



Chhatrapati Shahu Ji Maharaj  
University, Kanpur

**Answer Script Details**  
**Barcode** 7175382

**Roll No.** 22031000195  
**Total Mark** 38/50.00

**Exam** B.SC IN AGRICULTURE BSCAG\_ODD-EXAM-DEC-24  
**Subject** AG5003 - PESTS OF CROPD AND STORED GRAIN AN

**Question wise Mark Summary**

**Q.No Mark Q.No Mark Q.No Mark Q.No Mark**

1A 4/5

1B 3/5

1C 4/5

1D 4/5

1E 3/5

1F 4/5

2 8/10

3 NA/10

4 NA/10

5 NA/10

6 8/10

7 NA/10

8 NA/10

9 NA/10

# Chhatrapati Shahu Ji Maharaj University Kanpur, Uttar Pradesh

## 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 Figures										Max. Marks
Total Marks in Words										



AG15003

Paper Code

Signature of Evaluator

COE Facsimile  
*[Signature]*

Signature of Supervisor  
*[Signature]*

Signature of Candidate  
*[Signature]*

Roll No. 22031000195

Date of Exam: 30/01/25 Shift: III, Hall: 5K  
 Paper Code: AG1-5003  
 Name of Candidate: KUMAR VAIBHAV  
 Roll No.: 22031000195

Course: B. Sc. (Ag.)  
 Session: 2024-25 Year/Semester: 5th  
 Subject Name: Pests of crops & stored grains  
 Medium: English  Hindi   
 Paper Code: AG15003  
 Exam Date: 30/01/2025  
 Name of Candidate: KUMARVAIBHAV  
 Father's Name: VENODKUMAR VERMA

कॉलेज का कोड  
College Code

A	U	0	2
<input checked="" type="radio"/> A	<input checked="" type="radio"/> 0	<input type="radio"/> 0	<input type="radio"/> 0
<input type="radio"/> E	<input type="radio"/> B	<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> F	<input type="radio"/> D	<input type="radio"/> 2	<input checked="" type="radio"/> 2
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<input type="radio"/> S	<input type="radio"/> N	<input type="radio"/> 7	<input type="radio"/> 7
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(W)			

परीक्षा केंद्र का कोड  
Exam Centre Code

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<input type="radio"/> U	<input type="radio"/> T	<input type="radio"/> 8	<input type="radio"/> 8
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(W)			

परीक्षा का प्रकार  
Type of Exam

Regular  Ex-Student   
 Offshore  In for other   
 Private  Back Paper Exam

ANSWER BOOKLET NO.

7175382

AG15003

Paper Code



Enrollment Number: C S J M A 2 2 0 0 0 0 4 0 7 1 2

Candidate's Roll Number: 22031000195 Paper Code: AG15003

2	2	0	3	1	0	0	0	L	9	5
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<input type="radio"/> B	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> C	<input type="radio"/> 2	<input type="radio"/> 2	<input type="radio"/> 2	<input type="radio"/> 2
<input type="radio"/> E	<input type="radio"/> 3	<input type="radio"/> 3	<input checked="" type="radio"/> 3	<input type="radio"/> 3
<input type="radio"/> F	<input type="radio"/> 4	<input type="radio"/> 4	<input type="radio"/> 4	<input type="radio"/> 4
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<input type="radio"/> Z	<input type="radio"/> 6	<input type="radio"/> 6	<input type="radio"/> 6	<input type="radio"/> 6
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<input type="radio"/> U	<input type="radio"/> 9	<input type="radio"/> 9	<input type="radio"/> 9	<input type="radio"/> 9

Signature of Candidate  
*[Signature]*

Signature of Invigilator  
*[Signature]*

C S Facsimile

COE Facsimile  
*[Signature]*

Note: 1. परीक्षार्थी को निर्दिष्ट किया जाता है कि आसपास वाले से पूरा ध्यान पर अधिक सभी निर्देशों को सावधानीपूर्वक पढ़ें।  
 2. कॉपी में भरी जाने वाली प्रतिक्रियाएँ सही तर्क से शुद्ध की जाएँ। 3. मोलों को काले या नीले बॉलपेन से भरा जाएँ।

### 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.

### INSTRUCTION TO THE CANDIDATE FOR FILLING PART-III

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.



