SLR-MM – 1

Seat No.	

M.Sc. (Part – I) (Semester – I) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT
Paper – I : Chemistry of Pesticides and their Formulations – I
(CBCS Pattern) (New)

Day and Date : Monday, 16-11-2015 Total Marks : 70

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

Instructions : *1)* ***All*** *Sections are* ***compulsory****.*
2) ***All*** *question carry* ***equal*** *marks.*
3) Attempt ***any two*** *questions from Section* ***II*** *and* ***III****.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

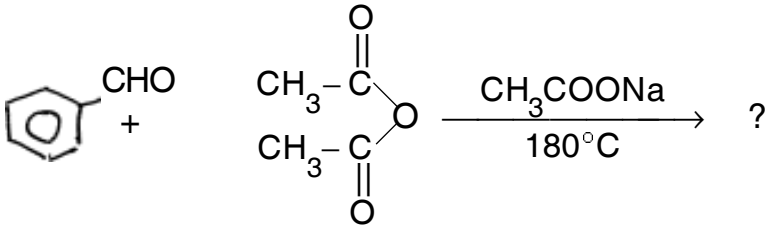
1. Choose the most correct answers for the following each carry 1 mark : **14**

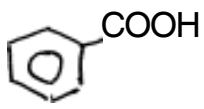
1) Sulphonation reaction is example of

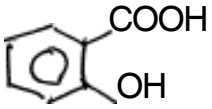
a) Electrophilic substitution b) Electrophilic addition

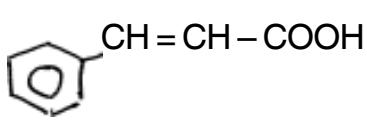
c) Nucleophilic substitution d) Nucleophilic addition

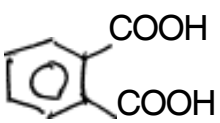
2) What is the product of following reaction



a) 

b) 

c) 

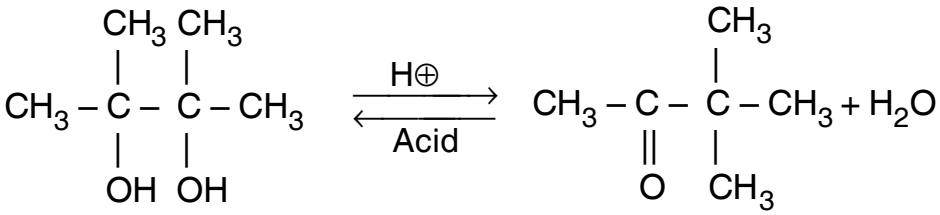
d) 

P.T.O.

3) Aromatic aldehyde when condensed with diethylmalonate in presence of pyridine gives cinnamic acid. This reaction is known as

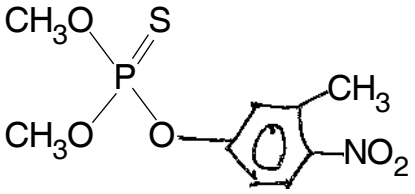
a) Perkins reaction
b) Knoevenagel's reaction
c) Reimer-Tiemann reaction
d) Hofmann reaction

4) Name the following reaction



a) Wagner-Meerwein rearrangement
b) Perkow rearrangement
c) Pinacol-Pinacolone rearrangement
d) Hofmann rearrangement

5) Name the following pesticide



a) Malathion
b) Phosphomidon
c) Phorate
d) Fenitrothion

6) Dimethoate is also called as

a) Azodrin
b) Rogar
c) Demecron
d) Basudin

7) When O-O-diethyl phosphoro chlorothioate is condensed with 2-hydroxy 3, 5, 6-trichloro pyridine gives

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

8) Which one of the following pesticide is not organophosphorus pesticide ?

a) Schradan
b) Diazinon
c) Dicofol
d) Malathion

9) Sulphur is formulated as a
   a) Dust
   b) Solution
   c) Smoke
   d) Aerosol

10) Pyrethroids are in general
   a) Alcohols
   b) Esters
   c) Amides
   d) Acids

11) The mosquito mats and coils contains
   a) BHC
   b) Bioallethrin
   c) Bioresmethrin
   d) Cypermetherin

12) The Neem extract contains main active ingredient is
   a) Lavandulol
   b) Limonoid
   c) Alkaloids
   d) Terpenoids

13) Wettable powder contains
   a) Diluent
   b) Auxiliary material
   c) Surface active agents
   d) All the above

14) Which of the following pyrethroid contains bromine in its structure ?
   a) Cypermetherin
   b) Decametherin
   c) Allethrin
   d) Deltametherin

SECTION – II

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

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

   B) Discuss the purpose of formulation. Explain the formation of Granules and Smokes. **7**

3. A) Give synthesis and uses of Quinolphos and Chloropyriphos. **7**

   B) Discuss SN^2 reaction with mechanism and energy profile diagram. **7**

4. A) Discuss Reimer-Tiemann reaction with mechanism. **7**

   B) How will you prepare Malathion and Monocrotophos ? Give their properties. **7**

SECTION – III

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

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

   B) Discuss the role of insect attractants and repellents. **5**

   C) Discuss E^1-elimination reaction. **4**

6. A) How you distinguish natural and synthetic pyrethroids ? Give synthesis of deltametherin. **5**

   B) Explain Knoevengel's reactions with mechanism. **5**

   C) Discuss systemic and non-systemic pesticide. **4**

7. A) Discuss the use of Neem plant in pest control. **5**

   B) Discuss nitration reaction of benzene with mechanism. **5**

   C) Explain the formulations of emulsifiable oils and suspensions. **4**

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SLR-MM – 2

Seat No.	

