

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2143601

Date:17/05/2019

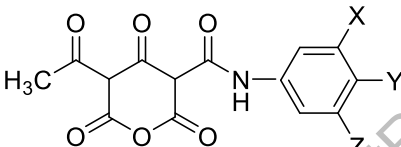
Subject Name: Medicinal Chemistry & Physio-pharmacology

Time:02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

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

		MARKS
Q.1	(a) Explain the process of “Docking”	03
	(b) What are the different types of receptors ? Discuss how the Nuclear Receptors work.	04
	(c) Define “solubility” and “rate of dissolution” of a substance. What are the factors affecting the rate of solubility of a drug ? What is “Maximum Absorbable Dose” (MAD) ?	07
Q.2	(a) Draw a neat & labeled structure of Nephron. Mention the functions of kidney.	03
	(b) Write a note on: (i). Anemia & Hematinics, (ii). Thrombolytics, (iii). Antiplatelet drugs. Give suitable examples.	04
	(c) Write the synthesis of any two drugs describing the manufacturing process: (i). Tripellamine HCl, (ii). Antazoline HCl, (iii). Chlorcyclizine HCl, (iv). Promethazine HCl	07
	OR	
	(c) The model for biological response of an anti-allergic compound is given by the equation $\text{Log (1/C)} = -0.30 (\Sigma\pi) - 1.35 (\Sigma\sigma_R)^2 + 2.0 (\Sigma\sigma_I) + 0.39 (\Sigma\text{HBD}) - 0.75.$	07
		
Q.3	(a) Discuss the filing of Abbreviated New Drug Application (ANDA).	03
	(b) Write the Structural Activity Relationship of Anilide class of local anesthetics	04
	(c) Draw the schematic flow diagram for Drug Discovery Process and mark relevant stages.	07
	OR	
Q.3	(a) Write a note on (i). Antacid, (ii). Antihelicobacter pylori drugs.	03
	(b) Write the synthesis of (i). Benzocaine, (ii). Lidocaine	04
	(c) Write the SAR of H1 receptor Antihistamines. Give suitable examples wherever required.	07
Q.4	(a) Describe “Acidotic Diuretics” with suitable examples and MOA of any one drug.	03
	(b) What are Anticoagulants and what are their classifications? Give suitable examples. Write the MOA of Sodium citrate anticoagulant.	04
	(c) Describe “Loop & High Ceiling” Diuretics. What are its disadvantages?. Give two examples. Write the synthesis of any one drug.	07

OR

- Q.4** (a) What is Partition Co-efficient ? **03**
How is it determined ?
- (b) Discuss Hammett Constant. **04**
pKa value of benzoic acid is 4.11, pKa value of 4-Nitrobenzoic acid is 3.41.
Find the Hammett Constant (σ) for the 4-Nitro substituent.
- (c) What is Fragment Based Drug Design (FBDD)? **07**
Explain why FBDD leads to drugs with least side-effects.
Four fragments A,B,C and D on screening, yielded a HIT molecule C-A. Show the steps involved.
- Q.5** (a) What is the general equation for biological response of a 3D QSAR model ? **03**
- (b) Discuss Hansch first model and the improvement on the first model, for biological response. **04**
- (c) What are the different types of forces involved in Drug-Receptor interactions ? Discuss the role of Hydrophobic Forces in the interaction. **07**
- OR**
- Q.5** (a) What are the characteristics of a "HIT" molecule ? **03**
- (b) Write a note on "Cell-based" assay in High Throughput Screening (HTS). **04**
- (c) Discuss in brief the 04 types of Reversible Enzyme Inhibitors. **07**

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