SLR-MP – 3

Seat No.	

M.Sc. (Part – I) (Semester – I) (New CBCS) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT
Introductory and Industrial Entomology (Paper – III)

Day and Date : Saturday, 2-4-2016 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

Instructions *: 1)* ***All*** *Sections are* ***compulsory****.*
2) ***All*** *questions carry* ***equal*** *marks.*
3) Solve ***any two*** *questions from Section –* ***II****.*
4) Solve ***any two*** *questions from Section –* ***III****.*

SECTION – I

1. Choose the correct answer from options given below : **14**

1) The head of an insect is made up of _____ fused segments.
a) 4 b) 6 c) 3 d) 2

2) Mouth parts of white grub are of _____ type.
a) Chewing b) Siphoning c) Sponging d) None of the above

3) The fringed wings is the characteristic of _____ insect.
a) Thrips b) Aphids c) Moth d) All of the above

4) Circulatory system occurs in insect is of _____ type.
a) Closed b) Open
c) Both a) and b) d) None of the above

5) _____ is the excretory organ insect body.
a) Heart b) Brain
c) Malpighian tubules d) Both a) and c)

6) _____ is the polyphagous pest.
a) Monkey b) Polu beetle
c) Both a) and b) d) Grasshopper

7) _____ is called as Indian bee.
   a) *Apis dorsata* b) *Apis floraea* c) *Apis mellifera* d) *Apis indica*

8) Bristle like antennae occurs in _____ insect.
   a) Termite b) Grasshopper
   c) Cricket d) None of the above

9) *Holotrochia consagunia* is the scientific name of
   a) White grub b) Dung beetle
   c) Rhinoceros beetle d) None of the above

10) _____ types of legs found in Praying mantis.
   a) Fossorial b) Raptorial
   c) Saltotorial d) None of the above

11) Mollascicides used for the control of
   a) Nematode b) Vertebrate
   c) Snail and sludge d) Insect

12) _____ is the scientific name of mulberry plant.
   a) *Moras alba* b) *Azadiracta indica*
   c) *Cajanus cajan* d) None

13) Hindgut insect is called as
   a) Proctodum b) Mesenteron c) Stomodeum d) None

14) At the time of molting insect body secretes _____ hormone.
   a) Glucagon b) Insulin c) Ecdysone d) None

SECTION – II

2. A) Describe the structure and function of male reproductive system in insect with the help of neat labelled diagram. **7**

   B) What is apiculture ? Describe various components of apiculture. **7**

3. A) Describe the grasshopper. **7**

   B) Enlist the different types of honey bees and explain *Apis Indica*. **7**

4. A) Describe the life cycle pattern of red hairy caterpillar. **7**

   B) Enlist the different types of mouth parts observed in insect and explain the structure of mouth parts of cockroach. **7**

SECTION – III

5. A) Describe the control measures of aphid. **5**
   B) Insect antennae. **5**
   C) Slug. **4**

6. A) Explain the parasites and predators. **5**
   B) Diseases of honey bee and their management. **5**
   C) Thorax of an insect. **4**

7. A) Importance of sericulture. **5**
   B) Wings of insects. **5**
   C) Control measures on rat. **4**

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SLR-MP – 5

Seat No.	

M.Sc. (Part – I) (Semester – I) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT (Old CGPA)
(Paper – I) Chemistry of Pesticides and their Formulations – I

Day and Date : Tuesday, 29-3-2016 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1) **All** Sections are **compulsory**.*
*2) **All** questions carry **equal** marks.*
*3) Attempt **any two** questions from Section **II** and **III**.*
*4) Draw **neat** and labelled diagram **wherever** necessary.*
*5) Figures to the **right** indicate **full** marks.*

SECTION – I

1. Select the most correct alternative from the following (**each** carry **one** mark). **14**

i) 99 % pure isomer of BHC is known as
   a) Sevin b) Karate
   c) Lindane d) Dimecron

ii) 2, 4-D is used as a herbicide because
   a) It is cheaply produced
   b) It has a wide range of selectivity
   c) It is virtually nontoxic to man and stock
   d) All the above

iii) PCNB is used as
   a) Fungicide b) Herbicide
   c) Insecticide d) Plant growth promoter

iv) Sulphur is formulated in the form of
   a) Aerosol b) Solution
   c) Emulsive concentrate d) Dust

P.T.O.

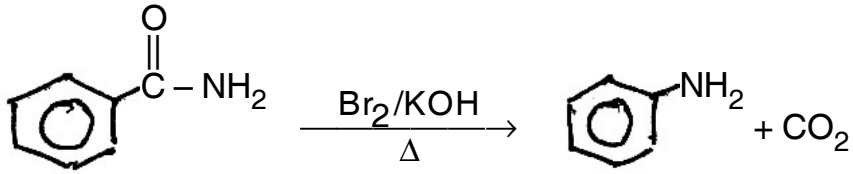
v) Which one of the following is rearrangement reaction ?

a) Perkins reactions
b) Knovenagel's reaction
c) Pinacol-pinacolone
d) Reformatsky reaction

vi) Tertiary alkyl halides undergoes

a) SN^1 b) SN^2 c) E_1 d) E_2

vii) Name the following reaction



a) Benzoin condensation
b) Perkins condensation
c) Pinacol-pinacolone
d) Hofmann reaction

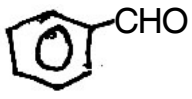
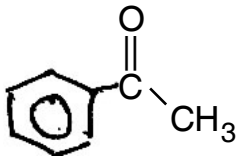
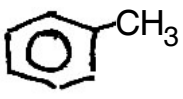
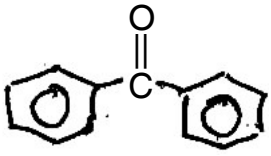
viii) The mosquito mats and coils contains

a) Bioallethrin
b) BHC
c) Bioresmethrin
d) Cypermetherin

ix) Parathion is obtained by condensation of 0, 0-diethyl chlorothiophosphate with

a) p-nitrophenol
b) o-nitrophenol
c) p-bromophenol
d) p-chlorophenol

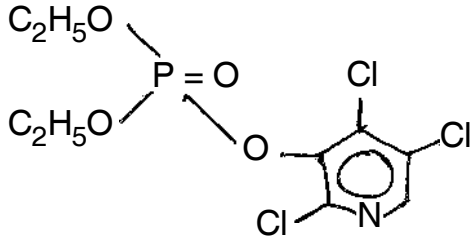
x) What is product of following reaction ?

