CBCS Scheme

USN ☐☐☐☐☐☐☐☐☐☐ **15CS554**

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Advanced Algorithms

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1
1   a.   With an example, explain asymptotic Notations.   (08 Marks)
    b.   Make use of substitution method for solving recurrences.   (08 Marks)

OR
2   a.   Define Amortized Analysis. Explain the accounting method of amortized analysis. (08 Marks)
    b.   Discuss string matching with Finite automata. Give the algorithm for the same. (08 Marks)

Module-2
3   a.   Develop Euclid and extended Euclid algorithm for computing gcd of 2 numbers.   (08 Marks)
    b.   What is the use of public key cryptosystem? Explain RSA public key cryptosystem. (08 Marks)

OR
4   a.   Develop an algorithm to construct Huffman code. Give the example for the same. (08 Marks)
    b.   What are the different ways of representation of polynomials? Explain in brief. (08 Marks)

Module-3
5   a.   Construct an algorithm for interative - FFT. And also show how it can be implemented efficiently.   (08 Marks)
    b.   Design Bellman – Ford algorithm to find single source shortest path. Apply the same for the following graph S is the source vertex.   (08 Marks)
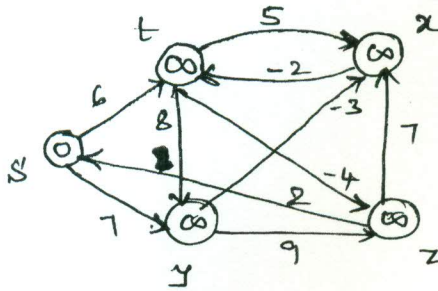

Fig. Q5(b)

OR
6   a.   Construct Johnson's algorithm to compute all pair shortest path and Justify with an example. (08 Marks)
    b.   Give Ford – Fulkerson method for solving the maximum flow problem. With an example show the residual network of a graph.   (08 Marks)

1 of 2

Module-4

7 a. Define the following with examples :
   i)   Vectors
   ii) Points
   iii) Polygons
   iv) Edges.   (08 Marks)
   b. List and explain geometric objects in space.   (08 Marks)

OR

8 a. How to find intersection of a line and a triangle? Illustrate with example.   (08 Marks)
   b. What are star shaped polygons? Explain how to find star shaped polygonization.
                                                                        (08 Marks)

Module-5

9 a. Define clipping. Explain Sutherland Hodgman clipping algorithm.   (08 Marks)
   b. Explain the followings:
   i)   Monotonic polygons
   ii) Gift wrapping.   (08 Marks)

OR

10 a. Explain Graham Scan convex hulls finding method with suitable example.   (08 Marks)
   b. Develop Depth – Sort algorithm for removing hidden surfaces. Illustrate with example.
                                                                        (08 Marks)

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