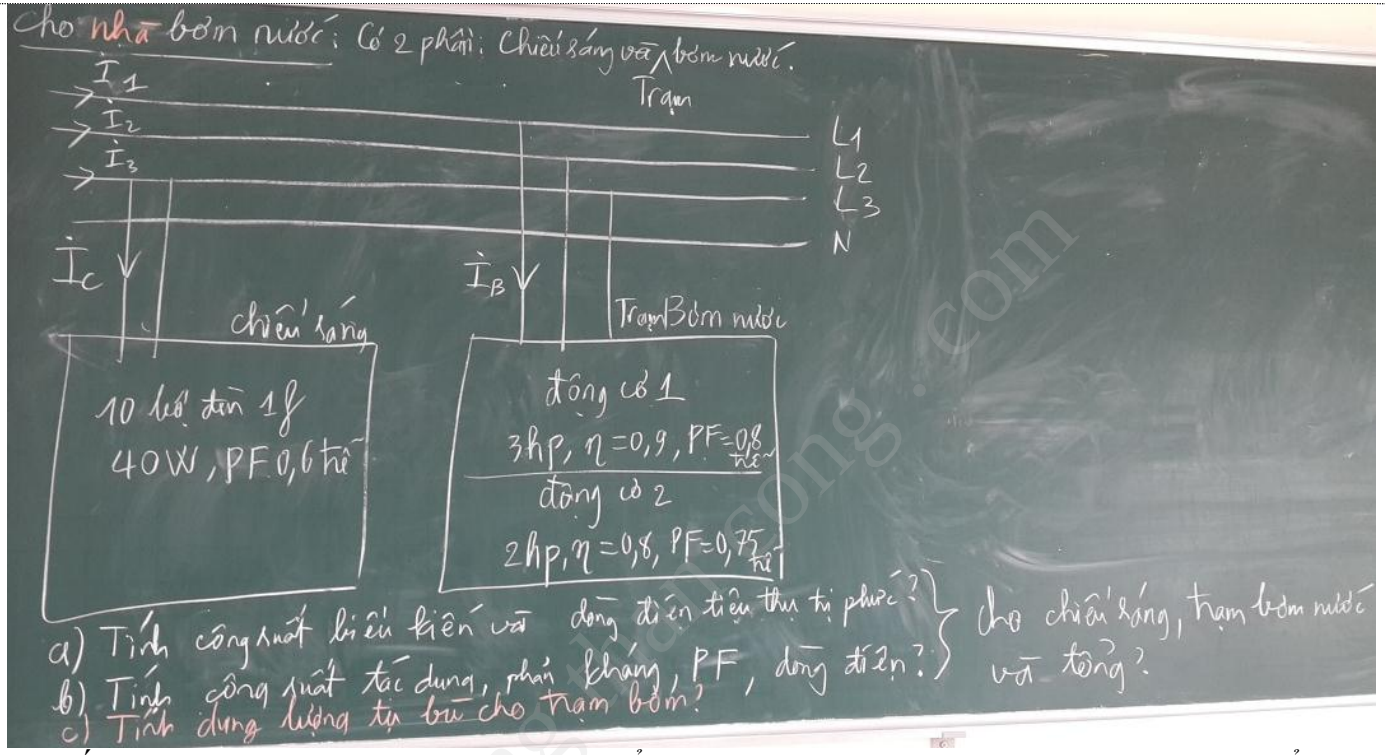

(Chiếu sáng 3đ, Động cơ 4đ, tụ bù 1đ, tính tổng 2đ). SV nên tách riêng tải 1 pha và 3 pha để tính!

