

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

[LM 977]

MAY 2018

Sub. Code: 2977

**M.PHARM. DEGREE EXAMINATION**  
**(PCI New regulations 2016)**  
**SEMESTER-II**  
**BRANCH-V – PHARMACY PRACTICE – MPP**  
**PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC**  
**DRUG MONITORING**

*Q.P. Code : 262977*

**Time : Three hours**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. a) Explain the effect of genetic polymorphism in drug metabolism with example.  
b) What is multiple dosing? Explain about calculation of loading and maintenance dose.
2. a) Write in detail about Pharmacokinetic consideration and dose adjustment in renal failure.  
b) Define therapeutic drug monitoring. Discuss the protocol for therapeutic drug monitoring.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Note on estimation and determinants of bioavailability.
2. Brief about inhibition and induction of drug metabolism with examples.
3. Discuss about Bayesian Theory.
4. Note on base model and modeling random effects.
5. Brief about dosing in pediatrics.
6. Note on conversion of intravenous to oral dosing.
7. Brief about the inhibition of biliary excretion.

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

[LN 977]

NOVEMBER 2018

Sub. Code: 2977

**M.PHARM. DEGREE EXAMINATION**  
**(PCI New regulations 2016)**  
**SEMESTER-II**  
**BRANCH-V – PHARMACY PRACTICE – MPP**  
**PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC**  
**DRUG MONITORING**

*Q.P. Code : 262977*

**Time : Three hours**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Dose adjustment for uremic patients done.
2. Bayes theory and its applications.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Determination of dose, dosing interval.
2. Pharmacokinetic-Pharmacodynamic correlation in drug therapy.
3. Non compartment model.
4. Inhibition of Biliary excretion.
5. Adverse reactions attributed to genetic difference.
6. Measurement of GFR and creatinine clearance.
7. TDM of seizure disorder drugs.

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

[LO 977]

MAY 2019

Sub. Code: 2977

**M.PHARM. DEGREE EXAMINATION**  
**(PCI New regulations 2016)**  
**SEMESTER-II**  
**BRANCH-V – PHARMACY PRACTICE – MPP**  
**PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC**  
**DRUG MONITORING**

*Q.P. Code : 262977*

**Time : Three hours**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. a) Explain about the compartmental and Non compartmental Models.  
b) Note on inhibition and induction of drug metabolism with examples.
2. a) Explain the effect of genetic polymorphism in drug transport and drug target.  
b) Enumerate the factors should be considered while dosing obese and elderly patient.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Discuss about the determination of dosing and dosing interval.
2. Brief about extra corporeal removal of drugs.
3. Brief about pharmacokinetic drug interactions with examples.
4. Discuss the adoptive dosing method.
5. Brief about covariant screening methods.
6. Discuss about therapeutic Drug monitoring of two antiepileptic drugs.
7. Write note on Nomogram and tabulation in designing of dosage regimen.

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

[LP 977]

NOVEMBER 2019

Sub. Code: 2977

**M.PHARM. DEGREE EXAMINATION**  
**(PCI New regulations 2016)**  
**SEMESTER-II**  
**BRANCH-V – PHARMACY PRACTICE – MPP**  
**PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC**  
**DRUG MONITORING**

*Q.P. Code : 262977*

**Time : Three hours**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Explain the indications and protocol for Therapeutic drug monitoring.  
Add notes on TDM of drug used in cardiac and seizure disorders.
2. Discuss in detail the various pharmacokinetic drug interactions with suitable examples.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Dosage adjustment in renal disease.
2. Analysis of population pharmacokinetic data.
3. Write notes on P-450 Isoenzymes.
4. How will you calculate the drug dose for neonates, infants and children?
5. Discuss about regional pharmacokinetics.
6. Differentiate Hemodialysis and Hemoperfusion.
7. How will you adjust the dose for uremic patients?

