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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 iterative - 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)

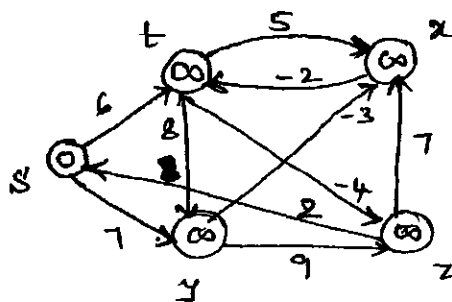


Fig. Q5(b)

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)

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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