a) 
b) 
c) 
d) 

xi) Natural pyrathroids cannot be used in field because of

a) Low activity
b) High cost
c) Poor stability
d) Low toxicity

xii) Name the following pesticide



a) Quinolphos
b) Monocrotophos
c) Chloropyriphos
d) Ediphenphos

xiii) Ediphenphos is used as

a) Fungicide
b) Acaricide
c) Insecticide
d) Curative and protective fungicide

xiv) Chloropyriphos contains _____ type of ring system.

a) Oxazole
b) Benzoxazole
c) Aminothiazole
d) All the above

SECTION – II

Attempt **any two** questions from this Section.

2. A) Discuss advantages and disadvantages of organochloro pesticides. Give synthesis and uses of endosulphan. **7**

   B) Discuss Perkins reaction with mechanism. **7**

3. A) Give synthesis and uses of phosalone and chloropyriphos. **7**

   B) Discuss Hofmann reaction with mechanism. **7**

4. A) Describe the following pesticide formulations. **7**
   a) Smokes
   b) Wettable and flowable powders.

   B) Describe the synthesis and environmental fate of **7**
   a) 2, 4-D b) BHC

SECTION – III

Attempt **any two** questions from this Section.

5. A) Give synthesis and uses of monocrotophos. **5**

   B) Discuss pinacol-pinacolone rearrangement reaction with mechanism. **5**

   C) Give synthesis and uses of Diazinon. **4**

6. A) Describe the use of natural and synthetic pyrathroids as pesticides. Give their advantages. **5**

   B) Discuss SN^2 reaction with mechanism and energy profile diagram. **5**

   C) Give synthesis and use of Butachlor. **4**

7. A) Discuss Benzoin condensation reaction with mechanism. **5**

   B) Give synthesis and uses of Malathion. **5**

   C) Write notes on Herbicides. **4**

SLR-MP – 8

Seat No.	

M.Sc. – I (Semester – I) (Old – CGPA) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT (Paper – IV)
Plant Pathology and Weed Management

Day and Date : Tuesday, 5-4-2016 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

N. B. : *1) **All** questions are **compulsory**.*
*2) Attempt **any two** questions from Section – **II** and **III**.*
*3) Draw **neat** and labelled diagrams **wherever** necessary.*
*4) Figures to the **right** indicate **full** marks.*

SECTION – I

1. Rewrite the sentences by choosing correct answer from the given alternative : **14**

1) _____ symptom develops in certain plants due to the cell divisions and enlargement.
   a) Necrosis b) Hypertrophy
   c) Wilting d) Weathering

2) _____ fungi not at all produce the plant diseases.
   a) Parasitic b) Obligate saprophyte
   c) Facultative parasitic d) Both a) and b)

3) Myoplasma have _____as their nuclear material.
   a) RNA b) DNA
   c) Proteins d) Ribosomes

4) The bacteria without flagella are called _____
   a) Monotrichous b) Bitrichous
   c) Peritrichous d) Atrichous

5) Classification of bacteria is based on the _____ characters.
   a) Morphological b) Biochemical
   c) Physiological d) All the above

P.T.O.

6) Mycoplasma lack _____ in their cells.
   a) Mitochondria b) Chloroplasts
   c) Nucleus d) All the above

7) _____ are the weapons of the pathogens in infectivity.
   a) Proteins b) Reserved food
   c) Enzymes d) Water

8) _____ are the components of disease triangle.
   a) Host b) Pathogen
   c) Suitable environment d) All the above

9) _____ are formed by certain fungal pathogen during infections.
   a) Appressoria b) Fruiting bodies
   c) Proteins d) Lipids

10) Parasitic green algae produce red rust of _____
   a) Mango b) Teak
   c) Jowar d) Bajra

11) Dispersal of Tridax weed occurs by _____
   a) Water b) Animals
   c) Wind d) Birds

12) Broomrape is the common name for _____ weed.
   a) Cuscuta sp b) Striga sp
   c) Orobanche sp d) Both a) and b)

13) The chemicals used for controlling the fungal pathogens are called _____
   a) Insecticides b) Nematicides
   c) Bactericides d) Fungicides

14) _____ are the means of dispersal of pathogens.
   a) Wind b) Water
   c) Soil d) All the above

SECTION – II

2. A) Define plant disease. Classify the plant diseases based on symptoms. **7**
   B) Describe the enzymes involved in plant disease development. **7**

3. A) Describe the mechanism of infection by fungal pathogens. **7**
   B) Describe the symptomology developed by bacterial pathogens. **7**

4. A) Define weeds. Classify weeds on the basis of life cycle and dissemination. **7**
   B) Describe the molecular basis of disease diagnosis. **7**

SECTION – III

5. A) State the characters of MLOs. **5**
   B) Add a note on storage fungi. **5**
   C) Give the principles of disease control. **4**

6. A) Add a note on chemical method of weed control. **5**
   B) Describe the symptomology of viral pathogens. **5**
   C) Add a note on plant quarantine. **4**

7. A) Describe the parasitic weeds studied by you. **5**
   B) Add a note on plant disease forecasting. **5**
   C) Describe in brief the dispersal of viruses. **4**

SLR-MP – 9

Seat No.	

M.Sc. (Part – I) (Semester – II) (New) (CBCS Pattern) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT
Paper – V : Chemistry of Pesticides and Their Formulations – II

Day and Date : Wednesday, 30-3-2016 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

N.B. *: 1)* ***All*** *Sections are* ***compulsory****.*
2) ***All*** *questions carry* ***equal*** *marks.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) Attempt in ***all five*** *questions.*
5) Attempt ***any two*** *questions from Section* ***II*** *and* ***III****.*
6) Write ***all*** *Sections in the* ***same*** *answer book.*

SECTION – I

1. Choose the most correct alternative of the following. **Each** carries **1** mark. **14**

1) Which of the following is phenyl carbamate ?

