic compounds
- 20 **(c)**  
Useful aerobic microbes grow rapidly and form flocs. Flocs are masses of bacteria associated with fungal filaments to form a mesh-like structure. The

growing microbes consume organic matter and thus reduce the Biochemical Oxygen Demand (BOD)

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

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