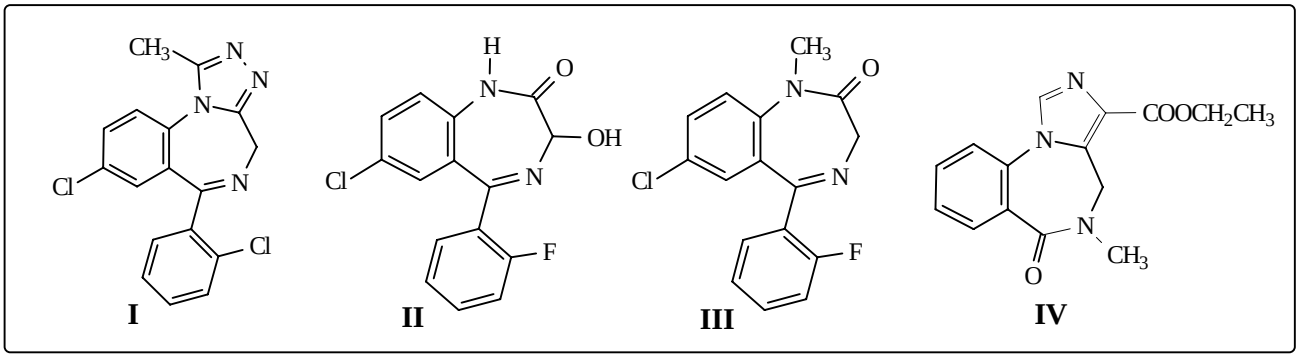
Sample Exam Questions, Benzodiazepine Drugs
Principles of Drug Action II, 2003

Answer questions 1-8 below for the following benzodiazepine derivatives (I-IV):



1. Which of the benzodiazepine derivatives shown above (I-IV) produce their therapeutic effects via interaction with <u>benzodiazepine receptors</u> on the GABA receptor complex?

A. Only IV
B. Only II and III
C. Only I, II and III
D. All of the benzodiazepines above (I-IV) #
E. None of the benzodiazepines above

2. Which of the benzodiazepine derivatives shown above (I-IV) can produce <u>sedation</u> as either a desired effect or side effect?

A. Only I
B. Only I and II
C. Only II and III
D. Only I, II and III #
E. All of the benzodiazepines above (I-IV)

3. Which of the benzodiazepine derivatives shown above (I-IV) <u>could be</u> formulated as <u>stable</u>, <u>water soluble salts</u> for IV administration?

A. Only I
B. Only I and IV #
C. Only II and III
D. Only I, II and III
E. None of the benzodiazepines above (I-IV)

4. Which of the benzodiazepine derivatives shown above (I-IV) require metabolic activation before they can express their therapeutic activity?

A. Only IV
B. Only III
C. Only II and III
D. Only I and III
E. None of the benzodiazepines above (I-IV) #

5. Which relative order below (A-E) correctly ranks the duration of therapeutic effect (from longest to shortest) for benzodiazepines I-IV shown above?

A. III > I > II > IV
B. III > II > I > IV #
C. III > IV > II > I
D. IV > III > I > II
E. I > IV > III > II

6. Which of the benzodiazepine derivatives shown above (I-IV) are ultimately cleared as glucuronide conjugates (more than one metabolic step may occur before glucuronidation)?

A. Only II
B. Only II and III
C. Only I, II and III #
D. Only II, III and IV
E. All of the benzodiazepines above (I-IV)

7. Which of the benzodiazepine derivatives shown above (I-IV) undergo cytochrome-mediated oxidative N-alkylation?

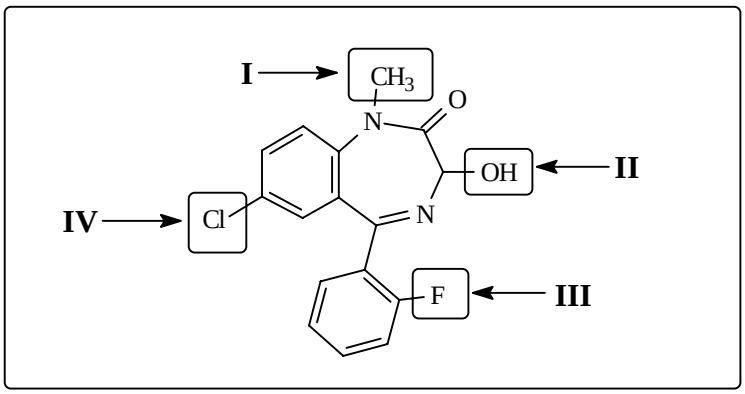
A. Only III
B. Only III and IV #
C. Only I and III
D. Only I, III and IV
E. All of the benzodiazepines above (I-IV)

8. Which of the benzodiazepine derivatives shown above (I-IV) would be appropriate for the treatment of insomnia in a elderly patient with moderate hepatic impairment?

