Important: All volunteers supporting regular season events in the United States and Canada must be screened and assigned using the Volunteer Management System and are required to complete their certification test using the online volunteer certification system.

This test is provided publicly for team use and volunteer certification as needed at events outside of the United States and Canada.

Revision History	
Revision	**Description**
V25-26.1	Initial 2025-26 Season Release

Questions

General

Q1. The FTA is responsible for advising the Volunteer Coordinator about level of staffing for multiple roles and should be prepared to cover if not staffed. Which role is the FTA ***not*** responsible for?
   A. Field Supervisor
   B. Referee
   C. CSA
   D. Technical Director
   E. WTA

Q2. Which of the following are ***not*** responsibilities of the FTA?
   A. Leading Field Operations and related volunteers
   B. Ensuring a safe and supportive event experience
   C. Ensuring accurate application of game rules
   D. Leading CSAs and advise teams on technical matters

Q3. After an event, which of the following are ***not*** possible responsibilities of the FTA?
   A. Lead teardown of the arena
   B. Report successes and issues to the local Program Delivery Partner
   C. Report successes and issues to Global Key Technology volunteers and *FIRST* staff
   D. Hand-deliver event results to *FIRST* HQ

Field Operations

Q4. Which of the following statements is true about the qualification match schedule? (Select all that apply)
- A. All matches must start at exactly the scheduled time
- B. It is occasionally worth it to delay proceedings to ensure all teams can participate
- C. The goal is to be within +/- one match of the scheduled times
- D. Teams that are not initialized by the scheduled match time will immediately incur a G301 match delay violation

Q5. At an event with a single FTA and no Field Supervisor staffed, which of the following tasks should the FTA prioritize?
- A. Pre-match setup and triage
- B. In-depth technical support
- C. Optimizing the flow of people through the arena
- D. Competition playing field repair

Q6. Which of the following statements are ***not*** true about DISABLED robots?
- A. Before a match begins, the FTA and Head Referee may invite a team to remove their disabled robot from the playing field
- B. During a match, the FTA can declare a robot to be disabled if they observe a loss of connection or other technical issue that affects the robot
- C. The FTA can instruct a team to stop their robot if they observe a safety hazard
- D. The FTA should inform the Head Referee as soon as possible if a robot is non-functional during a match

Q7. Which of the following statements are true about Electrostatic Discharge (ESD)? (Select all that apply)
- A. ESD is not a concern at *FIRST* Tech Challenge events
- B. ESD is more likely at events where the relative humidity inside the venue (at comfortable room temperature) is 30% or lower
- C. Teams may use approved resistive grounding straps to connect their robot's frame to the 12V robot power system
- D. Teams may use approved resistive grounding straps to connect their robot's frame to the playing field tiles
- E. *FIRST* recommends the use of commercial anti-static spray at events where the relative humidity at room temperature is below 40%

Triage

Q8. Which of the following actions can the FTA take during a match? (Select all that apply)
- A. Observe robots from outside of the field and communicate with teams
- B. Touch or remove non-functioning robots from the playing field with permission from the team
- C. Interrupt the match to address a technical issue or non-functioning robot
- D. Notify teams of rule violations
- E. Answer questions from teams related to gameplay rules

Q9. Which of the following game rules should the FTA be an expert in?
- A. T301: MATCH replays are only allowed in extreme circumstances due to an ARENA FAULT or for MATCHES which are stopped because FIELD STAFF anticipated FIELD damage or personal injury
- B. G210: Actions clearly aimed at forcing the opponent ALLIANCE to violate a rule are not in the spirit of FIRST Tech Challenge and not allowed
- C. G422: A ROBOT may not PIN an opponent's ROBOT for more than five seconds.
- D. G430: DRIVE COACHES may not contact SCORING ELEMENTS, unless for safety purposes

Q10. Two or more robots stop functioning during a match. The FTA should:
- A. Recommend replaying the match to the Head Referee due to the unusual circumstance of two robots stopping during the same match
- B. Investigate the causes of the issues while the match continues if it can be done in a safe manner and doesn't affect gameplay
- C. Focus on the robots that are still functioning
- D. Ask the game announcer to end the match early

