Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. Pharmacy Sem-II Examination July 2010

Subject code: 920201

Subject Name: Drug Design and Discovery

Date: 07 /07 /2010 **Time: 11.00 am – 02.00 pm**

Instructions: **Total Marks: 80**

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	(a)	Write in detail about the role of drug design in new drug discovery.	**06**
	(b)	Give flow chart of the steps involved in drug design. Explain each step.	**05**
	(c)	Describe the main features of competitive, non-competitive and irreversible inhibition of enzymes.	**05**
Q.2	(a)	What is bioisosterism? How is it useful in the design of drugs?	**06**
	(b)	How has the penetration of blood brain barrier been made effective by prodrug formation?	**05**
	(c)	Write a note on importance of stereochemistry in drug action.	**05**
Q.3	(a)	What are the different QSAR methods used when biological activity is expressed in qualitative term? Write in detail about any two methods.	**10**
	(b)	Write a note on recent developments in 3D QSAR.	**06**
Q.4	(a)	What is an important tool of drug design to achieve de novo drug discovery? Write in detail about it.	**10**
	(b)	Describe the Topliss "Decision Tree Approach" for prediction of bioactivities	**06**
Q.5	(a)	Define molecular modeling. Briefly discuss the uses of molecular modeling.	**10**
	(b)	How X-ray crystallographic data can be used to design bioactive compounds.	**06**
Q. 6	(a)	What is the principle that forms the basis of the quantum mechanical approach to molecular modeling? What are the advantages and disadvantages of it?	**10**
	(b)	Write a note on importance of pharmacokinetics in drug discovery.	**06**
	(c)		
Q.7	(a)	Explain SBDD with example, indicating utilization of structure derived from NMR and X-ray crystallography techniques.	**10**
	(b)	Write an account on ligand based drug design.	**06**

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