M.Sc. (Part – I) (Semester – I) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT (New-CBCS)
Soil Science, Fertilizers, Micronutrients and Plant growth Regulators
(Paper – II)

Day and Date : Wednesday, 18-11-2015 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 alternatives and rewrite the sentences : **14**

1) Soil colloid is a part of _____
   a) Sand b) Clay c) Loam d) Humus

2) Water holding capacity of soil is governed by _____
   a) Type of soil b) Organic matter of soil
   c) Color of soil d) Alkalinity of soil

3) The product formed by mixing ammonium hydrate with 40% lime stone is called _____
   a) Lime chalk b) Dolomite chalk
   c) Nitro chalk d) Lime stone chalk

4) An example of concentrated organic manure is _____
   a) FYM b) Bone meal
   c) Oil cake d) Sewage

5) Gibberllic acid is found in _____
   a) *Avena sativa* b) *Gibberella fujikuori*
   c) *Corn germ oil* d) *Micorhiza*

P.T.O.

6) Which one of the following is not micronutrient ?
   a) Zn b) Cl c) Mo d) P

7) Hydrogen ion concentration is increases in soil, causes _____
   a) Active acidity b) Active alkalinity
   c) Salinity d) None of these

8) If a aluminum oxides are abundance in laterite is called _____
   a) Bauxite b) Basalt
   c) Khader d) Colloids

9) The chemical composition of single super phosphate is _____
   a) $[3\ Ca(CH_2PO_4)_2H_2O]$ b) $Ca_3(PO_4)_2$
   c) $[Ca(H_2PO_4)_2H_2O]$ d) None of these

10) Breaking of seed dormancy is made by the treatment of _____
   a) Auxin b) Gibberellic acid
   c) Cytokinin d) CCC

11) Interveinal chlorosis occurred due to _____
   a) Ca b) Cu c) K d) Mg

12) _____ is an example of bulky organic manure.
   a) BGA b) Oil-cake c) FYM d) Bone meal

13) Cow pea (*Vigna cajana*) is an example of _____
   a) Green manure b) Guano manure
   c) Bulky organic manure d) Concentrated manure

14) Biogas is composed of _____
   a) Methane and Carbon di-oxide b) Ethane and Carbon di-oxide
   c) Butene and Carbon-dioxide d) Acetylene and Carbon di-oxide

SECTION – II

2. A) Describe the structure of soil. **7**

   B) Describe in brief chemical properties of soil. **7**

3. A) What are phytohormones ? Describe the practical applications of GA. **7**
   B) Write in brief-role of ethylene. **7**

4. A) Describe the manufacture of Ammonium molybdate. **7**
   B) Write a note on specifications of grades of ammonium Phosphate. **7**

SECTION – III

5. A) Classification of fertilizers. **5**
   B) Bangalore method of composting. **5**
   C) Liquid manure. **4**

6. A) Manufacture of Micronutrients. **5**
   B) Describe in brief 'Production and marketing of Biofertilizers of NAFED. **5**
   C) Role of Mn and Mo. **4**

7. A) Write in brief *Avena curvature* test. **5**
   B) Write a short note on Blue green algae as a Biofertilizer. **5**
   C) Role of micronutrients. **4**

SLR-MM – 3

Seat No.	

M.Sc. (Part – I) (Semester – I) (CBCS) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT (New)
Introductory and Industrial Entomology (Paper – III)

Day and Date : Friday, 20-11-2015 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 thorax of an insect is made up of _____ fused segments.

a) 4 b) 6

c) 3 d) 2

2) Mouth parts of honey bee are of _____ type.

a) Chewing and lapping b) Siphoning

c) Sponging d) None of the above

3) The hind wings in coleopteral are modified into

a) Elytra b) Halter

c) Scutellum d) None 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) Spiracles are functioning for

a) Digestion b) Respiration

c) Both a) and b) d) None of the above

6) _____ is the polyphagous pest.

a) Monkey b) Polu beetle

c) Both a) and b) d) Aphid

7) _____ is called as little bee.

a) *Apis dorsata* b) *Apis florae*

c) *Apis mellifera* d) *Apis indica*

8) Setaceous antennae occurs in _____ insect.

a) Termite b) Grasshopper

c) Cricket d) None of the above

9) *Aphis indica* is the scientific name of

a) White grub b) Dung beetle

c) Honey bee d) None of the above

10) _____ types of legs found cockroach.

a) Fossorial b) Raptorial

c) Cursorrial d) None of the above

11) Snail and slug are controlled by

a) Nematicide b) Molluscicides

c) Insecticides d) None

12) _____ is the scientific name of rat.

