

NAME :

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ID :

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SEMESTER :

6<sup>th</sup>

SUBJECT :

HIGH VOLTAGE

ASSIGNMENT :

2

INSTRUCTOR :

Eng. SAJID NAWAZ

QUESTION: 1

ANSWER:

ISOLATOR AND CIRCUIT BREAKER

Both isolator and circuit breaker are switching device and are installed to operate when any of equipment of power station is needed to be maintained or any fault has occurred.

DIFFERENCE BETWEEN ISOLATOR

AND CIRCUIT BREAKER:

ISOLATOR

CIRCUIT BREAKER

Circuit breaker is on on-load device

Circuit breaker is an on-load device.

It means that isolator cannot be operated when load is connected i-e

It means that the circuit breaker operates when the load is connected or when current is flowing.

Therefore, Isolator shall only be

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operated when that  
circuit is disconnected  
from load and  
current is not  
flowing through circuit

⇒ Isolator is  
manually operated  
"  
"  
"  
"

⇒ Circuit breaker  
is auto  
operated by a  
relay or  
electro-mechanical  
mechanism

# QUESTION: 2

## ANSWER: 2

PROS & CONS OF OVERHEAD LINES & UNDERGROUND CABLES:

OVERHEAD LINES

UNDERGROUND CABLES

### FAULT LOCATION

As the overhead lines is visible, it is easy to find the location of the fault.

As the underground cables are invisible, it is very difficult to find the location of the fault.

### SAFETY

This system is less safe as the conductors placed on the towers.

This system is more safe as the conductors placed on the towers.

# MAINTENANCE COST

In this system, no need to dig at the time of maintenance. Hence for the same number of fault the maintenance cost is less.

In the system to find the fault digging is compulsory. It increase labour cost, hence for the same number of faults, the maintenance cost is more.

# USEFUL LIFE

In this system useful life is approximately 20 to 25 years.

Useful life is approximately 40 to 50 years.

# FLEXIBILITY

This system is more flexible. Because the expansion is easily possible.

This system is not flexible. The expansion cost is nearly equal to the new erection of the system.