[LB 827] **OCTOBER 2012** **Sub. Code: 3827**

DOCTOR OF PHARMACY (PHARM. D / POST BACCALAUREATE)

DEGREE EXAMINATION

FIFTH YEAR

PAPER III – CLINICAL PHARMACOKINETICS AND

PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code: 383827

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

Answer All questions in the same order

I. Elaborate on :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. Write the general approach for dosage adjustment in Hepatic diseases.	17	40 min.	20
2. What is Population pharmacokinetics? Explain the Bayesian theory and add notes on adaptive method for drug dosing.	17	40 min.	20
II. Write notes on :			
1. Write notes on Inhibition of Biliary Excretion.	4	10 min.	6
2. Determination of dose and dosing intervals.	4	10 min.	6
3. Functions of therapeutic drug monitoring for Digoxin.	4	10 min.	6
4. Inhibition and induction of drug metabolism.	4	10 min.	6
5. Drug dosing in obese patients.	4	10 min.	6
6. Pharmacogenetics and drug metabolism.	4	10 min.	6
7. Therapeutic drug monitoring and its indication.	4	10 min.	6
8. Extracorporeal removal of drugs.	4	10 min.	6
9. Genetic polymorphism in drug transport.	4	10 min.	6
10. Drug regimen for Individual dosage.	4	10 min.	6

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[LD 827] **OCTOBER 2013** **Sub. Code: 3827**

DOCTOR OF PHARMACY (PHARM. D / POST BACCALAUREATE)

DEGREE EXAMINATION

FIFTH YEAR

PAPER III – CLINICAL PHARMACOKINETICS AND

PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code: 383827

Time: Three Hours **Maximum: 70 marks**

Answer All questions

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

1. Write down the dosing of drugs in the elderly and pediatrics and obese patients with examples.

2. Explain Therapeutic drug monitoring.
   Write about indication and protocol for TDM.
   Add notes on TDM of drug used in cardiac and seizure disorders.

II. Write notes on: **(10 x 3 = 30)**

1. Write about shifting of Intravenous dose to Oral dose.
2. Dosage adjustment in Renal disease.
3. Pharmacokinetic drug interaction.
4. Analysis of population pharmacokinetic data.
5. Inhibition and induction of drug metabolism.
6. Discuss the extracorporeal removal of drugs.
7. What is genetic polymorphism? Write notes on P-450 Isoenzymes.
8. What is individualization of drug dosage regimen?
9. Bayesian theory of adaptive method.
10. Measurement of Glomerular filtration rate and creatinine clearance.

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[LE 827] **APRIL 2014** **Sub. Code: 3827**

DOCTOR OF PHARMACY (PHARM. D / POST BACCALAUREATE)

DEGREE EXAMINATION

FIFTH YEAR

PAPER III – CLINICAL PHARMACOKINETICS AND

PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code: 383827

Time: Three Hours **Maximum: 70 marks**

Answer All questions

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

1. a) Explain the dose adjustment in renal disease with respect to total body clearance and elimination rate constant?

   b) Write a note on dosing of drugs in hepatic disease?

2. a) Explain dosing with feedback procedure in population pharmacokinetics?

   b) Discuss in detail the methods adopted in the analysis of population pharmacokinetic data?

II. Write notes on: **(10 x 3 = 30)**

1. Write a note on indications for therapeutic drug monitoring.
2. How will you calculate the drug dose for neonates, infants and children?
3. How will you determine renal dysfunction in patients?
4. Write a note on genetic polymorphism in drug metabolism?
5. Discuss about regional pharmacokinetics?
6. Explain the adverse reactions attributed to genetic differences
7. Differentiate Hemodialysis and Hemoperfusion?
8. How will you adjust the dose for uremic patients?
9. Discuss the importance of Bayesian theory?
10. Explain absorption based drug interactions with examples?

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[LF 827] **OCTOBER 2014** **Sub. Code: 3827**

PHARM. D/POST BACCALAUREATE DEGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 marks**

I. Elaborate on : **(4 x 10 = 40)**

1. Explain the effect of pharmacokinetics and dose adjustment in hepatic disease.
2. Enumerate the various Methods of analyzing population pharmacokinetic data.
3. What is pharmacodynamic interaction? Explain the consequences of direct pharmacodynamic interaction with examples.
4. Explain the effect of genetic polymorphism in drug transport and drug target with example.

