6th SEMESTER

B.Tech. Software Engineering

MID TERM EXAMINATION ***Sept-2022***

SE201 DATA STRUCTURE

Time: 1:30 Hours *Max. Marks: 20*

Note : All questions are compulsory.
Use pseudocode/C for algorithm
All questions carry equal marks.
Assume suitable missing data, if any.

Q.1 Use stack to convert infix to postfix expression. a+b*c+(d*e+f)*g, a=1, b=2, c=3, d=4, e=5, f=6, g=2 [4][CO3]

Q.2 How can you implement a queue using two stacks? Explain what is the enque and deque algorithm. What is the time and space complexity ? [4][CO3,1]

Q.3 Given a string, find all characters that are missing from the string, i.e., the characters that can make the string a Pangram (sentence containing every letter in the English alphabet). We need to print output in alphabetic order. Consider both lowercase and uppercase letters. What is the time and space complexity? Example: Input: Data structure, output: bfghijklmnopqrvwxyz [4][CO2,1]

Q.4 Write an algorithm to find the middle of a list by traversing it once. What is the time and space complexity? [4][CO4,1]

Q.5 Explain what is binary search algorithm with an example, what is the complexity of time and space. [4][CO5,1]