

Birla Institute of Technology and Science, Pilani
First semester 2016-17
PHA F 314 Pharmaceutical Formulation and Biopharmaceutics
Midterm examination

Max. Marks: 30

Closed Book

Duration: 90Minutes

Q.1 Suggest the most suitable dosage form for given drugs with proper justification. write the composition of your suggested dosage form and instruction of dose administration if required.(6)

Drug	Dose	Solubility	Physical characteristics	Target population
X (antibiotic)	50 mg, 3 times in day	1:50 (Water) 1:100 (Ethanol) 1:5 (Propylene glycol)	Drug is stable for not more than 6 months in water	Pediatric
Y (Analgesic)	500 mg	1:1000 (water)	Fluffy powder, Bitter taste, Moisture sensitive	For adult
Z (for peptic ulcer treatment)	20 mg, 2 times in a day	1:100 (water) 1:10 (Ethanol) 1:5 (Propylene glycol)	Drug degrades at acidic pH	For adult

Q.2 (a) Draw a labeled diagram of 'low shear granulation' process. Write any four advantages of low shear granulation process over high shear granulation process. (1+2)

(b) An anti-diabetic drug **PP** which is bitter in taste and moisture sensitive, formulated as immediate release tablet. Another Anti-hypertensive drug **QQ** which is not stable in acidic media (pH 1 to 3), formulated as tablets. What type of coating will you prefer for tablets of above two drugs? Justify your answer. (2)

Q.3 (a) Write mechanisms of tablets disintegration? Write any four disintegrating agents name. (2)

(b) With suitable examples (any two), explain how the knowledge of polymorphic form of a drug is essential for preparation of dosage form. (2)

(c) What is sticking and picking problem in tablet coating? Write any two remedies for this problem. (2)

Q.4 One formulator has prepared granules having bulk volume 30 ml for 15 gm sample and Carr's Index was 37.5%. Help him to decide: (3)

Case-I: If 2 kg of these granules required mixing with 2 kg of extragranular excipients having same bulk density. Find out blender capacity which can provide 50% occupancy for mixing.

Case II: If the granules have to fill in capsules size "3". Calculate the maximum and minimum fill weight in capsule by hand filling capsule machine. (Volume of size "3" capsule is 0.30 ml)

Q.5 What are the advantages of capsule dosage form over tablet? Which plasticizer used in capsule? Can a highly water soluble salt be dispensed using a capsule? Why? (1+1+1)

Q.6 What are the advantages of liquid filling in soft gelatin capsule? For a drug with low vapor pressure, soft gelatin capsule is preferred. Why? Can a non-aqueous liquid with pH 2 be filled in soft gelatin capsule? Why? (1+1+1)

Q.7 Why some drugs are available as only parenteral formulation? Two drugs, A and B, both highly soluble in water, needs to be dispensed together as a parenteral formulation. The dose of drug A is 2mg/kg and B is 5mg/kg. The formulation should be a 2 mL vial. For an average 60 kg person, what should be the formula of an isotonic formulation? (MW of A: 753; B: 832) (1+3)