a) *Moras alba* b) *Rattus rattus*

c) *Cajanus cajan* d) None

13) Midgut insect is called as

a) Proctodum b) Mesenteron

c) Stomodeum d) None

14) Ecdysone is of moulting

a) Hormone b) Organ

c) Both a) and b) d) None

SECTION – II

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

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

3. A) Describe rat. **7**

   B) Enlist the different species of honey bee and explain Indian bee in detail. **7**

4. A) Describe the life cycle pattern of white grub. **7**

   B) Explain thorax of insect. **7**

SECTION – III

5. A) Describe the control measures in snail and slug. **5**

   B) Insect wings. **5**

   C) Red hairy caterpillar. **4**

6. A) Describe the haemocytes in haemolymph. **5**

   B) Importance of apicultures. **5**

   C) Head of an insect. **4**

7. A) Explain the predators and parasites. **5**

   B) Circulation of blood. **5**

   C) General characters in insect. **4**

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SLR-MM – 4

Seat No.	

M.Sc. (Part – I) (Semester – I) Examination, 2015
(New CBCS)
AGROCHEMICALS AND PEST MANAGEMENT (Paper – IV)
Plant Pathology and Weed Management

Day and Date : Monday, 23-11-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions *: i)* ***All*** *Sections are* ***compulsory****.*
ii) Attempt ***any two*** *questions from Section –* ***II*** *and* ***any two*** *from Section –* ***III****.*
iii) Answer to ***all*** *the* ***three*** *Sections should be written in the* ***same*** *answer book.*
iv) Draw ***neat*** *and labeled diagrams* ***wherever*** *necessary.*
v) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. Select the correct answer from the given alternatives and rewrite the sentences : **14**

   1) Certain fungi can be used as biocontrol agents for the control of serious plant parasites like _____
      a) Bacteria b) Nematodes
      c) Both a) and b) d) Mycoplasmas

   2) Eradication of seed borne pathogen can be done by _____
      a) Crop rotation b) Seed dressing
      c) Rogueing d) Both a) and b)

   3) Dwarfism is the _____ symptom.
      a) Hypertrophy b) Necrotic c) Hypoplasia d) All the above

   4) Propagules of fungal pathogens include _____
      a) Conidia b) Chlamydospores
      c) Sexual spores d) All the above

P.T.O.

5) The ring spot symptom is induced in host by _____
   a) Bacteria b) Viruses c) Fungi d) Nematodes

6) Broom rape is the common name of _____ parasite.
   a) *Cuscuta sp.* b) *Orobanche sp.*
   c) *Striga sp.* d) None of these

7) Blue green algae are _____ microbes.
   a) Unicellular/multicelled b) Prokaryotic
   c) A flagellated d) All the above

8) _____ are the inanimate causes of plant diseases.
   a) Low temperature b) Nutritional disorder
   c) Atmospheric impurities d) All the above

9) Angular leaf spot of Cotton disease is caused by _____ pathogen.
   a) Bacterial b) Fungal c) Viral d) Nematode

10) The ability of pathogen to cause disease is called _____
   a) Susceptibility b) Pathogenicity
   c) Etiology d) All the above

11) The pathogens which can grow and multiply within living hosts are called _____
   a) Obligate saprophytes b) Facultative parasites
   c) Obligate parasites d) Facultative saprophytes

12) Mycotoxins are produced by _____
   a) Fungi b) Viruses c) Bacteria d) Mycoplasma

13) _____ weeds are dispersed by animals.
   a) *Achyranthus aspera* b) *Xanthium strumarium*
   c) *Cyperus rotundas* d) Both a) and b)

14) *Cercospora rodmanii* is used as an effective weedicide to control _____
   a) *Hydrilla verticilata* b) *Typha latifolia*
   c) *Eichhornia crassipes* d) *Euphorbia hirta*

SECTION – II

2. A) Define plant disease and add a note on the plant disease concept. **7**

   B) Describe the role of enzymes in plant disease development. **7**

3. A) Define weed. Add a note on the chemical methods of weed control. **7**

   B) What are microbes ? Write the general characters of bacteria. **7**

4. A) Classify the weeds based on life cycle and ecological affinity. **7**

   B) Write the symptoms, causal agent, disease cycle and control of brown rot disease of potato. **7**

SECTION – III

5. A) Write the symptomology of viral diseases. **5**

   B) Describe the characters of MLOs. **5**

   C) Add a note on storage fungi. **4**

6. A) Describe the impact of plant diseases on the crop production. **5**

   B) Describe the factors affecting the development of epidemics. **5**

   C) Write about the propagules of fungal pathogens. **4**

7. A) Describe the weed seed dispersal by animals. **5**

   B) Describe the histochemical methods of studying plant pathogens. **5**

   C) Add a note on plant quarantine. **4**

SLR-MM – 5

Seat No.	