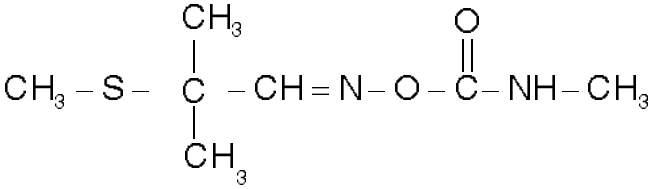
a) Maneb b) Ziram c) Aldicarb d) Carbaxyl

2) Carbamates are ester derivatives of

a) Carbamic acid b) Carbolic acid

c) Carboxylic acid d) Acetic acid

3) Name the following carbamate pesticide

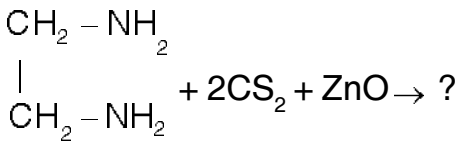


a) Carbofuran b) Aldicarb

c) Bendiocarb d) Propoxure

4) Which of the following insecticide is used to control the pests like aphids, mites and caterpillars ?
   a) Aldicarb b) Methomyl
   c) Bendiocarb d) Carbofuran

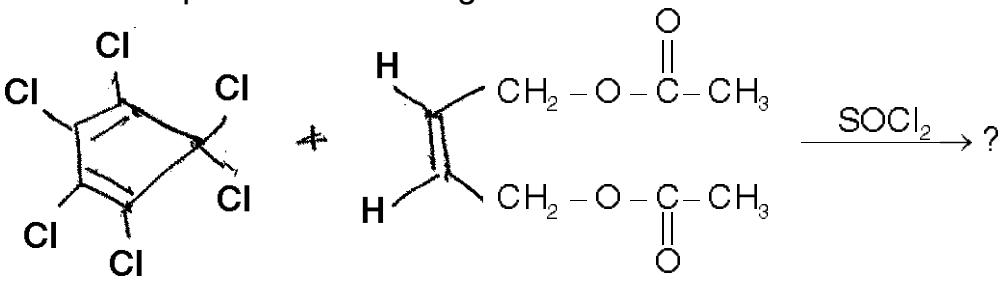
5) What is the product of following reaction ?



   a) Zineb b) Ziram c) Maneb d) Furadan

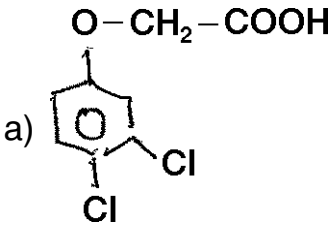
6) BHC is less toxic due to
   a) Hight persistence b) Less persistence
   c) LD-50 is less d) All the above

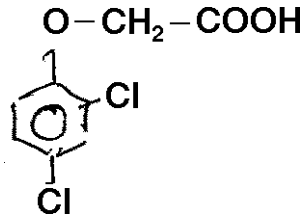
7) What is the product of following reaction :

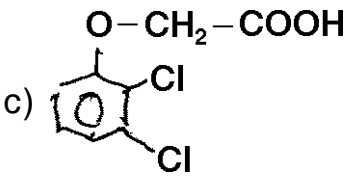


   a) Dicofol b) Butachlor c) Methoxychlor d) Endosulphon

8) Which of the following is correct structure of 2, 4 – D ?

a) 

b) 

c) 

   d) None of the above

9) Butachlor is used for
   a) Growth promoter
   b) Weed control
   c) Flower inictor
   d) Growth retardant

10) Pentachlorophenol on oxidation gives
   a) P-Chloroquinol
   b) P-Chloro anisol
   c) Hexachlorophenol
   d) Chloronil

11) Nitralin is used as
   a) Herbicide
   b) Weedicide
   c) Rodenticide
   d) Acaricide

12) Mixture of 4.5 kg $CuSO_4$ and 5.6 kg Na_2CO_3 is known as
   a) Boardeax mixture
   b) Burgandy mixture
   c) Organic mixture
   d) None of these

13) Which of the following compound is used as rodenticide ?
   a) Zinc carbonate
   b) Zinc chloride
   c) Zinc phosphate
   d) Zinc sulphate

14) Tenuron is a derivative of
   a) Thiocyanate
   b) Phthalein
   c) Thiourea
   d) Urea

SECTION – II

Attempt **any two** questions from this Section.

2. A) Describe the role copper salts and tin compounds as fungicides. **7**
   B) Give synthesis and uses of BHC and PCNB. **7**

3. A) Give synthesis and properties of tenuron and manuron. **7**
   B) Give synthesis of maneb and ziram. **7**

4. A) Discuss mechanism action of carbamate and give synthesis Baygoan. **7**
   B) Give synthesis of endosulfan and butachlor. **7**

SECTION – III

Attempt **any two** questions from this Section.

5. A) Discuss the role of zinc oxide and zinc phosphate as rodenticide. **5**
   B) Give synthesis and uses of captan. **5**
   C) Give synthesis and properties of methomyl. **4**

6. A) What are carbamate pesticide ? Give synthesis of Bendiocarb. **5**
   B) Discuss the use of computer based equipment in pesticide analysis. **5**
   C) Write note on inorganic pesticides. **4**

7. A) What are organochloropesticides ? Give synthesis of 2,4 – D. **5**
   B) Give synthesis of Dinoseb and Dinobuton. **5**
   C) Discuss thiocyanate and mercaptans as pesticides. **4**

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SLR-MP – 10

Seat No.	

