JALPAIGURI GOVT. ENGINEERING COLLEGE

Computer Science & Engineering Department

1ST Class Test, Even Sem 2024

Subject: Computer Network **Paper Code:** PCC- CS602 **Time:** 45 minutes **FM:** 15

1. What are the components of a data communication system? What is topology? Which topology is most reliable? What is the number of links in a mesh topology with ***n*** number of nodes? (5)

2. Can you explain why the vulnerable time in ALOHA depends on T_{fr} , but in CSMA depends on T_p ? Why the size of the send window must be less than 2^m, where ***m*** is the number of bits used for sequence number. (2+3)

3. a) Prove that a receiving station can get the data sent by a specific sender if it multiplies the entire data on the channel by the sender's chip code and then divides it by the number of stations.
   b) Calculate the throughput of stop-&-wait flow control mechanism if the frame size is 4800 bits, bit rate is 9600 bps and distance between device is 200km. Speed of propagation over the transmission is 200,000 km/s. (2+3)

Jalpaiguri Government Engineering College

Department of Computer Science & Engineering

1st Internal Even Sem 2024

Paper Name: Image Processing **Paper Code:** PEC-CS602C **Time:** 45min **FM:** 15

1. What is correlation and convolution? What is image transformation and why it is important? (2+3)
2. Show that the median operator is a non-linear operator. Derive the Laplacian filter for sharpening an image. (2+3)
3. Give the formula for calculating D_4 and D_8 distance. Let V={0,1} and compute the lengths of the shortest 4-, 8- and m- paths between p and q. If a particular path does not exist between these two points, explain why?

3	1	2	1 (q)
2	2	0	2
1	2	1	1
(p)1	0	1	2

(2+3)

JALPAIGURI GOVERNMENT ENGG. COLLEGE

Dept : Computer Sc. & Engg

Subject :- PCC-CS601(Compiler Design) First Internal Test F.M 15/Time – 45 minutes

Q1. Write the regular expression for the following tokens 5

¢. Keyword b. Identifier c. Relational_Operator d. Letter e. Digit.

Q2. Consider the grammar $E \rightarrow TE'$ $E' \rightarrow +E / \varepsilon$ $T \rightarrow FT'$ $T' \rightarrow T / \varepsilon$ $F \rightarrow PF'$ $F' \rightarrow *F' / \varepsilon$ $P \rightarrow (E)/a/b/\varepsilon$ 10

c. Construct the predictive parsing table for the grammar. B. Check whether the grammar is LL(1) or not.

or

Q3. Consider the grammar $S \rightarrow xAy / xBy / xAz$ $A \rightarrow aS / q$ $B \rightarrow q$ 10

Construct the SLR parsing table for the grammar.

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JGEC/B.TECH/ CSE/HU601A/2024

Principle of Management

Full Marks: 15 Times: 45 Minutes

Answer any one question:

1) a) Is management science or arts? Discuss. 7
   b) How are the leaders different from managers? 8
2) a) Discuss the various steps involved in the process of selection of candidates in a job. 8
   b) Name and describe the various external sources of recruitment available to organization. 7

Jalpaiguri Government Engineering College

B.Tech./CSE/PEC-**CS601A**/2024

Data Warehousing and Data Mining

FM: 15 Time Allotted: 45 minutes

Answer **any three** questions

1.	Construct all conditional FP-Trees from the FP-Tree given in Fig. 1 (min_sup=3). List the large frequent itemsets from the conditional FP-Tree. [5]	
2.	Enumerate all frequent itemsets from the given database (Fig.DB) using apriori algorithm with minimum support count S=3. List all the candidate set and large frequent itemsets for each database scan. [5]	

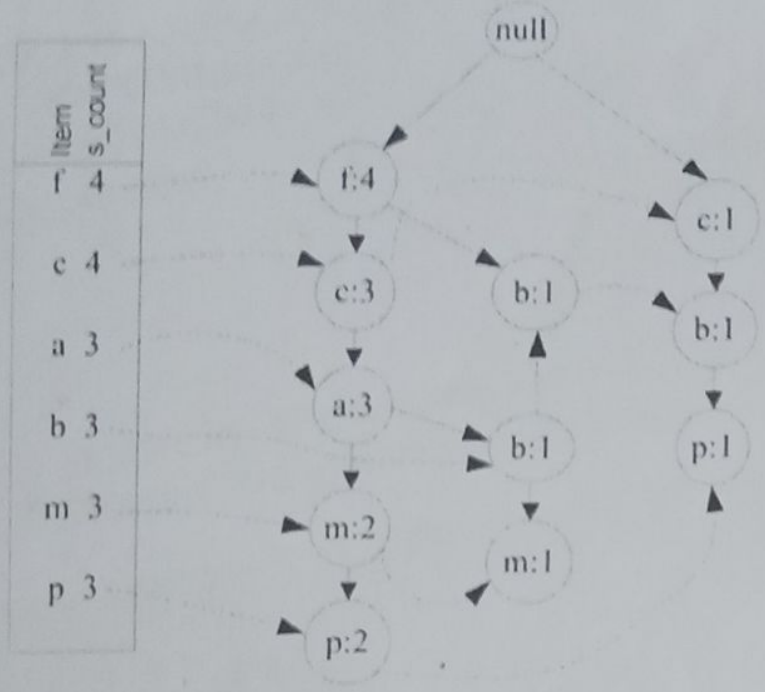

Figure 1 FP-Tree

TID	Item_Codes
T1	M, O, N, K, E, Y
T2	D, O, N, K, E, Y
T3	M, A, K, E
T4	M, U, C, K, Y
T5	C, O, O, K, I, E

Fig. DB

3.	Write the differences between a) Apriori and FP-Tree algorithm, b) classification and clustering.	5
4.	Define OLAP operations with example. What is the importance of data warehousing in data mining?	3+2

----------Happy and Safe Holi----------

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Department of Computer Science & Engineering

1st Internal Even Sem 2024

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(2+3)