APRIL - 2001

[KD 731] Sub. Code :4222

FOURTH B. Pharmacy DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours — Maximum : 90 marks

Two and a half hours for Sec. A and Sec. B — Sec. A & Sec. B : 60 marks; Section C : 30 marks

Answer Sections A and B in the same Answer Book.

Answer Section C in the answer sheet provided.

SECTION A — (2 x 15 = 30 marks)

Answer any TWO questions.

1. Discuss the structure and ultrastructure of yeasts. Add a note on the reproduction in yeasts.

2. Write notes on 'solid substrate fermentation' and 'protected fermentation'. How is citric acid produced?

3. Classify culture media. What are the special features of (a) fermentation media (b) media for sterility test (c) media for coliforms and mycobacteria. How are mycobacteria cultivated?

SECTION B — (6 x 5 = 30 marks)

4. Write briefly on any SIX of the following :

(a) Bacterial growth curve and synchronous growth

(b) Acid fast stain – principle and procedure.

(c) Use of shakers, centrifuges and homogenisers.

(d) Biochemical reactions

(e) Rabies Vaccine (production only)

(f) Injections of Oxytocin and Vasopressin

(g) Dried human plasma

(h) Monoclonal antibodies.

NOVEMBER - 2001

[KE 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Two and a half hours Sec. A & Sec. B : 60 marks

for Sec. A and Sec. B Section C : 30 marks

Answer Section A and B in the same Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Discuss in detail the Moist heat sterilisation methods.

2. Explain the production and evaluation of BCG vaccine.

3. Give the details of preparation and evaluation of catgut.

SECTION B — (6 × 5 = 30 marks)

4. Write briefly on any SIX of the following :

(a) Techniques for avoiding ingestion of infectious materials.

(b) Plasma substitutes.

(c) Pharmacopoeial designs of microbiological assay of antibiotics.

(d) Preservation of microbes.

(e) Methods of evaluation of disinfectants.

(f) Microbial counting techniques.

(g) Types of microbiological media.

(h) Monoclonal antibodies.

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MARCH - 2002

[KG 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Two and a half hours Sec. A & Sec. B : 60 marks

for Sec. A & Sec. B. Section C : 30 marks

Answer Sections A and B in the same answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Discuss the structure, ultra structure and colonial morphology of bacteria.

2. Classify fermentation methods. Describe the production of

(a) Lactic acid and

(b) Riboflavin.

3. Explain the preparation and standardisation (evaluation included) of catgut.

SECTION B — (6 × 5 = 30 marks)

4. Write briefly on any SIX of the following :

(a) Differential media, selective media and enriched media.

(b) Chick-Martin Test.

(c) Spore stain and flagellar stain.

(d) Virulence and related factors in infection process.

(e) Blending, containerisation and use of adjuvants in vaccine manufacture

(f) Injection of heparin

(g) Ideal plasma substitute and examples of plasma substitutes.

(h) Genetic Engineering.

[KH 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Two and a half hours Sec. A & Sec. B : 60 marks

for Sec. A and Sec. B Section C : 30 marks

Answer Sections A and B in the **SAME** Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Diagrammatically represent various phases in bacterial growth and classify various methods of bacterial growth measurement. Describe one method each for finding out total count and viable count.

2. Define and classify vaccines. Discuss the production and standardisation of Tetanus toxoid.

3. Discuss the production and recovery of penicillin by fermentation process.

SECTION B — (6 × 5 = 30 marks)

4. Write briefly on any SIX of the following.

(a) Morphology and cultivation of virus

(b) Techniques for separation of serum

(c) Immunoglobulins

(d) Conc. human R.B.C.

(e) R.W.C. and C.M.C.

(f) Role of plasmids in Rec. DNA technology

(g) Monoclonal antibodies

(h) Injection of vasopressin.

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APRIL - 2003

[KI 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Two and a half hours Sec. A & Sec. B : 60 marks

for Sec. A and Sec. B Section C : 30 marks

Answer Sections A and B in the **SAME** Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Draw a neat labelled diagram of a typical bacterial cell and discuss the structure. Give an account of staining procedure.