Ket qua _____

i/ Chieu sang: S_10den = 666.666667 VA
i/ Chieu sang: I_10den = 3.030303<-53.130102 A
i/ Chieu sang: PF_10den = 0.600000
i/ Chieu sang: P_10den = 400.000000 W
i/ Chieu sang: Q_10den = 533.333333 VAr
ii/ Tram bom nuoc: S_m12 = 5590.664194 VA
ii/ Tram bom nuoc: I_m12 = 8.494135<-38.887423 A
ii/ Tram bom nuoc: PF_m12 = 0.778381
ii/ Tram bom nuoc: P_m12 = 4351.666667 W
ii/ Tram bom nuoc: Q_m12 = 3509.775398 VAr
iii/ Tu bu: Q_bu = 3509.775398 VAr
iii/ Tu bu: C_bu = 76.941888 uF

iv/ Tong: S_tong_pha1,2 = 1863.554731 VA
iv/ Tong: I_tong_pha1,2 = 8.494135<-38.887423 A
iv/ Tong: PF_tong_pha1,2 = 0.778381 VA
iv/ Tong: P_tong_pha1,2 = 1450.555556 W
iv/ Tong: Q_tong_pha1,2 = 1169.925133 VAr

iv/ Tong: S_tong_pha3 = 2515.083551 VA
iv/ Tong: I_tong_pha3 = 11.432198<-42.626585 A
iv/ Tong: PF_tong_pha3 = 0.735783 VA
iv/ Tong: P_tong_pha3 = 1850.555556 W
iv/ Tong: Q_tong_pha3 = 1703.258466 VAr

