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| **EXAMINATION ANSWER BOOK** | | |
| **This script will be marked anonymously. Please complete CANDIDATE / EXAMINATION DETAILS but do not start writing anywhere else until the start of the examination is announced by the invigilator. Please show your student identity card upon request. It is student’s responsibility to fill in the details fully and accurately.** | | |
| **CANDIDATE / EXAMIMNATION DETAILS** | | |
| **University of Westminster Student ID Number:** | **WIUT Student ID Number:**  **00010023** | |
| **Course:** | **Date:**  **28/04/2021** | |
| **Module Code:**  **4COSC012C-n** | **Module Title:**  **Mathematics for Computing** | |

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| **QUESTIONS ANSWERED** | | | | |  | **REGULATIONS FOR CANDIDATES**  **PLEASE READ CAREFULLY**  1. You are warned that any breach of the rules is likely to result in severe penalties including suspension of studies or exclusion from WIUT.  2. You must show your WIUT student identity card upon request..  3. You are not allowed to leave during the first 30 minutes or the last 15 minutes of the examination.  4. All mobile phones and other electronic devices must be switched off.  5. If you are caught cheating in the examination, you will most probably get zero marks. If you have any revision, you have a chance to remove them before the start of the examination without being penalized.  5. You may use blue or black pen only. Any answers written in pencil may not be marked.  6. You must not commence writing, other than to complete identification details on the answer book, until the start of the examination is announced.  7. You are not allowed to talk, to whisper or to turn around - all of which are academic misconduct and may incur a penalty. You will be given a single written warning only for such kind of misconduct; should you do any of these things again you will be reported to the Academic Misconduct Panel.  8. You may NOT use whiteout/correction fluid or disappearing ink pen. Possession of this constitutes an academic misconduct. If you make a mistake, simply draw a line through the mistake with pen and continue  9. If you have not come to the examination properly prepared, you must make do with what you have brought with you.  11. If you are found to have any unauthorized materials during the examination this will constitute an academic misconduct and you will be reported to the Academic Misconduct Panel.  12. You must not leave your place without the permission of the invigilator.  13. If you do not feel well enough to complete the examination you should leave the room and submit a Mitigating Circumstance claim for non-attendance.  14. When the invigilator announces the end of the examination you must stop writing, remain seated and silent until all scripts have been collected and counted and until you are dismissed by the invigilator. |
| Write in **the first column only** the numbers of the questions attempted in the order in which you attempted them. | | | | |
| **CANDIDATE USE** | **EXAMINER USE** | | | |
| **Question Number** | **Internal Examiner** | **Internal Examiner** | **External Examiner** | **Agreed**  **Marks** |
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**Task 8: (5 Marks)**

In order to calculate determinate of a matrix, we need to find out the formulae of it. So, as our matrix will be 2x2 dimensioned, we will be using the following expression for solving our problem:

And the result will be like that:

**Task 7: (6 Marks)**

Let’s find out A table which is equal to this in my case:

|  |  |  |
| --- | --- | --- |
| **0** | **0** | **0** |
| **3** | **10 = Sohibqiron** | **2** |
| **2** | **0** | **3** |

The following expression is our solution in our case:

Now, it’s time to subtract the given B value from A and the result will be the following:

**Task 6: (3 Marks)**

In order to multiply a matrix by a number, we have to do the following process:

So, in our case, this will be our result:

**Task 17: (4 Marks)**

If we have A = { 3, 0, 2, 0 } and B = { 0, 2, 7, 8 }, we have to find A U B, A ⋂ B and A – B. So,

**Task 1: (6 Marks)**

Assuming that we have to populate a set of 24 numbers where the last 4 of them should be 100 and my result was the following:

So, in order to calculate range, we have to take max and min from the set whereas they are 2 and 100. By subtracting max and min, we will get range which is 98.

In order to find mean of the set, we have to add up all data numbers and divide it to the count of numbers:

In order to find median, we need to find numbers in middle part of the set which are 33 and 37 in our case. Then, we gonna divide the sum of 33 and 37 to 2 like that:

In order to find, we have to identify whether which number is being used repeatedly which is equal to 100 in our case.

**Task 2: (8 Marks)**

Stratified sampling – involves dividing the sample into stratas or subgroups. Each strata then represents a certain part of the sample. Then, the samples are taken for each strata according to their weigh, or in other words proportion.

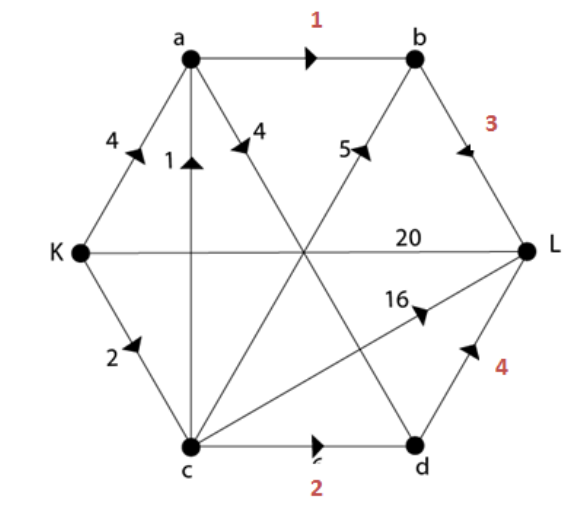
Random sampling – the chances for each member of the population to be chosen are equal. This means random. To make this happen, one should collect a sampling frame with all members of the population.

Systematic sampling – each member of the population is numerated. Then, a special interval is set, for example 4. After that, a starting point is chosen, which is done randomly. And after this point each 4th member is then selected.

Cluster sampling. Similar to stratified sampling, in cluster sampling the population is divided in subgroups. However, now the whole subgroup will be selected, not some of the members within.

**Task 4: (10 Marks)**

The following distance are given. a to b is 4 , c to d is 4, b to L is 2 , d to L is 3. By looking at the diagram,





So, after looking at the paths, I came up with the following directions:

KcL = 2+16 =18

KcdL = 2+4+3 = 9

KabL = 4+4+2 = 10

KcbL = 2+5+2 = 9

So, the shortest paths are KcbL and KcdL

**Task 5: (6 Marks)**

Bread = 9 loaves.

X – the cost of 1 loave of bread.

9x + 3 = 21

Solving the equation,

9x + 3 -3 = 21 – 3

9x = 18

X= 2

So, 1 loave of bread costs 2 dollars.

**Task 9: (4 Marks)**

(23 + 3200) mod(3)

23 mod(3) + 3200 mod(3)

(2 + 2) mod(3) = 1

So, modulo of the sum of 23 and 3200 is 1

**Task 16: (6 Marks)**

λ = 9. (Both my first name and last name have 9 characters.)

X = 9.

P = = = 0.138

**Task 15: (3 Marks)**

9- digits code.

Formula for permutation with replacement is

A = nr

r = 9

n = 10 (0,1,2,3,4,5,6,7,8,9 – possible values)

Then, the number of possible outcomes would be 109

It equals to 1 000 000 000. We have 1 billion combinations of them

**Task 10: (6 Marks)**

H = -16t2 + 64t + 23

T = 3

H = -16 \* 9 + 64 \* 3 + 23 = 71