4. Make no Stray marks on this sheet.

### 5. DO NOT WRITE OR MARK ON THE BAR CODE.

### IN ORDER TO AVOID 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 निर्दिष्ट स्थान को छेदकर अनुक्रमिक एवं उत्तरपुस्तिका का क्रमांक कहीं और न लिखें तथा कोई भी चिह्न न बनायें क्योंकि यह अनुचित साधन प्रयोग की परिधि में आता है।
2. उत्तर पुस्तिका के कारकोड अथवा उत्तर पुस्तिका संख्या पर छेद प्रकट करने पर अनुचित साधन प्रयोग माना जायेगा।
3. परीक्षा कक्ष में निम्न वस्तुएं साथ न लायें, जैसे लिखे हुए कागज के टुकड़े, मोबाइल, डिजिटल घड़ी, डिजिटल चॉक, कोपी, घुसका या कभी कालू जो अनुचित साधन को अवरुध्द करती है। कोचम संबंधित प्रश्नपत्र में ही वेबोरी लेव सॉफ्टगिक कोम्प्यूटर से जाने की अनुमति होगी।
4. उत्तर पुस्तिकाओं में कसरी न रखें न ही उत्तर पुस्तिका में लिखावट। ऐसा करने अनुचित साधन प्रयोग की परिधि में आता है।

### उत्तरपुस्तिकाओं को भरण निर्देश

1. प्रवेश पत्र एवं उत्तरपुस्तिका पर दिवें गने निर्देशों को ध्यान से पढ़ें।
2. क्लर पृष्ठ के दूसरी तरफ सुकन लियें।
3. उत्तरपुस्तिका के पृष्ठों पर कोनी तरफ लिखें।
4. प्रश्न पत्र पर अपने अनुक्रमिक के अधिष्ठित सुकन लियें।
5. प्रश्न पत्र कोड एवं प्रश्न पत्र ID सावधानी पूर्वक लियें।
6. अपनी तिथि भरत लिखें।
7. उत्तरपुस्तिका के पृष्ठों की संख्या देखें। उत्तर उत्तरपुस्तिका में पृष्ठ ( 1-24 ) से कम है या कटे हुए है, तो परीक्षा शुरू होने के पूर्व दूसरी उत्तरपुस्तिका ले लें।
8. प्रश्नपत्र को देख, यदि प्रश्नपत्र के विषय कोड, विषय का नाम तथा प्रश्न में कोई त्रुटि है तो उत्तरके परीक्षा शुरू होने के 30 मिनट के अन्दर कक्षा निर्देशिका को तत्काल सूचित करें, उसके बाद विचारविधानसमय प्राप्त कोई कार्य नहीं की जायेगी।
9. प्रश्नों के उत्तर लिखने के लिये पेन्सिल का प्रयोग न करें।
10. ही कोपी या अधिष्ठित टांक नहीं दिया जायेगा।

### 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, S. Name, and Question of the Question Paper during first THIRTY MINUTES of 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 status 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
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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

AAS 0 0 3

-: Section - A :--: Ans - I (A) :-

Difference

Particulars

Eriophid mite

Tetranychus mite

Size

Very minute  
in size (0.02mm)bigger than  
eriophid mite

Shape

Vermiform

Oval shape

Body  
division

- Cephalothorax
- abdomen

- gnathosoma
- idiosoma

Life  
stage2 nymphal  
instar & adult3 nymphal &  
adults

legs

2 pair of legs  
(nymph & adult)4 pair of  
legs in adult  
& protuberance  
in nymphDamaging  
symptomsgall formation is  
main symptomred spots on  
plants is main  
symptom

Examples

- i) Aceria mangiferae
- ii) Aceria cajani
- iii) Aceria tulipae
- iv) Aceria gossypii

- i) Tetranychus neocaledonicus
- ii) Tetranychus barksei





Paper Code

M S 0 0 3



3

## ∴ Any-f(A) :-

Factor Affecting losses of stored Grains :-

### t). Abiotic Factors :-

#### A). Moisture :-

- \*  $0-10\%$  moisture  $\rightarrow$  Insect growth retarded, survival checks
- \*  $<13\%$  moisture  $\rightarrow$  Insect & m.o. growth affects.
- \* Store grain after drying  $\checkmark$  drying & reduce moisture below  $10\%$

