By OnlineInterviewQuestions.com

Plc Interview Questions

This is an era of technology and everyone relies on technology. Technology has changed mankind a lot. Technology has the immense effect on mankind. It has basically given birth to new mankind in which men just have to design certain tools or devices for their work and then command them to work accordingly

One such device, which has the immense effect and is based on logical technology in the field of different industries, is PLC. PLC is abbreviated form of Programmable Logic Controller or Programmable Controller. It is a type of computer.

But it is not an ordinary computer; it is a digital computer which has been designed especially for industries which deal with the manufacture of assembly lines for video games, automobile devices etc. and for designing certain devices which are used to manufacture robots and has easy programming and diagnosis.

For the first time, they were developed and used by an automobile industry in order to provide flexible, simple and easily programmable controls which could replace the hard and complex computers, sequencers and timers.

Read Common PLC Interview Questions

Q1. What is PLC?

PLC is a digitalized computer used in industries to manufacture robotic and automobile devices. It is used in automation of certain electromechanical processes is which is it used as a device which controls electricity and is like a transducer for converting electrical energies to mechanical energies. In order to work efficiently and to make the program easy, the language of PLC is designed logically and their language resembles to the ladder logic diagrams.

Q2. What are different components Of PLC?

Different components of PLC include:
- **Input/output Modules:** These are basically the modules, which depend on the input and the output commands given by the user.
- **Power Supply:** As the name suggest; power supply is the work of supplying power to be specific supplying DC current, which operates the PLC.
- **Central Processing Unit (CPU** As it is CPU, it will work as brain of the computer and will supply and store all the commands and the data given to the computer.
- **Co-processor Modules:** These are set of different microcomputers, which can do different programmes. Their main aim is the function PLC more properly and appropriately.
- **Software:** As the name suggests, software is the pioneer of PLC which stores and supplies all the

commands and data to the PLC and Co-processors.
- **Peripheral Device :** The peripheral device works for inputting data and other equipment which are needed to the monitor.

Q3. What are various applications of PLC?

The main application of PLC is in industries but other applications of PLC include:
- Driving Motors
- Light Lamps
- Button Switches
- Traffic Signals
- Water Draining Pumps
- Photo Sensors.

Since all of these have hard and complex machines to convert electric energy in mechanical energy, the hard machines are now replaced by the PLCs.

Q4. Who are leading suppliers of PLC?

There are 4 main countries, which supply PLCs:
- America
    - Allen Bradley
    - Texas Instrument
    - General Electric
- Europe
    - Siemens
    - Festo
- Japan
    - Toshiba
    - Mitshubishi
    - Omron
- India
    - Messung
    - Delta

Q5. How Do Fixed PLCs differ from modular PLCs?

Fixed PLCs are mostly designed to perform basic functions, which are to be completed in the industries. They are small and consist of a power supply and CPU.
On the other hand, modular PLCs have different independent systems and components and they have numerous I/O systems and they can be repaired easily.

Q6. What is redundancy in PLC?

Redundancy translates to the state of non-usefulness. For PLCs, when they are out of order or when they have certain flaws in them, they cannot be used. They then become useless and are said to be redundant. This state of PLCs is known as redundancy.

Q7. Which programmable languages are used in PLCs?

Each computer or rather, all kinds of software have their own programming language. These languages are unique and command the computer to produce outputs. These languages may or may not be same for all computers.
The programming languages used in PLCs are:

- Instruction List Programming
- Structured Text Programming
- Functional Block Programming
- Ladder Logic Programming
- Sequential Functional Chart

Q8. Differentiate between PLCs and DCS.

Here are a few considerable differences between the two:
- PLCs were invented much earlier than DCS.
- PLCs are used for electrochemical processors while DCS are used for Pneumatic/Single Loop Controls.
- PLCs have generally fixed scan time while the scan time for DCS is adjustable.
- PLCs are used for discrete controls and DCS are used for regulatory controls.