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

[LQ 0121]

**JANUARY 2021**

**Sub. Code: 2977**

**(APRIL 2020 EXAM SESSION)**

**M.PHARMACY DEGREE EXAMINATION**

**SEMESTER-II (PCI New regulations 2016)**

**PHARMACY PRACTICE – MPP**

**PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC  
DRUG MONITORING**

***Q.P. Code : 262977***

**Time : Three hours**

**Answer ALL Questions**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Genetic Polymorphism in Drug Transport and Drug Targets.
2. Pharmacokinetic changes and dose adjustment in Hepatic disease.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Effect of food on drug disposition.
2. Pharmacogenetics and PK/PD considerations.
3. Dosing in Pediatric patients.
4. Extracorporeal removal of drugs.
5. Determinants of bioavailability.
6. TDM of cardiovascular drugs.
7. Types of dosage regimens.

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

**[MPHARM 0921]**

**SEPTEMBER 2021  
(OCTOBER 2020 EXAM SESSION)**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER-II (PCI New regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC  
DRUG MONITORING  
*Q.P. Code : 262977***

**Time : Three hours**

**Answer ALL Questions**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Discuss in detail the various pharmacokinetic drug interactions with suitable examples.
2. a) Explain the effect of genetic polymorphism in drug metabolism with example.  
b) What is multiple dosing? Explain about calculation of loading and maintenance dose

**II. Write notes on:**

**(7 x 5 = 35)**

1. Note on base model and modelling random effects.
2. Brief about extra corporeal removal of drugs.
3. Brief about dosing in Geriatrics.
4. Note on conversion of intravenous to oral dosing.
5. Determination of dose, dosing interval.
6. Brief about covariant screening methods.
7. Write note on Nomo gram and tabulation in designing of dosage regimen.

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

**[MPHARM 0122]**

**JANUARY 2022  
(APRIL 2021 EXAM SESSION)**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER-II (PCI New regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC  
DRUG MONITORING  
*Q.P. Code : 262977***

**Time : Three hours**

**Answer ALL Questions**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Explain about the compartmental model. Discuss one compartment open model with Suitable examples.
2. Discuss about Pharmacokinetic Drug Interactions in detail.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Discuss about Pharmacometrics.
2. Protocol for TDM.
3. Calculation of Loading and Maintenance doses.
4. Brief about covariant screening methods.
5. Drug dosing in renal failure patients.
6. Biliary Excretion.
7. Simulation of dosing regimens.

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

**[MPHARM 0422]**

**APRIL 2022  
(OCTOBER 2021 EXAM SESSION)**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER-II (PCI New regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC  
DRUG MONITORING  
*Q.P. Code : 262977***

**Time : Three hours**

**Answer ALL Questions**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. What do you mean by Therapeutic drug monitoring? Explain in detail about TDM of Digoxin and Carbamazepine.
2. Pharmacokinetic changes and dose adjustment in a) Pregnancy and lactation b) Obese patients.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Brief about covariant screening methods.
2. Measurement of GFR and creatinine clearance.
3. Pharmacometrics software.
4. Discuss about Bayesian Theory.
5. TDM of anti-depressant drugs.
6. Discuss the adoptive dosing method.
7. Brief about extra corporeal removal of drugs.

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

**[M.PHARM 0922]**

**SEPTEMBER 2022  
(APRIL 2022 EXAM SESSION)**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER - II (PCI New regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC DRUG  
MONITORING**

*Q.P. Code : 262977*

**Time : Three hours**

**Answer ALL Questions**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. What is bioavailability? Explain the estimation and determinants of bioavailability. How does the bioavailability variation affect the patient outcome?
2. What is altered pharmacokinetics? Explain drug dosing in different population.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Conversion form intravenous to oral dosing.
2. Inhibition and induction of drug metabolism.
3. What is model assumption and testing?
4. Indications for TDM.
5. Genetic polymorphism in drug metabolism.
6. Bayesian theory.
7. Drug dosing in the hepatic failure.

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

**[M.PHARM 0423]**

**APRIL 2023  
(OCTOBER 2022 EXAM SESSION)**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER - II (PCI New regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC DRUG  
MONITORING**

*Q.P. Code: 262977*

**Time : Three hours**

**Answer ALL Questions**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. What is a non linier mixed effect modeling? Explain the model and model assumptions and add the notes on the model validation.
2. What is pharmacokinetics of drug interactions? Explain the inhibition and induction of drug metabolism and biliary excretion.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Nomo grams and tabulation.
2. Pharmacometrics software.
3. Estimation and determinants of bioavailability.
4. Drug dosing in the renal failure patients.
5. Pharmacogenetics and pharmacokinetic considerations.
6. Drug dosing in elderly.
7. TDM for digoxin.