II. Write notes on : **(6 x 5 = 30)**

1. Brief about the Inhibition of biliary excretion.
2. Write a note on dosing in obese patients.
3. Write the factors to be considered when designing dosage regimen.
4. Enumerate the dose adjustment on drug clearance.
5. Brief about therapeutic drug monitoring of seizure drugs.
6. Explain the dosing with feedback.

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[LG 827] **APRIL 2015** **Sub. Code: 3827**

DOCTOR OF PHARMACY (PHARM. D / POST BACCALAUREATE)

DEGREE EXAMINATION

(2009-2010 Regulation)

FIFTH YEAR

PAPER III – CLINICAL PHARMACOKINETICS AND

PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code: 383827

Time: Three Hours **Maximum: 70 marks**

Answer All questions

I. Elaborate on: **(4 x 10 = 40)**

1. Explain plasma concentration monitoring of drugs during clinical use.
2. Explain the various methods to calculate the creatinine clearance from serum creatinine concentration.
3. The elimination half-life of an antibiotic is 3hrs with an apparent volume of distribution equivalent to 20% of body weight. The usual therapeutic range for this antibiotic is between 5 and 15µg/ml. Adverse toxicity for this drug is often observed at serum concentration greater than 20µg/ml.
   Calculate a dosage regimen (multiple IV doses) that will just maintain the serum drug concentration between 5 and 15µg/ml.
4. Explain the polymorphism in Cytochrome isoenzymes.

II. Write notes on: **(6 x 5 = 30)**

1. Determination of rate of administration.
2. Explain Nonlinear mixed effect model.
3. How is dosing interval determined on the basis of therapeutic index of the drug?
4. Application of clinical pharmacokinetics.
5. Give dose adjustment based on the following:
   a) Elimination rate constant.
   b) Half life.
6. General approach for dose adjustment in renal disease.

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[LH 827] **OCTOBER 2015** **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
DEGREE EXAMINATION

(2009-2010 Regulation)

FIFTH YEAR

PAPER III – CLINICAL PHARMACOKINETICS & PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time: Three Hours **Maximum: 70 marks**

Answer ALL questions

I. Elaborate on : **(4 x 10 = 40)**

1. Explain the determination of dose and dosing interval.
2. Enumerate the pharmacokinetic drug interactions with examples.
3. What is therapeutic drug monitoring? Add note on therapeutic drug monitoring of Psychiatric Drugs and Immunosuppressants.
4. Explain the Pharmacogenetic & Nongenetic influences on Variations in Drug Therapy.

II. Write notes on : **(6 x 5 = 30)**

1. Brief about the dosage regimen based on population average.
2. Write the note on extra corporeal removal of the drug.
3. Discuss the adaptive method for dosing.
4. Brief the Genetic polymorphism in Drug Transport with example.
5. Describe the measurement of creatinine clearance.
6. Note on adverse drug reaction attributed to genetic differences.

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[LI 827] APRIL 2016 **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
DEGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS & HARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code: 383827

Time : Three hours **Maximum : 70 marks**

I. Elaborate on : **(4 x 10 = 40)**

1. How will you determine the renal impairment in patients and discuss the extracorporeal removal of drugs?

2. Explain the drug dosing in elderly and pediatrics patient.

3. Discuss the adaptive methods with feedback in population pharmacokinetic.

4. Explain in detail the drug dosage regimen for individual dosage.

II. Write notes on : **(6 x 5 = 30)**

1. Dosing of drug in hepatic disease.
2. Effect of hepatic disease on pharmacokinetics.
3. What is TDM and its protocol?
4. Pharmacogenetics and Pharmacokinetics.
5. Write about the conversion of intravenous to oral dosing.
6. Pharmacokinetics drug interaction.

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[LJ 827] OCTOBER 2016 **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
EGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS & HARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Explain the pharmacokinetic changes and dose adjustment in Hepatic disease.
2. Enumerate the various methods of analyzing population pharmacokinetic data.
3. Explain the inhibition and induction of drug metabolism with example.
4. Explain the effect of Genetic Polymorphism in drug transport and drug target.

II. Write notes on: **(6 x 5 = 30)**

1. Write a note on dosing in Pediatric patient.
2. Brief about the inhibition of Biliary excretion.
3. Write the factors to be considered when designing a dosage regimen.
4. Brief about the measurement of Glomerular Filtration Rate.
5. Brief about therapeutic drug monitoring of two Cardio Vascular drugs.
6. CYP2C19.

