Fuji Automatic Numerical Control (FANUC) SECE Practice Test (Sample)

Study Guide

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Questions

1. What are the Local levels of DCS Code numbers?

A. Position Check, Speed Check, and Functional Check

B. Base, Position/Speed Check, and I/O Connect

C. Master, Local, and User

D. Base only

2. What is a consequence of insufficient power supply in the robot's operation?

A. The robot will run at half speed

B. Error messages will frequently occur

C. Movement will be erratic

D. The robot may halt entirely

3. Which screen can be used to disable the Hand Broken alarm?

A. System/Config screen

B. Alarm Settings screen

C. Configuration Menu

D. Robot Settings screen

4. Assuming PR[10] contains a Cartesian position, what position register element is placed in R[1] when executing R[1] = PR[10;3]?

A. X

B. Y

C. Z

D. W

5. Is it true that in Local Mode, the controller cannot start from an external signal?

A. True

B. False

C. Only in certain cases

D. It can with specific configurations

6. What is the correct action to take when recovering from a DCS Joint Position Check alarm?

A. Reboot the system

B. Press SHIFT + RESET and jog towards the limit

C. Press SHIFT + RESET and jog away from the limit

D. Turn off the power supply

7. Which I/O is used when utilizing the EE connector on the robot?

A. Analog

B. Digital

C. Robot

D. External

8. In case of a software fault, what is the first recommended troubleshooting step?

A. Restart the robot

B. Check all electrical connections

C. Cycle controller power

D. Uninstall and reinstall software

9. What is the primary function of the System/Config screen on a FANUC controller?

A. To program robot movements

B. To configure system settings and alarms

C. To monitor robot performance

D. To store program files

10. Which of the following files is NOT a part of an ALL of Above (AoA) Backup?

A. SRAM00.ING

B. CONFIG.FAN

C. PARAM.ING

D. NC.PRG

Answers

1. B
2. D
3. A
4. C
5. A
6. C
7. C
8. C
9. B
10. A

Explanations

1. What are the Local levels of DCS Code numbers?

A. Position Check, Speed Check, and Functional Check

B. Base, Position/Speed Check, and I/O Connect

C. Master, Local, and User

D. Base only

The local levels of DCS (Dynamic Contour System) code numbers serve to categorize the types of checks and connections that can be performed within a system. The correct answer focuses on the necessary levels that represent specific functional areas in the DCS framework. "Base" refers to the fundamental level of operation, while "Position/Speed Check" and "I/O Connect" are critical components that ensure the machine operates correctly by monitoring both the positional accuracy and the speed of the motion as well as managing the input/output connections that interface with other parts of the system. This three-tier classification is essential for effective operational control, ensuring that the machine functions safely and efficiently by confirming that each of these areas is functioning as intended. In contrast to this choice, other options may present concepts or categories that do not directly align with the local levels recognized in DCS. Thus, the provided answer encapsulates the complete spectrum of checks and connections necessary for proper DCS operation.

2. What is a consequence of insufficient power supply in the robot’s operation?

A. The robot will run at half speed

B. Error messages will frequently occur

C. Movement will be erratic

D. The robot may halt entirely

When a robot operates under conditions of insufficient power supply, one of the primary consequences is that the robot may halt entirely. This is due to the fact that adequate power is essential for all the robot's functions, including its motors and control systems. When the power supply is insufficient, the robot cannot perform tasks effectively, and this can lead to a complete shutdown to prevent damage or failure. This safeguard is crucial in maintaining the integrity of the robot’s operations and preventing erratic movements or failures that might result from trying to operate without sufficient power. While other issues like reduced speed, frequent error messages, or erratic movements could theoretically stem from low power, the most definitive consequence is the complete halting of operation, illustrating the robot's reliance on a consistent and adequate power supply for functional performance.

