Birla Institute of Technology and Science, Pilani
First Semester 2023-24
Pharmaceutical Formulation - II (PHA F315)
Mid-Sem Examination

Max. Marks: 45 **Closed Book** **Duration: 90 Minutes**

Q.1 Suggest the most suitable dosage form for given drugs with proper justification. Write the composition of your suggested dosage form and instructions for dose administration if required. **[3×3 = 9]**

Drug	Dose	Solubility	Physical characteristics	Target population
X (antibiotic)	50 mg, 3 times a day	1:50 (Water) 1:100 (Ethanol) 1:5 (Propylene glycol)	Drug is stable for not more than 1 month in water	Pediatric
Y (Analgesic)	500 mg	1:1000 (water)	Fluffy powder, Bitter taste, Stable in water	Pediatric
Z (for fever treatment)	20 mg, 2 times a day	1:100 (water) 1:10 (Ethanol) 1:5 (Propylene glycol)	Drug degrade at acidic pH	Pediatric

Q.2 What is the main difference between intra-venous and intra-arterial injection? In what situation, which one will be preferred? **[3]**

Q.3 How drug release kinetics can influence drug absorption from the GI tract? For what type of drug, a quick release will be preferred, and for what type a slow release for increasing the bioavailability? **[3]**

Q.4 Why the majority of the diluents used in the tablet are sugar-based? Justify scientifically. **[3]**

Q.5 a) We know that binders are polymeric in nature. Write about the type of polymer that you want to use as a binder and the type of polymer that you want to avoid. Justify scientifically. **b)** Write about the specific molecular characteristics of glidants that give them the ability to improve the flow property of powders. **[3+3=6]**

Q.6 a) Discuss the molecular mechanism of action of cosolvent's ability to increase the solubility of non-polar compounds. **b)** Why does the inclusion of a viscosity-enhancing agent sometimes improve the polymorphic stability of drugs, but has minimal effect on the chemical stability? **[3+3=6]**

Q.7 Suppose you have been given two compounds, **A** and **B**. **A** has a logP value of 1.5, and it is crystalline in nature, whereas **B** is amorphous in nature with a logP value of 3.5. Which one of them would be easier to solubilize in an aqueous medium with the help of a cosolvent? **[3]**

Q.8 Explain why the presence of heavy metal, even in very small quantities, in any liquid formulation can adversely affect the chemical stability of the API. **[3]**

Q.9 Discuss about the factors that influence coating uniformity in a film-coated tablet. **[5]**

Q.10 Discuss about the particle bonding mechanisms observed in the wet granulation method. **[4]**

***** Best Wishes *****