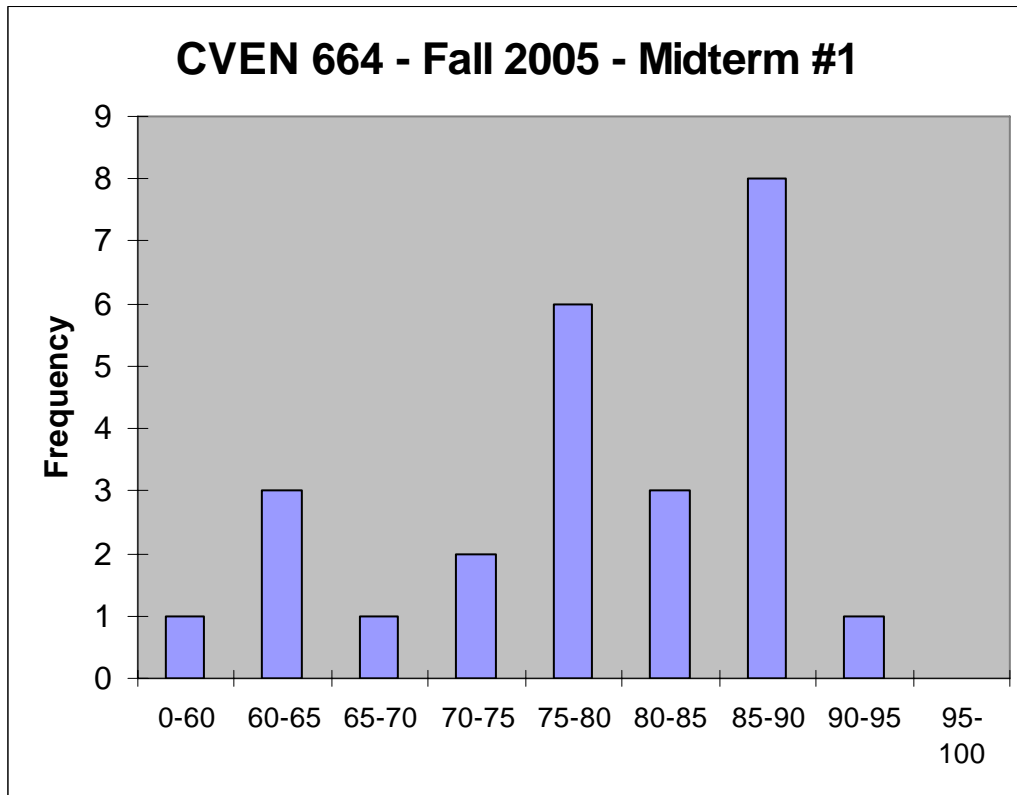


CVEN 664 – Midterm Exam #1 – Fall 2005

25 Students

Median 80
Mean 78.7
St. Dev. 10.5
Maximum 92
Minimum 49

Histogram:



