Section No. **002** ID **U 1910049** Name **Rustam Zokirov**

Submission Deadline: **10 /October/ 2021 (23:00 Hr)**

➢ Solve all questions on printout of this page. You are required to solve (**handwritten**) all the questions and submit it on eclass by taking picture of your assignment. **NO hardcopy submission is required**
➢ Late submissions and email-submissions are not accepted.
➢ Submissions **not conforming** to the given format will **NOT** be evaluated.

Q1. Apply the Heapsort Algorithm to sort the following sequence.

32, 89, 1, 72, 15, 12

(First Apply Build Heap, then show Steps of Extract Max-Heap & Max-Heapify)

32 89 12 72 15 1
89 32 12 72 15 1

32	89	1	72	15	12	
89	72	12	32	15	1	build-heap()
1	72	12	32	15	(89)	max-heap
72	1	12	32	15		heapify
72	32	12	1	15		heapify
15	32	12	1		(72)	max heap
32	15	12	1			heapify
1	15	12			(32)	max
15	1	12				heapify
15	12	1				heapify()
1	12				(15)	max-heap()
1	2					heapify()
1					(12)	max-heap()

left ⟶ S (1)

sorted with heap sort

Q2. Apply Quicksort Algorithm to sort the given sequence

(Show only steps of PARTITION on the initial array).

i ⟶ swap() ⟵ j pivot

17	18	19	34	2	5	6
5	18 i	19	34	2 j	17	6 pivot
5	2	19 i	34 j	18	17	6 pivot
5	2	19 i j	34	18	17	6
5	2 j	19 i	34	18	17	6
5	2	(6)	19	34	18	17

if K p i++
if j>p j--
if i>p
and
if j<p
then
swap()

else
no

one step done