

**EE 1001 Assignment 4**  
**Please submit Assignment 4 on or before 11 April 2021 Wednesday, 23:59**

---

**Q1. Write the first five terms of the sequences with nth term  $a_n = (-1)^{n-1} 5^{n+1}$ .**

**Q2.**

- (1) 8 members are to be selected from a group of 9 males and 7 females. In how many ways will the members with at most 3 females and at least 4 males be selected?**
- (2) How many three letter words (with or without meaning) can be formed using the letters of the word "PRACTICES"?**
- (3) A postmaster wants to get delivered 6 letters at six different addresses. In the post office there are 2 postmen then in how many ways can the postmaster send the letters at different addresses through the postmen?**
- (4) Five people out of whom only two can drive are to be seated in a five-seater car with two seats in front and three in the rear. The people who know driving don't sit together. Only someone who knows driving can sit on the driver's seat. Find the number of ways the five people can be seated.**

**Q3. Given  $m, n$  are positive integers,  $f(x) = (1+x)^m + (1+x)^n$ . It is known that the coefficients of the terms  $x$  and  $x^2$  are 7 and 9 respectively. Compute:**

- (1) The values of  $m$  and  $n$ ;**
- (2) The coefficient of the term  $x^3$ ;**
- (3) Use the binomial theorem to compute  $(1.01)^4$ .**

**Q4. Let  $A = \{2, 3, 5, 6, 7, 9\}$ ;  $B = \{3, 6, 9\}$ , and  $C = \{2, 4, 5, 6, 8\}$ . Find each of the following:**

- (1)  $A \cup B$**
- (2)  $A \cap B$**
- (3)  $A \cup C$**
- (4)  $A \cap C$**
- (5)  $A - B$**
- (6)  $B - A$**
- (7)  $B \cup C$**
- (8)  $B \cap C$**

**Q5. A large software development company employs 100 computer programmers. Amongst them, 45 are proficient in Java, 30 in C#, 20 in Python, six in C# and Java, one in Java and Python, five in C# and Python, and just one programmer is proficient in all three languages above.**

**Determine the number of computer programmers that are not proficient in any of these three languages.**

**Q6.**

**6-1) A drawer contains 12 red and 12 blue socks, all unmatched. A person takes socks out at random in the dark. How many socks must be taken out to ensure that he has at least two blue socks?**

**6-2) Three students are running for a student government. There are 202 students voting, what is the minimum number of votes required to win the election?**

**EE 1001 Assignment 4**

**Please submit Assignment 4 on or before 11 April 2021 Wednesday, 23:59**

---

**6-3) Three students are running for a student government. There are 202 students voting, what is the minimum number of votes required to ensure the winning of the election?**

KFT/20210327