August 2011

[KZ 4266] **Sub. Code : 4266**

THIRD B.PHARM. EXAMINATION

(Common to regulation 2004 – IV year candidates)

PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code : 564266

Time : Three hours **Maximum: 100 Marks**

Answer ALL questions.

I. LONG ESSAYS **(2 x 20 = 40)**

1. a) Describe the structure of Bacteria with neat diagram.
   b) Microbiological assay of antibiotics.

2. a) Discuss the various types of sterilization with examples.
   b) Explain the production of Monoclonal antibodies with applications.

II. SHORT NOTES **(8 x 5 = 40)**

1. Test for Sterility.
2. Evaluation of Disinfectants.
3. Microbial Biotransformation.
4. Hypersensitivity Reactions.
5. Cloning Vectors.
6. Production of Alcohol.
7. Media for Animal cell culture.
8. Methods of Immobilization.

III. SHORT ANSWERS **(10 x 2 = 20)**

1. Lytic and Lysogenic cycle.
2. Conjugation.
3. Functions of MHC.
4. Southern blot.
5. Gene expression.
6. Source of organisms for the production of citric acid.
7. Primary culture.
8. Biosensors.
9. Cell Line with Examples.
10. Live bacterial vaccines.

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[LB 4266] **AUGUST 2012** **Sub. Code: 4266**

THIRD YEAR B.PHARM. EXAM

(Common to regulation 2004 – IV year candidates)

PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code : 564266

Time : Three hours **Maximum: 100 Marks**

(180 Min) Answer ALL questions in the same order.

I. Elaborate on:	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. a) Explain the Structure and Reproduction of Fungi. b) Sterility testing for Pharmaceutical preparations.	19	33	20
2. a) Define antigen and antibody. Explain the antigen-antibody reactions. b) Define Immobilization. Explain the different methods of immobilization with applications.	19	33	20
II. Write notes on:			
1. Counting of Bacteria.	3	8	5
2. Evaluation of Disinfectants.	3	8	5
3. Microbial assay of Vitamins.	3	8	5
4. Single Cell Protein.	3	8	5
5. Immuno deficiency diseases.	3	8	5
6. Production of Insulin.	3	8	5
7. Production of Citric Acid.	3	8	5
8. Maintenance of cell culture.	3	8	5
III. Short Answers	1	5	2
1. Bacterial Flagella.	1	5	2
2. Moist heat sterilization.	1	5	2
3. Transduction.	1	5	2
4. Types of Immunity.	1	5	2
5. Viral vaccines.	1	5	2
6. Western blot.	1	5	2
7. Restriction endonucleases.	1	5	2
8. Cell line with examples.	1	5	2
9. Microbial Biotransformation.	1	5	2
10. Source of organisms for the production of Vitamin B12.	1	5	2

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[LC 4266] **FEBRUARY 2013** **Sub. Code: 4266**

THIRD YEAR B.PHARM. EXAM

(Common to regulation 2004 – IV year candidates)

PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code : 564266

Time : Three hours **Maximum: 100 Marks**

(180 Min)

I. Elaborate on: **(2x20=40)**

1. (a) Write about the morphology, reproduction and nutrition of bacteria.
   (b) How an antibiotic can be assayed by one level and two level?
2. (a) Define and classify the immunity? Explain the production and evaluation of BCG vaccine.
   (b) Explain the production of insulin by genetic engineering technology.

II. Write notes on: **(8x5=40)**

1. Radiation sterilization.
2. Rideal-Walker (R.W) test.
3. ELISA technique.
4. Citric acid production by fermentation method.
5. Biosensors.
6. Application of animal tissue culture.
7. Restriction endonucleases.
8. Bacterial growth curve.

III. Short Answers: **(10x2=20)**

1. Active immunity.
2. Anabolism.
3. Bacteriophage.
4. Biological indicator.
5. Cloning.
6. Enzyme induction.
7. Facultative anaerobe.
8. Gene mapping.
9. Haemagglutinin.
10. Interferon.

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[LD 4266] **AUGUST 2013** **Sub. Code: 4266**

THIRD B.PHARM. EXAM

(Common to regulation 2004 – IV year candidates)

PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time : Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2X20=40)**

1. (a) Discuss bacterial growth curve.
   (b) Explain gram staining method.
2. Explain production of monoclonal antibody and its application.

