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20 Electrical Engineering Interview Questions & Answers

1) What happens when two positively charged material is placed together?

When two positively charged material place together it will repel.

2) What is referred to the electron in the outer orbit?

Electron in the outer orbit is known as valence.

3) Define the term Capacitance and Inductance?

- **Capacitance:** It is the amount of charge that is stored inside a capacitor at a given voltage.
- **Inductance:** It is defined as the property of a coil to resist any changes in electric current flowing through it. Mutual inductance happens when a secondary coil opposes current change in the primary coil.

4) Mention what is the difference between generator and alternator?

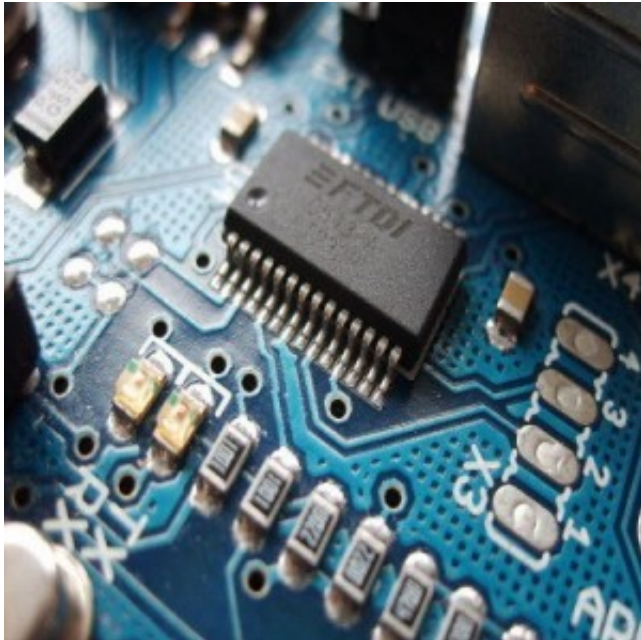
Both generator and alternator work on the same principle they convert mechanical energy into electrical energy.

- **Generator:** It converts induced emf (Electro Motive Force) into direct current, where it based on stationary magnetic field and revolving conductor which rolls on the armatures with slip rings and brushes riding against each other.
- **Alternator:** It has rotating magnetic and stationary armature for high voltage and stationary magnetic field and a rotating armature for low voltage

5) Mention what are the different kind of cables used for transmissions?

Cables are categorized into three forms according to its thermal capacity

- Low tension cables- transmits voltage upto 1000 volts
- High tension cables- transmits voltage up to 23000 volts
- Super tension cables- transmits voltage up to 66kv to 132kv



6) Mention what are the different colors on wires indicates?

This is a must know question for any good Electrical Engineer

- **Black wire:** This wire is used for power supply in all circuits. Any circuits with this color is considered **hot or live**. It is never used for a neutral or ground wire.
- **Red wire:** This color wire is a secondary live wire in a 220 volt circuit and used in some types of interconnection. You can join the red wire to another red wire or to a black wire
- **Blue and Yellow wire:** These wires are also used to carry power but are not wiring the outlets for common plug-in electrical devices. They are used for the live wire pulled through the conduct. You will see yellow wire in the fan, structure lights, and switched outlets.
- **White and Gray:** This color wire is used as a neutral wire. It carries the current (unbalanced load) to the ground. You can join white and gray only to other white and gray wires
- **Green:** It is connected to the grounding terminal in an outlet box and run from the outlet box to the ground bus bar within an electric panel

7) Explain RLC circuit?

An RLC circuit carries an electrical circuit consisting of a resistor (R) and inductor (L) and a capacitor (C), connected in parallel or series. This circuit is called a second order circuit as any

voltage or current in the circuit can be described by a second order differential equation.

8) Explain how you decide what size of electrical wire do you need?

Wire is sized by American Wire Gauge system. Your installation of conductors will depend on a few factors like gauge of the wire, wire capacity, etc. For wires, smaller the wire gauge larger the ampacity or capacity of the wire to handle current. For example, low voltage lighting and lamp cords will have 18 gauge, electric furnaces or large electric heaters are of 6 gauge.

9) Mention what are the types of semi-conductors?

There are two types of semi-conductors intrinsic and extrinsic. Again in extrinsic semi-conductors you will have N-type semiconductors and P-type semiconductors.

10) Explain what is transistors comprised of?

Transistors are comprised of several combination of n-type and p-type semi-conductors.

11) Mention what is the role of transistor in Circuit?

Transistor has the ability to amplify the current, due to the reason that output power can be higher than the input power.

12) Mention how NPN and PNP transistor works?

In a circuit when NPN is used,

- No current flowing from A to D = No flow from X to Z
- Current flowing from A to D = Current allowed to flow from X to Z

When PNP is used,

- No current flowing from A to D = Current is allowed to flow from X to Z
- Current flowing from A to D = No current flow from X to Z

13) What will be the current if the resistance total in a series circuit doubles?

If the resistance total in a series circuit doubles the current will reduce to half.

14) What happens if the series current double?

If the series current gets double then, the resistance is halved.

15) Explain what does a string of resistors in a series will do?

When a string of resistors in a series will divide the source voltage into proportion to their values.

16) What is meant by reverse polarity and how it can be fixed?

Reverse polarity is referred in a condition where one or more of your receptacles are connected incorrectly. To fix the reverse polarity, check the wire connection at the outlet and inspect your receptacle. A receptacle with reverse polarity will have the white wire screwed to the hot side and the black wire will be connected to the neutral side, if that the case swap the wires and it will resolves the problem. If it persists, a licensed electrician will be needed.

17) Explain what rectifiers is and what are the types of rectifiers?

A rectifier is an electrical device that transforms A.C or alternating current into direct current (D.C), which flows in only one direction. The types of rectifiers are

- Half wave rectifier: It uses one p-n junction
- Full wave rectifier: It uses two p-n junction

18) Explain what is Zener diode?

Zener diode is a type of seme-conductor diode that allows current to flow in the opposite direction when exposed to enough voltage.

19) Mention the difference between Analogue and Digital circuit?**Analogue**

- These circuits operate on continuous valued signals
- No conversion of the input signal required before transmitting, the circuit directly executes various logical operations and produces an analogue output
- There is no probability of losing any information as there is no conversion
- Analogue lacks flexibility

Digital

- These circuits operate on the signal which exist at two level 0's and 1's
- Before the signal is transmitted, it is converted into digital form.
- During signal conversion, amount of information is lost
- Digital circuits anticipate high flexibility

20) Explain what is laser diodes?

Laser diodes are compact transistor like packages with two or more electrical leads. Lasing occurs when stimulated emission results into the amplification of photon confined to the lasing mode. These photons hit back and forth between the back and front mirror, and hence a diverging beam emits from the laser diode packages.