2. Define and classify sterilisation. Discuss the principles of autoclaving and briefly outline the procedure in pasteurisation.

3. Classify blood products and discuss "Whole human blood I.P.".

SECTION B — (6 × 5 = 30 marks)

4. Write briefly on any SIX of the following :

(a) Acquired immunity

(b) Bacterial growth measurement

(c) Injection of ACTH

(d) Virulence and related factors in infection process

(e) Recovery of penicillin from fermentation broth

(f) Methods of isolation of target gene for recombinant DNA technology

(g) Monoclonal antibodies

(h) Standardisation of vaccines.

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OCTOBER - 2003

[KJ 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Two hours and Forty minutes for Sec. A and Sec. B
Twenty minutes for Sec. C

Sec. A and Sec. B : 70 marks
Section C : 20 marks

Answer Sections A and B in the **SAME** Answer Book.

Answer Section C in the SEPARATE Answer Sheet Provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions only.

1. Explain the principle, operation, design of an Industrial (Horizontal Jacketed) autoclave. (5 + 5 + 5)

2. Give the details of production, packing and storage of Dried Human Plasma. (10 + 3 + 2)

3. Explain the fermentative production of alcohol and its recovery. (10 + 5)

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions only.

4. Write notes on various types of culture media.

5. Explain sterilization by Ethylene oxide.

6. Describe the method of preparation of Injection of oxytocin.

7. Write about the reproduction of bacteria.

8. Write briefly on production of Formal Toxoid.

9. Write a note on Dextran.

10. Write an account on microbiological assay of vitamins.

11. Explain the procedure involved in Rideal–Walker Test.

12. Write a note on protected fermentation.

13. Acquired immunity.

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APRIL - 2004

[KK 731] Sub. Code : 4222

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer Sections A and B in the SAME Answer Book.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions only.

1. Discuss the details of production, packing and storage of human normal immunoglobin.

2. Describe the method of preparation of the following :

(a) Injection of Procaine

(b) Injection of Insulin.

3. Describe the production of Hepatitis B Vaccine.

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions only.

4. Write a note on moist heat sterilisation.

5. Explain various techniques for separating serum.

6. Write a brief account on microbiological assay of antibiotics.

7. Write a brief note on Recombinant DNA technique.

8. How will you evaluate disinfectants?

9. Explain briefly about production of cholera vaccine.

10. Write a note on plasma substitutes.

11. How will you evaluate sutures and ligatures?

12. Explain fermentative production of lactic acid.

13. Discuss the method of sterilization used for thermolabile products.

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AUGUST - 2004

[KL 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours **Maximum : 90 marks**

Sec. A & B : Two hours and forty minutes **Sec. A & B : 70 marks**

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

Answer Sections A and B in the SAME Answer Book.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions only.

1. Discuss moist heat sterilisation in detail.

2. Write in detail about biosafety methods and good laboratory practice.

3. Describe the principle, method and result interpretation aspects of microbiological assay of vitamins.

SECTION B — (8 × 5 = 40 marks)

Write briefly on any EIGHT of the following :

4. Synthetic media and crude media

5. Continuous culture

6. Blending and containerisation of vaccines

7. Injection of A.C.T.H.

8. Dried human plasma

9. Preparation of catgut

10. Classification of disinfection with examples

11. Genetic engineering

12. Injection of Heparin.

13. Spore stain and flagellar stain.

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FEBRUARY - 2005

[KM 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours **Maximum : 90 marks**

Sec. A & B : Two hours and forty minutes **Sec. A & B : 70 marks**

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions only.

1. Explain the cellular structure, reproduction and cultivation of a bacterium.

2. Discuss in detail the production, evaluation and labelling of Rabies vaccine.

3. Explain the preparation, storage and evaluation of Dried Human plasma.

SECTION B — (8 × 5 = 40 marks)

Write briefly on any EIGHT of the following.