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[LK 827] MAY 2017 **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
EGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Bayesian theory and its applications in population pharmacokinetics.
2. Discuss pharmacokinetic drug interactions with examples.
3. Dose adjustment in renal disease.
4. TDM of drugs related to cardiovascular, seizure, psychiatric and organ transplantations.

II. Write notes on: **(6 x 5 = 30)**

1. Application of clinical pharmacokinetics.
2. Dosing in obese patients.
3. PK/PD correlation in drug therapy.
4. P-Glycoprotein and Multidrug resistance.
5. Genetic polymorphism in drug metabolism.
6. Regional Pharmacokinetics.

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[LL 827] OCTOBER 2017 **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
DEGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code: 383827

Time : Three hours **Maximum : 70 marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Bayes estimator and applications.
2. Dosage adjustment for uremic patients.
3. Determination of dose, dosing interval and route of administration.
4. Therapeutic drug monitoring indications and protocol.

II. Write notes on: **(6 x 5 = 30)**

1. Measurement of GFR and creatinine clearance.
2. Nonlinear mixed effect model.
3. Adverse reactions attributed to genetic difference.
4. Effect of food on drug disposition.
5. Application of clinical Pharmacokinetics.
6. Brief about extra corporeal removal of drugs.

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

[LM 827] MAY 2018 **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
EGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Drug dosing in elderly and paediatrics.
2. Beysian theory and its application in population pharmacokinetics.
3. Dosing of drugs in hepatic disease.
4. What is TDM? Write about indication and protocol for TDM.

II. Write notes on: **(6 x 5 = 30)**

1. Methods to adjust dose for uremic patients.
2. Pharmacokinetics and pharmacogenetics relation.
3. Nonlinear mixed effect model.
4. Extracorporeal removal of drugs.
5. Determination of dose and dosing interval.
6. Drug regimen for individual dosage.

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

[LN 827] OCTOBER 2018 **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
EGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Explain pharmacokinetic drug interactions with examples.
2. Genetic polymorphism in cytochrome P450 ISO enzymes.
3. Pharmacokinetic changes and dose adjustment in Hepatic disease.
4. Dose adjustment for renal failure and uremic patients.

II. Write notes on: **(6 x 5 = 30)**

1. Importance of Beysian theory.
2. Write brief note on personalized medicine or theraphy.
3. Drug dosing in paediatrics.
4. Nonlinear mixed effect model.
5. TDM of seizure drugs.
6. Dosing in obese patients.

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

[LO 827] MAY 2019 **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
EGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Dose adjustment in renal disease.
2. Effect of genetic polymorphism in drug transport and drug target.
3. Methods of analyzing population pharmacokinetic data.
4. TDM of drugs related to cardiovascular, seizure, psychiatric and organ transplantation.

II. Write notes on: **(6 x 5 = 30)**

1. Extracorporeal removal of drugs.
2. Inhibition of biliary excretion.
3. Adaptive method for dosing.
4. Conversion of intravenous to oral dosing.
5. TDM indications.
6. Application of clinical pharmacokinetics.

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

[LP 827] OCTOBER 2019 **Sub. Code: 3827**

PHARM. 'D' AND PHARM. 'D' (POST BACCALAUREATE)
EGREE EXAMINATION
(2009-2010 Regulation)
FIFTH YEAR
PAPER III – CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Mention the indications of extracorporeal methods of drug removal. Explain hemodialysis and peritoneal dialysis.

2. Explain the steps to be followed in drug dosage adjustments in renal impairment.

3. a) What are the indications of therapeutic drug monitoring?
   b) Explain the elements of protocol of therapeutic drug monitoring.

4. Discuss the estimation of hepatic dysfunction and dosing of drugs. Write a note on effect of hepatic disease on pharmacokinetics of drugs.

II. Write notes on: **(6 x 5 = 30)**

1. Write a note on markers of GFR.
2. Define pharmacogenetics. Mention the goals and benefits of pharmacogenetics.
3. Define drug interactions. Explain pharmacokinetic drug interactions.
4. Explain therapeutic drug monitoring of digoxin.
5. Explain Bayesian theory. Mention its merits and demerits.
6. Write a note on nomograms and tabulations in designing dosage regimen.

