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M.Sc. (Part – I) (Semester – I) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT (C.G.P.A. Pattern)
(Paper – I) Chemistry of Pesticides and Their Formulations – I

Day and Date : Monday, 21-4-2014

Max. Marks : 70

Time : 11.00 a.m. to 2.00 p.m.

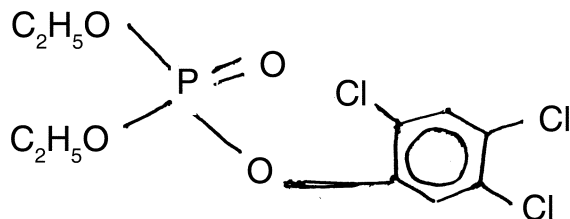
- Instructions:** 1) **All Sections are compulsory.**
2) **All questions carry equal marks.**
3) **Attempt any two questions from Section II and III.**
4) **Draw neat labelled diagram wherever necessary.**
5) **Figures to the right indicate full marks.**

SECTION – I

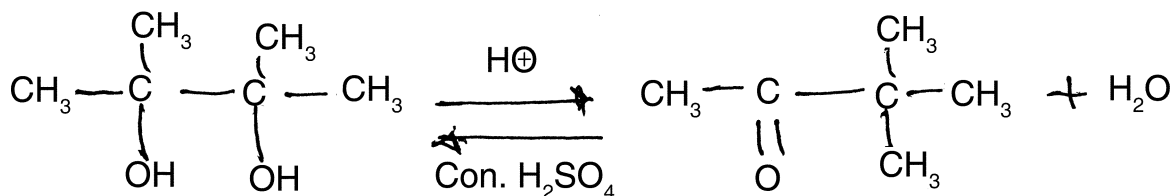
1. Select the most correct alternative from the following (**each** carry **1** mark). **14**
- 1) Synthesis of endosulphan is based on
a) Skraup's synthesis b) Killiani's synthesis
c) Diel's – Alder reaction d) Perkin's reaction
- 2) The toxicity of pesticide can be graded by
a) LD – 50 b) LD – 10 c) LD – 40 d) None of these
- 3) 2, 4-D is widely used as
a) Weedicide b) Insecticide
c) Fungicide d) Herbicide
- 4) Which one of the following pesticide is used as curective and protective fungicide ?
a) Chloropyriphos b) Monocrotophos
c) Dimifox d) Ediphenphos



5) What is the name of following pesticide ?



- a) Monocrotophos b) Quinolphos
 c) Chloropyriphos d) Ediphenphos
- 6) Which type of ring system is present in chloropyriphos ?
 a) Thiazole b) Pentazole
 c) Benzoxazole d) Oxazole
- 7) Sulphur is formulated in the form of
 a) Granules b) Dust c) Smoke d) Solution
- 8) 99% pure isomer of BHC is known as
 a) Lindane b) Dimecron c) Karate d) Sevin
- 9) Name the following reaction



- a) Hofmann's rearrangement
 b) Pinacol – Pinacolone rearrangement
 c) Benzilic rearrangement
 d) Allylic rearrangement
- 10) When Benzaldehyde is heated with acetic anhydride in presence of sodium acetate at 180°C forms cinnamic acid. This reaction known as
 a) Benzoin condensation b) Aldol condensation
 c) Perkin's condensation d) Knoevenagel's reaction



11) What is product of following reaction Benzene + $HNO_3 + Con H_2SO_4 \xrightarrow{50^\circ C} ?$

- a) Benzene
- b) Nitrobenzene
- c) Chlorobenzene
- d) Aminobenzene

12) Cypermetherin contains

- a) Bromine
- b) Iodine
- c) Fluorine
- d) Chlorine

13) Which of the compounds acts as best fumigant ?

- a) Methyl sulphate
- b) Methyl chloride
- c) Methyl bromide
- d) Methyl iodide

14) Azoin is trade name of

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

SECTION – II

Solve **any two** questions.

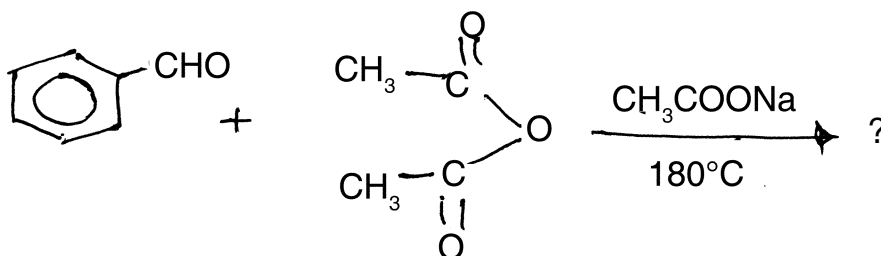
2. A) Give the synthesis and uses of 2-4-D and Dicofol. 7

B) Give synthesis and environmental fate of phosphamidon and quinolphos. 7

3. A) Discuss Hofmann’s reaction with mechanism. 7

B) Discuss the use and environmental fate of herbicides, fumigants and rodenticides. 7

4. A) Complete the following reaction and suggest the mechanism. 7



B) Discuss the methods of preparations and uses of BHC and phorate. 7



SECTION – III

Solve **any two** questions.

5. A) Give only structures, properties and uses of Butachlor and Endrin. **5**
B) Describe the methods for formulations of Dusts and Granules. **5**
C) Discuss the sulphonation reaction with mechanism. **4**
6. A) Give synthesis and uses of Diazinon. **5**
B) Write note on pest and pesticides. **5**
C) Give the synthesis and uses of Ediphenphos. **4**
7. A) Describe the methods of formulations of : **5**
i) Spray and
ii) Emulsion and emulsifiable oils.
- B) Discuss the addition reactions of $\begin{array}{c} \diagup \\ \text{C} \\ \diagdown \end{array} = \begin{array}{c} \diagdown \\ \text{C} \\ \diagup \end{array}$ group. **5**
- C) Describe the synthesis and uses of monocrotophos. **4**
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SLR-VP – 10

Seat No.	
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M.Sc. (Part – II) (Semester – III) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT (Paper – X)
Advances in Pest Control – I

Day and Date : Wednesday, 23-4-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions:** 1) **All** the questions are **compulsory**.
2) Solve **any three** from Section – II.
3) **All** questions carry **equal** marks.
4) Figures to **right** indicates **full** marks.

SECTION – I

1. Choose the correct answer in **each** question (**each** sub question carry **one** mark) (1×20=20)
- 1) Allelochemicals which are benefited to both receiver and producer is called _____
- a) Allamone
b) Kiramone
c) Synamon
d) All the above
- 2) Retinoid is extracted from _____ part of derris plant.
- a) Leaves
b) Roots
c) Fruits
d) Tenders
- 3) Chemicals which depress the reproduction capacity of insect is _____
- a) Antifeedent
b) Chemosterilant
c) Repellent
d) None of these
- 4) Use of high seed rate is used to control _____
- a) Case worm
b) Stem borer
c) Shootfly
d) Armyworm
- 5) Pheromones are _____
- a) Chemical signals
b) Hormones
c) Antifeedent
d) All the above

P.T.O.



