Total No. of Printed Pages:1

SUBJECT CODE:- 8199

FACULTY OF ENGINEERING AND TECHNOLOGY

M.E.(CSE) Examination Nov/Dec 2015

Advanced Algorithm

(Revised)

[Time: Three Hours] **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

N.B i)Attempt any two questions from each section

SECTION-A

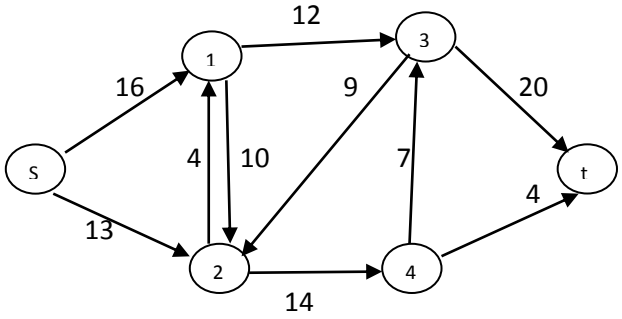
Q.1 a) How to measure performance of an algorithm. Explain how to compute complexity of the following problems: 10
1) Binary search method
2) Heap sort

b) Solve the following activity selection problem 10

I	1	2	3	4	5	6	7	8	9	10	11
Si	1	3	0	5	3	5	6	8	8	2	12
fi	4	5	6	7	8	9	10	11	12	13	14

Q.2 a) Explain hiring problem using probabilistic analysis & randomized algorithm 10

b) Solve maximum flow problem for the following graph 10



Q.3 a) Sort given set of numbers using Quick sort, Comment on the 'Algorithmic technique used & complexity of algorithm 45, 25, 15, 55, 65,35, 50, 20 10

b) Explain maximum sub array problem using divide and conquer method 10

SECTION-B

Q.4 a) Find the position tree for abababa$ 06

b) Construct NDFA accepting the following regular sets: 06
i) (a + b)*(aa + bb)
ii) $A^xb^x+ b^xa^x$

c) Explain rabin-karp algorithm- 08

Q.5 a) Prove the vector cover is NP-complete 06

b) Prove that feedback edge set is NP-complete. 06

c) Use intended Euclidean algorithm to find GCD(99,78) 08

Q.6 a) Prove that DHC is NP-complete using following equation. 12
$(X_1+X_2+X_3)$ $(\overline{X_1}+X2+\overline{X_3})$ $(\overline{X_1}+\overline{X_2}+\overline{X_3})$

b) Explain polynomial multiplication and division 08