DOCTOR OF PHARMACY
Fifth Year Pharm. D. : SUMMER : 2022
SUBJECT : CLINICAL PHARMACOKINETICS & PHARMACOTHERAPEUTIC DRUG MONITORING

Day : Monday | Time : 10:00 AM-01:00 PM
Date : 9/5/2022 | **S-5751-2022** | Max. Marks : 70

N.B.:
1) **Q.No.1** and **Q. No.5** are **COMPULSORY**. Out of remaining attempt **ANY TWO** questions from each section.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Draw neat labelled diagram **WHEREVER** necessary.
4) Figures to the right indicate **FULL** marks.

SECTION-I

Q.1 **a)** Attempt **ANY FOUR** of the following. **(08)**
- **i)** What is clearance? Give the relationship between clearance, drug dose and AUC.
- **ii)** What are the factors considered in the conversion of IV to oral dosing?
- **iii)** Why is TDM necessary for digoxin?
- **iv)** Give the importance of extra corporeal removal of drugs.
- **v)** Define inter-individual variation.

b) Define population pharmacokinetics. And mention the advantages of population pharmacokinetic study over traditional pharmacokinetic study. **(03)**

Q.2 Define TDM. Discuss the indications for TDM of drugs. Explain role of co-existing diseases and interacting drugs in the individualization of drug dosage regimen. **(12)**

Q.3 **a)** Discuss various markers used in the measurement of glomerular filtration rate along with their advantages and disadvantages. Enumerate the various formulae used for the measurement of creatinine clearance. **(07)**

b) Explain the effect of inhibition of biliary excretion of drug and list out the drug interactions which influence the biliary excretion. **(05)**

Q.4 Write short notes on **ANY THREE** of the following. **(12)**
- **a)** Genetic polymorphism in CYP2D6 and 2C9 isozymes
- **b)** Role of co-existing diseases and interacting drugs in the individualization of drug dosage regimen.
- **c)** Effect of hepatic disease on pharmacokinetics of drugs.
- **d)** Peritoneal dialysis with its advantages and disadvantages.

SECTION-II

Q.5 **a)** Attempt **ANY FOUR** of the following. **(08)**
- **i)** Why is TDM necessary for phenytoin?
- **ii)** Define haemodialysis. Give any two advantages and disadvantages of haemodialysis.
- **iii)** Describe the role of genetic polymorphism in drug targets.
- **iv)** Enumerate the factors influencing dialyzability of drugs.
- **v)** Give any four ideal characteristics of the marker drugs to be used for GFR measurement.

b) Explain the factors considered in the design of dosage regimen for paediatric patients. Give any two formulae for the calculation of child dose. **(03)**

Q.6 Explain in detail the different methods of extra-corporeal removal of drugs. **(12)**

Q.7 **a)** Discuss the importance of genetic polymorphism of cytochrome P-450 isozymes on drug metabolism with suitable examples. **(07)**

b) Describe Bayesian theory. **(05)**

Q.8 Write short notes on **ANY THREE** of the following. **(12)**
- **a)** Relationship between dose and duration of activity of a drug
- **b)** Design of dosage regimen for obese patients.
- **c)** Effect of age and bodyweight in individualization of drug dosage regimen.
- **d)** Non-linear mixed effects modeling approach.

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