4. Various cultural methods for microorganisms
5. Validation of Heat Sterilisation processes.
6. Insulin production by genetic engineering.
7. Classification of disinfectants.
8. Microbial transformations.
9. Microbiological assay of vitamins.
10. Gram staining and acid-fast staining.
11. Production of injection of penicillin.
12. Chick-Martin Test.
13. Monoclonal antibodies.

AUGUST - 2005

[KN 731] Sub. Code : 4222

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. Discuss sterilization by filteration in detail giving pharmaceutical examples.

2. Briefly describe the principles involved, criteria and standardisation methods of quality control for dead bacterial vaccines.

3. Define disinfection. What are the properties of an ideal disinfectant? Give a classification of disinfectants with examples.

II. Write briefly on any EIGHT of the following : (8 × 5 = 40)

1. Reproduction in Bacteria.

2. Classify various types of culture media giving examples.

3. Techniques for the use of pipettes.

4. Injection of insulin and its products.

5. Containerisation principles for vaccines.

6. Capsular stain and cell–wall stain.

7. Collection, processing and storage of whole human blood.

8. Factors influencing disinfectant activity.

9. Advantages of microbial transformation.

10. Various steps involved in the recombinant DNA technique.

FEBRUARY - 2006

[KO 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay :

Answer any TWO questions only : (2 × 15 = 30)

(1) Draw a neat sketch of a typical Eukaryotic cell and discuss in detail about the structure. Add a note on the Yeast and Moulds colonial morphology with examples.

(2) Define the term 'Fermentation'. Discuss the types of culture systems in detail. With a neat flow chart describe the production of Penicillin.

(3) What is Microbial Assay? Write down the principle and type of microbial assays with reference to Vitamins and Antibiotics.

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

(1) Methods to determine the viable count of bacteria.

(2) Standardization methods of quality control vaccines.

(3) Injection of ACTCH.

(4) Define the term "Plasma" and "Serum". Add a note on the production of human fibrin foam.

(5) Discuss the standards and sterilization methods of sutures and ligatures.

(6) D-value and its importance.

(7) Production of Riboflavin.

(8) Restriction enzymes.

(9) Application of monoclonal antibodies.

(10) Production of Recombinant insulin.

AUGUST - 2006

[KP 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours **Maximum : 90 marks**

Theory : Two hours and forty minutes **Theory : 70 marks**

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

I. Long Essay : **(2 × 20 = 40)**

Answer any TWO questions.

1. (a) Define immunity and differentiate between active immunity and passive immunity.

(b) Write down the advantages of genetic engineering. (10 + 10 = 20)

2. Draw a neat labelled diagram of "Steam Jacketted autoclave" and discuss its design and operation in detail.

3. Mention the active principles of posterior pituitary extract and describe the extraction and biological standardisation of labour inducing hormone.

4. Explain the production and recovery of alcohol by fermentation process.

II. Short notes : **(6 × 5 = 30)**

Answer any SIX questions.

1. Draw a neat labelled diagram of an yeast cell and briefly outline its reproduction process.

2. Explain any two theories behind Gram's reaction.

3. Explain the principle, procedure and applications of tyndallisation.

4. Write short notes on human fibrin foam.

5. Write the principle and procedure to determine the R.W.C. of a disinfectant.

6. Explain the effect of concentration of disinfectant and temperature on the course of disinfection process.

7. Write the procedure for microbiological assay of antibiotics by agar diffusion method.

8. Spore stain and flagellar stain.

FEBRUARY - 2007

[KQ 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

1. Describe the morphology and structure, and reproduction in Bacteria.

2. What is meant by disinfection? What are the properties of an ideal disinfectant? Give a classification of disinfectants.

3. Describe the general method of preparation and standardization of bacterial vaccine.

4. What are antibiotics? Describe the strain media requirements production schedule extraction and purification of pencillins.

