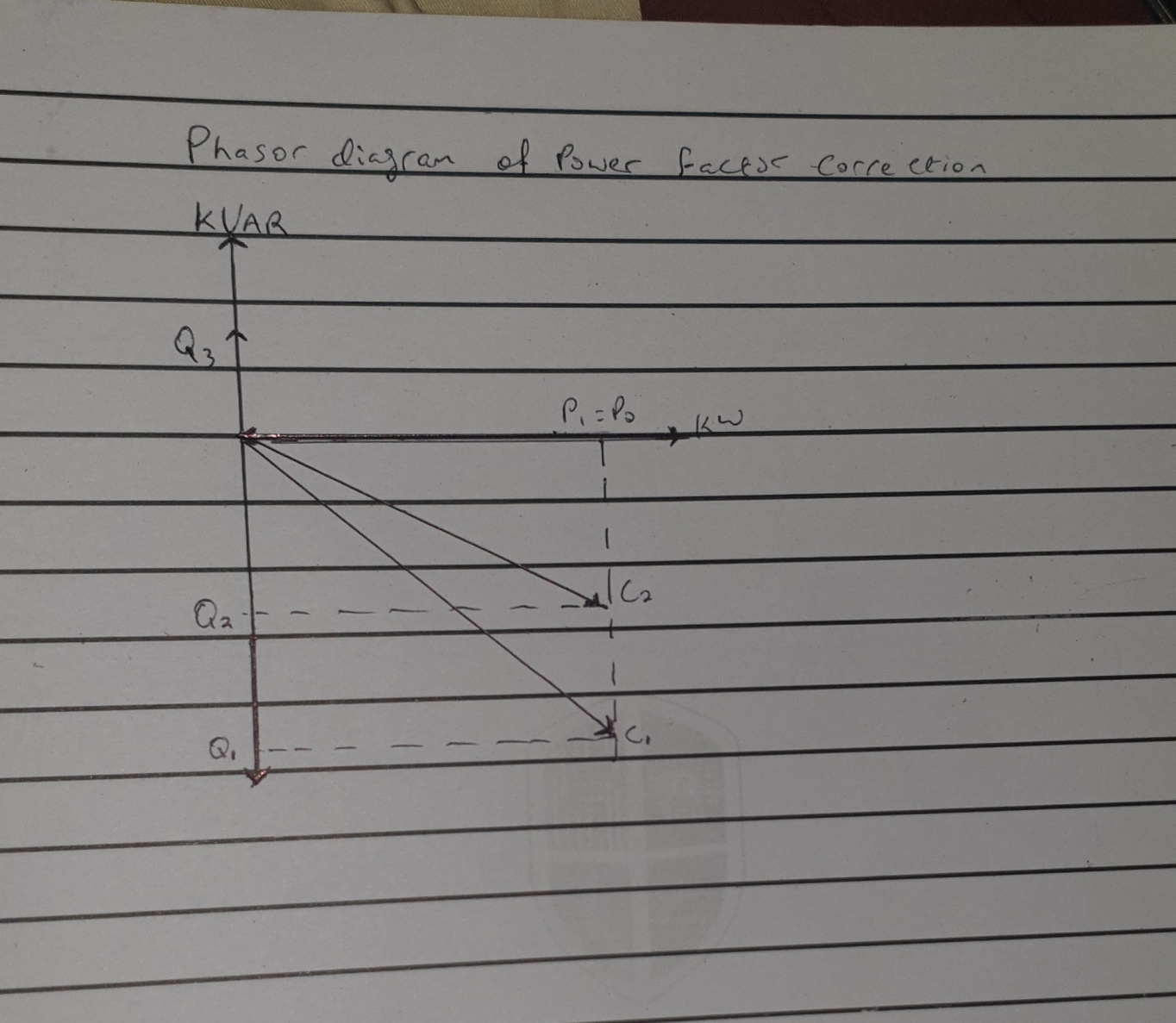
NAME: YAKUBU NATHAN BALA

MATRIC NO:17/ENG04/076

DEPT: ELECT/ELECT

**QUESTION 1**



POWER FACTOR CORRECTION PHASOR DIAGRAM

**QUESTION 2**

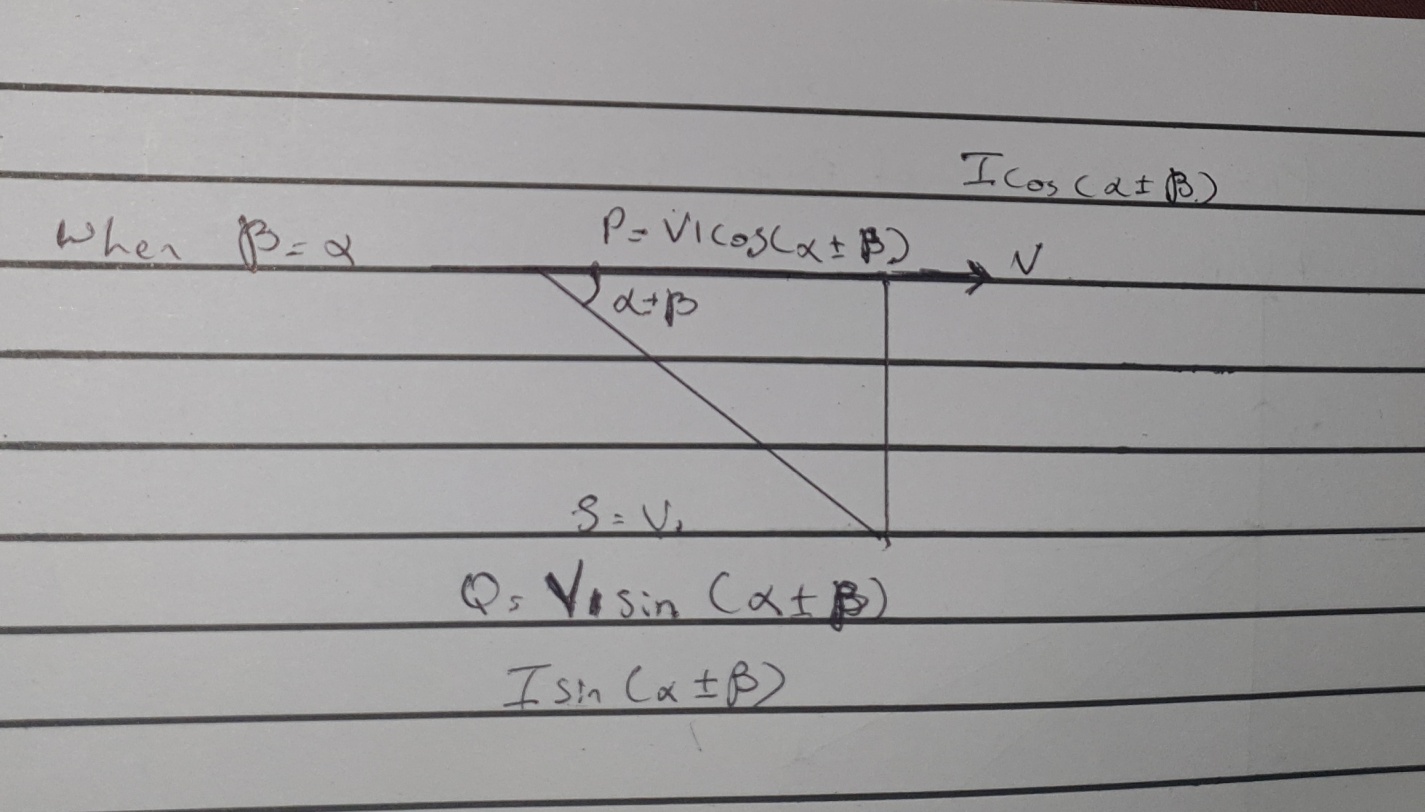
The power factor is the ratio of the real power factor that is used to do work and apparent power that is supplied to the circuit. The power factor can get values in the range from 0 to 1. The power factor to apparent power, measured in kilo volts ampere (KVA). Apparent power, also known as demands, is the measure of the amount of power used to run machinery and equipment during a certain period. It is found by multiplying (KVA=VxA). The results are expressed as KVA units

**QUESTION 3**

When



When



When

## 

**QUESTION 4**

P=VI COS ()

Q=VI SIN ()

P= active power

Q= reactive power

**QUESTION 5**

* To manage full capacity of transformers, switches, conductors as it lowers the capital investment and crucial cost
* To improve voltage
* To reduce the energy loss in the conductors
* To reduce the cost electrical energy when electricity varies with the power facror at the meeting point

**QUESTION 6**

Reactive power is needed in an industrial complex with numerous induction motors so as to control the voltage in an electrical power system and is important for proper operation for electrical power equipment to prevent damage such as over-heating of generators and motors, to reduce transmission losses and to maintain the ability of the system to withstand and prevent voltage collapse

