Chhatrapati Shahu Ji Maharaj University, Kanpur

Answer Script Details
Barcode 7900478

Roll No. 22031000195
Total Mark 35/50.00

Exam BACHELOR OF SCIENCE (AG)_DEC-2023
Subject AG3007 - PRINCIPLE OF INTEGRATED DISEASE MAN

Question wise Mark Summary

Q.No	Mark	Q.No	Mark	Q.No	Mark	Q.No	Mark
1A	4/5	8C	NA/2				
1B	4/5	8D	NA/2				
1C	3/5	9	NA/10				
1D	3/5						
1E	4/5						
1F	3/5						
2	7/10						
3	NA/10						
4	NA/10						
5A	NA/2						
5B	NA/2						
5C	NA/2						
5D	NA/2						
6	7/10						
7	NA/10						
8A	NA/2						
8B	NA/2						

Chhatrapati Shahu Ji Maharaj University
Kanpur, Uttar Pradesh

Date of Exam: 13/01/24 Shift: 11:00-1:00 Room No.: 55
Paper Code: AG-3007 Subject: Principle of IDM Year/Sem: V 3rd
Name of Candidate: Kumar Vaibhav
Roll No.: 22031000195

Signature of Candidate: कुमार वैभव
Signature of Invigilator
COE Facsimile

PART-II

MARKS OBTAINED

Q.	1	2	3	4	5	6	7	8	9	10
(a)										
(b)										
(c)										
(d)										
(e)										
(f)										
(g)										
(h)										
(i)										
(j)										
Total										

Total Marks in Figure | Max. Marks
Total Marks in Words

Paper Code: AG 3007

Signature of Evaluator

Course: B.Sc. (Ag) 3rd Sem
Session: 2023-24 Year/Semester: 3rd
Subject Name: Principle of Integrated disease management
Medium: English ○ Hindi ●

Paper Code: AG3007

Exam Date: 13012024

Name of Candidate: KUMARVAIBHAV

Father's Name: VINODKUMARVERMA

महाविद्यालय का कोड College Code: AU02

परीक्षा केंद्र का कोड Exam Centre Code: AU02

परीक्षा का प्रकार Type of Exam
संस्थागत Regular ● भूतपूर्व छात्र Ex-Student ○
व्यक्तिगत Private ○ बैक पेपर परीक्षा Back Paper Exam ○

ANSWER BOOKLET NO.

7900478

Paper Code: AG3007

नामांकन संख्या Enrollement Number: C S J M A 2 2 0 0 0 0 4 0 7 1 2

परीक्षार्थी अनुक्रमांक संख्या Candidate's Roll Number: 22031000195

पेपर कोड Paper Code: AG3007

Signature of Candidate: कुमार वैभव

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नोट- 1. परीक्षार्थी को निर्देशित किया जाता है कि आवरण पत्र के पृष्ठ भाग पर अंकित सभी निर्देशों को सावधानी पूर्वक पढ़ें।
2. गोलक में भरी जाने वाली प्रविष्टियाँ बायीं तरफ से शुरू की जायें। 3. गोली को काले या नीले बॉलपेन से भरा जायें।

INSTRUCTION TO THE CANDIDATE FOR FILLING PART-I

1. Read the instructions carefully given on the answer script and admit card.
2. Write Date of Exam, Shift, Paper Code & Name of Subject Correctly.
3. Write Name & Roll No. Correctly.
4. Write Semester & Branch Correctly.

परीक्षार्थियों के लिए निर्देश:

1. प्रवेश पत्र एवं उत्तर पुस्तिका पर दिये गये निर्देशों को ध्यान से पढ़ें।
2. अन्दर पृष्ठ के मुखपृष्ठ तरफ कुछ न लिखें।
3. उत्तर पुस्तिका के पृष्ठों पर दोनों तरफ लिखें।
4. प्रश्न पत्र पर अपने अनुक्रमांक के अतिरिक्त कुछ न लिखें।
5. प्रश्न पत्र कोड एवं प्रश्न पत्र ID सावधानी पूर्वक लिखें।
6. अपनी स्थिति स्पष्ट लिखें।
7. उत्तर पुस्तिका के पृष्ठों की संख्या देखें। अगर उत्तर पुस्तिका में पृष्ठ (1-24) से कम है या कटे हुए है, तो परी शुरू होने के पूर्व दूसरी उत्तर पुस्तिका ले लें।
8. प्रश्नपत्र को देख, यदि प्रश्नपत्र के विषय कोड, विषय का नाम तथा प्रश्न में कोई त्रुटि है तो उसके परीक्षा होने के 30 मिनट के अन्दर कक्ष निरीक्षक को लिखकर सूचित करें, उसके बाद विश्वविद्यालय द्वारा कोई नहीं की जायेगी।
9. प्रश्नों के उत्तर लिखने के लिये पेंसिल का प्रयोग न करें।
10. दी कोपी या अतिरिक्त ग्राफ नहीं दिया जायेगा।

INSTRUCTION TO THE CANDIDATE FOR FILLING PART-III

1. Use blue or black ball point pen for writing alphabets & numerals in ☐ boxes.
2. Carefully study the example before you start marking.
3. As shown in the example below, blacken the circles completely.