- 6) Bombykol is the pheromone of _____

a) Silkmoth	b) Gypssymoth
c) Butterfly	d) None of these

- 7) Trichogramma minutum is _____ parasitoid.

a) Larval	b) Pupal
c) Eggs	d) Adult

- 8) Amount of insecticides used to kill 50 percent of test insect is called _____

a) LC ₅₀	b) LD ₅₀	c) LT ₅₀	d) LC ₂₀
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- 9) _____ insecticides inhibits the cholinestrage enzyme.

a) Organophosphorous	b) Cylodyne compound
c) LD ₅₀	d) None of these

- 10) _____ is animal origin insecticide.

a) Spinosad	b) Castap
c) Gunny bags	d) All the above

- 11) Collection and destruction of pest stage is _____ method of pest control.

a) Mechanical	b) Physical
c) Cultural	d) Legal

- 12) Male sterile technique is first time used by _____

a) Knipling	b) Williams
c) Digicel	d) Edward

- 13) Ionizing radiations is used to control _____

a) Stored grain pest	b) Termites
c) Rhodents	d) None of these

- 14) Pyrethrin is extracted from flowers of _____

a) Tobacco	b) Chrysanthemum
c) Dhatura	d) None of these

- 15) Paper factor was first recognized by _____

a) Hopkins	b) Williams
c) Richard	d) Deck



- 16) Resistance expressed by several plant genes is called as _____
a) Vertical
b) Horizontal resistance
c) Perpendicular
d) None of these
- 17) A crop variety severely attacked by pests is called _____
a) Susceptible
b) Resistant
c) Tolerant
d) None of these
- 18) Insect is not preferring plant for feeding and oviposition is called _____
a) Antibiosis
b) Antixenosis
c) Tolerance
d) None of these
- 19) Crop rotation is used to control _____ pest.
a) Oligophagous
b) Monophagous
c) Polyphagous
d) None of these
- 20) The Screw worm fly is successfully controlled by _____
a) Neutrons
b) Gamma rays
c) Chemosterilant
d) Co-radiation

SECTION – II

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

2. a) Define pest and explain the losses caused by pest with suitable example.
b) Add a note on why insect assume pest status.
3. a) Enlist different methods of pest control.
b) Explain the mechanical method of pest control with suitable example.
4. a) Define Host-plant resistance and explain its role in pest control.
b) Explain biophysical basis of plant resistance with suitable examples.
5. a) Enlist the different types of plant protection appliance and their role in pest control.
b) Explain the working principles and applications of sprayers.



6. a) Write an account of following :
- a) Attractant
 - b) Repellent
 - c) Antifeedents
- b) Explain their role in pest control with suitable example.

SECTION – III

7. Write short notes (**any four**) :
- 1) Breeding for insect resistance
 - 2) Role of pheromones in pest control
 - 3) Plant origin insecticides
 - 4) Forest pest management
 - 5) Store grain pest management
 - 6) Legal method.
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M.Sc. (Part – II) (Semester – III) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT
Analysis of Agrochemicals (Paper – XI)

Day and Date : Friday, 25-4-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions:**
- i) **All Sections are compulsory.**
 - ii) **Question 1 should be answered by choosing the correct answer.**
 - iii) **Attempt in all five questions.**
 - iv) **From Questions No. 2 to 6 attempt any three questions.**
 - v) **All questions carry equal marks.**

SECTION – I

1. **Compulsory (one mark each) :**

20

- 1) What is the mobile phase in HPLC ?
 - a) Solid
 - b) Liquid
 - c) Gas
 - d) Super critical fluid
- 2) Arrange the following solvent in order of increasing viscosity at 30°C
 - (A) Benzene
 - (B) Carbon tetrachloride
 - (C) Chloroform
 - (D) Diethyl ether
 - a) $D < A < C < B$
 - b) $B < A < C < D$
 - c) $A < B < C < D$
 - d) None
- 3) The capillary constant in the Ilkovic equation is given by
 - a) $m^{2/3}t^{1/6}$
 - b) $D^{1/2}m^{2/3}$
 - c) $D^{1/2}t^{1/6}$
 - d) $m^{1/3}t^{1/3}$
- 4) The current due to the supporting electrolyte is called
 - a) Residual current
 - b) Diffusion current
 - c) Migration current
 - d) None
- 5) Fluorescence is closely related to _____ or _____ analysis.
 - a) Colorimetric and Spectrophotometric
 - b) Colorimetric and polarographic
 - c) Polarographic and amperometric
 - d) Amperometric and coulometric

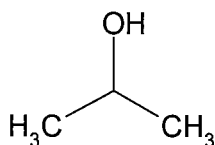
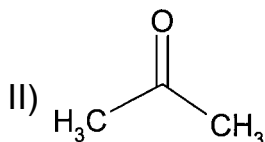
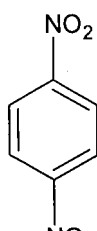
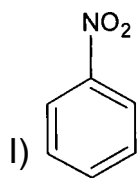
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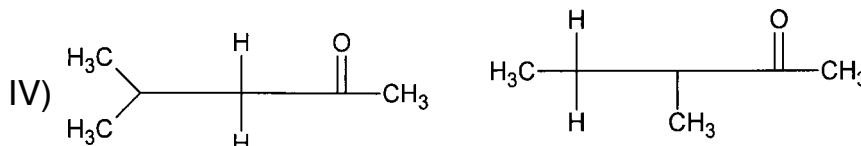
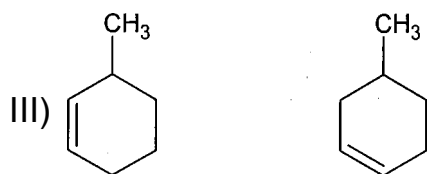


- 16) Which of the following is a nonmagnetic nucleus ?
a) ${}^1_1\text{H}^1$ b) ${}^6_6\text{C}^{12}$ c) ${}^6_6\text{C}^{13}$ d) ${}^{31}_{15}\text{P}^{31}$
- 17) Electron donating groups often _____ fluorescence.
a) Quenching b) Enhance c) Decrease d) Remains same
- 18) Fermi resonance is a common phenomenon in
a) Raman spectra b) Infrared spectra
c) CO_2 d) All
- 19) Which of the following vitamins are polarographically active ?
a) Thiamine b) Ascorbic acid
c) Riboflavin d) All
- 20) A diene has λ_{max} at 244 nm. The diene may be
a) 1, 3-butadiene b) 1, 3, 5-hexatriene
c) 1, 4-pentadiene d) None

SECTION – II

2. Draw a schematic diagram for experimental set up of the polarography and discuss the principle and working of various components. Give its applications for analysis of some important insecticides. 20
3. a) Discuss in detail the principle and working of HPLC. Give the applications of HPLC in pesticide residue analysis. 10
b) Explain the methods used for the analysis of H_2S and NO_2 . 10
4. a) How will you distinguish the following pairs by mass spectral methods ? 10





- b) Sketch the PMR spectrum of the following compounds. 10
- I) Ethyl methyl ketone
 - II) Ethyl acetate
 - III) Methyl benzoate
 - IV) Ethyl benzoate.
5. a) Describe the applications of GC-MS in the analysis of agrochemicals. 10
- b) Explain applications of fluorescence measurement in pesticide residue analysis. 10
6. a) Sketch the optical diagram of UV-Visible spectrophotometer. How the UV spectrum obtained? What is λ_{\max} ? 10
- b) Explain the theory of IR spectroscopy and factors affecting IR group frequencies. 10

SECTION – III

7. Write a note on **any four** of the following : 20
- 1) Coupling constant (J)
 - 2) SO₂ monitoring
 - 3) Isotopic dilution method
 - 4) Applications in qualitative and quantitative analysis
 - 5) Structural factors in fluorescence.