**QUESTION 7**

True power= 0.4x5x= 2mw

Required capacitor KVAR(C)= P (

=2 x(2.29-0.78)

=3020KVAR

Reactive power(Q)= p sin (

=2x

=9.58KVAR

**QUESTION 8**

The load flow study determines the voltages, current, power, and reactive power in various points and branches of the system under simulated conditions of normal operations. The load studies are essential in optimizing existing network ensuring an economical and efficient distribution of loads and plan failure network

**QUESTION 9**

Required capacitor KVAR(C)= p (

=100x(0.62-0.33)

=29KVAR

Reactive power (Q)= p

100x

=23KVAR

NB: The NUC should advise the government to accept improved power factor and avoid all punishments

**QUESTION 10**

Present day improvement of new innovation, hardware, and materials in the field of electrical engineering has permitted a new gander at the issue of expanding financial proficiency, operational unwavering quality, natural execution, and culmination of versatile impetus for helicopter drive trains. Considering the higher prerequisites in regards to unwavering quality and adaptation to internal failure, we utilize positional control or torque control engine regularly and expect criticism to confirm right engine position servo of stepper engines are the best choice for media communications, applications, yet a DC engine with input or an inverter obligation air AC MOTOR with an encoder frequently is utilized for tight torque control in steel or paper line just as comparable applications.