3. Which screen can be used to disable the Hand Broken alarm?

A. System/Config screen

B. Alarm Settings screen

C. Configuration Menu

D. Robot Settings screen

The Hand Broken alarm in FANUC systems typically indicates that the robot's protective mechanisms have been activated due to a specific safety concern. Disabling or configuring such alarms is essential for maintaining appropriate safety settings and ensuring that the robot operates within the desired parameters. The System/Config screen is the correct choice for managing configurations related to alarms, including disabling the Hand Broken alarm. This screen usually provides access to various system settings where parameters and settings can be adjusted, including the handling of alarms. By navigating to this screen, operators can modify configurations that directly relate to the functioning of the safety mechanisms, including the Hand Broken alarm. The other screens mentioned do not generally provide the capability to modify alarm settings directly. The Alarm Settings screen typically allows for the monitoring of active alarms and historical data, but it may not enable users to change the state of specific alarms. The Configuration Menu may offer broader system configurations but is not necessarily the dedicated interface for alarm adjustments. Finally, the Robot Settings screen focuses primarily on parameters related to the robot's operation and performance, rather than alarm management. In summary, using the System/Config screen allows for the proper handling of safety alarms, making it the correct choice for disabling the Hand Broken alarm.

4. Assuming PR[10] contains a Cartesian position, what position register element is placed in R[1] when executing R[1] = PR[10;3]?

A. X

B. Y

C. Z

D. W

When executing the command R[1] = PR[10;3], you are retrieving a specific element from the position register PR[10]. The notation PR[10;3] indicates that you are accessing the third element of the position register that is stored in PR[10]. In FANUC systems, position registers typically consist of multiple elements that correspond to different axes of movement in a Cartesian coordinate system. Specifically, they usually are organized as follows: 1. The first element corresponds to the X axis. 2. The second element corresponds to the Y axis. 3. The third element corresponds to the Z axis. 4. The fourth element, if applicable, corresponds to the W axis. Since the command specifies the third element with PR[10;3], it specifically retrieves the Z-axis position from the position register PR[10]. Therefore, R[1] will contain the value associated with the Z-axis position from that register. This understanding of the structure of position registers and their indexing system clarifies that the correct choice is the option referring to the Z component.

5. Is it true that in Local Mode, the controller cannot start from an external signal?

A. True

B. False

C. Only in certain cases

D. It can with specific configurations

In Local Mode, the controller operates under certain limitations compared to other modes of operation, such as Remote Mode. One primary characteristic of Local Mode is that it is designed for manual control typically at the machine tool itself, rather than being controlled externally through signals or a network. This means that external signals that would normally trigger the controller to start its operations are not applicable in Local Mode. For a system to initiate operations in Local Mode, it relies entirely on manual input from the operator, and external triggers are effectively bypassed. This design is intentional to provide a more controlled and isolated environment for testing or manual operation without the complications that can arise from automated external interactions. It is important to note that in other modes, such as Remote Mode, the controller can indeed start based on external signals, allowing for greater automation and integration within broader manufacturing systems. Additionally, if configurations were needed to enable such functionality in Local Mode, it would still contradict the fundamental operating principles of that mode, further supporting the assertion that the controller cannot start from an external signal while in Local Mode.

6. What is the correct action to take when recovering from a DCS Joint Position Check alarm?

A. Reboot the system

B. Press SHIFT + RESET and jog towards the limit

C. Press SHIFT + RESET and jog away from the limit

D. Turn off the power supply

When recovering from a DCS (Dynamic Collision Sensor) Joint Position Check alarm, the correct action involves pressing SHIFT + RESET and jogging away from the limit. This action helps ensure that the robot is moved away from the detected collision area or limit, allowing the system to reset and confirm that it can safely continue operation without risk of further incidents. Jogging away from the limit is crucial because it allows the robot to return to a safe position where it can be verified that no obstructions or issues exist that might trigger additional alarms. This proactive approach helps maintain the integrity of the robotic system and enhances safety by preventing further complications. Other options, such as rebooting the system or turning off the power supply, do not directly address the cause of the alarm. These actions could lead to a temporary reset but would not resolve the underlying positioning issue that caused the alarm to be triggered in the first place. Additionally, jogging towards the limit could exacerbate the situation, risking further collisions or damage to the robotic components. Thus, the most effective and appropriate action is to jog away from the limit after pressing RESET.