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

[PHARMD 0321] MARCH 2021 Sub. Code: 3827

(OCTOBER 2020 EXAM SESSION)

PHARM. 'D' (POST BACCALAUREATE) DEGREE EXAMINATION

FIFTH YEAR (2009-2010 Regulation)

PAPER III – CLINICAL PHARMACOKINETICS AND PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Explain about Pharmacokinetic / Pharmacodynamic correlation in Drug therapy.
2. Describe about adaptive method in population pharmacokinetics.
3. Drug dosing in Pediatrics and Elderly patients.
4. Explain about the genetic polymorphism in drug metabolism of CYP-450 enzymes.

II. Write notes on: **(6 x 5 = 30)**

1. Adverse reactions attributed to Genetic difference
2. Describe the measurement of Creatinine clearance.
3. Pharmacokinetic drug interactions
4. General approach for dosage adjustment in renal disease
5. TDM of seizure drugs
6. How is dosing interval determined on the basis of therapeutic index of the Drug?

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

[PHARMD 0522] **MAY 2022** **Sub. Code: 3827**

(APRIL 2022 EXAM SESSION)

PHARM 'D' AND PHARM 'D' (POST BACCALAUREATE) DEGREE EXAMINATION

FIFTH YEAR (2009-2010 Regulation)

PAPER III – CLINICAL PHARMACOKINETICS AND PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Explain the determination of dose and dosing interval.
2. What is Pharmacodynamic interaction? Explain the consequences of direct pharmacodynamic interaction with examples.
3. Define Therapeutic Drug monitoring, indications and protocol for TDM. Explain TDM of drugs in cardiovascular disease and organ transplantations.
4. Explain the inhibition and induction of drug metabolism with example.

II. Write notes on: **(6 x 5 = 30)**

1. TDM of drugs used in seizure disorders and psychiatry conditions.
2. Determination of rate of administration.
3. Explain Nonlinear mixed effect model.
4. Application of clinical pharmacokinetics.
5. Describe the measurement of Creatinine clearance.
6. Dose adjustment in Hepatic disease

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

[PHARMD 1122] NOVEMBER 2022 Sub. Code: 3827
(OCTOBER 2022 EXAM SESSION)

PHARM 'D' AND PHARM 'D' (POST BACCALAUREATE) DEGREE EXAMINATION
FIFTH YEAR (2009-2010 Regulation)
PAPER III – CLINICAL PHARMACOKINETICS AND PHARMACOTHERAPEUTIC DRUG MONITORING
Q.P. Code : 383827

Time : Three hours **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. Write down how the adjustments of dosing of drugs in the elderly and paediatrics patients with examples.
2. What are pharmacokinetic interactions? Explain the classification of pharmacokinetic interactions with examples.
3. Explain therapeutic drug monitoring with the indication and protocol and add a note on TDM of drug used in cardiac disorders.
4. Explain dosing with feedback procedure in population pharmacokinetics and also discuss in brief the methods adopted in the analysis of population pharmacokinetic data.

II. Write notes on: **(6 x 5 = 30)**

1. Measurement of Glomerular Filtration rate and creatinine clearance.
2. Cytochrome P-450 Isoenzymes.
3. Drug regimen for Individual dosage.
4. Bayesian Theory.
5. Factors affecting drug absorption.
6. Physiological barriers for drug distribution.

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

[PHARMD 0423] APRIL 2023 Sub. Code: 3827

PHARM. 'D' (POST BACCALAUREATE) DEGREE EXAMINATION
FIFTH YEAR (2009-2010 Regulation)
PAPER III – CLINICAL PHARMACOKINETICS &
PHARMACOTHERAPEUTIC DRUG MONITORING

Q.P. Code: 383827

Time : Three hours **Answer ALL Questions** **Maximum : 70 Marks**

I. Elaborate on: **(4 x 10 = 40)**

1. What is pharmacodynamic interaction? Explain the consequences of direct pharmacodynamic interaction with examples.
2. What is Population pharmacokinetics? Explain the Bayesian theory and add notes on adaptive method for drug dosing.
3. Write down how the adjustments of dosing of drugs in patients with hepatic insufficiency and with examples.
4. Explain the pharmacogenetic and non genetic influences on variations in drug therapy.

II. Write notes on: **(6 x 5 = 30)**

1. General approach for dosage adjustment in renal diseases.
2. Determination of dose and dosing intervals.
3. Inhibition and induction of drug metabolism.
4. Patient related factors affecting drug absorption.
5. *Intravenous* to oral therapy.
6. Therapeutic drug monitoring and its indication.

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