IV/IV B.PHARMACY- VI SEMESTER REGULAR DEGREE EXAMINATION -----

PHARMACEUTICAL BIOTECHNOLOGY

Time: Three hours

maximum: 75 marks

SECTION- A

Answer Any FIVE Questions 5×10=504

- principle of biosensor and explain 9t's Applications in pharmaceutical andustries.
- 2. a) significance of monocloned autibodies in pharmaceutied industries
 - b) Advantages of 9mmobilized engymes over isolated engymes.
- 3. Discuss various PCR techniques and add a note on it's applications in the feild of brotechnology.
- 9. Explain undetails de about dassification of unmanity and give a detailed note on principles of unmane responses. In human body.
- 5. Defene and classify vaccine. Describe the preparation and standardisation of any one bacterial vaccines
- 6. Give an exhaustive notes on genetic organisation of Eukamotes and prokamotes.
- 7. a) optimization of fermenter
 - 6) Effluent treatment Methods.

SECTION-B

Answer Any FIVE Questions SX5=254

- 8. Write a note on protein engineering.
- 9. Explain the basic principles of genetic engineering.
- 10. Explain the cells and organs involved.
- 11. Discuss the structure and functions of MHC.
- 12. Explain the differences in blood products and plasma substituents.
- 13. Explain microbral Liotransformation and applications in pharmaceutical Brotechnology.
- Write the components encluded en fermentation.

 Add a note on procedure of production

 Citric acid production by fermentation technology.
- 15. Explain about various types of vectors used in
- 16. How specific 9mmunity Loes differ from nonspecific tomunity resistance? Des cuss various types of 9mmunoglobulius.
- 17. Write short notes for the following:
 - of factors affecting mutation
 - b) Hyper sensitivety reactions.
- 18. Explain the techniques of enzyme immobilisation.



Total No. of Questions: 14]

[Total No. of Pages: 01

III/IV B. PHARMACY (SUPPLY) DEGREE EXAMINATIONS, FEBRUARY- 2022

Sixth Semester

(New Regulations w.e.f. 2017-18)

PHARMACEUTICAL BIOTECHNOLOGY - THEORY

Time: Three Hours

Maximum: 75 Marks

SECTION - A

Answer any FIVE Questions.

5x10 = 50 M

- 1. Write in detail about principle, working and applications of biosensors.
- 2. Write in detail about the production of human insulin by rDNA technology.
- 3. Write in detail about production of monoclonal antibodies by hybridoma technology.
- 4. Describe in detail about the processes transformation & conjugation in bacteria.
- 5. Explain the design and working of stirred tanked fermenter.
- 6. Write the collection, processing and storage of dried human plasma.
- 7. Discuss in detail about cell mediated and humoral immunity.

SECTION - B

Answer any FIVE Questions.

5x5 = 25 M

- 8. Write in brief about the enzyme immobilization methods.
- 9. Write notes on protein engineering and its applications.
- 10. Write notes on restriction enzymes.
- 11. Write in brief about the preparation, uses of toxoids and give examples.
- 12. Write the structure and functions of major histocompatibility complex.
- 13. Write notes on microbial production of glutamic acid.
- 14. Mention various types of mutagenic agents and explain any two agents' mechanism of action.

[Total No. of Pages: 02

III/IV B.PHARMACY (Supply) DEGREE EXAMINATIONS, OCTOBER-2020

Sixth Semester

B.PHARMACY

PHARMACEUTICAL BIOTECHNOLOGY-I

Time: Three Hours

Maximum marks:70

SECTION-A

Answer any FOUR Questions

4X10=40M

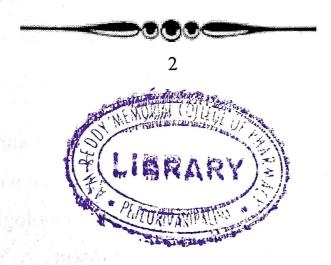
- 1. Describe the construction, principle and working of Fermenter with a diagram.
- 2. Write the extraction and purification methods for:
 - a) Vitamin B₁₂
 - b) Alcohol
- 3. Discuss the standards, sterilization and sterility test for surgical dressings.
- 4. Describe the extraction and purification methods for Heparin.
- 5. Write in brief about manufacture of following immunological products:
 - a) Polio vaccine
- b) Tetanus Antitoxin
- 6. Discuss briefly about the principle and estimation of Insulin in blood serum.

SECTION-B

Answer any TEN Questions

- 7. Write about methods of enzyme Immobilization.
- 8. Describe the production of streptokinase by recombinant DNA Technology.
- 9. Write a short notes on screening methods for secondary Metabolites.
- 10. Write the Media, conditions and extraction for manufacture of Citric acid.
- 11. Dextran
- 12. Penicillin
- 13. Fungal diastase.

