

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

Pharmacology-II (PHA F341)

Mid Semester Examination (CLOSED BOOK)

Date: 09/03/2018

Duration: 90 Minutes

Weightage: 35%

Marks: 35M

Instructions: Write correct and precise answers (No Spelling Mistakes). Writing True/false, is not sufficient to get marks, you have to justify the True/false. Marks will only be given to correct and well explained answer and not to partial answers. Do not write short forms.

Q1. A researcher wanted to study the effect of Ang II on vascular homeostasis [Contraction and Relaxation] under hypertensive condition. In order to study that, male Sprague Dawley rats were fed with 8% NaCl water for eight weeks. There was a control animal group which was only receiving the normal water. After the eight weeks, rats receiving 8% NaCl water were hypertensive compared to normal control. Now to complete the objective of the study:

- a) What *in vitro* experiment(s) need to be planned to study the effect of Ang II on vascular homeostasis from these rats. Explain in detail. **[5M]**
- b) What will be the possibilities/expected changes on vascular contractions with respect to Ang II signaling in *in vitro* experiment. Explain in detail with suitable concentration response curves. **[2M]**
- c) If there is a change in the Ang II signaling, which downstream signaling molecules you expect to change under this hypertensive condition. Explain in detail. **[3M]**
- d) Assuming that Ang II signaling is aggravated, what will be the pharmacological approach to reduce the hypertension in these animals. Explain pharmacological approach with suitable example of drugs/experimental molecule. **[3M]**

Q2. True or False. Explain your choice [True or False] with suitable explanation. **[12M]**

- a) Chlorthalidone is not effective in patients with creatinine clearance, <50 mL/min.
- b) Amiodarone causes digoxin intoxication.
- c) Calcium channel blockers are used in the treatment of Angina.
- d) Hydrochlorothiazide can be useful in treating idiopathic hypercalciuria.
- e) Verapamil and diltiazem are more effective against atrial than against ventricular arrhythmias.
- f) It is common to take the Nitroglycerine either sublingually or via a transdermal patch.
- g) Spironolactone is particularly effective in clinical situations associated with secondary hyperaldosteronism.
- h) Benazepril is combined with hydrochlorothiazide.
- i) Methyldopa causes central nervous system effects such as depression, anxiety, and parkinsonism.
- j) Clonidine is useful in the treatment of hypertension complicated by renal disease.
- k) Corticosteroids are contraindicated with Digoxin.
- l) Propranolol is contraindicated with Type I diabetic hypertensive patients.

Q3 Write different classes of drugs used for the treatment of arrhythmias. Write the ionic movements across the cell membrane in following phases of action potential. **[2M+5M]**

Phase	Ionic movement across the cell membrane
Fast upstroke	
Partial repolarization	
Plateau	
Repolarization	
Forward Current	

Q4: Write different classes of drugs used for the effective management of heart failure. **[3M]**