Bài giải:

```
% Cau1_Bai tap _CSKTD_NH152_Lop CQ
clc
clear
disp('Tai 1 pha, 3 pha_____')
Vf = 220 % angle(V) = 0
Vd = 380

disp('----------Cau i/ Chieu sang)')
No_den = 10
P_den = 40
PF_den = 0.6 % cosphi_den
sinphi_den = +sqrt(1-PF_den^2) % Tre pha
S_den = P_den/PF_den
Q_den = S_den*sinphi_den

P_10den = No_den*P_den
Q_10den = No_den*Q_den
S_10den_complex = P_10den + i*Q_10den % Tinh S tong tu P va Q
S_10den = abs(S_10den_complex)
I_10den_complex = conj(S_10den_complex/Vf) % Lay tri lien hiep: S = V.I*
I_10den = abs(I_10den_complex)
phi_10den = -angle(I_10den_complex)*(180/pi) % Chuyen doi tu radian->degree

disp('----------Cau ii/ Tram Bom nuoc)')
% Dong co 1
PF_m1 = 0.8 % cosphi_m1
sinphi_m1 = +sqrt(1-PF_m1^2) % Tre pha
Eff_m1 = 0.9
Pout_m1 = 3*746 % 1hp=746W
P_m1 = Pout_m1/Eff_m1
S_m1 = P_m1/PF_m1
Q_m1 = S_m1*sinphi_m1

% Dong co 2
PF_m2 = 0.75 % cosphi_m1
sinphi_m2 = +sqrt(1-PF_m2^2) % Tre pha
Eff_m2 = 0.8
Pout_m2 = 2*746 % 1hp=746W
P_m2 = Pout_m2/Eff_m2
S_m2 = P_m2/PF_m2
Q_m2 = S_m2*sinphi_m2

P_m12 = P_m1 + P_m2
Q_m12 = Q_m1 + Q_m2
S_m12_complex = P_m12 + i*Q_m12 % Tinh S tong tu P va Q
S_m12 = abs(S_m12_complex)
I_m12_complex = conj(S_m12_complex/Vd/sqrt(3)) % Lay tri lien hiep: S = sqrt(3)*Vd.Id*
I_m12 = abs(I_m12_complex)
phi_m12 = -angle(I_m12_complex)*(180/pi) % Chuyen doi tu radian->degree

disp('----------Cau iii/ Tu bu Tram bom nuoc)')
% Lap tu bu de PF = 1
Q_bu = Q_m12
Zc = 3*Vf^2/Q_bu % Q_bu = 3*Vf^2/Zc
f = 50 % Hz
C_bu = 1/2/pi/f/Zc

disp('----------Cau iv/ Tong tai)')
P_tong_3pha = P_10den + P_m12
Q_tong_3pha = Q_10den + Q_m12
% Cong suat bieu kien S_tong va Dong dien I_tong can phai tinh cho tung pha
% Pha 1 va Pha 2: Chi cap dien cho dong co
P_tong_pha1 = P_m12/3
Q_tong_pha1 = Q_m12/3
S_tong_pha1 = S_m12/3
I_tong_pha1 = I_m12
phi_tong_pha1=phi_m12

% Tinh cho Pha 3:
P_tong_pha3 = P_m12/3 + P_10den
Q_tong_pha3 = Q_m12/3 + Q_10den
S_tong_pha3_complex = P_tong_pha3 + i*Q_tong_pha3 % Tinh S tong tu P va Q
S_tong_pha3 = abs(S_tong_pha3_complex)
```

```
I_tong_pha3_complex = conj(S_tong_pha3_complex/Vf) % Lay tri lien hiep: S = V.I*
I_tong_pha3 = abs(I_tong_pha3_complex)
phi_tong_pha3 = -angle(I_tong_pha3_complex)*(180/pi) % Chuyen doi tu radian->degree

disp('Ket qua _____')
TEXT = sprintf('i/ Chieu sang:  S_10den = %f VA', S_10den); disp(TEXT)
TEXT = sprintf('i/ Chieu sang:  I_10den = %f<%f A', I_10den, -phi_10den); disp(TEXT)
TEXT = sprintf('i/ Chieu sang:  PF_10den = %f', PF_den); disp(TEXT)
TEXT = sprintf('i/ Chieu sang:  P_10den = %f W', P_10den); disp(TEXT)
TEXT = sprintf('i/ Chieu sang:  Q_10den = %f VAr', Q_10den); disp(TEXT)

TEXT = sprintf('ii/ Tram bom nuoc:  S_m12 = %f VA', S_m12); disp(TEXT)
TEXT = sprintf('ii/ Tram bom nuoc:  I_m12 = %f<%f A', I_m12, -phi_m12); disp(TEXT)
TEXT = sprintf('ii/ Tram bom nuoc:  PF_m12 = %f', P_m12/S_m12); disp(TEXT)
TEXT = sprintf('ii/ Tram bom nuoc:  P_m12 = %f W', P_m12); disp(TEXT)
TEXT = sprintf('ii/ Tram bom nuoc:  Q_m12 = %f VAr', Q_m12); disp(TEXT)

TEXT = sprintf('iii/ Tu bu:  Q_bu = %f VAr', Q_bu); disp(TEXT)
TEXT = sprintf('iii/ Tu bu:  C_bu = %f uF', C_bu*1e+6); disp(TEXT)

TEXT = sprintf('iv/ Tong:  S_tong_pha1,2 = %f VA', S_tong_pha1); disp(TEXT)
TEXT = sprintf('iv/ Tong:  I_tong_pha1,2 = %f<%f A', I_tong_pha1, -phi_tong_pha1); disp(TEXT)
TEXT = sprintf('iv/ Tong:  PF_tong_pha1,2 = %f VA', P_tong_pha1/S_tong_pha1); disp(TEXT)
TEXT = sprintf('iv/ Tong:  P_tong_pha1,2 = %f W', P_tong_pha1); disp(TEXT)
TEXT = sprintf('iv/ Tong:  Q_tong_pha1,2 = %f VAr', Q_tong_pha1); disp(TEXT)

TEXT = sprintf('iv/ Tong:  S_tong_pha3 = %f VA', S_tong_pha3); disp(TEXT)
TEXT = sprintf('iv/ Tong:  I_tong_pha3 = %f<%f A', I_tong_pha3, -phi_tong_pha3); disp(TEXT)
TEXT = sprintf('iv/ Tong:  PF_tong_pha3 = %f VA', P_tong_pha3/S_tong_pha3); disp(TEXT)
TEXT = sprintf('iv/ Tong:  P_tong_pha3 = %f W', P_tong_pha3); disp(TEXT)
TEXT = sprintf('iv/ Tong:  Q_tong_pha3 = %f VAr', Q_tong_pha3); disp(TEXT)
```