II. Short notes : (6 × 5 = 30)

Write any SIX :

1. Principle involved and procedure for Gram's staining.

2. Continuous culture.

3. Techniques to avoid dispersal of infectious materials.

4. Collection and processing of concentrated human R.B.C.

5. Injection of penicillin.

6. Steps involved in the production of recombinant DNA.

7. Principle involved in moist heat sterilization method.

8. What factors govern individual resistance to disease?

[KR 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay :

Answer any TWO of the following : (2 × 15 = 30)

(1) Discuss briefly stains and important staining techniques used for bacteria.

(2) Explain immunity and production of BCG vaccine.

(3) Describe classification and evaluation of disinfectants.

(4) Explain the production and recovery of alcohol by fermentation process.

II. Write briefly on any EIGHT of the following : (8 × 5 = 40)

(1) Whole human blood

(2) Sterility test

(3) Oral polio vaccine

(4) Diphtheria toxoids

(5) Study of bacterial cell

(6) Recombinant DNA techniques

(7) Monoclonal antibodies

(8) Solid state fermentation

(9) Sutures

(10) Microbiological assays

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[KS 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code : 564222

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. Discuss the principle, criteria, procedure and interpretation of results for the sterility test of various pharmaceutical products.

2. Describe in detail about biosafety methods and good laboratory practice.

3. Explain the principle involved and the procedure with reference microbiological assay of antibiotics.

4. (a) Define toxin and differentiate between Exotoxin and Endotoxin.

(b) Write in brief about diagnostic preparation.

II. Write briefly on any EIGHT of the following : (8 × 5 = 40)

1. Name the common and special constituents of culture media and describe their function.

2. What are the properties of an ideal disinfectant? and what are the short comings of known disinfectants?

3. What are the merits and demerits of moist heat sterilization?

4. Define phenol-coefficient. Write advantages and disadvantages of Rideal Walker coefficient.

5. Injection of procaine.

6. Write short notes on plasma substitutes.

7. Classify immunity and discuss the role of humoral immunity.

8. Capsular stain and spore stain.

9. Blending and containerisation of vaccines.

10. Various steps involved in gene-cloning procedure.

August 2008

[KT 731] **Sub. Code : 4222**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL BIOTECHNOLOGY

Q.P.Code : 564222

Time : Three hours Maximum : 90 marks

I. Answer any TWO questions: (2 × 20 = 40)

1. (a) Define Disinfectants and differentiate disinfectants from sterilization process. (8)

(b) Describe in detail about evaluation methods of disinfectants. (12)

2. (a) Give in detail about preparation of any one antibiotic by fermentation process. (13)

(b) Recombinant DNA technique. (7)

3. (a) Describe in detail about production of any one bacterial killed vaccine. (10)

(b) Define immunity and clarify. (5)

(c) Conversion method of toxin to toxoide. (5)

II. Answer any EIGHT questions : (8 × 5 = 40)

(1) Write the mechanism of Moist heat sterilization and principle involved in autoclave.

(2) Give in detail about microbial growth measurement by turbidometry.

(3) Brief introduction about Diphtheria toxoids.

(4) Explain the principle involved in acid fast staining technique.

(5) Absorbable sutures.

(6) Give details about the factors influencing disinfection

(7) Give detailed structure of citric acid preparation by fermentation process.

(8) Explain about the standards of penicillin injection.

(9) Classify bacteria according to their survival capacity in oxygen.

(10) Brief account on microbiological array of vitamins.

III. Answer any FIVE questions : (5 × 2 = 10)

(1) Role of adjuvants in vaccines and write the example.

(2) Synchronous culture.

(3) Bactericides used in disinfection process.

(4) Define acquired immunity.

(5) Define Monoclonal antibodies.

(6) Write any two difference between gram positive and gram negative cell wall in bacteria.

(7) Collection processing of whole human blood.

August 2008

[KT 751] **Sub. Code : 4242**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Regulations 2004)

Paper I — PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code : 564242

Time : Three hours Maximum : 90 marks

I. Long Essay : $(2 \times 20 = 40)$

Answer any TWO questions.