SLR-VP – 12

Seat No.	
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**M.Sc. (Part – II) (Semester – III) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT
Pest and Diseases of Crop Plants – I (Paper – XII)**

Day and Date : Monday, 28-4-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- N. B. :**
- i) **All Sections are compulsory.**
 - ii) **All questions carry equal marks.**
 - iii) **Question No. 1 and 7 are compulsory.**
 - iv) **Attempt any three questions from Section – II.**
 - v) **Draw neat labeled diagrams wherever necessary.**
 - vi) **Figures to the right indicate full marks.**

SECTION-I

Q.1 Choose the correct answer from the given alternatives. (20)

1)-----Variety is one which shows average/more than average damage caused by an insect.

- a) Susceptibility
- b) resistant
- c) immunity
- d) none of these.

2) Crop rotation is the -----method of pest control.

- a) Mechanical
- b) Physical
- c) Cultural
- d) biological

3) Resistance is -----and controlled by one/more major genes

- a) heritable
- b) genetical
- c) compatible
- d) all the above



- 4) Agro ecosystem may be more -----to pest damage due to less diversity
- a) resistant b) susceptible
- c) moderately resistant d) less resistance
- 5) All the activities, which are designed to increase the no. of natural enemies are called as -----
- a) conservation b) introduction
- c) Segregation d) augmentation
- 6) Hairy catter piller lays eggs on -----
- a) lower leaf surface b) in soil
- c) on stem d) upper leaf surface
- 7) In the ecosystem the producers are -----
- a) Insects b) Plants
- c) Animals d) both a and b
- 8) The scientific name stem borer is -----
- The scientific name of stem borer is -----
- a) *Chilo partellus* b) *Proginus nautis*
- c) *Helioverpa armijera* d) *Periplanata Americana*
- 9) The Sympatric resistance is evolved as a result of -----of co-evolution of plants and insects.
- a) Gene for gene nature. b) Degree of damage by insect
- c) Unrelated selective force d) None of these.
- 10) Monitoring insect pests and natural enemies requires the information of-----
- a) Insect population b) Insect Distribution
- c) Impact of environment on insects d) All the above.



- 11) The causal agent of Udbatta disease of rice is -----
- a) *Ephelis* sp. b) *Colletotrichum* sp.
c) *Helminthosporium* sp. d) *Rhizoctonia* sp.
- 12) Green ear disease is another name for ----- disease.
- a) *Powdery mildew*. b) *Downy mildew*
c) *Rust*. d) *Smut*
- 13) Dwarf yellow Milo is resistant to -----disease.
- a) Loose smut b) Long smut
c) Grain smut d) Head Smut
- 14) In the life cycle of *Puccinia graminis tritici* ---- different types of spores are formed.
- a) Six b) four
c) Three d) five.
- 15) Insecticidal properties of DDT were first reported by -----in Switzerland
- a) H.R.Painter b) V.M.Stern
c) Paul Muller. d) R.L.Metcalf
- 16) The Era of IPM started in -----onwards.
- a) 1976 b) 1950
c) 1938 d) 1975
- 17) *Sclerospora* belongs to the order-----
- a) Stemonitales b) Melanconiales
c) Uredinales. d) Peronosporales.
- 18) The primary source of inoculum of smut disease is -----
- a) Sporangia b) Conidia
c) Chlamydospores d) Sporidia.



19) ----- disease produces the green island symptom in the host plant

- a) Rust
- b) Wilt
- c) Club root
- d) Smut

20) Rust diseases are also called as -----diseases.

- a) Low sugar
- b) High sugar
- c) Low protein
- d) High protein.

SECTION –II

Q: 2-Describe the various factors that affect the HPR. : 20

Q: 3- Enlist the major pests of oil seed crops and describe the biology, nature of damage and control measures of Sunflower head borer and Castor capsule borer.. :20

Q: 4- Describe the biology, nature of damage and control measures of Rice Army worm and Sorghum white grubs : 20

Q: 5-Describe the rust disease of **Groundnut** and **Soybean** with respect to symptoms, causal organism, disease cycle and control measures. : 20

Q:6- Give an account of Ergot of **Bajara** and Blast of **Rice disease** with respect to the symptoms, causal organism, disease cycle and control measures. : 20

SECTION –III

Q:7-Write short notes on **any four** of the following. :20

- a) Ecosystem components
 - b) Constrains in implementation of IPM.
 - c) Nature of damage and control measures of Bersim Grass hopper.
 - d) Biology and nature of damage of Linseed Jassids
 - e) Powdery mildew of Mustard-Symptoms and control measures
 - f) Symptoms, Causal organism and control measure of **rust of pea**.
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**M.Sc. (Part – II) (Semester – IV) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT
Paper No. – XIII : Agro based Marketing Management**

Day and Date : Tuesday, 22-4-2014
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions: 1) *All Sections are compulsory.*
2) *Figures to the right indicate full marks.*

SECTION – I

1. Choose the correct alternative : 20
- 1) _____ is a process of identifying needs, wants and demands and try to satisfy the same.
 - a) Marketing
 - b) Segmentation
 - c) Promotion
 - d) None of above
 - 2) _____ is type of research design.
 - a) Exploratory
 - b) Explanatory
 - c) Qualitative
 - d) None of above
 - 3) _____ is a decision process and acts of people involved in buying and using product.
 - a) Buying behavior
 - b) Selling behavior
 - c) Casual behavior
 - d) None of above
 - 4) _____ is the first step of consumer buying process.
 - a) Problem recognition
 - b) Purchase decision
 - c) Consumer decision
 - d) None of above
 - 5) In SWOT analysis T stands for _____
 - a) Threats
 - b) Transform
 - c) Treat
 - d) Transfer



- 6) _____ is the first step in selecting and establishing the research design.
- a) Select the research design
 - b) Select the target market
 - c) Select the customer
 - d) None of above
- 7) _____ is the function of NABARD.
- a) Providing loan to state government and non government organization
 - b) Providing funds to orphan children
 - c) Providing funds to education
 - d) None of above
- 8) While measuring demand marketer focus on _____
- a) Market potential
 - b) Customer focus
 - c) Competitor potential
 - d) None of above
- 9) _____ is first step in market segmentation.
- a) Identify the target market
 - b) Create sub group
 - c) Review the behavior
 - d) None of above
- 10) The first step in the process of product promotion is _____
- a) Segmentation
 - b) Promotion
 - c) Pricing
 - d) Physical evidence
- 11) _____ is the approach to marketing.
- a) Functional
 - b) Price
 - c) Product
 - d) None of above
- 12) _____ is the type of marketing.
- a) Online
 - b) Buying
 - c) Physical
 - d) None of above



