**Honors Practical Law**

**“Extra Credit Opportunity”**

**Mr Fernandez**

Answer each of the following questions for one point each:

**Problem #1**

**A company employee generates a series of five-digit product codes according to the following rules:**

* **The codes use the digits 0, 1, 2, 3, and 4, and no others.**
* **Each digit occurs exactly once in any code.**
* **The second digit has a value exactly twice that of the first digit.**
* **The value of the third digit is less than the value of the fifth digit.**

1. If the last digit of an acceptable product code is 1, then it must be true that the…

(A) first digit is 2.

(B) second digit is 0.

(C) third digit is 3.

(D) fourth digit is 4.

(E) fourth digit is 0.

2. Any of the following pairs could be the third and fourth digits, respectively, except:

(A) 0, 1

(B) 0, 3

(C) 1, 0

(D) 3, 0

(E) 3, 4

3. Which one of the following must be true about any acceptable product code?

(A) The digit 1 appears in some position before the digit 2.

(B) The digit 1 appears in some position before the digit 3.

(C) The digit 2 appears in some position before the digit 3.

(D) The digit 3 appears in some position before the digit 0.

(E) The digit 4 appears in some position before the digit 3.

**Problem #2**

**Exactly three films—Greed, Harvest, and Limelight—are shown during a film club’s festival held on Thursday, Friday, and Saturday. Each film is shown at least once during the festival but never more than once on a given day. On each day at least one film is shown. Films are shown one at a time. The following conditions apply:**

* **On Thursday *Harvest* is shown, and no film is shown after it on that day.**
* **On Friday either *Greed* or *Limelight*, but not both, is shown, and no film is shown after it on that day.**
* **On Saturday either *Greed* or *Harvest*, but not both, is shown, and no film is shown after it on that day.**

4. Which one of the following CANNOT be true?

1. *Limelight* is shown on each day of the festival.
2. *Greed* is shown second on each day of the festival.
3. A different film is shown first on each day of the festival.
4. A different film is shown last on each day of the festival.
5. *Harvest* is the last film shown on each day of the festival.

5. If *Limelight* is never shown again during the festival once *Greed* is shown, then which one of the following is the maximum number of film showings that could occur during the festival?

(A) three

(B) four

(C) five

(D) six

(E) seven

6.If Greed is shown exactly three times, Harvest is shown exactly twice, and Limelight is shown exactly once, then which one of the following must be true?

(A) All three films are shown on Thursday.

(B) Exactly two films are shown on Saturday.

(C) Limelight and Harvest are both shown on Thursday.

(D) Greed is the only film shown on Saturday.

(E) Harvest and Greed are both shown on Friday.

7.If Limelight is shown exactly three times, Harvest is shown exactly twice, and Greed is shown exactly once, then which one of the following is a complete and accurate list of the films that could be the first film shown on Thursday?

(A) Harvest

(B) Limelight

(C) Greed, Harvest

(D) Greed, Limelight

(E) Greed, Harvest, Limelight

**Problem #3**

**A cruise line is scheduling seven week-long voyages for the ship Freedom. Each voyage will occur in exactly one of the first seven weeks of the season: weeks 1 through 7. Each voyage will be to exactly one of four destinations: Guadeloupe, Jamaica, Martinique, or Trinidad. Each destination will be scheduled for at least one of the weeks. The following conditions apply to Freedom’s schedule:**

* **Jamaica will not be its destination in week 4.**
* **Trinidad will be its destination in week 7.**
* **Freedom will make exactly two voyages to Martinique, and at least one voyage to Guadeloupe will occur in some week between those two voyages.**
* **Guadeloupe will be its destination in the week preceding any voyage it makes to Jamaica.**
* **No destination will be scheduled for consecutive weeks.**

8. Which one of the following is an acceptable schedule of destinations for Freedom, in order from week 1 through week 7?

(A) Guadeloupe, Jamaica, Martinique, Trinidad, Guadeloupe, Martinique, Trinidad

(B) Guadeloupe, Martinique, Trinidad, Martinique, Guadeloupe, Jamaica, Trinidad

(C) Jamaica, Martinique, Guadeloupe, Martinique, Guadeloupe, Jamaica, Trinidad

(D) Martinique, Trinidad, Guadeloupe, Jamaica, Martinique, Guadeloupe, Trinidad

(E) Martinique, Trinidad, Guadeloupe, Trinidad, Guadeloupe, Jamaica, Martinique

9. Which one of the following CANNOT be true about Freedom’s schedule of voyages?

1. Freedom makes a voyage to Trinidad in week 6.
2. Freedom makes a voyage to Martinique in week 5.
3. Freedom makes a voyage to Jamaica in week 6.
4. Freedom makes a voyage to Jamaica in week 3.
5. Freedom makes a voyage to Guadeloupe in week 3.

10. If Freedom makes a voyage to Martinique in week 3, which one of the following could be an accurate list of Freedom’s destinations in week 4 and week 5, respectively?

(A) Guadeloupe, Trinidad

(B) Jamaica, Guadeloupe

(C) Martinique, Trinidad

(D) Trinidad, Jamaica

(E) Trinidad, Martinique