Exercise: Basic Counting

- **วิชชาภัทร จินดานาถ** previously submitted answers to this quiz/test on 24-Oct-2023 @ 04:01:17 and obtained **6** correct answers out of **6** .
- This test/quiz can be taken many times.
- Correct answers will NOT be revealed after submission.

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1 Suppose our new major CEDT consists of 10 classrooms, and there are 9 TAs in the Discrete Structures subject. How many ways are there to assign different classrooms to these 9 TAs?

From previous attempt

9!

10!

2^9

10^9

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2 A student can choose a Capstone project from one of three professors. The three professors manage 9, 7, 8 projects, respectively. Given that no project is managed by more than one professor. How many possible projects are there to choose from?

From previous attempt

[What if there are projects that are managed by more than one professor? We'll talk about it in the Inclusion-Exclusion Principle part ;)]

24

15

7 * 8 * 9

23

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3 Our laboratory's computer system has a regulation. Each user's password is six to eight characters long, where each character is an uppercase letter or a digit. Each password must contain at least one digit. How many possible passwords are there?

From previous attempt

(36^8 – 26^8) – (36^5 – 26^5)

36^6 + 36^7 +36^8

(36^6 – 26^6) + (36^7 – 26^7) + (36^8 – 26^8)

26^6+26^7+26^8

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4 How many different ways are there to seat four people around a circular table, where two seatings are considered the same when each person has the same left neighbour and the same right neighbour?

From previous attempt

24

6

4! / 2

3

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6 Suppose that there are 9 part-time TAs, and 5 full-time TAs in the Discrete Structures subject. How many ways are there to select a team of 3 part-time TAs to design the exam problems, and 2 full-time TAs to validate it?

From previous attempt

C(9, 3) * C(5, 2)

C(14, 5)

P(9, 3) * P(5, 2)

P(14, 5)

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7 According to the previous question, suppose the responsibility of part-time TAs in the designating process can be separated into three different jobs: design the problems format, design part A questions, and design part B questions. Similarly, the responsibility of full-time TAs in the validation process can also be separated into validation of part A and B. How many ways are there to select a team to develop the exam in this situation?

From previous attempt

C(9, 3) * C(5, 2)

C(14, 5)

P(9, 3) * P(5, 2)

P(14, 5)

Submit

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