M.Sc. (Part – I) (Semester – II) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT (CBCS) (New)
Paper – VI : Analytical Techniques for Agrochemicals

Day and Date : Friday, 1-4-2016 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions *: 1) Section **I** is **compulsory**.*
*2) Attempt **any two** questions from Section **II** and **III**.*
*3) Figures to the **right** indicate **full** marks.*
*4) **Neat** and **labeled** diagram should be drawn **whenever** necessary.*

SECTION – I

1. Choose the most correct alternative and write the sentence : **14**

1) The colour appeared after extraction of iodine is _____
   a) brown b) pink c) purple d) blue

2) Select the suitable titration method(s) for the quantitative determination of oxalic acid
   1) Iodometry
   2) Permanganometry
   3) Complexometry
   4) Acidicalkalimetry
   a) 2, 4 b) 4 c) 2 d) 1, 3

3) All the single electron system emit
   a) Doublet b) Singlet c) Triplet d) Quartet

4) The region of greatest importance for emission analysis is _____
   a) 200 to 300 nm b) 200 to 500 nm
   c) 250 to 400 nm d) 400 to 600 nm

5) The variation in EMF of an electrolyte cell brought about by the addition of _____
   a) Solution b) Solute c) Titrate d) Titrant

P.T.O.

6) The potential of an indicator electrode should be related through the _____ to the concentration of species being determined.
   a) Distribution coefficient b) Nernst equation
   c) Vant Hoff equation d) All above equation
7) The technique for background correction include
   a) Deuterium arc b) Zeeman effect
   c) Smith-Hieftje system d) All of above
8) Matrix effect are physical factors which are related to
   a) Viscosity, density b) Surface tension
   c) Volatility of the solvent d) All of above
9) The most suitable detection system in the spectra of alkali metal is
   a) Photovoltaic cell b) Photoconductive cells
   c) Red sensitive photomultipliers d) All of above
10) The process occurring in the flame are
   a) Translation, vibration and rotational motion
   b) Excitation
   c) Ionization
   d) All of above
11) Classification of chromatographic methods based on the phenomenon involving the process of either _____ or _____
   a) Emulsion or inversion b) Sorption or occlusion
   c) Adsorption or absorption d) Partition or adsorption
12) Gas absorption is known as _____ phenomenon.
   a) Absorption of gas in gas phase
   b) Absorption of gas in solid phase
   c) Absorption of gas in liquid phase
   d) All the above
13) The distribution coefficient is given by _____ equation.
   a) K = D b) D = W
   c) $K_D = (X_1)/(X_2)$ d) $K_D = C_{X1}.C_{X2}$
14) The term pH was introduced by
   a) S. P. L. Sorenson b) A. P. L. Supermen
   c) G. P. S. Lowery d) KIAST

SECTION – II

2. a) Give an account of ion chromatography. **7**

   b) Explain the role of polarity in adsorption column chromatography. **7**

3. a) Explain the methods of gravimetric estimation of Fe^{2+}. **7**

   b) Explain the precipitation titration method for the determination of Zn and Cu in pesticide analysis. **7**

4. a) How will you carry out acid base titrations by potentiometry ? **7**

   b) Explain the importance of pH-metry in form of their applications in agrochemicals. **7**

SECTION – III

5. a) What are the applications for analysis of food and environmental samples in Atomic Absorption Spectroscopy (AAS) ? **5**

   b) Discuss shortly the instrumentation of flame photometry. **5**

   c) Explain different types of acid-base titration. **4**

6. a) What are the applications of nephelometry ? **5**

   b) Explain the applications of stripping voltametric in trace analysis. **5**

   c) Give an account of metallochromic indicators. **4**

7. Write a note on following :

   a) Factors affecting measurement of turbidimetry. **5**

   b) Redox titration. **5**

   c) Applications of conductivity measurement in analysis of salinity. **4**

SLR-MP – 11

Seat No.	

M.Sc. (Part – I) (Semester – II) (New – CBCS) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT
Economic Entomology (Paper – VII)

Day and Date : Monday, 4-4-2016 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) ***All*** *questions carry* ***equal*** *marks.*
3) Solve ***any two*** *questions from Section –* ***II****.*
4) Solve ***any two*** *questions from Section –* ***III****.*

SECTION – I

1. Choose the correct answer from options given below : **14**

1) Scientific name of cotton white fly is _____
   a) Limax b) Spodoptera lutura
   c) Trialeurodes vapora d) P. americana

2) Cutworm is _____ pest.
   a) Forest b) Stored grain c) Household d) Green house

3) Nematode belongs to phylum _____
   a) Insecta b) Nematoda c) Arthropoda d) Platyhelminthes

4) Limax species is _____ pest.
   a) Molluscan b) Forest c) Household d) Live stock

5) Bamboo indoor structure is used to control _____ pest.
   a) Ornamental b) Vertebrate c) Stored grain d) All the above

6) _____ type of mouth parts found in locust.
   a) Chewing b) Biting c) Sponging d) Digging

7) Family of cockroach is _____
   a) Polyphagidae b) Blattidae c) Noctuidae d) Coccidae

P.T.O.

8) Life cycle of lepidopteron insect completes by _____ stages.
   a) Egg – Larva – Pupa – Adult b) Egg – Nymph
   c) Egg – Pupa – Adult d) Egg – Larva – Adult

9) Damaging stage of hairy catterpillars is _____
   a) Larva and Adult b) Only Adult
   c) Only Larva d) Nymph

10) _____ is the polyphagous pest.
   a) Pollu beetle b) White grub
   c) Both a and b d) None of the above

11) Aphid completes _____ generation in a year.
   a) One b) Two c) Many d) Three

12) Elephantisis is caused by _____
   a) Culex b) Anopheles c) Aedes d) Amoeba

13) Human Mysis in India is caused by _____
   a) Army worm b) Nematode c) Blow fly d) Protozoan

14) Chemicals used to control birds _____
   a) Avicides b) Insecticides c) Hermicides d) Rodenticides

SECTION – II

2. A) Describe life cycle pattern of Aedes mosquito. **7**

   B) Describe life cycle pattern of Aphid. **7**

3. A) Describe migratory endoparasitic nematode. **7**

   B) Describe life cycle pattern of Grasshopper. **7**

4. A) Classify and explain nature of damage and control measures of mite. **7**

   B) Explain snail as a molluscan pest of agricultural crop. **7**

SECTION – III

5. A) Explain damages caused by mealy bug. **5**

   B) Explain control measures on white grub. **5**

   C) Describe Aphid. **4**

6. A) Describe damages caused by saw toothed beetle. **5**

   B) Explain control measures on Root Knot nematode. **5**

   C) Explain Bed bug. **4**

7. A) Explain damages caused by scale insect. **5**

   B) Explain control measures on slug. **5**

   C) Describe common green bee eater. **4**

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SLR-MP – 12

Seat No.	

