


Course No: SWE 5107
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 Using Calculator (Yes)

University of Palestine

 Final Exam
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 Total Grade: 60

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 College Name: Engineering
 Dep. / Specialist: Software
 Using Dictionary (No)

First Question **No. of Branches (2)** **(10/60)**

Q1 B1: **(5/10)**

For the following sample categorical data set draw the symbol and frequency table.

Records	Values
x ₁	(A,A,A,A,B,B)
x ₂	(A,A,A,A,C,D)
x ₃	(A,A,A,A,D,C)
x ₄	(B,B,C,C,D,C)
x ₅	(B,B,D,D,C,D)

Q1 B2 **(5/15)**

Use the following binary data table to find the dissimilarity between all objects.

Gender is a symmetric attribute.

The remaining attributes are asymmetric binary.

Let the values Y and P be set to 1, and the value N be set to 0.

Name	Gender	Fever	Cough	Test-1	Test-2	Test-3	Test-4
Jack	M	Y	N	P	N	N	N
Mary	F	Y	N	P	N	P	N
Jim	M	Y	P	N	N	N	N

Second Question **No. of Branches (3)** **(35/60)**

Q2 B1 **(10/60)**

Find the Proximity Matrix for the following nominal data objects?

Object\Attributes	Code	Line	Strength	Stability
X1	A	1	Yes	Poor
X2	A	1	No	Poor
X3	B	1	No	Good
X4	B	0	Yes	poor

Q2 B2 **(10/60)**

Calculate the distance between these points using the assigned method?

- (12,3) , (12,2) and (1,1) using Euclidean distance.
- (2,3) , (9,2) and (6,7) using Manhattan distance.
- (2,3) , (2,2) and (10,1) using Average distance.

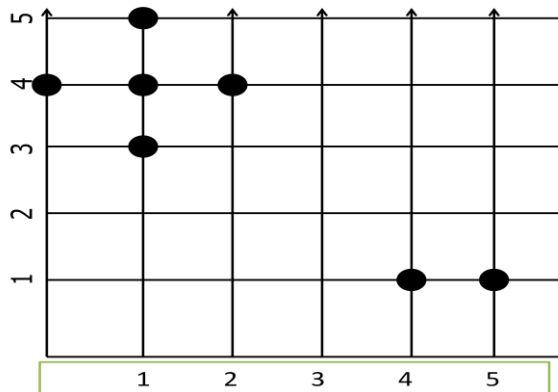
Q2 B3

(15/60)

Two dimensional data set with 6 points as in the showing figure.

Represent the Hierarchical Dendrogram using the following methods?

- The Single link method.
- The Complete link method.
- Ward's method.

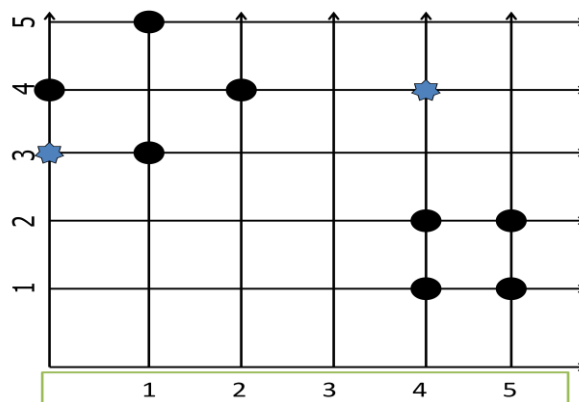


Third Question

No. of Branches (2)

(15/60)

Apply K-means algorithm with drawing for each step to know how much iterations will the star prototypes converging?



Good Luck