Correct Method	Incorrect Method
① ● ③ ④	✓ ✗ ● ⊖

4. Make no Stray marks on this sheet.
5. **DO NOT WRITE OR MARK ON THE BAR CODE.**

IN ORDER TO AVOD UFM (UNFAIR MEANS) :

1. The Roll No. and Answer Book no. found elsewhere or any other symbol found in the answer book will be treated as unfair means.
2. Any tempering of Bar Code and Booklet no shall be treated as Unfair Means.
3. Do Not bring the materials like slip of paper/mobile/digital diaries/ study material/ revision notes in examination hall. Possession of the mobiles/ digital diaries/electronic/digital/ watch and any other electronic gadget except memory less scientific calculator shall be considered as UFM case.
4. Do not keep or paste currency note in answer script it shall be consider as UFM.

अनुचित साधन से बचने हेतु :

1. उत्तर पुस्तिका के निर्देशित स्थान को छोड़कर अनुक्रमांक एवं उत्तरपुस्तिका का क्रमांक कहीं और न लिखे तथा कोई भी चिन्ह न बनायें क्योंकि यह अनुचित साधन प्रयोग की परिधि में आता है।
2. उत्तर पुस्तिका के मास्टहेड अथवा उत्तर पुस्तिका संख्या पर फेर छाड़ करने पर अनुचित साधन प्रयोग माना जायेगा।
3. परीक्षा कक्ष में निम्न वस्तुएं साथ न रखें, जैसे लिखे हुए कागज के टुकड़ें, मोबाईल, डिजिटल डायरी, डिजिटल घड़ी, कापी, पुस्तक यह सभी वस्तुएं जो अनुचित साधन के अन्तर्गत आती है। केवल संबंधित प्रश्नपत्र में ही मेमोरी लेस साइंटिफिक केल्कुलेटर ले जाने की अनुमन्यता होगी।
4. उत्तर पुस्तिकाओं में कागज न चिपकायें न ही उत्तर पुस्तिका में लिखायें। ऐसा करना अनुचित साधन प्रयोग की परिधि में आता है।

INSTRUCTION TO THE CANDIDATE

1. Read the instructions carefully given on the Question Paper, Admit Card & Answer Script.
2. Do not write anything on back side of the cover page.
3. Write on both sides of pages of answer book.
4. Do not write anything on question paper except Roll Number.
5. Write Paper Code & Question Paper Id carefully.
6. CHECK the number of pages (1-24) or any other kind of damage in your answer script, if found than change the answer script immediately before the commencement of examination.
7. CHECK the Question Paper for any kind of discrepancy e.g. Subject Code, Su Name, and Question of the Question Paper during first THIRTY MINUTES of t commencement of the exam, so that it can be corrected in TIME. After that no corrections shall be entertained by the university.
8. Do not use pencil for answering the question.
9. Write status correctly e.g. those appearing in carry over papers should fill in stat as Carry Over. Those appearing as Ex- Students should fill in status as ex.
10. No supplementary answer book & graph paper will be provided.

INSTRUCTION TO THE CANDIDATE FOR FILLING PART-IV

1. Use blue or black ball point pen for writing alphabets & numerals in ☐ Boxes.
2. Use blue or black ball point pen for filling the circles.

	1	8	1	5	4	3	2	1	6	9
0	0	0	0	0	0	0	0	0	0	0
1	●	1	●	1	1	1	1	●	1	1
2	2	2	2	2	2	2	●	2	2	2
3	3	3	3	3	3	●	3	3	3	3
4	4	4	4	4	●	4	4	4	4	4
5	5	5	5	●	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	●	6
7	7	7	7	7	7	7	7	7	7	7
8	8	●	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	●

Note- If your Roll No. is of 10 digits. Please leave first three columns .

Paper Code
A G 3 0 0 7

:- Section - A :-

-: Ans-1(A) :-

ETL and EIL :-

i - ETL :-

ETL stands for economic threshhold level. ETL can difined as a level where, a minimum population of Insect-pests or pathogen severity where control measure should be initiated & prevent to reach popn. where economic injury happens.