Q9. Differentiate between PLCs are Relays

The difference between PLC and Relay is given below:
- PLCs are much cheaper compared to relays.
- The PLCs are more efficient compared to relays.
- They are used more.
- PLCs can be repaired easily but it is hard to repair Relays.

Q10. Which PLC ranges are available in Rockwell?

The PLC ranges available in Rockwell are as follows:
- Micrologix 1000, 1200 and 1500 Series
- SLC: SLC 5/01, 5/02, 5/03.
- Pico: Non modular small PLCs

- Control Logix Flex Logic and Soft PLC.

Q11. **What is the RS LINX software used for?**

RS Linx software is generally a communicator between programming devices and the controllers themselves. It acts as a link between the both and hence it is extremely useful to pass commands. It can not only configure communication drivers but also view the already configured drivers and the active nodes. Tasks, which enable communication, are its forte. RS Linx software is renowned for performing tasks such as downloading, uploading, updating firmware, going online, sending messages and more.

Q12. **How are PLCs more advantageous than hard-wired Relay?**

In general, PLCs are smaller and cheaper compared to the Relays. They are also economically more stable than that of relays and they are very useful commercially. The PLCs are highly reliable and extremely easy to program which is often not the case with hard-wired relays. In simple words, PLCs can sustain in any kind of robust environment even with low maintenance but hard-wired relays are extremely specific in use.

Q13. **Which one would you prefer: 4-20 ma or 0-20 ma? Explain your answer.**

Use of a 4-20 ma signal results in easy detection of a cable break by the PLC. This is because it only returns 0 ma. On using a 0-20 ma signal, the PLC loses its ability to detect any cable break. Since the return value is 0 ma which is the same as input, the PLC thinks that the signal is working perfectly. That is why 4-20 ma is preferred over 0-20 ma.

Q14. **What is SCAN in PLC?**

SCAN is the procedure, which any sequential operation of the program controller must go through. It is the process of the operation going from the top to the bottom of the ladder in the ladder diagram. The process results in all updated outputs, which correspond to the given inputs. The process of SCAN takes place from the left to the right of each rung in the ladder diagram. Scan time is basically the total time needed to read the input, process the logic of the program and update the corresponding output in a single cycle. Generally, the time for SCAN is of the order milliseconds and it is a continuously running process.

Q15. **What is an HMI in PLC?**

The **HMI** is the Human Machine Interface. It basically allows the operators to interface or communicate with the system that they are overseeing. The HMI provides a pictorial overview of the status of the mechanical system as well as its operation's direct control. The graphical screens of the HMI can be so programmed as to allow the operator to view all-important statuses as well as control information. The HMIs make use of pictures, sounds, icons and solid colors in order to visually exemplify the various operating conditions. Many HMIs even deploy the advanced touch screen technology to improve the user's interaction with the elements displayed on-screen.

Q16. **List the advantages of PLC over Relays?**

The advantages of PLC over Relays are:

- Small size.
- Easy expandability.
- Simple programming.
- Economical in long term.
- High reliability.
- Ability to the interface.

Q17. Explain scan cycle of PLC?

The **scan cycle** is the cycle in which the PLC gathers the inputs, runs the PLC program, and updates the outputs. It basically checks on the hardware and software for faults, also called a self-test.

Q18. What is role of I/O modules in PLC?

I/O modules are used to provide I/O signal in the form of simple on and off instructions in PLC, such that an input module detects the status of input signals such as push-buttons, switches, temperature sensors, etc whereas an output module controls devices such as relays, motor starters, lights, etc.

Q19. What is LD in PLC?

LD stands for ladder diagram and is also known as Ladder logic. LD is a graphical programming language used to program a PLC in order to express the logical operations with symbolic notation.

Q20. What is MCR in PLC?

MCR stands for Master Control Reset. MCR is a type of instruction that is used in pairs to create zones that clear all set outputs within that zone or turns off all the non-retentive outputs in the zone.

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