Assignment # 3

Please read the following instructions:

1. Please provide a complete solution.
2. Plagiarism or Cheating is not allowed. **Even if you cheat in only one question, you will be marked zero in the *entire* assignment.**
3. In each question, you have to provide proof of successfully solving the question by giving explanation.
4. To submit: Submission folder will be created on portal

5. SECTION: _____

6. ROLL NUMBER: _____

7. NAME: _____

Total marks: 40

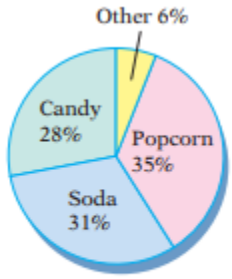
Submission Due date: 14th December, 2021 (on portal)

Question 1: (10 marks)

Use Polya's four-step problem-solving strategy. A frog is at the bottom of a 17-foot well. Each time the frog leaps it moves up the side of the wall a distance of 3 feet. If the frog has not reached the top of the well, then the frog slides back 1 foot before it is ready to make another leap. How many leaps will the frog need to reach the top of the well?

Question 2: (10 marks)

The following circle graph shows the percentages of refreshment revenues that a movie theatre complex received from various types of refreshments on a given day.



Total Revenues from Refreshments: $3910.25

a. Determine the revenue the theatre earned from candy sales for the given day.
b. By how much did the popcorn revenue exceed the soda revenue for the given day?

Question 3: (10 marks)

The set of years in which the monthly principal and interest payments for average-priced existing homes
were between $700 and $800

The following table shows the average U.S. movie theatre ticket prices for the years from 1985 to 2004.

Year	Price	Year	Price
1985	$3.55	1995	$4.35
1986	3.71	1996	4.42
1987	3.91	1997	4.59
1988	4.11	1998	4.69
1989	3.99	1999	5.06
1990	4.22	2000	5.39
1991	4.21	2001	5.65
1992	4.15	2002	5.80
1993	4.14	2003	6.03
1994	4.08	2004	6.21

Average U.S. Movie Theatre Ticket Prices

Use the information in the above table and the roster method to represent the sets and their cardinality in Part (a) and (b).
(a) The set of years in which the average ticket prices were less than $4.00
(b) The set of years in which the average ticket prices were greater than $4.25 but less than $6.00

Question 4: (10 marks)

Let U={1,2,3,4,5,6,7,8}, A={2,4,6} and B={1,2,5,8} and C={1,3,7}
Find each of the following

(a) $A \cap B'$
(b) $A \cap (B \cup C)$
(c) $A' \cup (B \cap C)$
(d) $(A \cup C') \cap (B \cup A')$
(e) $(B \cap A') \cup (B' \cup C)$