- 13) WTO stands for _____
- a) World Trade Organization
 - b) World Tour Organization
 - c) World Tariff Organization
 - d) World Tourism Organization
- 14) APEDA stands for _____
- a) Agricultural and Processed Food Product Export Development Authority
 - b) Agricultural and Possessed Food Product Export Development Authority
 - c) Agrochemical and Processed Food Product Export Development Authority
 - d) Agrobased and Processed Food Product Export Development Authority
- 15) _____ is the factor of external environment.
- a) Demographic
 - b) Employees
 - c) Machineries
 - d) None of above
- 16) _____ is the paid form of non personal presentation.
- a) Advertisement
 - b) Promotion
 - c) TV add
 - d) None of above
- 17) Segmentation refers to a process of _____ a large unit into small unit.
- a) Bifurcating
 - b) Combining
 - c) Targeting
 - d) None of above
- 18) Market risk is known as _____
- a) Systematic risk
 - b) Moderate risk
 - c) High risk
 - d) Differential risk
- 19) _____ is a crucial factor in supply chain management.
- a) Local decision
 - b) Advertising decision
 - c) Promotion decision
 - d) None of above
- 20) _____ is a person who sales merchandise or services.
- a) Sales person
 - b) Manager
 - c) CEO
 - d) Branch manager



SECTION – II

Write **any three** :

60

2. Explain new product development stages.
3. Explain agricultural import and export process.
4. Explain the types of marketing.
5. Explain sales character and its type.
6. Explain marketing mix.

SECTION – III

Short notes (Write **any four**) :

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1. Demand measurement
 2. WTO
 3. Strategies for increasing customer value
 4. Competitive advantage
 5. Importance of marketing
 6. Product life cycle.
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**M.Sc. (Part – II) (Semester – IV) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT (Paper – XIV)
Advances in Pest Control – II**

Day and Date : Thursday, 24-4-2014

Max. Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

- Instructions:** 1) *All questions carry equal marks.*
2) *All Sections are compulsory.*
3) *Answer any three questions from Section – II.*

SECTION – I

1. Choose the correct answer (**Each** subquestion carry **one** mark) **(1×20=20)**
- 1) Epiricana melanoma is a parasitoid of _____
 - a) Gram pod borer
 - b) Sugarcane pyrilla
 - c) Mealy bugs
 - d) All the above
 - 2) A phenomenon in which a species of parasitoid is parasitic upon itself is called _____
 - a) Adelphoparasitism
 - b) Cleptoparasitism
 - c) Multiple parasitism
 - d) None of the above
 - 3) Cryptorhinus lividipennis is predator of _____
 - a) Leaf miner
 - b) Leaf roller
 - c) Lead hopper
 - d) All the above
 - 4) The genetic control of screw wormfly was initiated by _____
 - a) E. F. Knipling
 - b) F. E. Edward
 - c) C. Raymond
 - d) None of the above
 - 5) Gonizus nephantidis parasitoid is used to control _____
 - a) Potato tuber moth
 - b) Black headed catter pillar
 - c) Diamond back moth
 - d) None of the above
 - 6) Moulting hormone 'ecdyson' is secreted by _____
 - a) Carpora allata
 - b) Carpora cardica
 - c) Brain
 - d) Prothoracic glands



- 7) Trichogramma chelonus is _____
a) Egg parasitoid b) Larval parasitoid
c) Pupal parasitoid d) Adult parasitoid
- 8) Sugarcane wolly aphids effectively suppressed by _____
a) Dipha b) Micromus c) Shriphyd fly d) All the above
- 9) Nuclear polyhydrosis virus are _____
a) Rod shaped b) Branched
c) Quadrangular d) All the above
- 10) The screw worm fly is successfully controlled by _____
a) Chemosterilant b) Gamma rays
c) Co-radiation d) All the above
- 11) Paper factor effect was first recognised by _____
a) Hopkins b) Williams c) Richard d) None of these
- 12) Chrysoperla carnea is a _____
a) Parasitoid b) Predator c) Scavenger d) None of these
- 13) Encarsia formosa is used to control _____
a) white fly b) fruit fly c) pod borer d) none of these
- 14) Genetic control of insect is possible through _____
a) Hybrid sterility b) Conditional lethal gene
c) Cytoplasmic incompatibility d) All the above
- 15) Gossyplure is pheromone produced by _____
a) Pectinophora gossypiella b) Porthetria disper
c) Plutella Xylostella d) Pieris brassicae
- 16) The vector used in introducing gene in plants is called _____
a) Bacteriophage b) Tiplasmid c) Genome d) None of these
- 17) Plant chemicals which deprive the oviposition behaviour insect is called _____
a) Oviposition deterant b) Oviposition attractant
c) Oviposition repellent d) None of these
- 18) Allelochemicals in which producer is benefited is called _____
a) Allomone b) Kiramone c) Synamone d) All the above



- 19) The author of book 'Silent spring' is _____
- | | |
|------------------|------------|
| a) Richal Carson | b) DeBach |
| c) Dhaliwal | d) Metcalf |
- 20) _____ enzyme is known to cut the DNA fragment specifically.
- | | |
|---------------|-----------------------------|
| a) DNA ligase | b) Restriction endonuclease |
| c) Proteoses | d) Lipases |

SECTION – II

2. Define biological control. Explain the different techniques used in biological control with suitable examples. Add a note on role of parasitoid in insect pest management. 20
3. What are the semiochemicals ? Discuss the importance of pheromones in insect pest management. 20
4. Describe the importance of biotechnological applications in pest management. 20
5. Define microbial control. Explain in short the history and development with suitable example. Add a note on role of fungi in pest management. 20
6. Describe the various biorational approaches adopted in pest management. 20

SECTION – III

7. Write short notes on **any four** of the following : (4×5=20)
- 1) Chemosterilant
 - 2) Nuclear polyhydrosis virus
 - 3) Allelochemicals
 - 4) Attractant and repellents
 - 5) Autocidal control
 - 6) Insect growth regulators.
-



SLR-VP – 15

Seat No.	
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**M.Sc. (Part – II) (Semester – IV) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT
Manufacture of Agrochemicals (Paper – XV)**

Day and Date : Saturday, 26-4-2014

Total Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

- Instruction :**
- All Sections are compulsory.**
 - Question 1 should be answered by choosing the correct answer.
 - Attempt in **all five** questions.
 - From Question No. 2 to 6 attempt **any three** questions.
 - All questions carry equal marks.**

SECTION – I

1. Choose the correct answer (**one mark each**) : **(1×20=20)**
- Which of the following is known as insecto-fungicide ?
a) Aldrin b) Dieldrin c) Endrin d) Endosulphan
 - Maneb is marketed as
a) Z-78 b) M-45 c) Z-60 d) M-48
 - The new Industrial Policy paper was presented to the Parliament by Industry Minister Shri Ajit Singh on
a) 31st May 1990 b) 21st July 1960
c) 15th August 1945 d) 31st May 1980
 - For counter current extraction which apparatus is used ?
a) Separating Funnel b) Soxhelt apparatus
c) Craig tubes d) Kjeldahl's apparatus

P.T.O.