M.Sc. (Part – I) (Semester – II) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT (Paper – VIII)
(CBCS Pattern) (New)
Biotechnological Aspects in Plant Protection

Day and Date : Wednesday, 6-4-2016 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

N.B. : *1)* ***All*** *Sections are* ***compulsory****.*

2) ***All*** *questions carry* ***equal*** *marks.*

3) Attempt ***any two*** *questions from Section –* ***II*** *and* ***III****.*

4) Figure to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. Select the most correct alternative from among those given below : **14**

1) Botanical name of onion _____

a) *Brassica oleracea* Linn. Var. capitata

b) *Arachis hypogaea* Linn.

c) *Allium cepa* Linn.

d) *Triticum aestivum* Linn.

2) Botanical name of Sorghum _____

a) *Hordeum vulgare* Linn.

b) *Triticum aestivum* Linn.

c) *Sorghum vulgare* (L.) Moench

d) *Oryza sativa* Linn.

3) _____ is a serious disease of wheat.

a) Rust b) Smut c) Leaf blight d) Foot rot

4) Ground nut belong to the _____ Family.

a) Acanthaceae b) Caesalpiniaceae

c) Mimosaceae d) Fabaceae

5) Laminar air flow is used in tissue culture for _____
   a) Sterilization b) Storage c) Inoculation d) Nutrient medium

6) B.T. cotton is introduced to reduce the infestation of _____ pest.
   a) red cotton bug b) cotton jassid
   c) cotton aphid d) boll worm

7) Part of plant used for culture is called _____
   a) Callus b) Scion c) Stock d) Explant

8) Plasmid occur in _____
   a) Viruses b) Bacteria c) Chromosome d) Chloroplast

9) Enzymes used in recombinant DNA technology which help in cleaving DNA molecules are called _____
   a) Synthetases b) Ligases
   c) Polymerases d) Restriction endonucleases

10) An ability of a plant cell by virtue of which it can generate whole plant under suitable conditions is called _____
   a) Totipotency b) Micropropagation
   c) Somatic hybridization d) Organogenesis

11) Genetic engineering has been used to do all of the following except
   a) Make plants more resistant to disease
   b) Make plants more resistant to frost
   c) Improve the nutritional balance of plants
   d) All of the above are correct

12) Which of the following is an e.g. of cloning vector ?
   a) Human growth harmone b) Plasmid
   c) Ribosomal RNA d) Mosquito

13) Genetic engineering is _____
   a) Addition or removal of genes b) Plastic surgery
   c) Study of extra nuclear genes d) All of the above

14) Bt toxin producing plants are resistant to
   a) Fungal pathogen b) Bacterial pathogens
   c) Herbicide d) Insect pest

SECTION – II

2. A) Describe cultivation of Cabbage crop with respect to soil and climate, seed rate and sowing, fertilizer and plant protection measure. **7**

   B) Describe cultivation of Sugarcane crop with respect to soil and seed rate and sowing, fertilizer and plant protection measure. **7**

3. A) Indian seed act 1966 and certification. **7**

   B) Role of seed technology in the production of rust resistant variety in any crop. **7**

4. A) Describe in detail biochemical defense mechanism offered by the crop plants. **7**

   B) Describe in detail breeding for disease resistance. **7**

SECTION – III

5. A) Single cell cultivation. **5**

   B) Screening for disease resistance. **5**

   C) Protoplast isolation. **4**

6. A) Technique of development of GM plant. **5**

   B) Explain in brief technique of recombinant DNA technology. **5**

   C) Infection. **4**

7. A) Cultivation and requirements of fertilizer of Wheat. **5**

   B) Plant protection measure of Tur. **5**

   C) Glyphosate resistance gene. **4**

SLR-MP – 19

Seat No.	

M.Sc. (Part – II) (Semester – III) (CGPA) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT
Analysis of Agrochemicals (Paper – XI)

Day and Date : Saturday, 2-4-2016 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

Instructions *: i)* ***All*** *Sections are* ***compulsory.***
ii) Attempt ***any two*** *questions from Section –* ***II.***
iii) Attempt ***any two*** *questions from Section –* ***III.***
iv) ***All*** *questions carry* ***equal*** *marks.*

SECTION – I

1. Choose the correct answer (**One** mark **each**) : **(1×14=14)**

1) The column in HPLC is made up of _____ material.
   a) Plastic b) Stainless steel
   c) Rubber d) Silk

2) _____ is used as polarisable indicator electrode in polarography.
   a) Glass electrode b) Platinum electrode
   c) Mercury pod d) DME

3) The technique of HPLC is developed by _____
   a) Krikland and Huber b) Cassidy and Mockel
   c) Hamdy and Perkins d) Hess and Hotzel

4) The intensity of fluorescence depends upon _____ of solution.
   a) Volume b) Pressure
   c) Concentration d) Polarity

P.T.O.

5) In scintillation counter, the scintillations are produced on the screen coated with _____
   a) Zinc iodide b) Zinc sulphate
   c) Zinc carbonate d) Zinc sulphide

6) Fluorescence and phosphorescence spectra generally consist of many lines, mostly in _____region.
   a) UV b) Visible c) IR d) None

7) Absorption of UV radiations by organic compounds leads to _____
   a) Electronic changes b) Vibrational changes
   c) Rotational changes d) None of these

8) Absorption maxima shift to longer wavelength due to presence of _____
   a) Cyclic structure b) Conjugation
   c) Saturated group d) None of these

9) IR spectroscopy is mainly useful in the determination of _____
   a) Conjugation b) Functional group
   c) Molecular weight d) Melting point

10) Among the following which is IR active molecule ?
   a) HCl b) N_2 c) CCl_4 d) Cl_2

11) _____radiations are used in NMR spectroscopy.
   a) Microwave b) IR c) Radio d) UV

12) _____ is used as internal standard in NMR spectroscopy.
   a) DMF b) TMS c) $CDCl_3$ d) Acetone

