

**Faculty:** IT

**Course Name:** Digital Computer Fundamentals

**Course Code:**  MATH 8127

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**Report:** **Individual Assignment**

****CANONICAL FORMS MIN TERMS(m, SOP) and MAX TERMS(M, POS)  
  
QUESTION 1:** A+BC’  
 **=> THIS IS SOP  
  
DOMAIN  
  
A,B** and **C** are domain**

**and **A** is missing bc**, SO****

**=> A = A(B+B’)(C+C’)**

**=> A= ABC+ABC’+AB’C+AB’C’**

**and **BC’** is missing **A****

**then **BC’****

**=> BC’=BC’(A+A’)**

**=> BC’=BC’A+BC’A’=ABC’+A’BC’**

****Now combine all terms****

**A+BC’=ABC+ABC’+AB’C+AB’C’+ABC’+A’BC’**

****REMOVE DUPLICATES****

****A+BC’ = ABC+AB’C+ABC’AB’C’+A’BC’****

**QUESTION 2:** (A+B+C)(A’+B’)

This is POS

DOMAIN: A,B and C

Term A’+B’ is missing C  
  
then   
  
A’+B’= A’+B’+(C.C’)

=>(A’+B’+C)(A’+B’+C’

**Now Combine terms**

=>  **(A+B+C)(A’+B’) = (A+B+C)(A’+B’+C)(A’+B’+C’)**

**Question 3: X’+Y’Z+Z**  
  
SOP  
  
DOMAIN  
  
XYZ are domain  
  
Term X missing YZ  
Term Y’Z missing X

Term Z missing XY  
  
then

X=X(Y+Y’)(Z+Z’)  
X= XYZ+XYZ’+XY’Z+XY’Z’  
  
Y’Z= Y’Z(X+X’)

Y’Z= Y’ZX+Y’ZX’  
Y’Z= XY’Z+X’Y’Z  
  
Z=Z(X+X’)(Y+Y’)  
Z=ZXY+ZXY’+ZX’Y+ZX’Y’

Z=XYZ+XY’Z+X’YZ+X’Y’Z  
  
**Now Combine terms**  
  
X’+Y’Z+Z = XYZ+XYZ’+XY’Z+XY’Z’+ XY’Z+X’Y’Z+XYZ+XY’Z+X’YZ+X’Y’Z

**Remove duplicates:**  
  
**X’+Y’Z+Z = XYZ+X’YZ+XY’Z+XYZ’+X’Y’Z+XY’Z’**

**Question 4:** Convert the Boolean function F = AB+AB’ into Product of MAX term

F = AB+AB’

F = A(B+B’) by Distributive

F = A(1) by B+B’ =1

**F = A**