- 5) Distillation is a process in which _____ components are separated from the mixture.
a) solid b) volatile c) water d) gaseous
- 6) In gas absorption mass transfer occurs from _____ to liquid phase.
a) liquid b) solid c) water d) gas
- 7) Distribution coefficient becomes equal to distribution ratio when there is
a) No association b) No dissociation
c) No polymerization d) All of these
- 8) _____ is also called Rogar.
a) Dimethoate b) Malathion c) Endrin d) Parathion
- 9) The performance of an evaporator is evaluated in terms of
a) Economy b) Capacity
c) Efficiency d) Capacity and Economy
- 10) The BSI kite mark is applied to
a) Mechanical goods
b) Electrical goods
c) Electrical and non-electrical goods
d) None of these
- 11) Development is the _____ step between applied research and production.
a) Intermediate b) Initial c) Final d) None of these
- 12) Nabam is raw material for
a) Parathion b) Maneb c) Captan d) Phorate
- 13) According to Provident Fund Act, 1952, _____ percentage of basic payment is deducted from the employee's salary every month.
a) 10% b) 15% c) 7.15% d) 8.33%
- 14) _____ cost include cost of instructions and testing during various stages of manufacture.
a) Appraisal b) Prevention c) Optimising d) Failure
- 15) In _____ type of training a duplicate work place is created.
a) On the job training b) Vestibule training
c) Apprenticeship training d) Classroom training



- 16) A molecule whose synthesis is being planned is called
a) Reagent b) Target molecule
c) Intermediate d) None of these
- 17) Copper salts are widely used as
a) Rodenticides b) Herbicides
c) Acaracides d) Fungicides
- 18) According to SSI Policy, 1990, investment in plant and machinery is _____
a) Rs. 90 Lakh b) Rs. 50 Lakh
c) Exceeding Rs. 60 Lakh d) Not exceeding Rs. 60 Lakh
- 19) Maneb is _____ pesticide.
a) Organochlorine b) Carbamate
c) Botanical d) Organophosphorous
- 20) A generalised fragment, usually on ion produced by a disconnection is
a) Synthron b) Synthetic equivalent
c) Reagent d) Product

SECTION – II

2. Explain the plate and packed columns used in distillation. How is steam distillation used for separation of azeotropes ? 20
3. Why is batch inspection necessary in an industry ? How is it carried out ?
Explain the procedure to control the quality of raw materials in an industry. 20
4. A) Plan the synthesis of 2,4-D by using retrosynthetic approach. 10
B) Discuss briefly the importance and various kinds of first aids in case of accidental hazards. 10
5. Explain the raw materials, chemical reactions involved, flow sheet diagram and working process for mane b and dimethoate. 20
6. A) What are the aims of R & D ? Which are the factors responsible for setting up a research laboratory ? 10
B) Explain various types of dryers. 10



SECTION – III

7. Write short notes on **any four** of the following :

(4×5=20)

- a) Filtration
 - b) Reactors
 - c) Health education for workers
 - d) ISI specifications and standards
 - e) Human Resources Development (HRD)
 - f) Copper Insecticides.
-



Seat No.	
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**M.Sc. (Part – II) (Semester – IV) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT (Paper – XVI)
Pests and Diseases of Crop Plants – II**

Day and Date : Tuesday, 29-4-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) **All Sections are compulsory.**
2) **All questions carry equal marks.**
3) **Answer any three questions from Section – II.**

SECTION – I

1. Choose the correct answer (**each** sub question carry **one** mark). **(1×20=20)**
- 1) Mealy bug complete its life cycle within _____ months and one generation is found in a year.
a) 9.5 to 11 b) 7 c) 10 d) None of these
 - 2) The Scientific name of leaf hopper is
a) Amritodus atkinsoni b) Cuscuta
c) Drosicha mangifera d) None of these
 - 3) Stem borer belongs to the order
a) Diptera b) Coleoptera c) Lepidoptera d) None of these
 - 4) _____ is an important pest of pomogranate.
a) Anar butterfly b) Armyworm c) Leaf hopper d) Cutworm
 - 5) The site of oviposition in Dichocrosis punctiferalis is on
a) stem b) soil c) leaves d) flower
 - 6) Chillie thrip belongs to the family
a) Thripidae b) Scarabidae c) Jassidae d) Aphidae
 - 7) The pollu beetle complete its life cycle within _____ days.
a) 39 to 60 b) 33 to 55 c) 39 to 50 d) 35 to 46



- 8) Damaging stage of Cinnamon butterfly is
a) Adult b) Larva c) Nymph d) Pupa
- 9) Leaf eating caterpillar is a major damaging pest of
a) Cabbage b) Tobacco c) Spinach d) Sugarbeet
- 10) Tea mosquito bug can be controlled by spraying _____ chemical.
a) Mercury chloride b) Sodium chlorate
c) Oil/malathion d) None of these
- 11) _____ is the natural enemy of Rhinoceros beetle.
a) Monkey b) Frog c) Cattle d) Goat
- 12) _____ is the scientific name of Coffee Green Bug.
a) Coccus viridis b) Cryptolacmus montrouzieri
c) Empusa lecanii d) Hypocrylla Olivaceae
- 13) The adult fruit fly may be also controlled by spraying
a) Mollases b) Carbaryl 50 WP
c) DDVP76EC d) Formothion 25 EC
- 14) The host plant of sweet potato weevil is
a) Grass b) Rice c) Bajara d) Water plants
- 15) Banana aphid belongs to order
a) Diptera b) Thysanoptera c) Homeoptera d) Heteroptera
- 16) In cashewnut leaf minor the site of pupation is on
a) Leaf b) Stem c) Ground d) Fruit
- 17) The pupation period of lemon butterfly is
a) 30-35 days b) 40 to 45 days c) 10-15 days d) None of these
- 18) Scientific name of onion fly is
a) Delia antigna b) Hylemya antiqua
c) Dacus dorsalis Henda d) None of these
- 19) Leaf eating caterpillar is the major pest of
a) Ginger b) Tobacco c) Chilli d) Onion
- 20) Burrowing nematode is the major pest of
a) Papaya b) Banana c) Fig d) Ber



SECTION – II

(20×3=60)

2. Enumerate the pests of Lady's finger, suggest the control measures and life cycle of any one pest. 20
3. Enlist the pest of Mango. Suggest the control measures and give the life cycle of anyone pest. 20
4. Enlist the pests of cucurbitaceous vegetables. Give the control measures and life cycle of any one pest. 20
5. Explain the mode of damage of different insect pests attacking fruit crop in your area and suggest the control major for any one of them. 20
6. Describe the symptoms causal organism, disease cycle and control measures of problem mildew of teak and rust of sisso. 20

SECTION – III

(4×5=20)

7. Write short notes on **any four** of the following.
 - a) Mango Leaf hopper
 - b) Wilt disease of tomato
 - c) Life cycle of tomato fruit borer
 - d) Control measures of stem borer in cashewnut
 - e) Powdery mildew of crucifers.



