C individual task in discrete math:

Edited at 9am 3 April 2017.

s is your student number. k = s mod 10000. T = s mod 100. m = s mod 35. a = s mod 25.

L = s mod 10. $d\_{2}=\frac{T-L}{10}$. e = s mod 8. m7 = s mod 7. m6 = s mod 6. m4 = s mod 4. m3 = s mod 3.

**Relations:**

1. Binary relation R on the set {1 to e+2} is defined so that *a*R*b* holds if and only if

*a* divides *b*, with remainder. Find the matrix and draw the graph.

Is it reflexive, symmetric, anti-symmetric, transitive, composite?

2. Binary relation R on the set {1 to e+2} is defined so that *a*R*b* holds if and only if

*a* divides *b*, with NO remainder. Find the matrix and draw the graph.

Is it reflexive, symmetric, anti-symmetric, transitive, composite?

**Number theory:**

3. Find Highest Common Divisor and Lowest Common Multiple of e+4 and L+4.

Use all algorithms, which you can (Euclidean algorithm, etc.)

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/euclidean4algorithm.txt

4. Convert T to e+2 and L+2 counting systems.

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/number2convert.txt

5. Calculate the largest prime number you can using your own computer code.

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/primes2find.txt

6. Give prime factorization of s.

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/prime4factorization4of4numbers.txt

**Combinatorics:**

7. Calculate C(9,e) and P(7,e).

8. Give all the options for C(e+3,e).

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/calculator4combinations.txt

9. In how many ways can you answer an exam with m+1 questions each of which has e+1 options for the answer?

**Probability:**

10. Draw the histogram of tossing L+2 fair coins.

11. Draw the histogram of the first e+3 digits of π.

12. Give the histogram of Behford of the first digit of e+2 the most populated countries.

http://www.worldometers.info/world-population/population-by-country/

13. Find the probability of the random guessing of a solution in the number puzzle for e+3 consecutive decimal digits.

Creativity questions:

Music:

14. What is your favorite music? Why? How to create the best music?

https://www.youtube.com/watch?v=tj4LHB93O6o

https://www.youtube.com/watch?v=DUmq1cpcglQ

http://www.youtube.com/watch?v=tRokS74dbuA

https://www.youtube.com/watch?v=0sB3Fjw3Uvc

https://www.youtube.com/watch?v=oN86d0CdgHQ

https://www.youtube.com/watch?v=N6voHeEa3ig

https://www.youtube.com/watch?v=5O88XmgHhrU

https://www.youtube.com/watch?v=PWgvGjAhvIw

https://www.youtube.com/watch?v=DzwkcbTQ7ZE

Country:

15. What is the best country for you? Why?

Government:

16. What is the best government for you? Why?

Elections:

17. Predict April 2017 Jakarta governor elections results.

https://en.wikipedia.org/wiki/Jakarta\_gubernatorial\_election,\_2017

Games:

18. Join Dota2 gaming competition.

http://www.dota2.com/international/overview/

Project:

19. Improve your project.

Write the proposal.

Prepare to present your project to a native English speaking doctor of science.

Deadline: 8 April 2017 Saturday.