QPC: RJ19BSCAG065 AR - 18 Reg. No

GIET UNIVERSITY, GUNUPUR – 765022

B. Sc (AG) (Fifth Semester) Examinations, December – 2020

EC-351 – BIO-PESTICIDES AND BIOFERTILIZERS

Time: 2 hrs Maximum: 50 Marks

The figures in the right hand margin indicate marks

Q. 1. Fill in the blanks with suitable word / figure [0.5 x 10= 5 Marks]

a. *Neoaplectana* pathogen belongs to the group……..

b. Nematode affect the insect is……

c. The toxin produced by*Aspergillus*fungi is…….

d. *B. thuringiensis* was first isolated in 1902 from diseased larvae of ……

e. *Bacillus thuringienis*var*krustaki* effective against the insect order……

f. Microbes used for phosphate solublization is……..

g. The symbiotic association between plant roots and fungi is…….

h. ……..is a phosphate solubilizing bacteria.

i. Nitrosomonous bacteria convert ammonia to…….

j. Green muscardine is caused by…….

Q. 2. Define or explain the following in one or two sentences (any five) [1.0 x 5 = 5 Marks]

a. Pathogenecity

b. Bio-pesticide

c. Antibiosis

d. Azospirillum

e. BGA

f. Virulance

Q. 3. Choose the most appropriate answers from the following [0.5 x 10 = 5 Marks]

a. Wipfelkrankheit disease is caused by
(i). BT (ii). NPV (iii). Nematode (iv). fungi

b. *Verticilliumlecani* is
(i). White halo (ii). White muscardine (iii). Green muscardine (iv). None

c. Pyrethrum is obtained from
(i). Chrysanthemum (ii). Solanum (iii).Carnatium (iv). Marigold

d. Endotoxin Bt against Diptera
(i). BtKurstaki (ii). BtAizawai (iii). *Btisraliensis* (iv).Bt*tenebrionis*

e. One L.E for *H. armigera* is
(i). 1x 10^7PIB (ii). 3x 10^8PIB (iii). 1x 10^9PIB (iv). 6 x 10^9 PIB

f. Recommended dose of NPV/ha is
(i). 100-200 LE (ii). 250-500 LE (iii). 500-600 LE (iv). 50- 100 LE

g. Soil microbial population can be highest with the use of
(i). FYM (ii). Compost (iii). NPK (iv). Biofertilizer

h. Example of VAM fungi
(i). Glomus (ii). Sclerotia (iii).Trichoderma (iv). None

j. Dinitrifying bacteria is
(i). Bacillus (ii). Pseudomonas (iii). Azotobacter (iv). Both a and b

k. BGA can accumulate ……. kg N/ha/year
(i). 10-15 (ii). 25-30 (iii). 20-30 (iv). 15-20

Q. 4. Write True or False against each statement (0.5 x 10 = 5 Marks)

a) Green commandos is *Steinernema.*
b) Host crop of BGA is wheat and rice.
c) *Chrysanthemum cinerarifolium* is a source of azadirachtin.
d) Cyanobacteria can fix nitrogen and they are free living.
e) NPV is used for control of tomato fruit borer is 250 LE/ha.
f) Aspergillus is a phosphate solublizing fungi.
g) Insecticide used for mosquito killing is allethrin.
h) Milky disease in white grub is caused by *Neoaplectanacarpocapsae.*
i) In neem, the insecticidal property is chiefly in the bioactive principle called citronella.
j) The dose of B.t product is 0.5-1.0Kg/ha.
k) Mycorrhizae population found in plant leaf.

Attempt ANY FIVE questions. All question carries equal marks (6 x 5= 30 Marks)

5. Write in brief the methods of application of *Trichoderma* and its field application with suitable examples.
6. What is nitrogen fixation? Describe how the plants can fix the atmospheric nitrogen.
7. Write down the mode of action of *Bacillus thuringiensis* on insects and symptoms of infection.
8. Discuss present status of microbial insecticides in IPM and why it is not popular with farmers.
9. Write the role of neem pesticide in pest management. Write the merits and demerits of botanicals in insect pest management.
10. Discuss the methods of application of biofertilizers in field.Write the merits and demerits of bio-fertilizers over chemical fertilizers.

--- End of Paper ---