SLR-VP – 4

Seat No.	
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M.Sc. I (Semester – I) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT
Paper – IV : Plant Pathology and Weed Management

Day and Date : Monday, 28-4-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

- Instructions:** 1) **All Sections 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 alternatives.

(1×14=14)

- 1) The bacteria are _____ organisms.
 - a) eukaryotic
 - b) prokaryotic
 - c) karyotic
 - d) all of these
- 2) Bacteria found in groups and spherical in shape are called
 - a) Diplococci
 - b) Micrococci
 - c) Staphylococci
 - d) Streptococci
- 3) The existence of virus as a definite entity was first indicated by
 - a) Iwanowsky
 - b) Nocard and Roux
 - c) Louis Pasteur
 - d) J. Lister
- 4) _____ is caused by virus.
 - a) Late blight of Potato
 - b) Fruit rot of apple
 - c) Tobacco mosaic disease
 - d) White rust of crucifer
- 5) _____ is caused by MLO's.
 - a) Seed rot of groundnut
 - b) Root rot of cabbage
 - c) Big bud of tomato
 - d) Mosaic of bean

P.T.O.



- 3. A) Describe in brief the microscopic methods of studying plant pathogens. 7
- B) Describe the bacterial symptomology studied by you. 7
- 4. A) Define weed. Give the different mode of dispersal of weeds. 7
- B) Give the Biological methods of weed control. 7

SECTION – III

- 5. A) What is the role of enzymes in disease development ? 5
 - B) Give the symptoms caused by Viruses. 5
 - C) Give the diseases caused by MLO's. 4
 - 6. A) What is the impact of Pathogens on crops ? 5
 - B) Write about the dissemination of bacterial diseases. 5
 - C) Write a note on Parasitic weeds. 4
 - 7. A) Give the molecular basis of disease diagnosis. 5
 - B) Give the classification of weeds on the basis of life cycle. 5
 - C) Write a note on storage fungi. 4
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Seat No.	
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M.Sc. (Part – I) (Semester – II) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT
Paper – V : Chemistry of Pesticides and Their Formulations – II
(CGPA Pattern)

Day and Date : Tuesday, 22-4-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

- N.B :** 1) **All Sections are compulsory.**
2) **All questions carry equal marks.**
3) Answer **any two** questions from Section II and III.
4) Figures to right indicate **full marks.**

SECTION – I

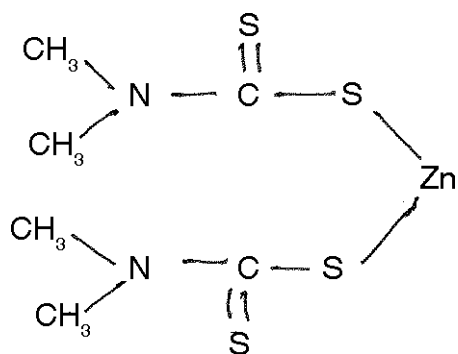
1. Choose most correct answer of the following. **Each** carries **1** mark.

14

1) Bordeaux mixture should be sprayed after _____

- a) Standing for one hour b) Standing for ten hours
c) Standing for hundred hours d) Freshly prepared

2) What is name of following compound ?



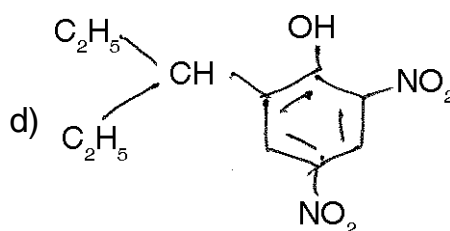
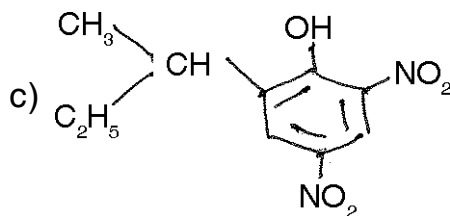
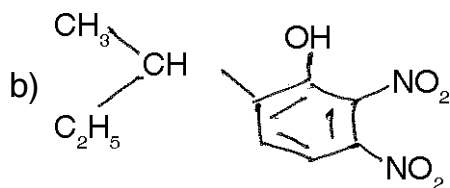
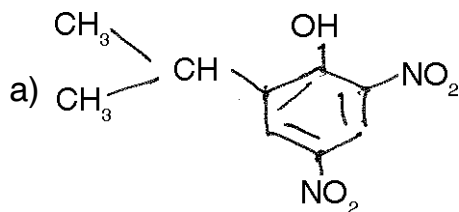
- a) Ziram b) Maneb
c) Zineb d) None of these



- 3) AZO compounds on reduction forms _____
- a) Nitro compounds
 - b) Hydrazines
 - c) Nitro hydrocarbons
 - d) Amino compounds
- 4) Catechol when treated with isopropyl chloride in presence of base it forms _____
- a) Carbofuran
 - b) Alicarb
 - c) Baygon
 - d) Carboxyl
- 5) Sodium chlorate is used as _____
- a) Herbicide
 - b) Acaricide
 - c) Fungicide
 - d) Rodenticide
- 6) Nitralin is herbicide which is prepared by reacting _____
- a) 4-Chlorothioaxisol with methyl amine
 - b) 4-Chlorothioanisol with dipropyl amine
 - c) 4-Chlorothioanisol with methyl bromide
 - d) None of these
- 7) Diel's-Alder reaction is involved in the synthesis of _____
- a) Perchlor
 - b) Captan
 - c) Phthalan
 - d) Propanil
- 8) Dithane-z-78 is also called as _____
- a) Zineb
 - b) Maneb
 - c) Ziram
 - d) Captan



9) Dinoseb is represented by structure _____



10) Burgundy mixture is a mixture of _____

- a) One part of CuSO_4 + two parts of Na_2CO_3
- b) One part of CuSO_4 + one part of Na_2CO_3
- c) Two parts of CuSO_4 + one part of Na_2CO_3
- d) None of the these

11) Chlorobenside is produced by condensing P-chlorobenzyl chloride with _____

- a) P-Chlorophenolate
- b) P-chloroaniline
- c) P-chlorothiophenolate
- d) P-nitrobenzene

12) Sulphur is used in agriculture in the form of _____

- a) Smoke
- b) Dust
- c) Aqueous solution
- d) Emulsive concentrate



- 13) Captan is synthesised by reacting perchlor with _____
a) Phthalimide
b) Tetrahydro phthalimide
c) Succinimide
d) Maleimide
- 14) Methyl isocyanate is used as _____
a) Herbicide
b) Acaricide
c) Fungicide
d) Fumigant

SECTION – II

Solve **any two** questions :

2. A) Give synthesis and use of ziram and aldicarb. 7
B) Give an account of Thallium salts and zinc compounds as rhodenticide. 7
3. A) Give synthesis and applications of captan and paraquat. 7
B) Describe the pesticides belonging to class thiourea. 7
4. A) Describe synthesis and role of following aromatic amino compounds as herbicide. 7
a) Trifluralin
b) Nitralin
B) Explain the role of inorganic pesticides in agriculture. 7

SECTION – III

Solve **any two** questions :

5. A) Discuss copper compounds as fungicides. 5
B) Give synthesis and uses of zineb. 5
C) Discuss controlled release formulation. 4
6. A) Give syntheses and uses of Baygon. 5
B) Discuss azo compounds as pesticide. 5
C) Give synthesis of Benifin. 4
7. A) Describe the mode of action of carbonate pesticides. Give synthesis of carbaryl. 5
B) Discuss nitrophenols compound as pesticides. 5
C) Give synthesis of chlorobenside. 4



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M.Sc. (Part – I) (Semester – II) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT (CGPA Pattern)
Paper – VI : Analytical Techniques for Agrochemicals

Day and Date : Thursday, 24-4-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

- 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 labelled** diagrams should be drawn.