II. Write notes on: **(8X5=40)**

1. Autoclave.
2. Phenol coefficient test.
3. Simple media.
4. Differentiate between active immunity and passive immunity.
5. Polio vaccine.
6. Production of interferon by recombinant DNA (Deoxyribo nucleic acid) technology.
7. Method of immobilization of enzyme.
8. Application of animal tissue culture.

III. Short Answers: **(10X2=20)**

1. Define bacteria.
2. List the methods of sterilization.
3. Tyndallization.
4. Fumigation.
5. Use of culture media.
6. Types of immunity.
7. Use of western blot test.
8. High yield producing organism of glutamic acid.
9. Structure of DNA (Deoxyribo nucleic acid).
10. Culture media for animal cells.

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(LE 4266) **FEBRUARY 2014** **Sub. Code: 4266**

THIRD YEAR B.PHARM. EXAM

(Common to Regulations 2004 – IV year candidates)

PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three Hours **Maximum: 100 marks**

I. Elaborate on: (2X20=40)

1. a) Define disinfection. Classify them with examples and write their mechanism of action.
   b) Differentiate dry heat and filtration sterilization
2. a) Production of penicillin by fermentation.
   b) Poliomyelitis vaccine.

II. Write notes on: (8X5=40)

1. Explain about the structures external to the cell wall.
2. Types of biotransformation reactions.
3. Auto immune disorders
4. Small pox vaccine preparation and evaluation.
5. Cloning strategies.
6. Quantitative estimation of antigen and antibody.
7. Techniques in immobilization of enzyme.
8. Screening method in fermentation process.

III. Short Answers on: (10X2=20)

1. Classification of micro organism based on temperature.
2. List some sterile pharmaceutical products.
3. Chick-Martin test.
4. Insertion sequences
5. Application of Biotransformation.
6. Haptens
7. Triple Vaccines
8. Northen blot
9. Official Parameters in fermentation process
10. Component of Biosensor

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[LF 4266] **AUGUST 2014** **Sub. Code: 4266**

THIRD YEAR B.PHARM. DEGREE EXAMINATION

Common to Regulations 2004—IV year candidates)

PHARMACEUTICAL BIOTECHNOLOGY

Q. P. Code: 564266

Time: Three Hours **Maximum: 100 Marks**

Answer All Questions

I. Essay Questions: **(2 x 20 = 40)**

1. Define sterilization and classify them. Discuss moist heat sterilization with examples.
2. Discuss hybridoma technology with production and its application.

II. Short Notes: **(8 x 5 = 40)**

1. Growth curve of bacteria.
2. Gaseous sterilization.
3. Evaluation of disinfectant.
4. Gram staining.
5. Production of citric acid by fermentation method.
6. Enzyme linked immunosorbent assay.
7. Production of insulin by recombinant DNA (Deoxyribo Nucleic Acid) technology .
8. Types of biosensors.

III. Short Answers: **(10 x 2 = 20)**

1. Define disinfectant.
2. Types of flagella.
3. Examples of gram – positive bacteria.
4. Pasterurisation.
5. Example of bacterial filters.
6. Common staining techniques
7. Examples of media used in animal cell culture
8. Define Toxoid
9. Give organism name of cholera vaccine.
10. Define Immobilization.

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(LG 4266) **FEBRUARY 2015** **Sub. Code: 4266**

THIRD YEAR B.PHARM. EXAMINATION
(Common to Regulations 2004 – IV year candidates)
PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 marks**

I. Essay: **(2 x 20 = 40)**

1. a) Differentiate between Gram positive and Gram negative cell wall with a neat labeled diagram.
   b) Define virus. Explain bacterial growth curve.
2. a) What are Mono Clonal antibodies? Explain its methods of preparation and its application.
   b) Explain the design and construction of the Fermenter.

