

Seat No.	
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B.Sc. (Part-III) (Semester-V) (CBCS) Examination, October - 2023

**MICROBIOLOGY**

**Virology (Paper-IX)**

**Sub. Code : 79708**

Day and Date : Monday 23 - 10- 2023

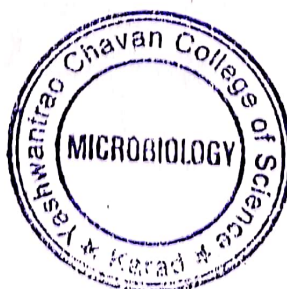
Total Mark

Time : 10.30 a.m. to 12.30 p.m.

- Instructions :
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.
  - 3) Draw neat labeled diagrams wherever necessary.

Q1) Rewrite the following sentences by choosing correct alternative. [8]

- a) One step growth experiment was designed for the first time by \_\_\_\_\_
- i) Doermann
  - ii) Hershey and Chase
  - iii) Ellis and Delbruck
  - iv) Louis Pasteur
- b) Genome of Adenovirus has \_\_\_\_\_
- i) Palindrome ends
  - ii) Cohesive ends
  - iii) Inverted terminal repeats
  - iv) Redundant ends
- c) Genome of tobacco mosaic virus is \_\_\_\_\_
- i) Linear, Single Strained, Unsegmented, Infectious RNA
  - ii) Linear, Double Strained, Unsegmented, Infectious RNA
  - iii) Linear, Single Strained, Segmented, Infectious RNA
  - iv) Linear, Double Strained, Segmented, Infectious RNA
- d) Viroids are \_\_\_\_\_
- i) Very small viruses
  - ii) Infectious circular RNA
  - iii) Infectious proteins
  - iv) attenuated viruses



P.T.O.

- e) Latex droplet method is used for \_\_\_\_\_
- purification of only animal viruses
  - enumeration of animal viruses
  - isolation of animal viruses
  - purification of any viruses
- f) Continuous cell line isolated from carcinoma of cervix is \_\_\_\_\_
- HeLa
  - HEp-2
  - KB
  - Detroit 6
- g) Gene N of lambda phage to producing a protein which functions as \_\_\_\_\_
- anti terminator
  - translation terminator
  - Transcription terminator
  - initiator of DNA replication
- h) \_\_\_\_\_ is process in which cells undergoes indefinite no of divisions.
- Immortalization
  - Metastasis
  - Apoptosis
  - Angiogenesis

Q2) Answer the following (Any two)

[16]

- Describe in brief isolation and cultivation of animal viruses.
- Define oncogenesis explain the characteristics of cancerous cell.
- Describe in brief reproduction of Adenovirus.

Q3) Write short note on (Any four)

[16]

- Structure of HIV.
- Viroids
- Reproduction of T<sub>4</sub> Bacteriophage.
- General features of viral envelope.
- Explain circularization of lambda genome.
- Latex droplet method





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Total No. of Pages :2

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B.Sc. (Part-III) (Semester-V) (CBCS) Examination, October - 2023

**MICROBIOLOGY**

**Agricultural Microbiology (Paper-XII)**

**Sub. Code : 79711**

**Day and Date : Monday 30 - 10- 2023**

**Total Marks : 40**

**Time : 10.30 a.m. to 12.30 p.m.**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.
  - 3) Draw neat labelled diagrams wherever necessary.

**Q1) Rewrite the following sentences by selecting correct alternative. [8]**

- a) Generally soil profile consists of \_\_\_\_\_ master horizons.
  - i) Five
  - ii) Two
  - iii) Three
  - iv) Nine
- b) \_\_\_\_\_ cycle is a sedimentary type of biogeochemical cycle.
  - i) Carbon
  - ii) Nitrogen
  - iii) Phosphorus
  - iv) Oxygen
- c) Phosphate solubilizing bacteria is isolated on \_\_\_\_\_.
  - i) Pikovskaya's medium
  - ii) Jensen's medium
  - iii) CRYEMA
  - iv) Nitrogen free mannitol agar
- d) \_\_\_\_\_ is opportunistic avirulent plant symbiont.
  - i) Lichen
  - ii) Trichoderma
  - iii) Azotobacter
  - iv) Aspergillus
- e) \_\_\_\_\_ of the following is not a type of manure.
  - i) Farmyard manure
  - ii) Compost manure
  - iii) Platinum manure
  - iv) Green manure



P.T.O.