13) Carbonyl compound containing γ hydrogen, during fragmentation undergoes _____ rearrangement.
   a) Hoffmann b) Beckmann c) Mc-Lafferty d) Fries

14) Parent ion peak in methanol is at _____m/z value.
   a) 32 b) 31 c) 33 d) 34

SECTION – II

2. a) Explain analysis of ammonia. **7**

   b) Describe in detail Geiger Muller counter. **7**

3. a) What is functional group region in IR spectra ? How is it useful in structure determination of compound ? **7**

   b) Sketch the optical diagram of UV-Visible spectrophotometer. How the UV spectrum is obtained ? **7**

4. a) Draw the schematic diagram of mass spectrometer. Explain its working. **7**

   b) Predict the NMR spectra of following : **7**

      1) $H_3C\text{-}CH_2\text{-}OH$ 2) $H_3C\text{-}COOH$

SECTION – III

5. a) Describe NO_x monitoring. **5**

   b) Write applications of polarography for analysis of insecticides. **5**

   c) Types of detectors in HPLC. **4**

6. a) Describe types of vibrations in IR spectroscopy. **5**

   b) Different types of detectors in UV spectroscopy. **5**

   c) Principle of fluorescence spectroscopy. **4**

7. a) Write note on mass spectra of isotope ions. **5**

   b) Explain equivalent and non equivalent protons with example. **5**

   c) Explain measurement of polarogram. **4**

SLR-MP – 20

Seat No.	

M.Sc. (Part – II) (Semester – III) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT
Pest and Diseases of Crop Plants – I (Paper – XII) (CGPA)

Day and Date : Tuesday, 5-4-2016 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

***Instructions** : 1) **All** Sections are **compulsory**.*
*2) **All** questions carry **equal** marks.*
*3) Solve **any two** questions from Section – **II**.*
*4) Solve **any two** questions from Section – **III**.*

SECTION – I

1. Rewrite the following sentences by choosing appropriate alternative. **14**

1) A pair of bar on abdomen is the key feature of _____

a) Jassid b) Aphid

c) Mealy bug d) None of these

2) _____ toxin produced by *Helminthosporium sacchari* after infection in sugarcane.

a) D-toxin b) M-toxin

c) T-toxin d) HS-toxin

3) In Ergot disease of Bajara, a cross section of capitulum possess many embedded _____

a) Perithecia b) Apothesia

c) Cleistothesia d) Nanothesia

4) Sorghum shoot fly causes maximum damage at _____ stage.

a) Caterpillar b) Maggot

c) Grub d) Nymph

P.T.O.

5) _____ referred as disease producing power of a microorganism.
   a) Toxicity
   b) Pathogenicity
   c) Rapidity
   d) Immunity

6) Soybean rust can be effectively controlled by spraying _____
   a) Sulphur dust
   b) Dithane-78
   c) BHC
   d) Bordeaux mixture

7) _____ part of the flower gets damaged by shoot fly.
   a) Androecium
   b) Pedicel
   c) Corolla
   d) Ovary

8) *Erysiphe cruciferarum* is the causal organism of _____
   a) Tikka disease of groundnut
   b) Powdery mildew of mustard
   c) Smut of Jowar
   d) Powdery mildew of grapes

9) In some other countries, Brown rust of wheat produces spermogonia and aecia on _____
   a) *Thalictrum sp.*
   b) *Oxalis corniculata*
   c) Barberry
   d) Brinjal

10) The causal organism of 'Berseem stem rot' is _____
   a) *Macrophomia sp.*
   b) *Sclerotiorum sp.*
   c) *Bremia sp.*
   d) *Fusarium sp.*

11) Viral diseases of crops mostly transmitted by _____
   a) White grubs
   b) Aphids
   c) Fruit flies
   d) None of the above

12) Polymorphism and caste system is the key features of _____
   a) Blister beetle
   b) Stem borer
   c) Termite
   d) None of the above

13) The casual organism of 'Powdery Mildew in Mustard' is _____
   a) *Erysiphe polygoni*
   b) *Erysiphe cichoracearum*
   c) *Erysiphe graminis*
   d) *Erysiphe cruciferarum*

14) Zigzag golden marks on forewings is the key feature of _____
   a) Gram pod borer
   b) *Spodoptera litura*
   c) Tur plum moth
   d) None of these

SECTION – II

2. A) Enumerate insect pests of Rice. Add a note on distribution and damage of *Leptocorisa acuta*. **7**

   B) Describe symptoms, nature of damage and management of Udbatta disease of Rice. **7**

3. A) What do you mean forage crops ? Highlight diseases of any one forage crops that you have studied. **7**

   B) Describe the biology, life cycle, nature of damage and management of stem borer of Maize. **7**

4. A) Describe the biology, life cycle, nature of damage and control of brown plant hopper. **7**

   B) Explain disease. Highlight symptom, nature of damage and management of wilt of cow pea. **7**

SECTION – III

5. A) Methods of filed loss assessment. **5**

   B) Principles of IPM. **5**

   C) Host plant resistance. **4**

6. A) Different tools of Pest management. **5**

   B) Life cycle of Nematodes. **5**

   C) White rust mustard. **4**

7. A) Grassy Shoot Disease-Symptoms and control. **5**

   B) Diseases of castor and their control measures. **5**

   C) Rust of safflower. **4**

SLR-MP – 21

Seat No.	

