SAQUIB
2021mt12266
SSZG519

Q6(a)
Solution

Infix -   8 + 2 * 5 ^ (7 - 4 + 1) + 9 / 3

Post fix - 8 2 5   7 4 - 1 + ^*+ 9 3/+

Step #	Input	Stack trace	Partial outpput
0	8 + 2 * 5 ^ (7 - 4 + 1) + 9 / 3		
1	+ 2 * 5 ^ (7 - 4 + 1) + 9 / 3		**8**
2	2 * 5 ^ (7 - 4 + 1) + 9 / 3	**+**	8
3	* 5 ^ (7 - 4 + 1) + 9 / 3	**+**	8 2
4	5 ^ (7 - 4 + 1) + 9 / 3	**+, ***	8 2
5	^ (7 - 4 + 1) + 9 / 3	**+, ***	825
6	(7 - 4 + 1) + 9 / 3	**+, *, ^**	825
7	7 - 4 + 1) + 9 / 3	**+, *, ^, (**	825
8	- 4 + 1) + 9 / 3	**+, *, ^, (**	8 2 5 7
9	4 + 1) + 9 / 3	**+, *, ^, (-**	8 2 5 7
10	+ 1) + 9 / 3	**+, *, ^, (-**	8 2 5 7 4
11	1) + 9 / 3	**+, *, ^, (+**	8 2 5 7 4 -
12	) + 9 / 3	**+, *, ^, (, +**	8 2 5 7 4 - 1
13	+ 9 / 3	**+, *, ^**	8 2 5 7 4 - 1 +
14	9 / 3	**+**	8 2 5 7 4 - 1 + ^ * +
15	/ 3	**+**	8 2 5 7 4 - 1 + ^ * + 9
16	3	**+, /**	8 2 5 7 4 - 1+ ^ * + 9
17	$	**+, /**	8 2 5 7 4 - 1 + ^ * + 9 3
			8 2 5 7 4 - 1 + ^ * + 9 3 / +

Q6(b)
Solution

Step	Operation	Stack	Remaining I/P
0	push(8)	8	2 5 7 4 - 1 + ^*+ 9 3/+
1	push(2)	8,2	5 7 4 - 1 + ^*+ 9 3/+
2	push(5)	8, 2, 5	7 4 - 1 + ^*+ 9 3/+
3	push(7)	8,2,5,7	4 - 1 + ^*+ 9 3/+
4	push(4)	8,2,5,7, 4	- 1 + ^*+ 9 3/+
5	Op2 = st.pop() = 4 Op1 = st.pop() = 7 Result = op1-op2 = 3 st.push(3)	8,2,5, 3	1 + ^*+ 9 3/+
6	push(1)	8,2,5,3,1	+ ^*+ 9 3/+
7	Op2 = st.pop() = 1 Op1 = st.pop() = 3 Result = op1+op2 = 4 st.push(4)	8,2,5,4	^*+ 9 3/+
8	Op2 = st.pop() = 4 Op1 = st.pop() = 5 Result = op1^op2 = 625 st.push(625)	8,2,625	*+ 9 3/+
9	Op2 = st.pop() = 625 Op1 = st.pop() = 2 Result = op1*op2 = 1250 st.push(1250)	8,1250	+9 3/+
10	Op2 = st.pop() = 1250 Op1 = st.pop() = 8 Result = op1+op2 = 1258	1258	9 3 / +

	st.push(1258)		
11	push (9)	1258,9	3/+
12	push(3)	1258, 9, 3	/ +
13	Op2 = st.pop() = 3 Op1 = st.pop() = 9 Result = op1/op2 = 3 st.push(3)	1258, 3	+
14	Op2 = st.pop() = 3 Op1 = st.pop() = 1258 Result = op1+op2 = 1261 st.push(1261)	1261	

Final output = 1261