Q11. Which of the following data are ***not*** useful when triaging a non-functioning robot?
- A. Ping times displayed on the Driver Station device
- B. LED blink codes displayed on the REV Control Hub or REV Expansion Hub
- C. Connection status displayed on Field Control System operator's monitor
- D. Configuration (Mode light and Input Mode Switch) of the team's gamepads
- E. Battery voltage indicators displayed on the Driver Station device

Wireless Environment

Q12. When should the FTA, Technical Director, or WTA meet with the venue's IT staff and conduct a Wi-Fi environment survey?
   A. During event setup
   B. At least a week prior to the event
   C. Once before the first time an event hosts a *FIRST* Tech Challenge event
   D. Never, a site survey is not necessary

Q13. Wireless communication between the ROBOT CONTROLLER device and the DRIVER STATION device use which technology?
   A. Bluetooth
   B. Wi-Fi
   C. IR Data Transmission
   D. 900 MHz R/C

Q14. Which of the following statements are ***false*** about monitoring the Wi-Fi environment during an event?
   A. The WTA, if staffed, is responsible for monitoring the Wi-Fi environment
   B. The Technical Director, if staffed, is responsible for managing WTA volunteers and the Wi-Fi environment
   C. If neither the Technical Director nor WTA role is staffed, the FTA should prioritize issues with the Wi-Fi environment that affect team experience
   D. Issues with the Wi-Fi environment only occur at events with more than 40 teams

Q15. What is the recommended minimum 2.4GHz Wi-Fi channel spacing when using multiple channels to run a competition?
   A. 1 (Channels 1, 2, 3, 4, etc.)
   B. 3 (Channels 1, 4, 7, 10)
   C. 5 (Channels 1, 6, 11)

Q16. The Wi-Fi pairing between the Robot Controller and Driver Station devices should typically be performed with the:
   A. *Pair Robot Controller* activity that is available from the Settings menu of the Driver Station app
   B. Red button on top of the Samantha Wi-Fi module
   C. Android Wi-Fi menu on the Robot Controller
   D. Wi-Fi pairing is not needed at *FIRST* Tech Challenge competitions

Q17. Prior to the start of the match, several teams cannot establish and/or maintain a Wi-Fi connection between their Driver Station and Robot Controller devices. Which is the most unlikely cause?

A. A high concentration of Android devices are attempting to establish a Wi-Fi connection on the same channel
B. Active environmental interference (e.g. welding nearby, faulty lighting ballasts, etc…)
C. The venue's wireless network may have access point blocking protocols in effect
D. Teams are holding their Android devices upside down

Q18. An indication of Wi-Fi connection quality is the measured ping time between the Driver Station and Robot Controller devices as shown on the Driver Station app. Ping times associated with poor wireless connection quality are typically:

A. 25 msec or more
B. 100 msec or more
C. less than 250 msec
D. 250 msec or more

Q19. Which is a potential source of Wi-Fi interference?

A. Wireless access points that belong to the venue
B. Unauthorized team or spectator access points
C. Mobile hotspots
D. Wi-Fi enabled cameras or other devices such as Gameboys or R/C toys
E. All are sources of Wi-Fi interference

Q20. Which are potential sources of non-Wi-Fi interference? (Select all that apply)

A. Bluetooth devices
B. Wireless audio/visual systems
C. Remote control cars, quadcopters, etc.
D. Microwave ovens

Q21. Assigning teams to two or more Wi-Fi channels is recommended for competitions with:

A. Two or more Competition playing fields
B. More than 40 robots
C. More than 50% rookie teams.
D. Competition playing fields that are adjacent to the pit area

Q22. Which of the following may cause lag or other communication problems between the Driver Station and Robot Controller? (Select all that apply)

A. The Robot Controller is connected to a wireless Android Debug Bridge (ADB) network
B. More than 40 robots are operating on the same Wi-Fi channel
C. Adjacent Wi-Fi channels have a lot of Wi-Fi activity
D. Radio signals between the Driver Station and Robot Controller are blocked or screened by large sheets or pieces of metal

Q23. *FIRST* has observed an increase in the number of venues that use Wi-Fi Blocking protocols. Which of the following statements are true? (Select all that apply)