7. Which I/O is used when utilizing the EE connector on the robot?

A. Analog

B. Digital

C. Robot

D. External

The EE connector on FANUC robots typically refers to "Expandability" or "External Equipment" connectors used for integrating additional peripherals or external devices with the robot system. This connector allows for seamless communication and data exchange between the robot and these external components, enabling enhanced functionality in automation tasks. Correctly identifying the I/O used with the EE connector as "Robot" emphasizes that this connector is specifically designed for the robot's communication with its added functionalities, making it integral for robot applications. It signifies that the data and signals exchanged through this connector are centered around the robot's operations and its interaction with other systems, which is critical for precise control and operations in automated environments. Other options may reference types of signals, but they do not capture the primary function of the EE connector as accurately as identifying it as related to the robot itself. The focus on robot-specific I/O highlights the unique purpose of enabling enhanced control and communication, vital for achieving optimal performance in complex automation systems.

8. In case of a software fault, what is the first recommended troubleshooting step?

A. Restart the robot

B. Check all electrical connections

C. Cycle controller power

D. Uninstall and reinstall software

In the event of a software fault, cycling the controller power is often the first recommended troubleshooting step. This action effectively resets the system, allowing it to reload the software and its configurations afresh. It's common for temporary software glitches or conflicts to occur, and powering down and restarting can often resolve these issues without the need for more involved troubleshooting. Restarting the robot or uninstalling and reinstalling software tends to be more time-consuming and may not be necessary if a simple power cycle can address the problem. Checking all electrical connections is also vital but typically follows after software-related solutions, especially if the initial reboot does not rectify the issue. Therefore, cycling the controller power is seen as the most efficient first step in troubleshooting software faults.

9. What is the primary function of the System/Config screen on a FANUC controller?

A. To program robot movements

B. To configure system settings and alarms

C. To monitor robot performance

D. To store program files

The primary function of the System/Config screen on a FANUC controller is to configure system settings and alarms. This screen provides users with access to various configuration options that allow for the adjustment of the controller's parameters, such as communication settings, system options, and alarm management. Configuring system settings is critical for ensuring that the controller operates correctly and efficiently for the specific application it is being used for. Users can customize settings related to the robot's operation, safety parameters, and connectivity with external devices. Additionally, managing alarms is essential, as it helps users quickly troubleshoot issues that may arise during operation, allowing for timely maintenance and minimizing downtime. The other choices pertain to functionalities that, while important, do not reflect the primary purpose of the System/Config screen. Programming robot movements and monitoring performance are typically handled through different interfaces or screens specifically designed for those tasks, while storing program files is related to data management functions independent of system configuration.

10. Which of the following files is NOT a part of an ALL of Above (AoA) Backup?

A. SRAM00.ING

B. CONFIG.FAN

C. PARAM.ING

D. NC.PRG

The file that is not part of an ALL of Above (AoA) Backup is SRAM00.ING. An ALL of Above Backup typically includes essential files that are necessary for the complete restoration of a FANUC system, encompassing settings, parameters, and programs that define the machine's operation. CONFIG.FAN contains configuration settings for the system and is crucial for determining how the control operates. PARAM.ING contains parameter data, which are critical for the machine's performance and characteristics. NC.PRG is the part program file that includes specific instructions for the machine to execute tasks, making it necessary for the operation of the CNC machine. In contrast, SRAM00.ING is typically a file used for specific SRAM (Static Random-Access Memory) data, which is not included in the standard ALL of Above Backup process. The AoA Backup focuses on the core operational files that ensure that all necessary settings and programs are saved for comprehensive system recovery.