M.Sc. (Part – II) (Semester – IV) Examination, 2016
(CGPA Pattern)
AGROCHEMICALS AND PEST MANAGEMENT (Paper – XIII)
Agro Based Marketing Management

Day and Date : Wednesday, 30-3-2016 Total Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

***Instructions** : 1) **All** Sections are **compulsory**.*

*2) Solve **any two** questions **each** from Section – **II** and Section – **III**.*

*3) Figures to the **right** indicate **full** marks.*

SECTION – I

1. Choose the correct answer from option given below. **14**

i) _____ part of price mix tools of marketing.

a) Cost-based price b) People

c) Sales promotion d) Product

ii) RBI is ____ bank of India.

a) commercial b) foreign c) central d) industrial

iii) NABARD made for _____ purpose.

a) industrial b) education c) agriculture d) import-export

iv) WTO form in _____

a) 1995 b) 1994 c) 1998 d) 2000

v) _____ is last stage in PLC.

a) Introduction b) Maturity c) Growth d) Decline

vi) _____ is often called 'salient salesman'.

a) Packing b) Branding

c) Grading d) Labeling

vii) _____ advertising is cheapest among all the other medias.

a) Television b) Press c) Radio d) Film

viii) Agro-based marketing management used for _____

a) Educate the farmer b) Growth of agro-sector

c) Proper information d) All of these

ix) _____ marketing is the process of selecting one or more market segment and then development product.

a) Branding b) Target c) Nich d) Grading

x) _____ types of direct marketing.

a) Face to face b) Direct mail

c) Telemarketing d) All of these

xi) _____ is first stage of new product development.

a) Creation of new idea b) Launch product

c) Evaluation of ideas d) None of these

xii) GATT form in _____

a) 1947 b) 1948 c) 1949 d) 1946

xiii) Buying behavior is basically _____ in nature.

a) economical b) social

c) cultural d) biological

xiv) Marketing environment includes _____

a) legal b) economical

c) social and cultural d) all of these

SECTION – II

Solve **any two** questions from Section – II.

2. A) Function of marketing. **7**
   B) Marketing environment. **7**

3. A) Explain the function of WTO. **7**
   B) Describe the function of NABARD. **7**

4. A) Advantage of market segmentation. **7**
   B) Explain the concept of marketing. **7**

SECTION – III

Solve **any two** questions from Section – III.

5. A) Problems of agri-business. **5**
   B) Marketing audit. **5**
   C) Publicity. **4**

6. A) Explain the advantage target marketing. **5**
   B) Form marketing mix for 'Amit Fertilizers. **5**
   C) Explain the importance of Marketing ethics. **4**

7. A) Write type of distribution channels. **5**
   B) Describe the place mix for 'Soni seeds'. **5**
   C) Define importance of supply chain management. **4**

SLR-MP – 22

Seat No.	

M.Sc. (Part – II) (Semester – IV) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT
Advances in Pest Control – II (Paper – XIV)

Day and Date : Friday, 1-4-2016 Max. Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) ***All*** *questions carry* ***equal*** *marks.*
3) Solve ***any two*** *questions from Section –* ***II****.*
4) Solve ***any two*** *questions from Section –* ***III****.*

SECTION – I

1. Choose correct answer from options given below : **14**

1) _____ is an organism which is usually much smaller than its host and a single individual usually does not kill host.
a) Parasite b) Predator c) Parasitoid d) None of the above

2) Neurohormones are present in _____ organ of insects.
a) brain b) intestine
c) kidney d) none of the above

3) Mycoses is the condition of having _____ infection.
a) insects b) bacterial c) viral d) fungal

4) Anabolic toxins are synthesized by _____
a) viruses only b) insects c) pathogens d) mammals

5) Silent spring is a book about _____
a) Physics b) Environmental Science
c) Chemistry d) None of the above

6) Chemicals that prevent insect damage to plants and animals by rendering the unattractive is called as _____
a) attractants b) chemosterilants
c) repellants d) none of the above

P.T.O.

7) Chemosterillants does the work in _____
   a) kill the insect b) inhibit growth and gonad
   c) attract insect d) all of the above

8) _____ enzyme is known to cut the DNA fragment specifically.
   a) Restriction endonuclease b) DNA ligase
   c) Lipase d) None of the above

9) Sugarcane wooly aphids effectively suppressed by _____
   a) dipha b) micromus c) shriphyd fly d) all the above

10) Genetic control of screw worm fly was initiated by _____
   a) E.F. Kinipling b) F.E. Edward
   c) C. Raymond d) None of the above

11) Quadrangular shape is of _____ virus.
   a) Nuclear polyhydrosis virus b) Yellow vein mosaic virus
   c) H_1N_1 virus d) None of the above

12) Ti plasmid used for _____ transfer process in rDNA technique.
   a) bacterium b) nucleus c) gene d) none of above

13) The full form of CPV _____
   a) Cytoplasmic Polyhydrosis Virus b) Cytophagous Virus
   c) Cytochrome Polished Virus d) None of these

14) What do you mean by HaNPV ?
   a) *Heliothis armigera* Nuclear Polyhydrosis Virus
   b) *Helicoverpa armigera* Nuclear Polyhydrosis Virus
   c) *Helicopa army* Nuclear Polydimensional Virus
   d) *Helicomb army* Nuclear Polymorphic Virus

SECTION – II

2. A) What are the Pheromones ? Discuss the importance of Pheromones. **7**

   B) Define microbial control. Explain the different techniques used in microbial control with suitable example. **7**

3. A) Define Parasitoid and add a note role of predators in insect pest management. **7**

   B) Describe in brief the methodology of genetic engineering to introduce gene into plant so as to produce transgenic plants. **7**

4. A) Describe the importance of IPM in pest management. **7**

   B) Describe the details insect growth regulators. **7**

SECTION – III

5. A) Biological control in pest management. **5**

   B) Attractants. **5**

   C) Chemosterilants. **4**

6. A) Nuclear Polyhydrosis Virus. **5**

   B) Somaclonal variability. **5**

   C) Genetic control. **4**

7. A) Viruses in pest control. **5**

   B) Hot water treatment for disease control. **5**

   C) *Bacillus thuringiensis*. **4**

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SLR-MP – 23

Seat No.	

M.Sc. (Part – II) (Semester – IV) (CGPA) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT
Manufacture of Agrochemicals (Paper – XV)

Day and Date : Monday, 4-4-2016 Total Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

Instructions : *i)* ***All*** *Sections are* ***compulsory****.*

ii) Question ***1*** *should be answered by choosing the correct answer.*

iii) Attempt ***any two*** *questions from Section* ***II*** *and* ***any two*** *questions from Section* ***III****.*

iv) ***All*** *questions carry* ***equal*** *marks.*

SECTION – I

1. Choose the correct answer (**one** mark **each**) : **(1×14=14)**

1) Trade name of Phosphamidon is

a) Rogar b) Sevin c) Dimecron d) Dithane

2) Recruitment and selection of employees come under jurisdiction of _____ manager.

a) Personnel b) Finance c) Production d) Market

3) Distillation is a process in which _____ components are separated from the mixture.

a) Solid b) Gaseous c) Volatile d) Water

4) Distribution co-efficient becomes equal to distribution ratio when there is

a) No association b) No dissociation

c) No polymerization d) All of these

P.T.O.