II. Short notes: **(8 x 5 = 40)**

1. Hot air oven
2. Preparation of diphtheria toxoid
3. Factors affecting disinfection
4. Bioprocessing of ethanol
5. Hyper sensitivity reaction
6. Microbiological assay of vitamin $B_{12.}$
7. Regulation of gene expression
8. Production of Hepatitis B vaccine by rDNA technology

III. Short Answers: **(10 x 2 = 20)**

1. Define immunity
2. Examples of killed bacterial vaccine
3. Define Biosensor
4. Synchronous culture
5. Classify Disinfectant
6. Use of Western Blot test
7. Examples of Motile bacteria
8. Define Viable count
9. Define Sterilization
10. Define Vectors

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[LH 4266] **AUGUST 2015** **Sub. Code: 4266**

B.PHARM. DEGREE EXAMINATION

THIRD YEAR

(Common to Regulations 2004 – IV year candidates)

PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time : Three Hours **Maximum : 100 marks**

Answer All Questions

I. Essay: **(2 x 20 = 40)**

1. a) Explain the methods of production of interferon by rDNA technology.
   b) Differentiate moist heat and dry heat sterilization
2. a) Define fermentation. Explain the fermentative production of Penicillin.
   b) Explain the production of insulin by genetic engineering technology.

II. Short notes : **(8 x 5 = 40)**

1. Bacterial growth curve.
2. Gram's staining technique.
3. Microbiological assay of antibiotics.
4. Production of single cell protein.
5. BCG Vaccine.
6. Bioprocess of citric acid.
7. Techniques in immobilization of enzyme.
8. Production and application of monoclonal antibodies.

III. Short answers: **(10 x 2 = 20)**

1. Bacteriophage.
2. Hepatitis –B.
3. Tyndallization.
4. Plasmid.
5. Culture Media.
6. Examples of Motile and non motile bacteria.
7. Define Immobilization.
8. Define Toxoid with examples.
9. Types of flagella.
10. Restriction endonucleases.

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(LI 4266) FEBRUARY 2016 **Sub. Code: 4266**

THIRD YEAR B.PHARM. EXAMINATION
(Common to Regulations 2004 – IV year candidates)
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Essay: **(2 x 20 = 40)**

1. a) Explain building blocks of Protein Synthesis in a Bacterial cell.
   b) Immuno blotting techniques of ELISA and Western blot.
2. a) Classify different methods of Sterilization. Explain merits and demerits of physical methods of Sterilization.
   b) Add a note of Sterilization by filtration.

II. Short notes: **(8 x 5 = 40)**

1. Transduction.
2. Isolation and identification of Bacteria.
3. Describe the structure of DNA with neat diagram.
4. Fermentative production of Citric acid.
5. How an antibiotic can be assayed by Biological Method?
6. Biosensors.
7. Bio assay of Vitamins.
8. Bacterial counting techniques.

III. Short answers: **(10 x 2 = 20)**

1. Mean generation time.
2. Incineration.
3. Fimbria and Pili.
4. DNA Gyrase & DNA Ligase.
5. Nucleotide.
6. Write the three letters of Initiating Codons and Terminating Codons.
7. Sparger.
8. Live Bacterial vaccines.
9. Restriction endonucleases.
10. Down streaming process.

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(LJ 4266) AUGUST 2016 **Sub. Code: 4266**

B.PHARM. EXAMINATION
(Common to Regulations 2004 – IV year candidates)
THIRD YEAR
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Essay: **(2 x 20 = 40)**

1. a) Describe the morphology and reproduction of Fungi with neat diagram.
   b) Discuss various methods of immobilization.
2. Classify Toxin. Discuss preparation of Diphtheria Toxoid.

II. Short notes: **(8 x 5 = 40)**

1. Differentiate between prokaryotic and eukaryotic.
2. Discuss radiation sterilization.
3. Bacterial conjugation.
4. Discuss Rideal walker test.
5. Transposable elements.
6. Discuss production of ethanol by fermentation method.
7. Bioprocess of Glutamic acid.
8. Culture media used for animal cells.

III. Short answers: **(10 x 2 = 20)**

1. Give any two importance of aseptic technique.
2. Example of chemical method of sterilization.
3. What is DPT?
4. Examples of gram negative bacteria.
5. Types of hypersensitivity reaction.
6. Define cloning vector.
7. Define fermentation.
8. Classify immunoglobulin.
9. Give any two application of animal tissue culture.
10. Examples of viral vaccines.

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(LK 4266) FEBRUARY 2017 **Sub. Code: 4266**

B.PHARM. EXAMINATION
(Common to Regulations 2004 – IV year candidates)
THIRD YEAR
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. a) Discuss isolation of Bacteria.
   b) Discuss bacterial growth curve.
2. Define Toxoid. Discuss preparation of Tetanus Toxoid.