- 14. Discuss the controls for sterility testing.
- 15. Write the Microbiological assay of Vitamin B₁₂
- 16. Tetracyclins.
- 17. Discuss the factors affecting enzyme kinetics.
- 18. Write short notes on microbial conversion of steroids and add a note on enzyme penicillinase.



Total No. of Questions:18]

[Total No. of Pages: 02

III/IV B.PHARMACY (Regular) DEGREE EXAMINATIONS, APRIL-2019 6th Semester

B.PHARMACY PHARMACEUTICAL BIOTECHNOLOGY

Time: Three Hours

Maximum marks:70

SECTION-A Answer any FOUR Questions

4X10=40M

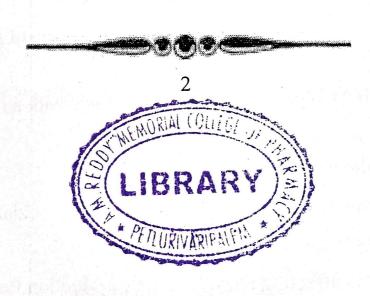
- 1. Explain in detail the different parts of a bioreactor with help of neat diagram and write notes on its accessories.
- 2. Explain the various steps involved in rDNA technology with an example and add notes on plasmids.
- 3. Write in detail about the microbial production of lactic acid.
- 4. Write the medium composition, conditions employed, microbial production and purification process of penicillin.
- 5. Write the various factors affecting enzyme kinetics. Mention the various methods used for immobilization of enzymes and describe any one method in detail.
- 6. Write the preparation, storage conditions and uses of the following products.
 - a) Fresh frozen plasma
- b) Clinical dextran

SECTION-B

Answer any TEN Questions

- 7. Give a brief account on tetanus toxoid.
- 8. Write notes on secondary metabolites.
- 9. Mention any four techniques for the neutralization of antimicrobial activity in test for sterility.
- 10. Write the merits and demerits of crude medium.
- 11. Write in brief about the preparation and uses of heparin.

- Write microorganism used, conditions applied in the microbial production of alcohol. 12.
- Write notes on interferons. 13.
- Write the principle involved in the microbiological assay of vitamin B_{12} . 14.
- Write the principle of Schick test. 15.
- Write the various applications of monoclonal antibodies with examples. 16.
- Give a brief note on lactobacillus spores. 17.
- 18. Write notes on catgut.



Total No. of Questions:18]

[Total No. of Pages: 02

III/IV B.PHARMACY (Supply) DEGREE EXAMINATIONS, OCT-2018 6th Semester

B.PHARMACY

PHARMACEUTICAL-I BIOTECHNOLOGY

Time: Three Hours

Maximum marks:70

SECTION-A

Answer any FOUR Questions

4X10 = 40M

- Describe in detail the design and working of a laboratory bioreactor with a neat diagram. 1. Write notes on secondary metabolites.
- 2. Write the microorganism used, medium composition and bioprocess parameters in the large scale fermentation process for the following products:
 - a) Dextran
- b) Vitamin B₁₂.
- 3. How do you perform the test for sterility for samples possessing inherent or added antimicrobial activity-explain with examples. Add note on controls used in test for sterility.
- 4. Write the principle involved in radioimmunoassay and how do you estimate the insulin in blood serum by this method. Add note on surgical dressings.
- Write in brief about the manufacture of the following immunological products. 5.
 - a) Rabies vaccine
- b) Diphtheria antitoxin.
- Write in detail about the production of humulin by recombinant DNA technology. Add 6. note on streptokinase.

SECTION-B

Answer any TEN Questions

- 7. Give a brief account on lactobacillus spores.
- 8. Explain the term 'precursor' with example.
- Write notes on biological activity guided screening of antibiotics. 9. 10.
- Mention the various steps involved in microbiological assay of antibiotic by agar diffusion method as per IP (one level assay). 11.
- Write in brief about preparation and uses of heparin.
- Mention the various methods used for the sterilization of catgut. 12. 13.
- Write notes on tuberculin purified protein derivative.

- 14. Write notes on whole cell immobilization and its applications.
- 15. Write in brief about the preparation of gamma globulins.
- 16. Write the various applications of monoclonal antibodies with examples.
- 7. Give a brief note on interferons.
 - Write notes on subunit vaccines.

8.