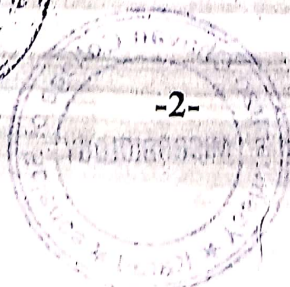
- f) A pinnata is the common example of \_\_\_\_.
- |                       |               |
|-----------------------|---------------|
| i) Azolla             | ii) Rhizobium |
| iii) Blue Green Algae | iv) Frankia   |
- g) The common carrier used for the production of biofertilizer is \_\_\_\_.
- |                   |             |
|-------------------|-------------|
| i) rock Phosphate | ii) jaggery |
| iii) gum Arabic   | iv) lignite |
- h) \_\_\_\_ is the oldest and best example of known biological control method.
- |                    |  |
|--------------------|--|
| i) irrigation      | ii) Alteration of soil pH              |
| iii) Crop rotation | iv) Treatment of soil with fertilizers |

Q2) Attempt any two of the following. [16]

- Discuss the production, methods of application and uses of Azotobacter bio-inoculant.
- Discuss in detail about the causative agent, symptoms, mode of transmission, prevention and control of citrus canker.
- What are various types of microbiological interactions? Explain Symbiosis and Commensalism with suitable examples.

Q3) Write short notes on any four of the following. [16]

- Green manure
- Bacillus thuringiensis*
- Methods of vermicomposting
- Phosphorous cycle
- Parasitism
- Phosphate solubilizing microorganisms





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B.Sc. (Part - III) (Semester - V) (CBCS)

Examination, October - 2023

**MICROBIOLOGY**

**DSE-E-50: Immunology (Paper - X)**

**Sub. Code : 79709**

Day and Date : Wednesday, 25 - 10 - 2023

Total Marks : 40

Time : 10.30 a.m. to 12.30 p.m.

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

**Q1) Choose the correct alternative and rewrite the statement. [8]**

- a) The most potent cell that present antigen and are distributed throughout the lymphoid and nonlymphoid tissues of the body are \_\_\_\_\_.
  - i) Dendritic cells
  - ii) Natural Killer cells
  - iii) Macrophages
  - iv) Monocytes
- b) \_\_\_\_\_ the class of MHC which is recognized by CD4 TH cell.
  - i) MHC cannot recognize T cells
  - ii) MHC III
  - iii) MHC I
  - iv) MHC II
- c) \_\_\_\_\_ mediate type I hypersensitivity.
  - i) IgE
  - ii) IgD
  - iii) IgA
  - iv) IgM
- d) Cell lysis in complement pathway is initiated by \_\_\_\_\_.
  - i) membrane destruction complex
  - ii) membrane degradation complex
  - iii) membrane attacking complex
  - iv) membrane lysis complex

P.T.O.



- e) Hybridoma technology was developed by \_\_\_\_\_  
 i) Kohler and Milstein                      ii) Khorana and Nirenberg  
 iii) Khorana and Korenberg                iv) Beedle and Tatum
- f) Cytokines are chemical messengers which \_\_\_\_\_  
 i) kill microorganisms                      ii) promote inflammation  
 iii) cause severe pain                      iv) produce antibodies
- g) \_\_\_\_\_ type of hypersensitivity reaction is known as a delayed hypersensitivity reaction.  
 i) Type I    ii) Type II  
 iii) Type III                                        iv) Type IV
- h) During an allergic immune response, histamine is released from \_\_\_\_\_  
 i) B lymphocytes                              ii) T lymphocytes  
 iii) mast cells                                      iv) Special lymphocytes

Q2) Attempt any two of the following:

[16]

- a) Explain in detail the activation of complement by alternate pathway  
 b) Describe the development of type I hypersensitivity reaction.  
 c) Explain in detail the activation of B cell by T cell dependant antigen

Q3) Write short notes on any four of the following:

[16]

- a) Macrophages  
 b) Structure and function of thymus  
 c) Activation of B cell by antigen presenting cell  
 d) Properties of complements  
 e) Types of Monoclonal.  
 f) Properties of Interferons





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B.Sc. (Part - III) (Semester - V) Examination, October - 2023

**MICROBIOLOGY**

**DSE-E51 : Food and Industrial Microbiology (Paper - XI)**

**Sub. Code : 79710**

Day and Date : Friday, 27 - 10 - 2023

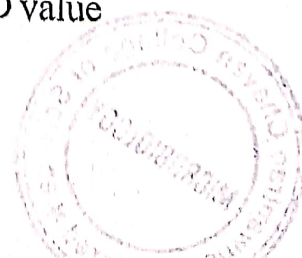
Total Marks : 40

Time : 10.30 a.m. to 12.30 p.m.

- Instructions :
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.
  - 3) Draw neat diagrams wherever necessary.