#### B). Initial Condition of Grain :-

- \* Before storing grain, grain should be sorted & remove all the broken grain
- \* Remove unhealthy & damaged & contaminated grain.
- \* Broken & unhealthy grain favour pests growth

#### c). Temperature :-

- $<5^{\circ}\text{C}$   $\rightarrow$  all the pests & m.o. organisms grows checks
- $<15^{\circ}\text{C}$   $\rightarrow$  pests survivability checks.
- $0^{\circ}\text{C}$   $\rightarrow$  no growth of m.o. (fungus).



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## 1) $O_2$ Level in Grain :-

- \*  $O_2$  is inversely proportion to  $CO_2$   
 $O_2 \downarrow \rightarrow CO_2 \uparrow$   
 $\leq 3\%$  <sup>can</sup> protect grain till 1 month  
 $\leq 2\%$   $\rightarrow$  no survivability of pests & m.o.o.

## 2) Biotic Factor :-

- 1) Pests  $\rightarrow$  51%
- 2) Birds  $\rightarrow$  10%
- 3) Rodent  $\rightarrow$  31%

Pests  $\rightarrow$  Tribolium castaneum  $\rightarrow$  Red rust  
Tribolium confusum  $\rightarrow$  Flour beetle

Sitotroga cerealella  $\rightarrow$  Anger's grain moth

Tenebrio granaria  $\rightarrow$  Khapra beetle

Ephyra cautilla  $\rightarrow$  moth

Derzaphillus  $\rightarrow$  beetle  
Susnoma  $\rightarrow$  beetle

Rodent  $\rightarrow$

Mus musculus  
Mus booduga

Mus platythrix  
Rattus melastoma



Paper Code

M 5003



5

∴ Any-1 (C) :-

∴ Rice Grounds Bug :-

Order → Hemiptera  
Suborder → Heteroptera  
Family → Alydidae  
Genus → Lopitorhagus  
Species → varicornis

Management :-

- i) Clean cultivation, removal of alternate hosts & weedy
- ii) Deep summer ploughing
- iii) Intercropping & crop-rotation.
- iv) Use Light trap to attract adults.
- v) Use N/A :-

\* Tiger beetle (Cicindela sexpunctata)  
→ Very fast runner  
→ heavy feeder

\* Spider

\* Bird

\* Use Biopesticides  
→ Aspergillus flavus  
→ Metarhizium anisopliae

vi) Use chemicals →



Paper Code

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6

- Carbaryl 50 WDP @ 5 kg/ha
- Monocrotophos 36 SL @ 2.5 L/ha
- Malathion 5 D @ 20-25 kg/ha
- Malathion 50 E @ 1.0-1.5 L/ha
- Carbaryl 5 D @ 20-25 kg/ha
- Use Bacillus thuringiensis 200 gm + 500 Ltr water + 500 ml sticker

-: Ans - 3 (2) :-

	Scientific Name
1). Parrot	<u>Psittacula cyrocephala</u>
Parrot	<u>Psittacula krameri</u>
2). Crow	<u>Corvus splendens</u>
3). Myra Sparrow	<u>Passer domesticus</u>
4). Myra Dove	<u>Aegithys taiti</u>
5). Baya bird	<u>Ploceus philippinus</u>

Management :-

- 1). अनाजी को Fully packed container में store करें।  
ventilational gateway



Paper Code

AGS003



7

- ii). Use Bird scaring equipments →  
produce sound, birds fly away
- iii). अनाज का धारों बिखेर करके है वहाँ पर  
ventilation के बिना लिए लगी छाली से  
इतनी धागा नहीं होनी चाहिए  
कि birds enter कर सके।
- iv). Don't use Pesticide.  
v). Field में मानव का पुतला बनाकर लगा दी

§ Any-1 (F) ✓

### Micro-Organism :-

associated with stored

ग्रानल अणु :-

- |                           |            |
|---------------------------|------------|
| Aspergillus sp :-         | * Mucor    |
| * Aspergillus flavus      | * Rhizopus |
| * Aspergillus parasiticus |            |
| * Aspergillus nidulans    |            |
| * Aspergillus niger       |            |