M.Sc. (Part – I) (Semester – I) (Old CGPA Pattern) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT
Paper – I : Chemistry of Pesticides and their Formulations – I

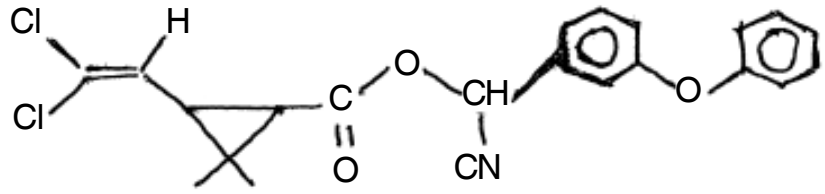
Day and Date : Monday, 16-11-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

N.B. *: 1)* ***All*** *Sections are* ***compulsory****.*
2) ***All*** *questions carry* ***equal*** *marks.*
3) Attempt ***any two*** *questions from Section* ***II*** *and* ***III****.*
4) Draw ***neat*** *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 **1** mark). **14**

i) What is the name of following synthetic pyrethroid ?



a) Cenvalerate b) Allethrin
c) Deltamethrin d) Cypermethrin

ii) 99% pure isomer of BHC is known as

a) Soven b) Lindane c) Karate d) Dimecron

iii) Quinoxaline ring system is present in

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

iv) Parathion is used as

a) Herbicide b) Rodenticide
c) Acaricide d) Contact insecticide

P.T.O.

v) Which of the following pesticide contains phosphorus ?

a) Carbaryl
b) Monocrotophos
c) DDT
d) Endosulphan

vi) High persistence of pesticide means

a) It remain short time in environment
b) It remain long time in environment
c) It immediately decompose
d) None of these

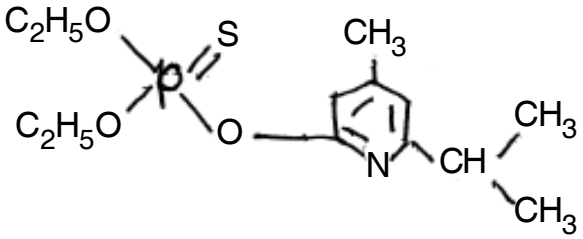
vii) N-N-dimethylbenzamide is used as

a) Fumigant
b) Insect repellent
c) Insect attractants
d) None of these

viii) Butachlor is used as

a) Fungicide
b) Acaricide
c) Bactericide
d) Herbicide

ix) Name the following pesticide.

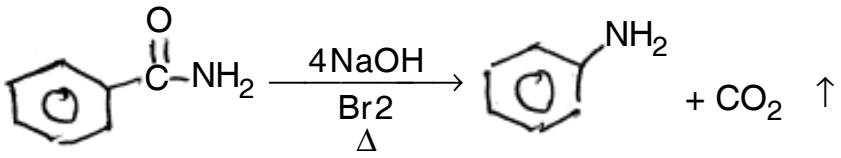


a) Fentrothion
b) Malathion
c) Diazinon
d) Parathion

x) Endosulphan is _____ insecticide.

a) Stomach and contact
b) Fungicide
c) Bactericide
d) Herbicide

xi) Name the following reaction



a) Perkin's reaction
b) Hofmann's reaction
c) Canizzaro's reaction
d) Reforsky reaction

xii) Benzene on reaction with con. HNO_3 and con. H_2SO_4 at 50° C gives

a) Bromobenzene
b) Chlorobenzene
c) Benzenediazonium chloride
d) Nitrobenzene

xiii) Dehydration of alcohol in produce of con. H_2SO_4 gives ethylene this reaction is called as

a) Addition reaction
b) Elimination reaction
c) Substitution reaction
d) Rearrangement reaction

xiv) Sulphur is formulated in the form of

a) Aerosol
b) Solution
c) Dust
d) Emulsifiable concentrate

SECTION – II

Solve **any two** questions :

2. A) What are organochloro pesticides ? Give synthesis and uses of Endosulphan and Dicofol. **7**

   B) Give synthesis and properties of quinolphos and chloropyriphos. **7**

3. A) Discuss Derkin's reaction mechanism. **7**

   B) Discuss synthesis and uses of 2, 4-D and diazinon. **7**

4. A) Discuss pinacol-pinacolone rearrangement reaction with mechanism. **7**

   B) Describe methods of formulations of Emulsions and Emulsifiable oils. **7**

SECTION – III

Solve **any two** questions.

5. A) Explain E_2 elimination with mechanism. **5**

   B) Describe the formulations of solutions in water and organic solvents. **5**

   C) Give synthesis uses of monocrotophos. **4**

6. A) Discuss Benzoin condensation reaction. **5**

   B) Describe the uses of natural and synthetic pyrethroids. **5**

   C) Give synthesis of BHC and give its uses. **4**

7. A) Give synthesis and uses of phorate. **5**

   B) Discuss advantages and disadvantages of organo chloropesticides. **5**

   C) Discuss SN^2 reaction with mechanism. **4**

SLR-MM – 9

Seat No.	