II. Write notes on: **(8 x 5 = 40)**

1. Explain Ziehl-neelsens method.
2. What is sterility test? Discuss media and organism used in sterility test as per Indian Pharmacopoeia.
3. Discuss agar diffusion test.
4. Production of interferon by recombinant deoxyribonucleic acid technology.
5. Production of Vitamin B_{12} by fermentation method.
6. Application of animal cell culture.
7. Methods of immobilization of enzyme.
8. Importance of aseptic technique.

III. Short answers on: **(10 x 2 = 20)**

1. Give method of antigen-antibody reaction.
2. What is Murein?
3. Examples of gaseous sterilization.
4. Give official microbiological assay of antibiotics.
5. Define antigen.
6. Organism used in production of citric acid.
7. Define biosensor.
8. Give examples of natural media used in animal cell culture.
9. Define bacteria.
10. What is Tyndallization?

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(LL 4266) AUGUST 2017 **Sub. Code: 4266**

B.PHARM. DEGREE EXAMINATION
(Common to Regulations 2004 – IV year candidates)
THIRD YEAR
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. a) Explain the production of Insulin by rDNA technology.
   b) Discuss the methods of transfer of genetic materials in bacteria.

2. a) Explain the design of Fermentor.
   b) Discuss microbiological assay of Antibiotics.

II. Write notes on: **(8 x 5 = 40)**

1. Types of culture media.
2. Filtration sterilization.
3. Chick Martin Test.
4. Preparation of BCG vaccine.
5. Differentiate between gram positive and gram negative bacteria.
6. Production of citric acid by Fermentation method.
7. Southern blotting technique.
8. Production of single cell protein.

III. Short answers on: **(10 x 2 = 20)**

1. Define Phototrophs and Chemotrophs.
2. Classify bacteria based on temperature.
3. Active immunity.
4. Haptens.
5. Microorganisms used in production of alcohol.
6. Component of Biosensor.
7. Plasmid vector.
8. Define sterilization.
9. Types of sparger.
10. Culture media for animal cells.

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(LM 4266) FEBRUARY 2018 **Sub. Code: 4266**

B.PHARM. DEGREE EXAMINATION
(Common to Regulations 2004 – IV year candidates)
THIRD YEAR
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Define sterilization and describe the different methods of sterilization.

2. a) Define immunity and explain the types of immunity.
   b) Discuss in detail about the hypersensitivity reaction.

II. Write notes on: **(8 x 5 = 40)**

1. Explain the reproduction of fungi.
2. Explain any two methods of evaluation of disinfectants.
3. Describe the production of single cell protein.
4. Explain the production of citric acid by fermentation method.
5. Describe the production of Hepatitis – B vaccine by genetic engineering method.
6. Describe the microbiological assay of Vitamins.
7. Define toxoid and explain the production of toxoid.
8. Explain the applications of Biosensor.

III. Short answers on: **(10 x 2 = 20)**

1. Give the examples for selective and differential media.
2. Bacterial filaments.
3. Define transposable elements.
4. Define transcription and translation process.
5. Origin of replication.
6. Give example for live bacterial vaccine.
7. Define immobilization of enzymes.
8. Organism used for production of glutamic acid.
9. Define primary cell culture.
10. Media used for sterility testing.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LN 4266) AUGUST 2018 **Sub. Code: 4266**

B.PHARM. DEGREE EXAMINATION
(Common to Regulations 2004 – IV year candidates)
THIRD YEAR
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Define monoclonal antibody. Discuss production and applications of monoclonal antibodies.

2. a) Discuss production of penicillin by fermentation process.
   b) Define disinfectant. Describe factors affecting the choice of disinfectant.

II. Write notes on: **(8 x 5 = 40)**

1. Discuss selective and differential medium with example.
2. Discuss microbiological assay of antibiotic by using disc diffusion method.
3. Describe production of interferon by genetic engineering method.
4. Explain acid fast staining.
5. Discuss active immunity.
6. Describe gaseous sterilization.
7. Describe commonly employed techniques for immobilization of enzyme.
8. What is flagella? Describe classification of bacteria based on flagella.

