Total No. of Questions – [3]

Total No. of Printed Pages: 02

G.R. No.	

PAPER CODE	U212-233(ESE-DSY)

May 2023 (ENDSEM) EXAM

S.Y. B.TECH (DSY)(COMPUTER ENGINEERING)

(AY 2022-23 SEMESTER - I)

COURSE NAME: Discrete Mathematics

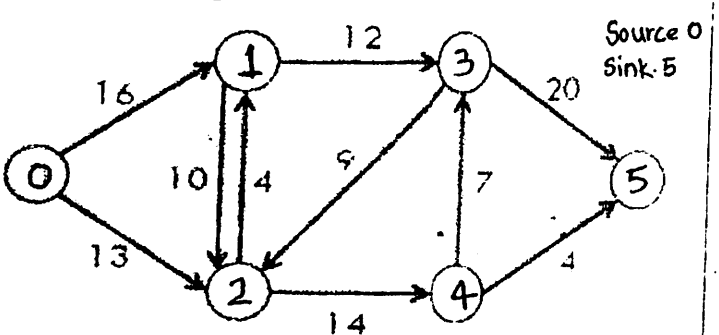
COURSE CODE: ES21203CS

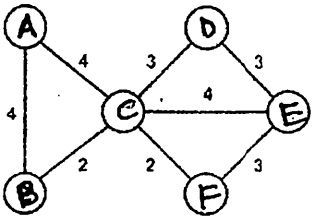
(PATTERN 2020)

Time: [1Hr] [Max. Marks: 30]

Instructions to candidates:

1) **Use of scientific calculator is allowed**
2) **Use suitable data where ever required**
3) **All questions are compulsory**

Question No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a)) Construct a binary tree using InOrder:10,12,6,4,7,10,11,5,2,8 Pre Order :10,12,3,4,6,7,5,11,2,8	**[4]**	[4]	[Apply]
	b) Solve using Max flow min cut algorithm for the weighted graph given below: 	**[6]**	[4]	[Apply]
	OR			
	c) Solve to find a minimum spanning tree using Prims algorithm for the weighted graph given below	**[6]**	[4]	[Apply]

				
Q.2	a) Find the maximum possible number of 5-letter palindromes in ROTOR considering std. set of alphabets.	**[4]**	[5]	[Analyze]]
	b) Suppose 7 students are staying in a hall in a hostel and they are allotted 7 beds. Among them, Parvin does not want a bed next to Anju because Anju snores. Then, in how many ways can you allot the beds?	**[6]**	[5]	[Apply]
	OR			
	c) A group consists of 7 girls and 4 boys. In how many ways can a team of 5 members be selected if the team has (i) no boys (ii) at least one boy and one girl (iii) at least three girls	**[6]**	[5]	[Apply]
Q.3	a) Verify the mapping defined from A to B are homomorphisms. A and B are group of real number under addition (x)=x+1 all x€A	**[4]**	[6]	[Analyze]
	b) If M is set of all non singular matrices of order n x n. then show that M is a group w.r.t. matrix multiplication. Is (M, *) an abelian group?. Justify your answer.	**[6]**	[6]	[Apply]
	OR			
	c) Show that The set G = {1,2,3,4,5,6} is a group with respect to multiplication modulo 7.	**[6]**	[6]	[Apply]