SECTION – I

1. Choose the most correct alternative and write the sentence : **14**
- i) Sub sample is obtained after some treatment like _____
- a) Reduction in particle size b) Oxidation
c) Increase in particle size d) Increase in concentration
- ii) A polymer containing _____ group acts as a cationic resin.
- a) Phenolic b) Primary amine
c) Secondary amine d) Tertiary amine
- iii) The fundamental requirement of an ion exchange resin is that it must be _____
- a) Soluble in water b) Hydrophobic
c) Unstable d) Denser than water
- iv) The pH range of methyl orange indicator is _____
- a) 7 – 10 b) 4 – 7 c) 3.1 – 4.4 d) 7.3 – 9.5
- v) In gravimetric estimation of iron, ammonium _____ reagent is used.
- a) Fluoride b) Iodide c) Hydroxide d) Nitrate



SECTION – II

- 2. a) During solvent extraction of a metal as a complex discuss the various features of a ligand. 7
- b) Discuss the procedure of sample application and plate development of thin layer chromatography. 7
- 3. a) Describe the determination of aluminium using EDTA by back titration method. 7
- b) Describe the method of determining sulphate. 7
- 4. a) Describe the detailed procedure of stripping voltametry using hanging mercury drop electrode. 7
- b) Describe the anodic stripping voltametric method of determining lead in tap water. 7

SECTION – III

- 5. a) Describe with neat sketch the construction and working of pre-mix burner used in atomic absorption spectrophotometer. 5
 - b) Describe the flame photometric method of determining alkali metals. 5
 - c) Write short note on TGA. 4
 - 6. a) Describe the procedure for polarimetric analysis of pesticides. 5
 - b) Give an account of experimental details of DTA. 5
 - c) Write short note on AAS analysis of food. 4
 - 7. a) Describe in detail ion chromatography. 5
 - b) What are metallochromic indicators ? Discuss in detail. 5
 - c) How would you do the conductometric estimation of halides ? Describe in detail. 4
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Seat No.	
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M.Sc. (Part – I) (Semester – II) Examination, 2014
(CGPA Pattern)
AGROCHEMICALS AND PEST MANAGEMENT (Paper – VII)
Economic Entomology

Day and Date : Saturday, 26-4-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

- 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 the correct answer from options given below :

14

- 1) Silver fish is _____ pest.
 - a) Household
 - b) Monophagous
 - c) Oligo
 - d) Polyphagous
- 2) Which one of the following is pest of stored grain ?
 - a) Housefly
 - b) Cockroach
 - c) Khapra beetle
 - d) All the above
- 3) Chemicals used to control birds are known as _____
 - a) Avicides
 - b) Acaricides
 - c) Pesticides
 - d) Droppers
- 4) Aedes is called _____ mosquito.
 - a) Common great
 - b) Malarial
 - c) Yellow fever
 - d) None of the above
- 5) Sitophilus oryzae is scientific name of _____
 - a) Rice weevil
 - b) Termite
 - c) White grub
 - d) Mealy bug



- 6) Apodous larva is found in life cycle of _____
- a) Mosquito
 - b) Hadda beetle
 - c) Cockroach
 - d) All the above
- 7) Indian field mouse belong to an order _____
- a) Passeriformes
 - b) Coleoptera
 - c) Hymenoptera
 - d) Rodentia
- 8) Bihar hairy caterpillar belongs to the family _____
- a) Noctuidae
 - b) Acrtiidae
 - c) Coccidae
 - d) Cochilidiidae
- 9) Caste system and division of labour is found in _____
- a) White ants
 - b) Red ants
 - c) Cockroach
 - d) Mosquito
- 10) Nematode belongs to phylum _____
- a) Mollusca
 - b) Arthropoda
 - c) Nematohelminthes
 - d) Platyhelminthes
- 11) Damaging stage of Khapra beetle is _____
- a) Maggot
 - b) Adult
 - c) Grub
 - d) Grub and adult
- 12) Primate is the order of _____
- a) Monkey
 - b) Parakeet
 - c) Rat
 - d) Green bee eater
- 13) Rice moth completes its life cycle within _____ days.
- a) 20 – 30
 - b) 33 – 52
 - c) 15 – 20
 - d) 60
- 14) The flies are _____ insects.
- a) Isopterous
 - b) Hymepterous
 - c) Dipterous
 - d) Orthopterous



SECTION – II

2. A) Describe life cycle pattern of Rat.
B) Describe life cycle pattern of White grub.
3. A) Describe Root knot nematode.
B) Describe life cycle pattern of Aphid.
4. A) Describe life cycle pattern of sucking cattle louse.
B) Explain Horse flies.

SECTION – III

5. A) Describe control measures of Termites.
B) Describe damages of Cockroach.
C) Control measures of Mosquito.
 6. A) Damages of Rice weevil.
B) Control measures of Stable fly.
C) Seed gall nematodes.
 7. A) Hadda beetle.
B) House sparrow.
C) Control measures on Cyst forming nematode.
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M.Sc. (Part – I) (Semester – II) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT (Paper – VIII)
(C.G.P.A. Pattern)
Biotechnological Aspects in Plant Protection

Day and Date : Tuesday, 29-4-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

- N. B. :** 1) *Section – I is compulsory.*
2) *All questions carry equal marks.*
3) *Attempt any two questions from Section – II and III.*
4) *Figures to the right indicate full marks.*

SECTION – I

1. Objective type :

N.B. : I) Correct answer to **each** items carries **one** mark.

II) There are in **all 14** items for **14** marks.