A. *FIRST* Tech Challenge robot communications are not affected by Wi-Fi Blocking protocols
B. Pre-event Wi-Fi surveys should include asking the venue's IT staff about the existence of Wi-Fi Blocking protocols. If possible, perform an onsite pre-event Driver Station/Robot Controller Wi-Fi connection test during the survey. If needed, ask the venue to turn off their Wi-Fi Blocking protocols during event setup and on competition days.
C. If possible, the event director and/or FTA should have a 24-hour contact telephone number for the venue's IT staff
D. It isn't necessary to conduct a Wi-Fi survey or check with the venue's IT staff if the venue hosted *FIRST* Tech Challenge tournaments in previous seasons
E. Wi-Fi Blocking protocols can prevent Wi-Fi connections from being established between the Driver Station and Robot Controller devices or cause those connections to be randomly lost
F. Teams who use REV Control Hubs with a REV Driver Hub are generally immune from most Wi-Fi Blocking Protocols

Control System

Q24. A team is having trouble connecting their Driver Station and Robot Controller devices. Which of the following is ***not*** a good first step for the FTA to perform?

A. Verify that the Robot Controller Android device is turned on
B. Verify that the Robot Controller Android smartphone (if used) is running the Robot Controller app
C. Verify that the Robot Controller app on an Android smartphone (if used) is in the foreground and not minimized
D. Verify that the Robot Controller device is in Airplane mode (Android smartphones only) with Wi-Fi enabled
E. Verify that the Driver Station and Robot Controller apps are compatible with each other (Driver Station App will indicate if compatibility is broken).
F. These are all good first steps.

Q25. The "Mode" button adjacent to the left joystick on the Logitech F310 gamepad serves the following function:

A. The "mode" button toggles the ROBOT operational status between "enabled" and "disabled"
B. An engaged "mode" button instructs the DRIVER STATION device to give the gamepad communication priority over the team's second gamepad
C. The "mode" button has no effect on the operation of the gamepad
D. An engaged "mode" button illuminates the green "mode" indicator light on the gamepad and swaps the outputs of the left analog joystick and the D-pad buttons

Q26. The "Input Mode Switch" on the bottom surface of the Logitech F310 gamepad should be in which position (FTC SDK version 9.0 and greater)?

A. Direct Input (D)
B. X Input (X)
C. Direct Input (D) and X input (X) are both acceptable positions
D. The Logitech F310 gamepad doesn't have an Input Mode Switch

Q27. Which of the following steps is critical when daisy-chaining two REV Expansion Hubs together?

A. The user checks the serial address of each Expansion Hub, and if necessary, changes the address of one of the Hubs to avoid an address conflict
B. The user reviews the Robot Controller log files before connecting the two Hubs together
C. The user connects a Logic Level Converter to one of the two Expansion Hubs
D. The user sets the physical primary/secondary switch on the Expansion Hubs to the appropriate position

Q28. The REV Control and Expansion Hubs operate using what digital logic level?

A. 1.65V
B. 3.3V
C. 5V
D. 12V

Q29. Unexpected ROBOT motion could be caused by (select all that apply):

A. Software programming issues such as uninterruptable loops or threads, or a missing "waitForStart()" statement
B. Gamepad joysticks that were not in a neutral position when they were initially connected to the Driver Station
C. A breach in the ROBOT'S waterproof electronics compartment
D. Wi-Fi interference

Q30. Is the Robot Controller device capable of connecting to more than one Wi-Fi device at the same time? For example, could a Driver Station device and a computer connect to the Robot Controller network at the same time?
- A. Yes
- B. No

Q31. Which of these statements are false about the Robot Controller log file (select all that apply):
- A. Is a very useful debugging tool for the FTA
- B. The REV Hardware Client filters output from the log file, showing only certain messages
- C. The REV Hardware Client displays error messages within the log file in red
- D. Can be viewed from the Robot Controller app on a Smartphone (if used)
- E. Indicates when the Wi-Fi connection to the robot is lost

Q32. The recommended minimum period to wait after powering down a REV Control Hub or Expansion Hub before turning it back on (power cycling) is:
- A. 1 second
- B. 5 seconds
- C. 30 seconds
- D. 60 seconds