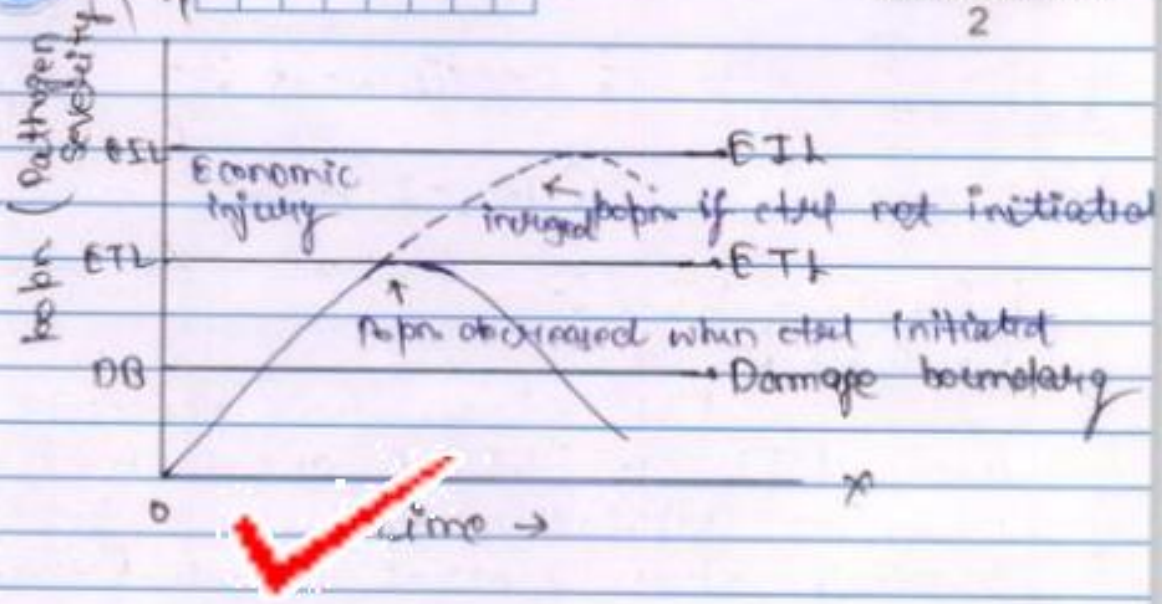
ii - EIL :-

EIL stands for economic injury level. EIL may be defined as a level where no need to initiate control measure because popupulation of pests or pathogen reach at level where economic loss is happens. "lowest popn. of Insect-pests or disease/plant pathogen to cause economic injury, level called EIL"

EIL & ETL helps farmer to know when & when not control measure started. In Integrated disease management both are most crucial & important steps.

Paper Code

2



∴ Ans-1(B) :-

Safety Issue in Fungicide Uses :-

1- Human Concerns :-

i- Human Health ⇒ फफूंदनाशी का प्रयोग करने से मनुष्य की Health पर adverse effect पड़ता है। • It cause many diseases.
• at the time of application
• at the time of selection / mixture preperation at the field

2- Environmental Concerns :-

i- Adverse effect :- लगातार व बहुत ज्यादा मात्रा में fungicide का प्रयोग करने से वातावरण पर विपरीत प्रभाव पड़ता

है। पर्यावरण में उपस्थित सूक्ष्म जीव के लिए भी ये हानिकारक होते हैं।

ii - Soil :- भूमि में उपस्थित कुछ लाभदायक जीवाणु, कवक आदि के लिए ये हानिकारक होते हैं ये या तो उनकी वृद्धि रोक देते हैं या उन्हे मार देते हैं। इससे मृदा की उर्वरता पर भी [illegible] पड़ता है।

3 - Influctuation in PH of soil ⇒ harmful to benefecial micro-organism
4 - Reduce the crop quality.
5 - The resiolues of fungicide present in food product reduce the crop value.
6 - Reduce the plant diversity.
7 - Fungicidy are non-selective polson.

: Ans-4(c) :-

Plant Quarantine :-

The word quarantine is derived from Latin word quarantum means 40, which mean a period of forty days.

" Plant quarantine may be difined as a legal restriction on the import-export or transportation of plant or plant material from one country

to another country or one area to another in a country to prevent the introduction of new disease or spread of already established pest/disease."