M.Sc. (Part – I) (Semester – II) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT
Chemistry of Pesticides and their Formulations – II (Paper – V)
(C.G.P.A. Pattern)

Day and Date : Tuesday, 17-11-2015 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *i)* ***All*** *Sections are* ***compulsory****.*
ii) Question ***1*** *should be answered by choosing the correct alternative.*
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) Sevin is the trade name of _____
   a) Carbofuran b) Ziram
   c) Baygon d) Carbaryl

2) The alkyl esters of N-aryl carbamic acid has good _____ property.
   a) Herbicide b) Insecticide
   c) Fungicide d) Rodenticide

3) Calcium arsenate is used as _____
   a) Rodenticide b) Herbicide
   c) Growth promoter d) Acaricide

4) Methyl isocyanate is used as
   a) Fumigant b) Attractant c) Repellent d) Both b) and c)

5) Cheshnut compound contain _____
   a) Two parts of copper sulphate and eleven parts of ammonium carbonate
   b) Four parts of copper sulphate and eleven parts of ammonium carbonate
   c) Eleven parts of copper sulphate and eleven parts of ammonium carbonate
   d) All of these

P.T.O.

6) Which of the following is used as growth retardant ?
   a) Carbon tetrachloride
   b) Dichlorophenol
   c) Chlorobenzene
   d) Chlorocholine chloride

7) Triphenyl tin acetate is prepared by reacting three molecules of phenyl magnesium bromide and _____
   a) $SnCl_4$
   b) $ZnCl_2$
   c) CCl_4
   d) $MgCl_2$

8) Thallium sulphate is used as _____
   a) Rodenticide
   b) Herbicide
   c) Growth promoter
   d) Acaricide

9) Bordeaux mixture is used to protect plant from _____
   a) Fungal attack
   b) Rodent attack
   c) Insect attack
   d) None of these

10) Organomercurial compounds are having _____ activity.
   a) Insecticidal
   b) Bactericidal and fungicidal
   c) Only fungicidal
   d) Only bactericidal

11) Aldicarb is _____ type of insecticide.
   a) Furyl carbamate
   b) Organo phosphorus
   c) Oxime carbamate
   d) Organo chlorine

12) Carbamate pesticides acts as inhibitor of _____
   a) Respiratory system
   b) Circulatory system
   c) Choline esterase enzyme
   d) Nerve signal transmission

13) Hydrazine compounds which are used as pesticides contain _____ functional group.
   a) $–NH_2$
   b) –N = N –
   c) –N = O
   d) $NH_2 – NH_2$

14) Trifluralin is used to control _____
   a) Fungi
   b) Weeds in cotton
   c) Rodents
   d) All of these

SECTION – II

2. a) Explain synthesis and applications of baygon. **7**
   b) What are rodenticides ? Explain thallium salts as rodenticide. **7**

3. a) Describe the mode of action of carbamate pesticides. **7**
   b) Explain role of surfactants and wetting agents in pesticide applications. **7**

4. a) Write synthesis, reactions and applications of diquat and paraquat. **7**
   b) What are fungicides ? Explain role of organomercurials as fungicides. **7**

SECTION – III

5. a) Explain the role of arsenic compounds as pesticides. **5**
   b) Describe use of azo compounds as pesticides. **5**
   c) Write note on sulphur fungicides. **4**

6. a) Explain role of thiourea derivatives in agriculture. **5**
   b) Write note on tin compounds as pesticides. **5**
   c) Write synthesis and uses of MBC. **4**

7. a) Explain use of computers in pesticide formulations. **5**
   b) Describe applications of aliphatic nitro compounds in agriculture. **5**
   c) What are fumigants ? Describe hydrogen cyanide as fumigants. **4**

SLR-MM – 10

Seat No.	

M.Sc. (Part – I) (Semester – II) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT (CGPA Pattern)
Paper – VI : Analytical Techniques for Agrochemicals

Day and Date : Thursday, 19-11-2015 Total Marks : 70

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

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

SECTION – I

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

1) Solvent extraction is a

a) Separation technique b) Determination method

c) Dentification procedure d) Distribution law

2) Classification of chromatographic methods based on the phenomenon involving the process of either _____ or _____.

a) emulsion or inversion b) adsorption or occlusion

c) adsorption or absorption d) partition or adsorption

3) Methyl orange is _____ in acid solution.

a) red b) yellow c) orange d) pink

4) The distribution coefficient is given by _____ equation.

a) K = D b) D = W

c) $K_D = (X_1)/(X_2)$ d) $K_D = C_{X1}.C_{X2}$

5) The variation in EMF of an electrolyte cell brought about by the addition of

a) solution b) solute c) titrant d) eluent

6) The potential of an indicator electrode should be related through the _____ to the concentration of species being determind.
   a) Distribution coefficient
   b) Nernst equation
   c) Vant Hoff equation
   d) All above equation

7) The term pH was introduced by
   a) S.P.L. Sorenson
   b) A.P.L. Supermen
   c) G.P.S. Lowery
   d) KIAST

8) The hottest flame in O_2 is produced by
   a) acetylene b) cyanogen c) butane d) hydrogen

9) Cell constant has dimensions of
   a) cm b) cm^{-1} c) cm^2 d) cm mole sec^{-1}