Penicillium sp :-

- |                         |
|-------------------------|
| * Penicillium viticatum |
| * P. islandicum         |
| * P. expansum           |
| * P. ureifacens         |



chemical

Paper Code

\_\_\_\_\_



Fungus 8

i)	Aflatoxins	→	Aspergillus flavus A. parasiticus
ii)	Ochratoxin (OTA)	→	Aspergillus sp.
iii)	Citronine	→	Penicillium citronine
iv)	Zenelonone	→	• Fusarium graminearum • Aspergillus culmorum
v)	Citroviridin	→	Penicillium citroviridin

### Management :-

- i). अनाजों को भण्डारित करने से पहले सभी exposed materials निकाल दें।
- ii). moisture < 10% रखें।
- iii). temperature < 15°C रखें।
- iv). Woodwork में moisture absorbing facility न हो।
- v). Use chemical as thiocarb to protect grain & spray

Do Not Write anything in this Portion





Paper Code

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10

- ii) Deep Summer ploughing
- iii) Use light trap @ 2 trap/ha
- iv) Use pheromone trap @ 12 trap/ha
- v) Use honeyeater & bee camera <sup>larva</sup> & destroy it
- vii) Uplifting & burning of affected parts
- viii) Hand picking of larvae & destroy
- ix) Use B/A  
Egg Parasitoid
- \* *Teuchoclerus chilonis* @ 50,000 parasitoid/ha
  - \* *Teuchoclerus achae* @ " "
- Predators :-
- \* *Coccinella septempunctata*
  - \* *Rodalia cardinalis*
  - \* *Chrysopa carnea*
- x) Use chemical :-
- \* Carbaryl 50 WP @ 5-7 kg/ha
  - \* chlorantraniliprole 10.8 SC @ 200 ml/ha
  - \* Malathion 20 EE @ 1.9 ltr/ha
  - \* Thiomethoxam @ 30 gm/ltr water
  - \* Use NSKE 3%

Do Not Write anything in this Portion



Grid for Paper Code



### Section - B :-

#### Cotton Bug :-

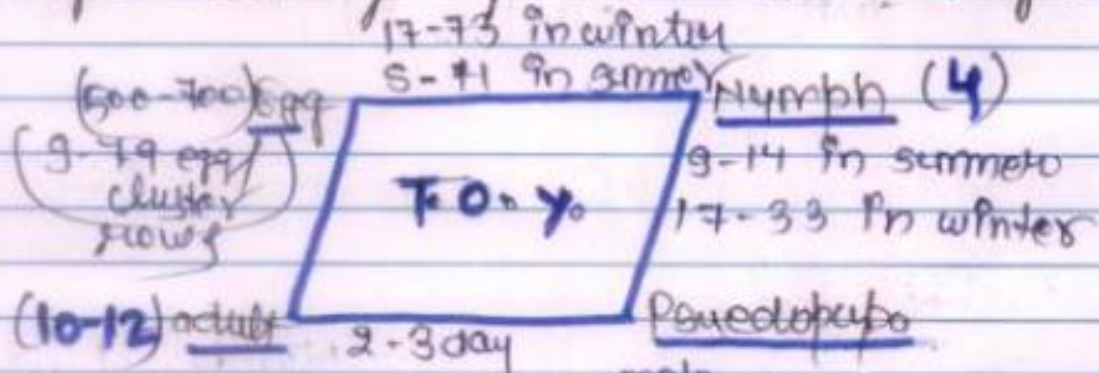
Order - Hemiptera  
 Suborder - Homoptera  
 Family - Psyllorhynchidae  
 Genus - Oxydectes  
 Species - circulatus

#### White Fly :-

Order - Hemiptera  
 Suborder - Homoptera  
 Family - Aleyrodidae  
 Genus - Bemisia  
 Species - tabaci