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

**[M.PHARM 0823]**

**AUGUST 2023  
(APRIL 2023 EXAM SESSION)**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER - II (PCI New Regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC DRUG  
MONITORING**

*Q.P. Code: 262977*

**Time : Three hours**

**Answer ALL Questions**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. How will you determine the renal impairment in patients? Discuss the extracorporeal removal of drugs.
2. Explain the Pharmacogenetic and Non-genetic factors that influence the variations in Drug Therapy.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Explain absorption based drug interactions with examples.
2. Explain the consequences of direct pharmacodynamic interaction with examples.
3. Discuss about the factors to be considered when designing dosage regimen.
4. Explain the dosing with feedback.
5. Explain Nonlinear mixed effect model.
6. Applications of clinical pharmacokinetics.
7. CYP2C19.

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

**[M.PHARM 1223]**

**DECEMBER 2023  
(OCTOBER 2023 EXAM SESSION)**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER - II (PCI New Regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC DRUG  
MONITORING**

*Q.P. Code: 262977*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. What is clinical pharmacokinetics? Explain compartmental and non compartmental models.
2. What is TDM? Explain indication and protocol for TDM. Give the TDM of any one drugs used in the cardiovascular diseases.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Determination of dose and dosing interval.
2. Pharmacokinetic drug interactions.
3. Analysis of population pharmacokinetic data.
4. Model validation.
5. Genetic polymorphism in drug transport and drug target.
6. Drug dosing in pediatrics.
7. Calculation of loading and maintenance dose.

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

**[M.PHARM 0524]**

**MAY 2024  
(APRIL 2024 EXAM SESSION)**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER - II (PCI New Regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC DRUG  
MONITORING**

*Q.P. Code: 262977*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Define therapeutic drug monitoring. Explain in detail about therapeutic drug monitoring of Lidocaine and Phenytoin.
2. a) Bayesian theory and its applications.  
b) Genetic polymorphism in drug transport and drug target.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Modeling random effect and mixture model.
2. Calculation of loading dose and maintenance dose.
3. Drug dosing in the paediatrics.
4. Precision of the parameter estimates and confidence interval.
5. One compartment model.
6. Drug Dosing in hepatic failure patients.
7. Conversion form intravenous to oral dosing.

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

**[M.PHARM 0425]**

**APRIL 2025**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER - II (PCI New Regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC DRUG  
MONITORING**

***Q.P. Code: 262977***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Define compartment model. Explain about different types of compartment models.
2. What is altered pharmacokinetics? Explain drug dosing in the hepatic failure and pregnancy.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Protocol for therapeutic drug monitoring.
2. Discuss about Pharmacometrics.
3. Covariant screening methods.
4. Therapeutic drug monitoring of Digoxin.
5. Model assumption and its testing.
6. Determination of dose and dosing intervals.
7. Pharmacokinetic-Pharmacodynamic correlation in drug therapy.

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

**[M.PHARM 1025]**

**OCTOBER 2025**

**Sub. Code: 2977**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER - II (PCI New Regulations 2016)  
PHARMACY PRACTICE - MPP  
PAPER III – CLINICAL PHARMACOKINETICS AND THERAPEUTIC DRUG  
MONITORING**

*Q.P. Code: 262977*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. What is clinical pharmacokinetics? Explain compartmental and non-compartmental models.
2. a) Cyp450 mediated Pharmacokinetic drug interactions.  
b) Discuss about Pharmacometrics and its applications.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Loading dose and maintenance dose calculation.
2. Give the TDM of any one drugs used in the cardiovascular diseases.
3. Discuss the extracorporeal removal of drugs.
4. Application of population pharmacokinetics.
5. Brief about dosing in Geriatrics.
6. How will you adjust the dose for uremic patients?
7. Brief about inhibition and induction of drug metabolism with examples.

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