10) Which of the following parameter is measured in DTA ?
   a) $\Delta t/t$ b) $t/\Delta t$ c) $1/\Delta t$ d) Δt

11) The most widely used flame in atomic absorption is
   a) air acetylene
   b) air propane
   c) air coal gen
   d) dyacetylene

12) The function of nebulizer burner system is to
   a) convert test solution to gaseous atom
   b) produce moist or aerosol of solution
   c) both a and b
   d) convert liquid to solid state

13) In complexometric titration, EricromeBlack-T indicator reacts with Calcium ion to form _____ colour.
   a) blue b) wine red c) yellow d) green

14) When a molecule rotate to the plane polarized light in clockwise direction is known as
   a) optically inactive
   b) laevo rotatory
   c) dextro rotatory
   d) none of the above

SECTION – II

Solve **any two** from the following.

2. a) Which types of detectors are used in capillary column chromatography ? **7**

   b) In what way TLC is superior than other chromatographic techniques. **7**

3. a) Discuss the method of gravimetric estimation of SO_4^{-2}. **7**

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

4. a) What are the advantages of potentiometric titration over direct potentiometry ? **7**

   b) What is the cell constant ? How is it determine experimentally ? Draw the diagram of Wheatstone bridge and explain measurement of conductance of a solution. **7**

SECTION – III

Solve **any two** from the following.

5. a) Explain construction and working of glass electrode. **5**

   b) Explain briefly the interferences in flame photometry. **5**

   c) How is TG useful in analyzing mixtures ? **4**

6. a) What are the differences between DTA and DSC ? **5**

   b) How polarimetry is useful in saccharimetry ? **5**

   c) Give the applications of atomic absorption spectrometry in analysis of environmental sample. **4**

7. Write a note on following.

   a) Stripping voltametry. **5**

   b) Sampling of solids. **5**

   c) Metallochromic indicators. **4**

SLR-MM – 13

Seat No.	

M.Sc. (Part – II) (Semester – III) Examination, 2015
(CGPA Pattern)
AGROCHEMICALS AND PEST MANAGEMENT (Paper – IX)
Pesticide Residues and Toxicology

Day and Date : Monday, 16-11-2015 Max. Marks : 70

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

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *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) _____ pesticide is persistent in nature.

a) Malathion b) Dimecron

c) BHC d) Mercury

2) Pesticides enter in atmosphere due to

a) spraying b) dusting

c) handling d) all of these

3) Organophosphorus pesticides affect _____ system by inhibition of acetylcholine esterage.

a) digestive

b) circulatory

c) nervous

d) all the above

4) Fungicides kill the

a) Insects b) Bacteria

c) Fungi d) All of these

P.T.O.

5) Minamata disease was observed in _____ country.
   a) Indonesia b) China
   c) Japan d) Africa

6) _____ is the process by which micro-organisms convert pesticides from complex to simple form.
   a) Bio-accumulation b) Bio-activation
   c) Bio-concentration d) Bio-degradation

7) Carcinogenic substances are responsible for
   a) cancer b) anemia
   c) headache d) pneumonia

8) Organochlorine pesticides like DDT mostly affect _____ system of man.
   a) digestive b) respiratory
   c) central nervous d) dermal

9) Na/k imbalance resulting in disturbance of nerve fiber is caused due to
   a) Organochlorine pesticides
   b) Organophosphate pesticides
   c) Carbamate pesticides
   d) Pyrethroids

10) Which of the following radiations are used for the generation of mutation ?
   a) Gamma rays b) X-rays
   c) Both a) and b) d) None of these

11) Which of the following is a carbamate pesticide ?
   a) Carbaryl b) Malathion
   c) DDT d) Endosulfon

12) _____ poison affects the nervous system of man.
   a) Corrosive b) Irritants
   c) Neurotics d) Cardiac

13) Disease Itai-itai is caused due to chronic poisoning of

a) Cadmium b) Arsenic

c) Lead d) Mercury

14) The formation of tumors is called

a) neoplasia b) hyperplasia

c) metaplasia d) anaplasia

SECTION – II

2. A) Write the GC technique for the analysis of pesticide residues in fruits. **7**

   B) Explain in brief biological magnification of pesticides with two examples. **7**

3. A) Give the symptoms and treatment of cadmium and arsenic poisoning. **7**

   B) State effects of pesticide residues on soil micro-organisms. **7**

4. A) Give definition and scope of Toxicology. **7**

   B) Discuss different modes of entry of pesticides in atmosphere. **7**

SECTION – III

5. A) Write in brief about inhibition of Acetylcholine esterase by organophosphate pesticides. **5**

   B) Comment upon the use of HPLC in the analysis of pesticide residues. **5**

   C) What is the effect of pesticide residues on soil micro-flora ? **4**

6. A) Comment up on the entry of pesticide residues in water system. **5**

   B) Write a note on Teratogens. **5**

   C) Explain in short corrosive poison. **4**

7. A) Comment up on Cytochrome P-45 enzyme system. **5**

   B) Explain process of Biodegradation. **5**

   C) Write a note on ‘Bhopal Gas Tragedy’. **4**

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SLR-MM – 14

Seat No.	