Types of Plant Quarantine :-

i - International Plant Quarantine
ii - Prohibitory Plant quarantine
iii - Regulatory Plant quarantine
iv - Domestic Plant quarantine

eg -
⇒ The import of cotton from any country in India is restricted.
⇒ Tea, coffe is not export from india to another country without phytosanitory certificate (Regulatory Plant quarantine).

∴ Ans- 2 (D) :-

Soil Solarization :-

मृदा को उच्च तापमान से treat करके हानिकारक सूक्ष्मजीवाणु जैसे - Virus, fungi, bacteria, nematode, Phytoplasma and mollicutes से बचाना अर्थात् जब मृदा को high temp या hot steam से treat किया जाता

Paper Code A G 3 0 0 7

है इसमें उपस्थित हानिकारक जीवाणु मर जाते है।

• Soil solarization द्वारा या तो कुछ विशेष किया जाता है steam sterilizer या तो green houses में लगी pipes से steam, मिट्टी में diffuse की जाती है।

• 40°- 50°C पर लगभग सभी कीट भूमि से भाग जाते या मर जाते।

• 60°- 72°C पर लगभग सभी जीवाणु, वायरस, worm, mollicutes आदि मर जाते है।

• > 80°C पर लगभग सभी खरपतवार नष्ट हो जाते है।

Note– Soil solarization केवल उन्ही खड़ी फसलों में किया जाता है जो Pathogen / insect pests के thermal death inactivation point को सहन कर सकती है। अन्यथा खाली पड़ी (fallow soil) में की जाती है।

÷ Ans-1 (E) :–

Components of IDM :– यह रोग प्रबन्ध की ऐसी विधि है जिसमें disease control की कई विधियों को समाकलन होता है।

IDM

के निम्न तरीके हैं :-

1 - Physical Method :- इसमें जीवाणु को नियन्त्रित करने हेतु निम्न उपाय अपनाते हैं :

- Seed Treatment by solar or heat / temp.
- Soil Treatment by steam or temp.
- Using of various radiation
- Temperature & humidity influcations.
- To control virus diseases, are transmitted by various insect, we use to ctrl insects any trap (Light trap, Adhesive trap) eg -

Whitefly, green leaf hopper.

2 - Cultural Method :-

- Crop Rotation
- Burning of residues.
- Flooding of field
- Fallowing of field
- Solar Seed treatment

3 - Biological Control :-

- Use of N/E (parasite, parasitoid, predator) to prevent pests and diseases.
- Use of micro-organism to ctrl another harmful pathogen. eg -

mycoparasitism.

- Antagonism, Antagonism.

eg -

. Trichoderma spp, Trichogramma sp. (for pests
(for fungus)

4- chemical control :-

- Use of various systemic & non systemic fungicide to deal ~~pests~~ fungal, bactericides to bacteria and so on.

fungicide → Mancozeb, Metalaxyl, Carboxin
Bactericide → Bronopol

- Seed & soil treatment by chemicals.

∴ Ans- 1 (f) :-

Severity based disease classification :-

1- Acute Disease :- जब कोई रोग थोड़े ही समय में एक बहुत बड़े क्षेत्र पर बहुत बड़ी जनसंख्या या फसल पर उग्र रूप से फैलती है तो उसे acute disease कहते है।

eg- late blight of potato - phytophthora infestans
Rust of wheat - Puccinia spp.

- Epidemic disease → Rust of wheat
- Pandemic disease → citrus canker in Asiatic countries

बहुत कम पड़ जाती। Acute diseases से Yield भुखमरी समस्या आती है।

2- Unacute Disease :- ये बीमारियां धीरे धीरे

Do Not Write anything in this Portion

Paper Code

समय में ही फैलकर स्वतः समाप्त हो जाती है या इन्हे आसानी से नष्ट किया जाता है। इनसे पौधों को बहुत हानि नहीं होती है

Paper Code
A 0 3 0 0 7

9

(Section - B)

:- Ans-2 :-

Integrated Disease Management :-

"All the available necessary techniques should be evaluated & considdated in a unified programme to prevent disease spread so that losses caused by them ~~w~~ & reduce the adverse the ~~adv~~ effect on environment"

OR

that

"Integrated disease control. in the context of associative environment & popn. dynamics of pests ~~of~~ pathogen utilize, all available suitable methods in a compatible manner, applied, to reduce the post popn. or pathogen at level below they don't cause economic injury."

The principles of IDM are not says that we kill the fully all micro-organism present in soil and environment and the method we apply should not adversely affect the environment.