1. Discuss the important staining techniques used for bacteria.

2. Explain the different methods of sterilisation including their merits and demerits.

3. What are immobilized enzymes? What are the various techniques for enzyme immobilisation? Discuss the therapeutic applications of immobilisation.

II. Short notes : $(8 \times 5 = 40)$

Answer any EIGHT questions.

1. Oral polio vaccine

2. Factors influencing disinfectant activity

3. Write the procedure for microbiological assay of antibiotics by agar diffusion method

4. Continuous culture

5. Explain in detail southern blotting.

6. Write about the characteristics of restriction endonucleases. Give example with their cleavage site.

7. Write the applications of animal tissue culture.

8. Describe the production of citric acid by fermentation.

9. Discuss in detail the different types of hypersensitivity.

10. Discuss the production of interferon by RDNA technology.

III. Short answers : (5 × 2 = 10)

Answer any FIVE questions.

1. What are vaccines?

2. What is meant by gene therapy?

3. Define recombinant DNA.

4. Flagella.

5. Thermal death time.

6. What is microbiological assay?

7. Define the term fermentation.

February 2009

[KU 731] **Sub. Code: 4222**

FOURTH B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper II – PHARMACEUTICAL BIOTECHNOLOGY
Q.P. Code : 564222

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. **a)** Define immunity and distinguish active with passive immunity.
   b) Explain the design and construction of fermentor.
2. Describe in detail the microbiological assay of vitamins.
3. Explain the production and evaluation of BCG vaccine.

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. Briefly explain continuous culture.
2. Differentiate between toxins and toxoids with examples.
3. Write a short note on bacterial growth curve.
4. Write briefly on preparation of injection of penicillin.
5. Give a brief account of containerization vaccines.
6. Write the applications of monoclonal antibodies.
7. Briefly explain amylase production.
8. Write in detail about autoimmune disorders.
9. Write a short note with application of immunoglobulin.
10. Non absorbable sutures.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Explain any four factors that affect disinfectant activity.
2. Give two examples each of disinfectants and preservatives used in pharmaceutical preparations.
3. Write stability studies described for official vaccines.
4. Define the terms bioreactor and biosensor.
5. Write the procedure for the western blotting technique.
6. Write the application of biosensors.
7. Illustrate multiple streaking technique.

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August 2009

[KV 731] **Sub. Code: 4222**

FOURTH B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper II – PHARMACEUTICAL BIOTECHNOLOGY
Q.P. Code : 564222

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20= 40)

1. **a)** How an antibiotic can be assayed by one level and two level?
   b) What is MIC? What is the significance of it?
2. **a)** Write a note on recombinant DNA technology?
   b) How monoclonal antibodies are produced?
   c) How insulin is prepared by genetic engineering method?
3. **a)** Classify immunity with example?
   b) What are the methods that are usually adopted to produce viral vaccines?
   c) Write a note on MMR group of vaccine.

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. Quality control test for vaccines.
2. Methods of reproduction in bacteria.
3. What are the requirement of culture media and how it has to be prepared?
4. Explain about the growth curve of bacteria.
5. What are the method by which the micro organisms (Bacteri**a)** is differenciated?
6. What are all the biosafety methods that should be adopted in a microbiology lab?
7. Write the production of BCG vaccine?
8. Write noteon oxytocin injection.
9. Write about collection, processing and storage of whole human blood?
10. How penicillion is synthesized by germentation technology?

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Differences between exotoxin and endotoxion.
2. Differences between ligature and sutures.
3. Differences between gram positive and gram negative bacteria.
4. Differences between toxin and toxiod.
5. Differences between active immunity and passive immunity.
6. Differences between an antiseptic and disinfectant?
7. Differences between a bacteria and virus?