M.Sc. (Part – II) (Semester – III) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT (CGPA Pattern)
Advances in Pest Control –I (Paper – X)

Day and Date : Wednesday, 18-11-2015 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) Mexican beetle is

a) Egg parasitoid b) Larval parasitoid

c) Predator d) Biocontrol agent

2) Acaricides are used for

a) to control weeds b) to kill ticks and mites

c) instead of fertilizers d) all the above

3) Using light trap is _____ method of.

a) chemical b) physical c) legal d) none of above

4) _____ is the natural enemy of bed bug,mites, spider.

a) Dipha b) Trichogamma c) Tiger beetle d) al the above

5) 'Bt' insecticidal activity found in _____ medium.

a) acidic b) alkaline c) neutral d) all the above

6) Chemicals which, suppress reproduction in insects is

a) repellents b) chemosterilants

c) attractants d) all the above

P.T.O.

7) Hand atomizer sprayer is the type of _____ sprayer.
   a) air blast b) compression
   c) power operated d) all the above

8) Azadiractin is _____ originated insecticide.
   a) Neem b) Mulberry c) Custard apple d) All the above

9) Chemicals that cause insect to make oriented movements away from their source are called
   a) repellents b) sterilants c) attractants d) all the above

10) In *Drosophila melanogaster* resistance occurred to DDT due to
   a) recessive gene Kdr b) dominant gene R
   c) both of the above d) all of the above

11) *Odontotermes obesus* is _____ pest.
   a) polyphagous b) oligophagous c) monophagous d) None of the above

12) Shaking of branches is implemented in _____ programme.
   a) mechanical b) chemical c) cultural d) None of the above

13) Tin banding of _____ plants controls Rats.
   a) Rubber b) Jowar c) Coconut d) none of the above

14) Sound waves are implemented in _____ programme.
   a) Auditory repellents b) Sensory repellents
   c) Visual repellents d) Stimuli repellents

SECTION – II

2. A) Define host plant resistance. Explain mechanism of resistance in plants. **7**

   B) Give an account of Pheromones in pest control programme with suitable example. **7**

3. A) Define pest and classify the pest with suitable examples. **7**

   B) Give importance and side effects of Neem based preparations in pest management. **7**

4. A) Explain in detail Biological method of pest control. **7**

   B) Explain with neat labeled diagram parts of Bucket and Knapsack type of sprayer. **7**

SECTION – III

5. A) Write a note on attractants. **5**

   B) Insect growth regulators. **5**

   C) Legal method of pest control. **4**

6. A) Natural method of pest control. **5**

   B) Breeding for insect resistance. **5**

   C) Plant products in pest control. **4**

7. A) Bioassay method. **5**

   B) Estimation of losses caused by pest. **5**

   C) Antifedants. **4**

SLR-MM – 15

Seat No.	

M.Sc. (Part – II) (Semester – III) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT
Analysis of Agrochemicals (Paper – XI) (New) (CGPA Pattern)

Day and Date : Friday, 20-11-2015 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) Gas chromatography is used for separation of _____
   a) Water soluble substances b) Volatile substances
   c) Inorganic substances d) Solids

2) The main components of HPLC are _____
   a) High pressure pump b) Injector system
   c) Detector d) All of these

3) The basic unit of radioactivity is _____
   a) Dynes b) Curie
   c) Debye d) Newton

4) Which of the following is not used as detector in HPLC ?
   a) Scintillation counter b) Fluorescence detector
   c) UV d) Refractometer

5) Which of the following solution is added as maximum suppressor in polarographic experiment ?
   a) Soap solution b) Glucose solution
   c) KCl solution d) Gelatin solution

6) The current due supporting electrolyte is KCl called _____
   a) Residual current b) Diffusion current
   c) Migration current d) Direct current

7) _____ transition is more energetic.

a) $\sigma - \sigma^*$ b) $n - \pi^*$ c) $\pi - \pi^*$ d) $n - \sigma^*$

8) _____ is an example of chromophore.

a) $-NH_2$ b) >C=O c) –OH d) –Cl

9) _____ spectroscopy gives information regarding bonding present in the molecule.

a) IR b) UV c) NMR d) Mass

10) The carbonyl stretching frequency in ketone is _____ cm^{-1}.

a) 1720 b) 1750 c) 1500 d) 2500

11) The δ value for aromatic proton is _____

a) 1 to 2 b) 6.5 to 8 c) 11 to 12 d) 3 to 4

12) M + 2 peak in mass spectra is observed due to _____

a) H b) Br c) O d) N

13) Methylene protons in case of impure ethanol gives the splitted peak having _____ multiplicity

a) Singlet b) Doublet c) Triplet d) Quartet

14) The intensity assigned to the base peak in mass spectra is _____

a) 50% b) 90% c) 100% d) 70%

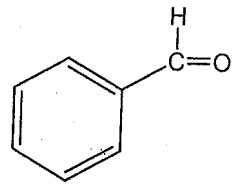
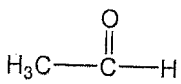
SECTION – II