- 1) Paddy belong to the _____ Family.
a) Papavaraceae b) Capparidaceae
c) Poaceae d) Fumariaceae
- 2) Sugarcane is suitable for cultivation in _____ soil.
a) Light or sandy loam b) Alluvial
c) Sandy loam or loam d) Medium to heavy black
- 3) National Research Centre for Soyabean (NRCS) is located at _____
a) Lucknow b) Kota c) Indore d) Dharwad
- 4) In Maharashtra planting of sugar is done in the month of Dec-Feb. Which is called as _____
a) Suru/Eksali b) Adsali c) Pre-seasonal d) Mid-seasonal
- 5) The term horizontal resistance was first used by
a) J.E. Vanderplank b) Raoul A. Robinson
c) Gautheret d) Laibach



- 6) 'Part of plant used for culture is called _____
- a) Callus b) Explant c) Stock d) Scion
- 7) Sterilization of nutrient medium is done an autoclave at _____ pressure for 20 minutes.
- a) 15 lb/inch² b) 18 lb/inch²
c) 16 lb/inch² d) 17 lb/inch²
- 8) Meristem culture help in developing
- a) Hybrid plant b) Tall plants
c) Disease resistant plants d) Virus free plants
- 9) Shoot initiating hormone in tissue culture is _____
- a) Auxin b) Gibberllins
c) Cytokinens d) Ehtylene
- 10) Mercury chloride is used as _____ in tissue culture.
- a) Microelement b) Surface sterilant
c) Preservative d) Nutrient
- 11) Recombinant DNA technology method began
- a) 1975's b) 1990's c) 1960's d) 1970's
- 12) The gene which was used to produce insect resistant cotton plant, was taken from _____
- a) *Anabacna azollae* b) *Agrobacterium tumefaciens*
c) *Bacillus anthracis* d) *Bacillus thuringiensis*
- 13) Which of the following is an e.g. of cloning vector ?
- a) Human growth hormone b) Mosquito
c) Ribosomal RNA d) Plasmid
- 14) Engineering plants that are resistant to glyphosate was an important advancement because
- a) Glyphosate promotes frost damage
b) Glyphosate encourages the production of fruit that is lower in protein
c) Glyphosate is the active ingredient in herbicide
d) Glyphosate prevents the transfer of genes into the plants



SECTION – II

N.B. : i) Answer **any two** questions.

ii) **Each** question carries **14** marks.

2. A) Give an account of cultivation practices of cabbage and cauliflower with respect to soil and climate, seed rate, sowing, varieties and fertilizer. **7**
- B) Give an account of cultivation practices of cauliflower with respect to soil and climate, seed rate, sowing varieties and fertilizer. **7**
3. A) Explain in brief the role of seed technology in the production of diseases resistance varieties, **7**
- B) Escape method of breeding. **7**
4. A) Describe in detail biochemical defense mechanism offered by the crop plants. **7**
- B) Breeding for disease resistance. **7**

SECTION – III

N.B. : i) Answer **any two** questions.

ii) **Each** question carries **14** marks.

5. A) Describe the technique of protoplast isolation. **5**
 - B) Application of protoplast isolation. **5**
 - C) Screening for disease resistant. **4**
 6. A) What is genetic engineering ? **5**
 - B) Explain the steps involved in plant genetic engineering to produce transgenic plants. **5**
 - C) Bt gene. **4**
 7. A) Fertilizer requirements of coconut. **5**
 - B) Plant protection measure of soyabean. **5**
 - C) Technique of hybrid seed production. **4**
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SLR-VP – 9

Seat No.	
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M.Sc. (Part – II) (Semester – III) Examination, 2014
AGROCHEMICALS AND PEST MANAGEMENT
Paper – IX : Pesticide Residues and Toxicology

Day and Date : Monday, 21-4-2014

Max. Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** i) **All Sections are compulsory.**
ii) **For Q. No. 1 write small alphabet of correct answer.**
iii) **From Section – II attempt any three questions.**
iv) **From Section – III attempt any four short notes.**

SECTION – I

1. Write correct alternative for the following questions : 20

I) _____ is the movement of pesticides in water through the soil.

- | | |
|---------------|----------------|
| a) Leaching | b) Run off |
| c) Adsorption | d) Spray drift |

II) _____ kill the nematodes.

- | | |
|-----------------|-----------------|
| a) Nematicides | b) Fungicides |
| c) Insecticides | d) Rodenticides |

III) The conversion of pesticides in to non toxic compounds by micro organisms is called _____

- | | |
|----------------------------|---------------------|
| a) Biodegradation | b) Photodegradation |
| c) Chemical transformation | d) Adsorption |

IV) Spray drift is affected by _____

- | |
|---|
| a) Size of spray droplets |
| b) Wind speed |
| c) Distance between nozzle and target plant |
| d) All of these |

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- V) Ingestion of _____ contaminated grains by birds produces thin and fragile eggs.
- a) DDT
 - b) Endrin
 - c) Hepatochlor
 - d) PCBs
- VI) Biocatalytical conversion of toxic substance into hydrophilic forms to facilitate their excretion molecule is called _____ from the body is termed as
- a) Bioconcentration
 - b) Biotransformation
 - c) Detoxification
 - d) Degradation
- VII) _____ deals with the poison, its type, symptoms and possible treatments.
- a) Mechanistic toxicology
 - b) Regulatory toxicology
 - c) Clinical toxicology
 - d) Forensic toxicology
- VIII) The dust particles in the air adsorb the pesticides and then contaminate the water bodies through
- a) Ground water
 - b) Runoff water
 - c) Rain water
 - d) Capillary water
- IX) Disease minamata is caused due to chronic poisoning of _____
- a) Cadmium
 - b) Arsenic
 - c) Lead
 - d) Mercury
- X) Inhibition of acetylcholine esterase is caused by _____
- a) DDT
 - b) Carbamates
 - c) Fungicides
 - d) None of these
- XI) _____ poisoning occurs as a result of repeated small, non-lethal doses over a long period of time.
- a) Chronic
 - b) Acute
 - c) Moderate
 - d) Lethal
- XII) _____ is the full form of WHO.
- a) Worker's Health Organisation
 - b) World Human Organization
 - c) World Head Master's Organization
 - d) World Health Organization



- XIII) _____ is more toxic.
- a) Ethyl alcohol (100 ml) b) Sodium chloride (4 gm)
c) Phenobarbitol (0.15 g) d) Nicotine (0.0001g)
- XIV) _____ is used for the metabolism of polycyclic aromatic hydrocarbon.
- a) Cyt.p448 b) Cyp460
c) Cyt a d) Cyt b
- XV) Bhopal gas tragedy occurred due to leakage of _____ gas.
- a) Methyl isocynate b) Propyl isocynate
c) Methyl isocyanide d) Chlorine
- XVI) Pesticide residues in the fruits are analysed by _____ technique.
- a) HPLC b) Spectro photometry
c) Titrimetry d) Atomic absorption
- XVII) Oxidation reduction and hydrolysis are the examples of _____
- a) Synthetic reactions b) Non synthetic reactions
c) Microsomal oxidation d) Enzymatic oxidation
- XVIII) The term receptor was first introduced by _____
- a) Paul Ehrlich b) Welsh
c) Taub d) Jacob
- XX) _____ are essential for the normal functioning of enzymes.
- a) Nucleic acids b) Carriers
c) Coenzymes d) Receptors

SECTION – II

- Instructions :** i) Attempt **any three** questions from the following.
ii) **All** questions are **compulsory**.
iii) Figures to the **right** indicate **full** marks.

2. What are pesticides ? Explain the fate of pesticides in the environment. **20**
3. What is water pollution ? Explain the nature and origin of water pollution. **20**



4. Write an essay on toxicology and its scope. **20**
5. Write in detail about various analytical methods used for detection of pesticide residues. **20**
6. Explain in detail about mechanism of action of any two pesticides you have studied. **20**

SECTION – III

7. Write short notes on **any four** of the following : **20**
- a) Chemical toxicity
 - b) Biomagnification
 - c) Microsomal oxidases
 - d) Cytochrome P450
 - e) Hazards of soil pollution by pesticides
 - f) Functional tests based on carbohydrate metabolism.
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