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February 2010

[KW 731] **Sub. Code: 4222**

FOURTH B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper II – PHARMACEUTICAL BIOTECHNOLOGY
Q.P. Code : 564222

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. **a)** Write about the morphology, habit variation, reproduction, nutrition, cultivation, isolation of bacteria. **(15)**
   b) Write the method and principle involved in gram's staining. **(5)**
2. **a)** What are all the sterilization methods adopted for the pharmaceutical products? **(15)**
   b) Write note on test for sterility. **(5)**
3. How ligatures and sutures are prepared, standardized and evaluated?

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. How a toxin can be converted into toxoid?
2. Methods for isolating a pure culture from a mixed culture.
3. How the bacterial mass can be estimated.
4. What are the different types of staining techniques used in a microbiology lab?
5. Method of production of rabies vaccine.
6. Note on heparin injection.
7. Preparation of dried human serum.
8. Methods to find out the sensitivity of an anti biotics.
9. Note on fermentaiton technology.
10. Ridle – walker test.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Description of slagella.
2. Classification of bacteria based on morphology.
3. Define sera.
4. Factors to be considered during sermentation process.
5. Ideal plasma substitutes.
6. Principle involved in recombinant DNA technology.
7. What is tissue culture?

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September 2010

[KX 731] **Sub. Code: 4222**

FOURTH B.PHARM. DEGREE EXAMINATION

(Re-Revised Regulations)Candidates Admitted upto 2003-04

Paper II – PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code : 564222

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions. **(2 X 20 = 40)**

1. Describe in detail the microbiological assay of vitamins.
2. Explain the production of insulin by adopting genetic engineering technology.
3. Explain the production and evaluation of BCG vaccine.

II. Write Short Notes : Answer any EIGHT questions. **(8X 5 = 40)**

1. Briefly explain vaccine containers.
2. Differentiate between media, selective media and enriched media.
3. Enumerate the difference between continuous culture and synchronous culture.
4. Write briefly on preparation of Injection of ACTH.
5. Explain staining technique.
6. Write the applications of monoclonal antibodies.
7. Briefly explain protease production.
8. With the help of flow diagram explain the microbial production of Vitamin $B_{12.}$
9. Describe Test for Sterility I.P.
10. Write a short note with application of immunoglobulin.

III. Short Answers: Answer any FIVE questions. **(5X2 = 10)**

1. Define the terms bioreactor and biosensor.
2. Write the procedure for the Western blotting technique.
3. Write the application of biosensors.
4. Illustrate multiple streaking techniques.
5. Classify Disinfectants.
6. Give two examples each of fungicidal and virucidal agents.
7. Sterilization methods for water sensitive drugs.

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FEBRUARY 2011

[KY 731] **Sub. Code: 4222**

FOURTH B.PHARM. DEGREE EXAMINATION

(Re-Revised Regulations) Candidates Admitted upto 2003-04

Paper II – PHARMACEUTICAL BIOTECHNOLOGY

Q.P. Code : 564222

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions. (2 x 20 = 40)

1. Discuss the preparation and quality control tests of B.C.G vaccine. Compare the preparation of a bacterial and viral vaccine.
2. Discuss bacterial growth curve with a neat diagram. Discuss the methods for quantitative estimation of growth.
3. Discuss the fermentative production of Penicillin. Write on the general methods of recovery fermentation products from broth.

II. Write Short Notes : Answer any EIGHT questions. (8 x 5 = 40)

1. Bacterial spores.
2. Filtration sterilisation.
3. Preparation of monoclonal antibodies.
4. Evaluation of disinfectants.
5. Surgical catgut.
6. Dry heat sterilisation.
7. Collection and storage of whole human blood I.P.
8. Types of nutrition media.
9. Grams staining.
10. Microbiological assays – Official methods used with example.

III. Short Answers: Answer any FIVE questions. (5 x 2 = 10)

1. Differentiate active and passive immunity.
2. Examples of some products of fermentation.
3. Heparin injection.
4. Bacterial flagella.
5. Define exotoxin and endotoxin.
6. Define Antigen and antibody.
7. Pasteurisation.

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