2. a) Describe the principle and instrumentation of GC. **7**

b) Write applications of radioisotopes in agriculture. **7**

3. a) Distinguish following pairs of compounds by IR spectroscopy. **7**

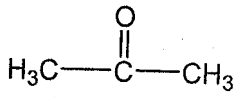
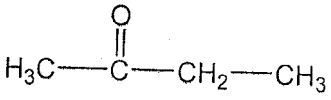
1) $H_3C - CH_2 - OH$ and $H_3C - COOH$

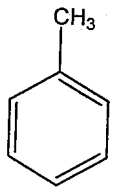
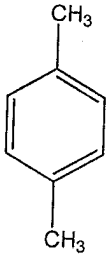
2)  and 

b) Explain different types of electronic transitions. **7**

4. a) Write applications of mass spectroscopy. **7**

   b) Distinguish following pairs by NMR. **7**

1)  and 

2)  and  .

SECTION – III

5. a) Explain the methods used for analysis of H_2S and NO_2. **5**

   b) Describe the methods used for evaluation of polarographic waves. **5**

   c) Applications of fluorescence in measurement of pesticide residue. **4**

6. a) Explain with suitable example equivalent and non equivalent protons. **5**

   b) Draw a schematic diagram of mass spectrometer. **5**

   c) Distinguish between fluorescence and phophorescence. **4**

7. a) What is meant by λ_{max} ? How the UV spectrum is obtained ? **5**

   b) Explain the theory and factors affecting IR group frequencies. **5**

   c) Mention applications of d.c. polarography in analysis. **4**

SLR-MM – 16

Seat No.	

M.Sc. (Part – II) (Semester – III) (CGPA Pattern) Examination, 2015
AGROCHEMICALS AND PEST MANAGEMENT
Pest and Diseases of Crop Plants – I (Paper – XII)

Day and Date : Monday, 23-11-2015 Max. Marks : 70

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

Instructions *: 1) Sections –* ***I*** *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) The casual organism of Tikka disease of groundnut is

a) *Cercospora tritici* b) *Ephilis psidi*

c) *Albugo candida* d) *Cercospora arachidocola*

2) Pink borer of Rice is caused by

a) *Chilo polychysus* b) *Chilo auricilius*

c) *Sesamia inferens* d) *Scirpophaga innota*

3) False smut of Rice disease was first recorded from

a) East India b) South India c) North India d) West India

4) _____ is the causal organism of Udbatta disease of Rice.

a) *Ephelis psidi* b) *Ephelis nuda*

c) *Ephelis bliti* d) *Ephelis oryzae*

5) Polymorphism and caste system is feature of

a) Stem borer b) Termite c) Blister beetle d) None of the above

6) Pruning and thinning is part of _____ control measures.

a) Natural b) Biological c) Cultural d) All these

P.T.O.

7) National Research Centre on Pomegranate (NRCP) is located at
   a) Pune b) Lucknow c) Solapur d) Calcutta

8) _____ diseases of crops mostly transmitted by aphids.
   a) Viral b) Bacterial c) MLO d) None of these

9) *Perenospora trifoliorum* is causal organism of downey mildew of
   a) Paddy b) Jowar c) Suddan grass d) Lucerne

10) *Acherontia styx* is commonly called
   a) Til hawk moth b) Sphinux moth
   c) Death's head hawkmoth d) None of these

11) *Aproaerema modicella* is the scientific name of _____ pest.
   a) Red Cotton bug b) Cotton leaf borer
   c) Cotton bollworm d) Soybean pod borer

12) The winged forms of wheat aphid (*Macrosiphum miscanthi*) appear only in _____ season.
   a) Early winter b) Early summer c) Early rainy d) Late summer

13) Use of light traps for controlling of pest in the field is _____ method.
   a) Cultural b) Mechanical
   c) Physical d) Legal

14) In Ergot disease of Bajara, capitulum reveals numerous _____ embedded in the tissue.
   a) Perithecia b) Cleistothesia c) Apothesia d) Nanothesia

SECTION – II

2. A) What is pest ? Comment on biology and control of any one forage crop pests that you have studied. **7**

   B) Describe symptoms, nature of damage and management of downey mildew of Bajara. **7**

3. A) Explain disease. Highlight symptoms, life cycle, nature of damage and management of rot of chick pea. **7**

   B) Discuss in brief concepts and tools of pest management. Highlight on host plant resistance mechanism. **7**

4. A) Describe the biology, life cycle, nature of damage and control of stem borer of maize. **7**

   B) What do you mean by forage crops ? Highlight the disease of any one forage crops that you have studied. **7**

SECTION – III

5. A) Maize blight : Morphology and control. **5**

   B) Tikka disease of groundnut : Symptoms and management. **5**

   C) Powdery mildew of gram. **4**

6. A) Common diseases of Alfa-Alfa and their management. **5**

   B) Modeling in pest management. **5**

   C) Crop island in ecosystem. **4**

7. A) Nematode : Life cycle and management. **5**

   B) Sunflower head borer : life cycle and management. **5**

   C) Repellants. **4**

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