Importance of IDM :-

i - Reduce the adverse effect on environmental

ii- Reduce unnecessary application of fungicides.
iii- Increase in crop yield
iii- Increase in the quality of crop produc
iv- Enhance the biological diversity in environment.
v- Increase in soil fertility
vi- Increase the market value of crop.
vii- Benficial to micro-organisms, are useful to eg.
viii- Conserve natural enimies.
ix- Enhance the climate favourable to benefecial m.o. & N/E.

Concepts of IPM :-

1- Understanding The Agriculture Ecosystem :-

Agriculture ecosystem usually involves only 1 or 2 crop species and 5-6 pest species & several plant pathogens. Understanding the ecosystem helped us to disease cteal.

We use Various methods to prevent the disease. when we have the information about ecosystem (pathogen, N/E, insect-pest, benefficial micro-organism.).

2- Planning of Agricultural Ecosystem :-

When we

understand about agriculture ecosystem then we apply our method to ctrl the disease when the popn. reaches at economic threshold level we apply our methods.

- We use different methods to detect & diagnose the pathogen, attack on plants after understanding method should be applied.
- Systemic fungicide → chemical / physical ctrl
- Biological ctrl
- Plant quarantine to prevent spread of disease.

3 - Sustainable Agriculture :-

We use the methods that promote sustainable Agriculture & conserve the N/E and micro-organisms beneficial to us. The soil health not become bad & adverse effect on environment reduces.

4 - Conserve N/E :-

We use the methods in an compatible manner that promote biodiversity & conserve natural enemies for pest and diseases. When we use chemical ctrl then we have to add another control method that is compatible with that → physical ctrl / Biological ctrl / cultural ctrl.

⇒ The most important concept of IDM seeks for not to harmful to anyone present environment.

We can use seed treatment by heat, solar except fungicide & so on.

Paper Code 46307

13

:- Section - C :-

:- Ans - 6 :-

Plant Disease Management

- Prophylaxis
  - Exclusion
    - → Plant quarantine
      - International P.Q.
      - Regulatory P.Q.
      - Prohibitory P.Q.
      - Domestic P.Q.
    - → Regulations
      - Phytosanitory certificate
      - Seed certificate
  - Eradication of pathogen
    - 1. Physical Method
      - → Seed treatment
      - → Soil treatment
      - → Radiation
      - → Soil sterilization
    - 2. Cultural method
      - → Crop rotation
      - → Fallowing of field
      - → Deep ploughing
      - → Burning of crop residue
      - → Mulching
  - Direct ctrl
    - → Manipulation of temp
    - → Modification of environment
- Immunization
  - → ~~Therapy~~
  - → Mutation
  - → Selection
  - → Hybridization
  - → Modification in fertilizer to increase immune system

Eradication of pathogen

Biological ctrl	chemical ctrl
→ Antagonism	→ Systemic fungicide
→ Antibiosis	→ Seed treatment by chemical
→ N|F	→ Spraying & dusting
→ microbial fungicide	

Physical Method :-

1- Seed Treatment by heat ⇒
eg.- Rice → bacterial leaf blight, to ctrl it → Soak the seed in cold water for 18 hours and then at 53°C for some time.

2. Soil treatment by steam & heat & air.

Cultural Method :-

1- Crop rotation reduce the severity of pathogen in a field case of biodiversity of plant, that is harmful & not favourable factor to him.

2. flooding of field reduce the nematode & aerobic & anaerobic fungi present in soil.

Paper Code

- Deep ploughing में इस खेत की जुताई करके soil inhabiting bacteria, fungi को sunlight में expose कर देते हैं जिससे वे survive नहीं कर पाते हैं।

- Burning of crop residue reduce the popn. of sugarcane shoot borer, which present in residue of sugarcane.

Biological control :-

- Antagonism is a relation where one m.o. harm to another micro-organism to benefit himself. eg - Trichoderma.
- Application of N/B in the field reduce the insect that spread the viral disease.

chemical ctrl :-

- Systemic fungicide, Bordeaux mixture & other pesticide used to ctrl the pests & pathogen.

Systemic fungicide → carboxin, oxycarboxin, benzamidezal, Carbendazeim, metalaxyl, Metalaxyl + mancozeb etc.

Bordeaux mixture to ctrl → late blight of potato & other fungicidal disease.

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Paper Code AG3007

Biological ctrl :-

Use of N/E.

- Trichoderma

- Metalion increase immunity.

Paper Code

17

Paper Code

18

Do Not Write anything in this Portion

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19

Paper Code

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Do Not Write anything in this Portion

Paper Code

21

Paper Code

22

Do Not Write anything in this Portion

Paper Code

23

Paper Code

24

R NO = 55

BSc Ag IIIrd Sem

60

X

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