**Q1) Rewrite the following sentences by selecting correct alternative. [8]**

- a) Flocculation process uses \_\_\_\_\_ to settle the biomass from fermented broth.
  - i) Sodium hydroxide
  - ii) Sodium chloride
  - iii) Alum
  - iv) Hydrochloric acid
- b) The water activity of fresh fruits and vegetables is \_\_\_\_\_.
  - i) 0.98
  - ii) 1
  - iii) 9.9
  - iv) 1.9
- c) Strain improvement is achieved by \_\_\_\_\_.
  - i) Mutation
  - ii) Transformation
  - iii) Transduction
  - iv) All of these
- d) The time required to cause 90% reduction in the count of viable spores at specific temperature is called as \_\_\_\_\_.
  - i) A value
  - ii) B value
  - iii) C value
  - iv) D value



P.T.O.

- e) \_\_\_\_\_ oil is most commonly used for preservation of cultures.
- Paraffin
  - Sandal wood
  - Castor
  - Soyabean
- f) Wine flower defect is caused by the growth of \_\_\_\_\_.
- Bacteria
  - Film yeast
  - Viruses
  - Actinomycetes
- g) Principal fermentation media used for production of alcohol at industrial level is called as \_\_\_\_\_.
- Corn steep liquor
  - Mac conkeys agar
  - Nutrient agar
  - Black strap molasses
- h) The precursor used for the production of Penicillin G is \_\_\_\_\_.
- Phenyl acetic acid
  - Hydroxyphenylacetic acid
  - Phenoxy acetic acid
  - $\text{CoCl}_2$

Q2) Attempt any two of the following:

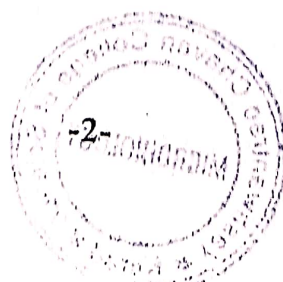
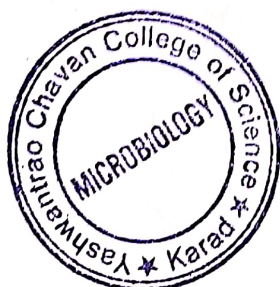
[16]

- Explain the factors determining food as a substrate for microorganisms.
- What is bioassay? Explain various types of microbiological assays.
- Explain Penicillin fermentation with reference to - Organisms used, Inoculum preparation, Fermentation media, Fermentation conditions, Extraction and Recovery.

Q3) Write short notes on any Four of the following:

[16]

- Microbial defects of wine
- Pyrogen testing
- Salmonellosis
- Preservation of industrially important microorganisms
- Probiotics
- Scale up of fermentations





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SW - 398  
Total No. of Pages : 2

BSc (Part - III) (Semester - V) Examination, November - 2019

MICROBIOLOGY

Food and Industrial Microbiology (Paper - XI)

Sub. Code: 65893

Day and Date: Monday, 04 - 11 - 2019

Time : 12.00 noon to 2.00 p.m.

Total Marks : 40

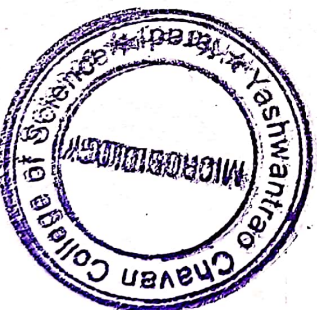
Instructions : 1) All questions are compulsory.

2) Figures to the right indicate full marks.

Q1) Rewrite the following sentences by selecting correct alternatives. [8]

- In penicillin G production, \_\_\_\_\_ is used as precursor.
  - phenyl acetic acid
  - acetic acid
  - phenoxy acetic acid
  - hydroxyphenyl acetic acid.
- In India, biogas is commonly known as \_\_\_\_\_.
  - LPG gas
  - fire gas
  - LG gas
  - go bar gas
- Carcinogenicity is tested by \_\_\_\_\_ test.
  - MPN
  - allergen
  - ames
  - toxicity
- Staphylococcus aureus* produces \_\_\_\_\_ toxin.
  - entero
  - cyto
  - neuro
  - endo
- The natural antimicrobial compound present in fresh milk is \_\_\_\_\_.
  - lactose
  - furfural
  - benzoic acid
  - lactoferrin

P.T.O.



SW - 398

1) \_\_\_\_\_ organisms exert a positive influence on host health after ingestion.

- probiotic
- antitoxic
- autotrophic
- auxotrophic

2) For continuous filtration, \_\_\_\_\_ filters are used.

- Plate & frame
- Rotary vacuum
- Pressure leaf
- Disc

3) End point determination assays are used for \_\_\_\_\_ substances.