III. Short answers on: **(10 x 2 = 20)**

1. Define Immunoblotting.
2. Define transformation.
3. Application of southern blotting.
4. Bacterial counting methods.
5. Storage temperature of poliomyelitis vaccine and small pox vaccine.
6. What is biological indicators?
7. Define Fermentation.
8. What is capsid?
9. Give culture media used for animal cells.
10. Define immuno-suppression.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LO 4266) FEBRUARY 2019 **Sub. Code: 4266**

B.PHARM. DEGREE EXAMINATION
(Common to Regulations 2004 – IV year candidates)
THIRD YEAR
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Define Biosensor. Discuss principle, types and applications of biosensors.

2. a) Discuss in detail the morphology and structure of Eukaryotic cell.
   b) Write about reproduction method of an Yeast.

II. Write notes on: **(8 x 5 = 40)**

1. Discuss characteristics of restriction endonuclease enzyme.
2. Explain northern blotting techniques.
3. Discuss mechanism of transformation.
4. Describe methods of isolating pure cultures.
5. Outline production of Rabies Vaccine.
6. Describe working principle of autoclave in laboratory scale.
7. Discuss briefly a stirred-tank fermenter.
8. Describe classification of bacteria based on shape and size.

III. Short answers on: **(10 x 2 = 20)**

1. What is gene expression?
2. Give two importance of aseptic technique.
3. Define mycology.
4. Draw synchronous growth curve.
5. Define Endotoxin.
6. What is F value?
7. Give methods of immobilization of enzyme.
8. Define Transduction.
9. Organism used for production of citric acid.
10. Plasmid vector.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LP 4266) AUGUST 2019 **Sub. Code: 4266**

B.PHARM. DEGREE EXAMINATION
(Common to Regulations 2004 – IV year candidates)
THIRD YEAR
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Define Bacteria. Explain in detail about structure and reproduction of Bacteria.

2. Define Monoclonal Antibodies. Explain the production and applications of Monoclonal Antibodies.

II. Write notes on: **(8 x 5 = 40)**

1. Explain briefly about heat sterilization.
2. Explain the factors affecting the selection of disinfection.
3. Describe Microbiological Assay of Antibiotics by disc-diffusion method.
4. Explain the types of Antigen – Antibody reactions based on agglutination.
5. Describe the production of Hepatitis–B vaccine by genetic engineering method.
6. Discuss the production of Vitamin B_{12} by fermentation method.
7. Explain the techniques of immobilization.
8. Describe the animal cell culture Media.

III. Short answers on: **(10 x 2 = 20)**

1. Give any two examples for Gram positive and Gram negative bacteria.
2. Give two examples of phenol derivative as disinfectant.
3. Give examples for sterilization by chemical agents.
4. Define Microbial biotransformation and Single cell proteins.
5. Write the types of immunity.
6. Define ‘D’ value.
7. Define biosensor with examples.
8. Define cloning vectors with example.
9. Define shuttle vectors.
10. Classify fermentation methods.

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THE TAMIL NADU Dr.M.G.R. MEDICAL UNIVERSITY

(LQ 4266) FEBRUARY 2020 **Sub. Code: 4266**

B.PHARM. DEGREE EXAMINATION
(Common to Regulations 2004 – IV year candidates)
THIRD YEAR
PAPER VI - PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code: 564266

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Describe in detail about the test for Sterility and explain the Autoclaving process.

2. a) Explain Microbiological Assay of antibiotics.
   b) Discuss in detail about Animal cell culture Media.

II. Write notes on: **(8 x 5 = 40)**

1. Describe various techniques of isolation of bacterial pure culture.
2. Classify disinfectants based on their mechanism and uses.
3. Describe Microbial Biotransformation of steroids.
4. Explain production of Alcohol by fermentation method.
5. Describe the production of Hepatitis B Vaccine by genetic engineering method.
6. Discuss in detail about Immunodeficiency diseases.
7. Explain Southern Blot technique.
8. Summarize the applications of Monoclonal Antibodies.

III. Short answers on: **(10 x 2 = 20)**

1. Classify bacteria based on temperature.
2. Give an example of filters used for sterilization.
3. Define Transduction and Conjugation.
4. What is Bacteriophage?
5. Define and classify restriction Endonucleases.
6. Give an example for the killed bacterial vaccine.
7. Major Histocompatible Complex (MHC).
8. Organism used for production of Citric acid.
9. Define Cell line.
10. Mention the types of Hypersensitivity reactions.

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