Q33. Which of the following is ***not*** a possible reason why a Driver Station might lose wireless connectivity to its Robot Controller?
- A. Low battery on the Robot Controller or Driver Station device
- B. Improperly configured Driver Station device (could be connected to multiple networks)
- C. Disruption (reboot of the Robot Controller) due to an electrostatic discharge (ESD) event
- D. Gamepad on the Driver Station becomes unplugged
- E. Loose or disconnected wire supplying power to the REV Control Hub

Q34. The RGB LED located on the REV Control or Expansion Hub provides user feedback regarding its status. Which of the following are correct LED codes for firmware version 1.07.0 or higher? (Select all that apply)
- A. Blinking Orange: Battery voltage is lower than 7V. Either the 12V battery needs to be charged, or an Expansion Hub is running on USB power from a smartphone device only
- B. Red illumination pattern of 3 short, 3 long, and 3 short blinks: The Hub is in distress
- C. Solid Green with one or more blue blinks every five seconds: Hub has power and active communication with the Robot Controller app
- D. Solid Blue: Hub has power greater than 7V and it is waiting for communication with the Robot Controller app

Q35. Which of these statements are true about the electrical current capabilities for the REV Control Hub ports (select all that apply).

A. A servo port pair (e.g., ports 0 and 1) share a 2A maximum output
B. The six servo ports combined share a dedicated 5A maximum output
C. The two 5V auxiliary power ports share a dedicated 5A maximum output
D. The six servo ports plus the two 5V auxiliary power ports all combined share a 5A maximum output

Answer Key

Question	Correct Response	Explanation
Q1	B	The Head Referee will advise regarding staffing of Referees.
Q2	C	The Head Referee is responsible for application of game rules.
Q3	D	No plane ticket necessary.
Q4	B, C	See the Schedule Mindset section of the Field Operations Guide.
Q5	D	Competition playing fields in need of repair is usually the biggest threat to the efficient flow of matches. See the Roles and Responsibilities section of the Field Operations Guide.
Q6	B	Only the Head Referee can officially declare a robot "disabled."
Q7	B, C, E	See the Static Spray section of the Field Operations Guide.
Q8	A	The FTA is an observer during matches, except in cases of safety risks.
Q9	A	The FTA should advise the Head Referee on matters related to T301.
Q10	B	Report observations to the team and Head Referee.
Q11	C	There is no Field Control System.
Q12	B	Venue environments may change from season to season.
Q13	B	Also, the related Wi-Fi Direct (when pairs of smartphone devices are used)
Q14	D	Wireless environment issues can affect events of any size.
Q15	C	This spacing has no overlap in frequencies.
Q16	A	It may also be necessary to change the pairing mode in the Driver Station settings.
Q17	D	In general orientation doesn't affect pairing, assuming nothing is blocking the device's antenna.
Q18	D	At 250 msec or more, robot operation becomes extremely difficult.
Q19	E	Venue Wi-Fi that employs active channel management is especially difficult to troubleshoot
Q20	A, B, C, D	All have been observed to cause issues at a *FIRST* Tech Challenge event.
Q21	B	Team channels should avoid those used by venue and event equipment.
Q22	A, B, C, D	All have been observed to cause issues at a *FIRST* Tech Challenge event.
Q23	B, C, E, F	REV Control Hub and Driver Hub devices use 802.11w which is immune to the most common methods used by venue Wi-Fi blockers.
Q24	F	When using the REV Control Hub, the Robot Controller app should start automatically, this is indicated when the blue LED begins flashing.
Q25	D	Teams may prefer this mode, but it is often selected by mistake.
Q26	C	FTC SDK 9.0 added drivers for both Logitech selector modes
Q27	A	By default, all Expansion Hubs ship with the same serial address (2).
Q28	B	Logic-level converters are necessary for sensors that operate at 5V.
Q29	A, B	Water ingress and Wi-Fi interruption are not typical reasons for motion
Q30	A	Yes, and this is not allowed during a MATCH.

Q31	E	The log file itself does not indicate when a connection is lost, only when a socket is closed (which may be some time after the connection is lost).
Q32	B	Remember to wait at least 5 seconds before restoring power.
Q33	D	Gamepad and/or USB errors can prevent gamepads from working, but themselves should not cause the Wi-Fi connection to sever.
Q34	A, C, D	Earlier versions of the firmware do not support all blink codes.
Q35	A, D	Overdrawing a pair of servo ports is common for teams that aren't aware of these limitations.