#### Life History of Cotton White Fly :-



- Complete / Homometabala, morphosis young  
 Egg → nymph → pseudopupa → adult

#### Eggs :-

slowly Egg पत्तियों वरि निचली मतह पर  
 में cluster में दिसे जाते हैं





iii) इनके साथ affected leaves पीले-2 सुखने  
जाती है और yellow  
से brown की हो जाती है

iv) यह 3 type से जनित पहुँचाता है

- direct by sucking sap
- structure honeydew → attract fungus  
→ check photosynthesis
- serve as a vector
  - Papaya <sup>leaf curl</sup> mosaic virus (leaf curl)
  - Chilli mosaic virus (leaf curl)
  - Cotton leaf curl virus

v) Greenhouse में जाती है ✓  
vi) leaves की curling हो जाती है  
vii) grainy formation में जाती है

## Management :-

i) Use B/A :-  
Azotus delhiensis  
Encarsia psaeai

ii) Clean cultivation

iii) deep summer ploughing

iv) Use light trap

v) Use adhesive trap

vi) Use pheromone trap



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v). Uplifting & burning of stubbles & affected parts

vi). Destruction of nymphs & adults.

vii). Use chemical :-

\* chlorantraniliprole 10.5 SC @ 200ml/ha

\* Malathion 50 @ 20-25 kg/ha

\* carbaryl 50 @ 20-25 kg/ha

\* Monocrotophos 20 EC @ 1.5 ltr/ha

\* Cyclox 20 EC 2 ltr/ha

\* Mevempox 25 SC 2 ltr/ha

\* Malathion 50 EC @ 1.5 ltr/ha

\* Imidachloprid 36 SL @ 1.5 ltr/ha

\* Use Bt powder 200gm + water + sticker

\* Use NSE 5%

\* Use Nemacid 3%



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## Section - C :-

### Ans - 6 :-

Sr. Name

- Aphid 1) Lipaphis erysmi
- Mustard Sawfly 2) Athelia lugens peroxima
- Mustard painted Bug
  - 3) Bageiada helvarius
  - Bageiada cruciferous
- Linseed gall midge Dasiyneura lini
- White g. P.H.C. → Amsasia albistylga  
(Polyphagous)

## Aphid :-

Order - Hemiptera  
 Suborder - Heteroptera  
 Family - Aphididae  
 Genus - Lipaphis  
 Species - erysmi

## Life History :-

45 gen/ year (adult)  $\xrightarrow{7-10 \text{ day}}$  Nymph  $\xrightarrow{25-35 \text{ nymph/ year}}$



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fav. conditions  $\Rightarrow$  viviparity  
nymph  $\rightleftharpoons$  adult

Normal cond  $\Rightarrow$  egg - nymph - adult  
(simple metamorphosis)

i). इनकी life cycle / ये पूरे साल active रहते हैं but winter में प्रोडक्शन tendency बहुत कम होती है।

ii). ये nymph से adult में 7-8 दिन में transform होते हैं।

iii). इनकी nymph, ज्यादा damage करते हैं।

iv). इनके 1 year में 45 gen. पायी जाती हैं।

Adult  $\Rightarrow$  pear shape  
 $\Rightarrow$  very minute  
 $\Rightarrow$  piercing & sucking mouth parts

v). temp  $\uparrow$  पर ये hill areas में migrate कर जाते हैं & spend on barberry plants

vi) adult  $\begin{cases} \rightarrow$  alate (winged) \\ \rightarrow apterous (wingless) \end{cases}

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## Management :-

- i) Clean cultivation
- ii) Deep summer ploughing
- iii) Use light trap
- iv) Use pheromone trap
- v) Use Bird perch

vi) Use B/A :-

Cyrtopseuda canna → Las pseudalosi

→ Pseudalosi .

- \* Coccinella septempunctata
- \* Redalia cardinalis
- \* Hippodamia variegata



→ Bird, eats aphids  
Metacilla cospica  
Metacilla canna

Use Biopesticide

- \* Entomophthora sp.
- \* Verticillium sp.

Chemicals :-

Monocrotophos @ 1.5 ltr/ha

Chlorantraniliprole 10.55c @ 200 ml/ha

Carbaryl 80 wdp @ 5 kg/ha

Malathion 50 @ 20-25 kg/ha

Monocrotophos



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Malathion to Ec @ 1.5 ltr/ha

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