Name: _____

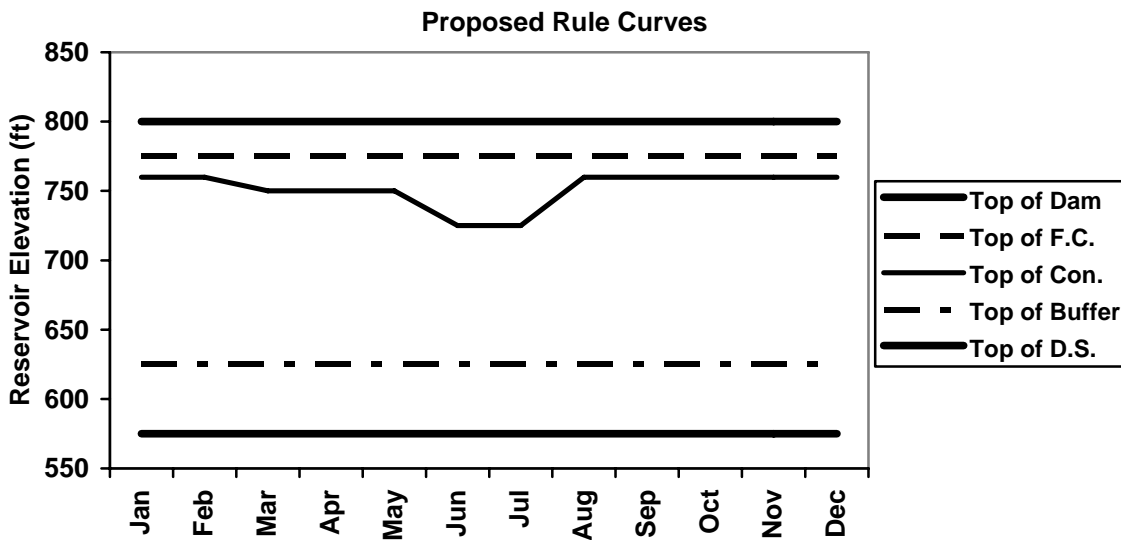
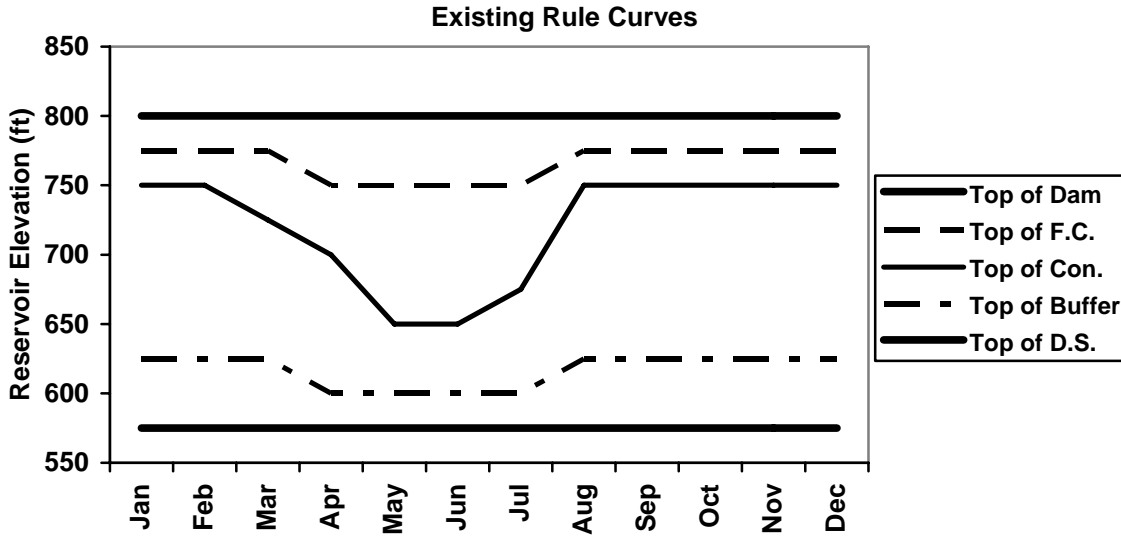
CVEN 664 – Water Resources Planning and Management
Fall Semester 2005
Dr. Kelly Brumbelow, Texas A&M University

Exam #1

Open-book, Open-notes (12 pages, 4 questions)

1. What are the two major categories of pollutant source types? How are they different? Which type did the 1972 Clean Water Act legislation mostly target? What specifically did that legislation include to address that source type? Which type did the 1987 Revisions to the Act mostly target? What is the specific technical program that targets this source? (15 points)

2. Sketched below are the current rule curves used for operation of the Marsupial Empire Reservoir and proposed new rule curves. The reservoir is authorized for the following objectives (listed in priority order from most to least important): flood control, hydropower, water supply, and maintenance of habitat for instream ecology below the dam. Explain what effects the rule curve changes will have on these objectives. Do the changes appear consistent with the authorized priorities? (20 points)



3. A city in Vermont is working on a water supply plan for the next 50 years. Currently the city's population is 10,000, and the city has only one employer, a paper mill (which is also the only non-residential account for the municipal water utility). Average daily water demand for the utility is 5 million gallons per day (mgd), of which half is used by the paper mill. The paper mill recently invested in water recycling technology so that each gallon of water supplied to the mill is used again once. In 50 years, the city's population is expected to double, and the paper mill expects its operations to also double in size. The city has water rights to an additional 1 mgd, but no other sources are available. Currently, all water users are charged a rate of \$0.25 per 1000 gallons based on metered consumption.

Assess the city's water supply situation for the next 50 years and name several strategies that the water supply plan should include. (25 points)

4. Attached to this exam are the two articles previously distributed on Tamina, Texas. Based upon your reading of these articles and any other research you have done on this case study, answer the following:

- (a) Use Systems Theory concepts to explain why a new water and sewer system will not be built soon in Tamina. (You do not need to exhaustively answer the list of questions in "Study Questions #2." Focus your answer on explaining what "went wrong" in this case). (25 points)
- (b) If you were called upon to design a solution for the crisis presented, what would you do? (Again, use Systems Theory concepts to form your response). (15 points)