- stimulatory
- Inhibitory
- Non reactive
- Reactive

Q2) Attempt any two:

- Discuss in detail process of centrifugation used for recovery and purification of fermentation product.
- Discuss in detail industrial production of alcohol.
- Discuss the concept, methods of production and applications of probiotics.

12 × 8 = 161

Q3) Write short notes on any four:

- Production of vitamin B12.
- Aflatoxin.
- Methanogens.
- Lyophilisation.
- Microbial defects of wine.
- Scale up of fermentation.

14 × 4 = 16





SW - 398  
Total No. of Pages : 2

Seal No.

B.Sc. (Part - III) Semester - V Examination, November - 2019  
MICROBIOLOGY

Food and Industrial Microbiology (Paper - XI)  
Sub. Code: 65893

Day and Date: Monday, 04-11-2019

Time: 12:00 noon to 2:00 p.m.

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

Total Marks : 40

SW - 398

Q1) Rewrite the following sentences by selecting correct alternatives. [8]

- In penicillin G production, \_\_\_\_\_ is used as precursor.
  - phenyl acetic acid
  - acetic acid
  - phenoxy acetic acid
  - hydroxyphenyl acetic acid.
- In India, biogas is commonly known as \_\_\_\_\_.
  - LPG gas
  - fire gas
  - L.G. gas
  - gobar gas
- Carcinogenicity is tested by \_\_\_\_\_ test.
  - MPN
  - allergen
  - AMES
  - toxicity
- Staphylococcus aureus* produces \_\_\_\_\_ toxin.
  - entero
  - cyto
  - neuro
  - endo
- The natural antimicrobial compound present in fresh milk is \_\_\_\_\_.
  - lactose
  - lactulid
  - benzoic acid
  - lactoferrin

Q2) Attempt any two. [12 × 8 = 16]

- Discuss in detail, process of centrifugation used for recovery and purification of fermentation product.
  - Discuss in detail industrial production of alcohol.
  - Discuss the concept, methods of production and applications of probiotics.
- Q3) Write short notes on any four. [4 × 4 = 16]
- Production of vitamin B12.
  - Aflatoxin.
  - Methanogens.
  - Lyophilisation.
  - Microbial defects of wine.
  - Scale up of fermentation.



P.T.O.



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SW-414  
Total No. of Pages : 2

B.Sc. (Part-III) (Semester-V) Examination, November - 2019

**MICROBIOLOGY**

**Agricultural Microbiology (Paper-XII)**

Sub. Code: 65894

Day and Date : Tuesday, 05 - 11 - 2019

Total Marks : 40

Time : 12.00 noon to 2.00 p.m.

Instructions : 1) All questions are compulsory.

2) Figures to the right indicate full marks.

3) Draw well neat labelled diagram wherever necessary.

Q1) Rewrite the sentences by choosing correct alternatives: [8]

- Conversion of inorganic forms of elements to organic form is called  
 i) mineralization ii) degradation  
 iii) immobilization iv) activation
- A relationship between two organisms in which one engulfs and digest other organism is known as \_\_\_\_\_  
 i) predation ii) parasitism  
 iii) ammensalism iv) commensalism
- The attempt to make land suitable for farming is called \_\_\_\_\_  
 i) recalcitrant ii) reclamation  
 iii) ultisols iv) spodosols
- BT toxin acts by producing a protein that blocks \_\_\_\_\_ tract.  
 i) respiratory ii) excretory  
 iii) reproductive iv) gastrointestinal
- C<sub>1</sub> enzyme acts on \_\_\_\_\_ cellulose.  
 i) native ii) conjugated  
 iii) degraded iv) acidic

P.T.O.



SW-414

f) Anemochory is an example of \_\_\_\_\_ transmission of plant pathogen.

- direct ii) external
- indirect iii) internal

e) \_\_\_\_\_ degradation helps in environmental clean up.

- Cellulose ii) Hemicellulose
- Lignin iii) Pesticide

h) \_\_\_\_\_ is a very effective biological mean for plant disease management.

- Azotobacter ii) Rhizobium
- Azospirillum iii) Trichoderma

Q2) Answer any two:

[16]

- Explain in detail role of microorganisms in phosphorous cycle.
- What is biofertilizer? Explain in detail Azotobacter biofertilizer
- Describe Tikka disease of groundnut with reference to causative agent Symptoms and control.

Q3) Write short notes (any four):

[16]

- Vermicompost.
- Pit method for city compost.
- Commensalism.
- Humus.
- Common symptoms Produced by plant pathogens.
- Mechanism of pesticide degradation.