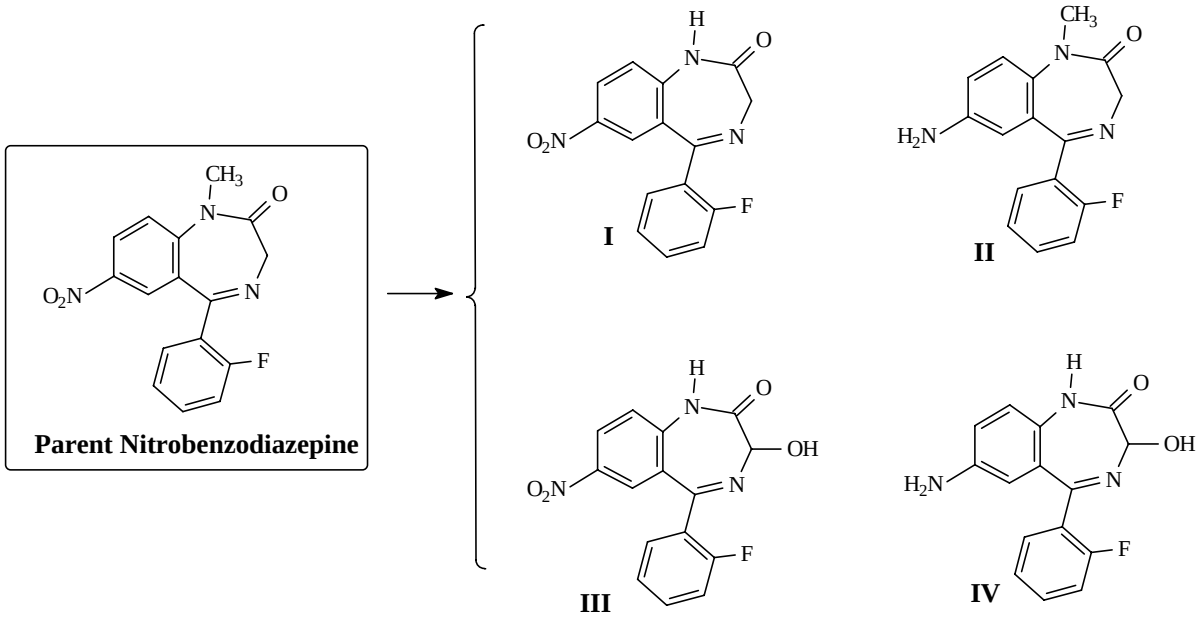
A. Only I
B. Only II
C. Only I and II #
D. Only I and IV
E. Only I, II and IV

9. Which functional groups circled (I-IV) in the benzodiazepine compound shown below are <u>necessary</u> for this drug to bind to benzodiazepine receptors and express its therapeutic effect?

A. Only III
B. Only IV #
C. Only III and IV
D. Only II, III and IV
E. All (I-IV) are necessary

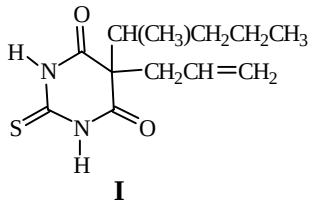


10. Which of the metabolites (I-IV) would be as <u>therapeutically effective</u> as the parent nitrobenzodiazepine shown below?

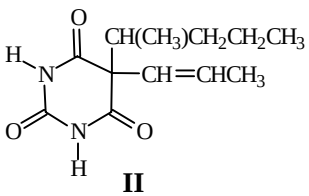


A. Only I
B. Only I and II
C. Only I and III #
D. Only I, III and IV
E. All of the metabolites (I-IV)

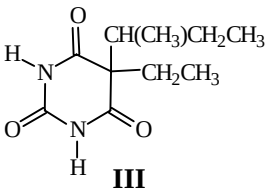
Answer questions 11-8 below for the following barbiturate derivatives (I-IV):



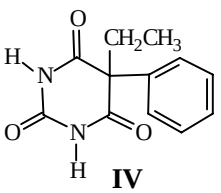
I



II



III



IV

11. Which barbiturates above (I-IV) would yield water soluble salts if treated with NaOH?

A. Only I
B. Only I and II
C. Only II and III
D. Only II, III and IV
E. All of the barbiturates above (I-IV) #

12. Which barbiturates above (I-IV) would be appropriate for oral long-term treatment of seizure disorders?

A. Only I
B. Only IV #
C. Only III and IV
D. Only II and IV
E. Only II, III and IV

13. Which barbiturate above (I-IV) would have the shortest duration of action

A. I #
B. II
C. III
D. IV

14. Which barbiturates above (I-IV) would be capable of forming epoxide metabolites by oxidative metabolism (cytochrome-mediated oxidation)?

A. Only I
B. Only IV
C. Only I and II
D. Only I, II and IV #
E. All of the barbiturates above (I-IV)