5) A molecule whose synthesis is being planned is called
   a) Reagent b) Target molecule
   c) Intermediate d) None of these

6) A generalised fragment usually an ion, produced by a disconnection is
   a) Synthon b) Synthetic equivalent
   c) Reagent d) Target molecule

7) In triple effect evaporator highest temperature is maintained in _____ evaporator.
   a) First b) Second c) Third d) Both first and second

8) The starting material used for preparation of Zineb is
   a) Ethylene diamine b) N, N-dimethyl aniline
   c) Dimethyl amine d) None of these

9) Solvent extraction involves distribution of solute between two solvents which are
   a) Miscible b) Immiscible
   c) Partially miscible d) All of these

10) The reaction in which only one set of stereoisomers is formed predominantly is called _____ reaction.
   a) Stereospecific b) Stereoselective
   c) Stoichiometric d) None of these

11) For drying of milk and milk products _____ dryers are used.
   a) Spray b) Turbo c) Tray d) Conveyor

12) Diel's-Alder reaction is used to synthesize _____ of the following.
   a) Maneb b) 2, 4-D c) Captan d) Endosulphan

13) Carbaryl is synthesized from methyl isocyanate and
   a) 1-Naphthol b) Methyl amine
   c) Methyl alcohol d) Dimethyl amine

14) _____ plays an important role in wage and salary administration.
   a) Labour union b) Public union
   c) Employer-employee union d) Trade union

SECTION – II

2. a) Explain the plate and packed columns in distillation. **7**

   b) Explain the construction and working of sand filters. **7**

3. a) Write the functions of Marketing manager. **7**

   b) Describe the main features of industrial licensing policy. **7**

4. a) Plan the synthesis of 2, 4-D by using retrosynthetic approach. **7**

   b) Explain in brief importance and various kinds of first aids in case of accidental hazards. **7**

SECTION – III

5. a) Explain the raw materials, chemical reactions and flow sheet diagram for dimethoate. **5**

   b) Draw a diagram of batch reactor and explain its working. **5**

   c) Write note on BSI specifications. **4**

6. a) Which factors are responsible for setting up a research laboratory ? **5**

   b) Write note on evaporation. **5**

   c) Explain the term purchase order. **4**

7. a) Explain in brief technology transfer process. **5**

   b) Describe the manufacturing process of captan with flow sheet diagram. **5**

   c) Write note on chemoselectivity. **4**

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SLR-MP – 24

Seat No.	

M.Sc. (Part – II) (Semester – IV) (CGPA) Examination, 2016
AGROCHEMICALS AND PEST MANAGEMENT
Pests and Diseases of Crop Plants – II (Paper – XVI)

Day and Date : Wednesday, 6-4-2016 Max. Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

Instructions *: 1)* ***All*** *Sections are* ***compulsory****.*

2) ***All*** *questions carry* ***equal*** *marks.*

3) Solve ***any two*** *questions from Section –* ***II****.*

4) Solve ***any two*** *questions from Section –* ***III****.*

SECTION – I

1. Choose the correct answer from options given below : **14**

1) *Dacus cucurbitae* is scientific name of

a) the melon fruit fly b) mealy bug

c) pollu beetle d) cotton white fly

2) Tuber moth belongs to the family

a) noctuidae b) melolenthidae c) gelechiidae d) crysomelidae

3) _____ is important pest of Mango.

a) Stone weevil b) Thrips c) Aphids d) None of the above

4) Tea mosquito belongs to the order

a) coleoptera b) orthoptera c) hemiptera d) lepidoptera

5) Diamond like back is the characteristic of

a) *Plutella xylostella* b) *Aphis gossype*

c) *Apis indica* d) None of the above

6) Grape wine beetle attacks on _____ part of plant.

a) root b) stem c) leaf d) none of the above

P.T.O.

7) Caste system occurs in
   a) termites b) aphids c) grasshopper d) none of the above

8) *Fusarium sp*. causes _____ disease.
   a) smut b) wilt c) rust d) none of the above

9) Mango leaf spot caused due to
   a) *Xanthomonas citri* b) *Fusaium oxysporium*
   c) *Colletotrichum gleosporides* d) *Alternaria solani*

10) *Lycopersicon esculentum* is the scientific name of
   a) potato b) tomato c) brinjal d) none of the above

11) Bordeaux mixture is generally used as
   a) insecticide b) rodenticide c) fungicide d) none of the above

12) Seed treatment prevents _____ diseases.
   a) seed born b) wind born c) air born d) none of the above

13) Black spot of Rose caused due to
   a) *Xanthomonas citri* b) *Diplocarpon rosae*
   c) *Alternaria rosae* d) none of the above

14) Teak rust caused due to
   a) *Uncinula tectoni* b) *Alterrnaria alternata*
   c) *Uncinula nector* d) all of the above

SECTION – II

2. A) Enumerate the pest of citrus, suggest the control measures and life cycle of any one pest. **7**

   B) Enlist fungal diseases of Tomato and discuss the control measures of the same. **7**

3. A) Enlist pest of Spices and condiments. Give the control measures and life cycle of any one pest. **7**

   B) Describe Anthracnose disease of Mango. **7**

4. A) Explain the mode of damage of different insect pests attacking fruit in your area and suggest the control measures of any one. **7**

   B) Explain in detail powdery mildew of Teak along with control measures. **7**

SECTION – III

5. A) Classify and describe nature of damage and control measures of Guava fruit fly. **5**

   B) Control measures shoot borer and fruit borer of Brinjal. **5**

   C) Life cycle of Blister beetle. **4**

6. A) Describe damage and control of cabbage semilooper. **5**

   B) Coffee rust disease. **5**

   C) Gladiolus rot disease. **4**

7. A) Black spot of Rose. **5**

   B) Coconut wilt disease. **5**

   C) Bhendi powdery mildew. **4**

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