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Time: Three Hours Maximum marks:70

SECTION-A Answer any FOUR Questions

4X10=40M

- 1. Describe the parts of a fermenter and their function with help of a neat diagram.
- How do you perform the test for sterility for samples possessing inherent or added antimicrobial activity-explain with examples. Add note on controls used in test for sterility.
- 3. Write the manufacture of the following immunological products:
 - a) Oral poliomyelitis

- b) tetanus toxoid
- 4. Write the principle and procedure for estimation of insulin in blood serum by employing radioimmunoassay.
- 5. Explain various factors affecting enzyme kinetics. Add note on whole cell immobilization
- 6. Describe the production of human insulin by rDNA technology

SECTION-B

Answer any TEN Questions

- 7. Give a brief account on microbial production of citric acid.
- 8. Write the microbial source, medium composition for the production of pencillin.
- 9. Write notes on microbial production of dextran.
- 10. Write notes on surgical catgut.
- 11. Write about Shick test.
- 12. Write the principle involved in assay of vitamin B_{12} .
- 13. Mention various methods used for enzyme immobilization.
- 14. Write in brief about hybridoma technology.
- 15. Write the importance of microbial transformations/conversions.
- 16. Write the storage and applications of fresh frozen plasma.
- 17. Write in brief about the preparation of pepsin.
- 18. Write notes on diphtheria antitoxin.



Total No. of Questions :18]

B.Ph 603

[Total No. of Pages: 01

III/IV B.PHARMACY DEGREE EXAMINATIONS, APRIL-2017

6th Semester

B.PHARMACY

PHARMACEUTICAL-I BIOTECHNOLOGY

Time: Three Hours

Maximum marks:70

SECTION-A

Answer any FOUR questions.

 $(4 \times 10=40 \text{ M})$

- 1. Describe in detail about various screening methods for bioactive metabolites. Add note on high throughput screening.
- 2. Write about the following with respect to test for sterility as per IP
 - a) media used

- b) methods empolyed
- c) methods used for products containing antimicrobial substances
- 3. Write in detail about preparation of the following:
 - a) gamma globulins

- b) Gas gangrene anti toxin
- 4. How do you estimate insulin in blood serum by radioimmunoassay method.
- 5. Write about the factors affecting enzyme kinetics. Add note on whole cell immobilization
- 6. Write in detail about the production of monoclonal antibodies and their applications.

SECTION-B

Answer any TEN questions.

 $(10 \times 3=30 \text{ M})$

- 7. Explain the function of sparger and baffle.
- 8. Write in brief about the microbial production of lactic acid.
- 9. Write note on fungal diastase
- 10. Write the names of the industrial microorganisms used in the production of streptomycin, ethyl alcohol and vitamin B_{12} .
- 11. Write the sterilization of catgut.
- 12. Write note on pancreatin.
- 13. Write any three major differences between vitamin and amino acid assays.
- 14. Write notes on streptokinase.
- 15. Write notes on clinical dextran.
- 16. Write notes on vectors.
- 17. Write about interferon
- 18. Write in brief about freeze dried plasma.



[Total No. of Pages: 01

III/IV B.PHARMACY (Regular) DEGREE EXAMINATIONS, MAY-2016 Sixth Semester

PHARMACEUTICAL BIOTECHNOLOGY

Time: Three Hours

Maximum marks:70

SECTION-A

Answer any FOUR questions.

 $(4 \times 10=40 \text{ M})$

- 1. Describe in detail the design and working of a laboratory bioreactor with a neat diagram.

 Write notes on sparger.
- 2. Write the microorganism used, medium composition, bioprocess parameters and recovery of the following products:
 - a. Citric acid

- b. Fungal diastase
- 3. Explain about the controls used in test for sterility. How do you perform test for sterility for sutures and ligatures.
- 4. Write the extraction, purification and storage of the following products;
 - a. Pancreatin

- b. Heparin
- 5. Write in detial about microbiological assay of Vitamin B₁₂.
- 6. Write in detail about factors affecting enzyme kinetics. Mention various methods used for enzyme immobilization.

SECTION-B

Answer any TEN questions.

 $(10 \times 3=30 \text{ M})$

- 7. Give a brief account on lactic acid production.
- 8. Differentiate between crude medium and synthetic medium.
- 9. Write notes on screening methods for bioactive metabolites.
- 10. Write notes on fresh frozen plasma.
- 11. Write notes on solid state fermentation.
- 12. Write in brief about pepsin.
- 13. Write notes on streptokinase.
- 14. Give brief account on interferon.
- 15. Write in brief about the clinical dextran.
- 16. Write the various applications of monoclonal antibodies with examples.
- 17. Give a brief note on antitoxins
- 18. Write notes on synthetic vaccines.

