1) Why did the workers at Fukushima Dai-Ichi remain calm during the March 11 Earthquake?

The workers stayed calm because they knew Japanese power plants are designed to withstand earthquakes. The reactors automatically shut down within seconds.

2) What was supposed to stop the nuclear fuel from melting?

High radioactivity of nuclear fuel rods means they generate intense heat even after a shutdown. So backup generators kicked in to power the cooling systems and stop the fuel rods from melting.

3) What did the fishermen know was coming following the earthquake? How did they react?

The fishermen knew a tsunami was coming.

They tried to protect their boats by heading out to sea.

4) How big and how fast were the waves heading for Fukushima?

The biggest of the waves was more than 40 feet (12 meters) high and traveling at over 100 miles (160 kilometers) per hour.

5) How much higher than the plant’s sea wall were the biggest waves that struck the plant?

The biggest was more than twice the height of the plant’s seawall.

6) What did a government committee of scientists warn TEPCO about? How did they respond?

TEPCO had been warned by a government committee of scientists in 2009 that its tsunami defenses were inadequate.

The company says it was still reviewing the matter when the disaster happened.
7) Where were most of the back-up diesel generators needed to power the cooling systems located? What problem did this cause?

Most of the backup diesel generators needed to power the cooling systems were located in basements.

They were destroyed by the tsunami waters, meaning the workers had no way of keeping the nuclear fuel from melting.

8) What did the managing director of TEPCO’s nuclear division acknowledge to FRONTLINE? How did he feel about their options for responding to the accident?

He acknowledged the company had never imagined that one of their nuclear plants could lose all power.

His gut feeling was that their options for responding were going to be rather limited.

9) Who was initially placed in charge of tackling the nuclear emergency?

The executives at TEPCO headquarters in Tokyo were initially put in charge of tackling the nuclear emergency.

10) How many people were thought to be dead or missing within the first two hours of the tsunami?

Around 20,000 people were thought to be dead or missing.

11) What did the government order by night fall of the first day of the accident?

As night fell, the Japanese government ordered an evacuation of everyone within 2 miles (3.2 kilometers) of Fukushima Dai-ichi.
12) How did the workers at the plant try to restore power? What did they find when they did restore it?

All who had a car or a company car were asked to get the batteries to try to restore power.

The scavenged batteries allowed vital monitoring instruments in the Reactor 1 control room to work again. Just before midnight, the workers restored power to the pressure gauge. The levels caused panic. The levels were going up and up.

13) What was the condition of the plant by the end of the first day?

The engineers realized the rising heat of the fuel rods in the reactor core was creating massive amounts of radioactive steam and hydrogen. The resulting pressure meant the workers could not get water onto the fuel. Even worse, it meant the containment vessel might explode, a disaster that could leave parts of Japan uninhabitable for decades.

14) What did TEPCO do to prevent the reactor from exploding? Whose permission did they have to obtain before doing so? What was the problem with carrying out the procedure?

TEPCO now knew they had to release radioactive gases into the atmosphere to prevent the reactor from exploding. Venting was necessary.

To take such a desperate measure, the company needed the permission of the prime minister himself.

The company had never imagined they might have to vent a reactor without electricity. The venting valves are driven by motors. So without electricity, they won’t open. It’s possible to open them manually, but really difficult.
15) What did the engineers suspect was happening at the plant but which TEPCO and the Prime Minister wouldn’t acknowledge for months?

The engineers suspected something that the prime minister and TEPCO would not acknowledge for months — nuclear meltdown had begun.

16) What drastic measures was plant manager Masao Yoshida considering?

The plant manager, Masao Yoshida, knew the radiation near the vents was at potentially fatal levels, but he told the prime minister he’d send in a suicide squad if necessary.

17) Why was venting at the plant delayed again?

The evacuation of the surrounding villages was not yet complete. If the reactors were vented, local residents could be exposed to dangerous levels of radiation.

18) What were the conditions like inside the reactor building? How long was each emergency worker limited to in the reactor building?

It was not a place for humans. The temperature was 100°F (38°C) plus. The surroundings were pitch black, and there was condensation. The radiation was high.

Each worker was limited to 17 minutes in the reactor building.

19) What did the venting of the radioactive gas appear to have accomplished?

In the afternoon of Day 2, a thin plume of gas signaled that the pressure in the reactor core was falling. The venting team appeared to have saved northeastern Japan from a catastrophic explosion.
20) What serious event took place around 2 PM of Day 2?

Leaking hydrogen had exploded in the roof of the reactor building, but fortunately the reactor core itself was still intact.

21) Why were the Prime Minister and his team later fiercely criticized for what they told the Japanese people and the world?

The prime minister and his team were later fiercely criticized for hiding the severity of the disaster from the Japanese people and the world. Behind the scenes, they knew the situation was sliding out of control. The explosion had halted efforts to get water onto the reactor cores. It was now only a matter of time before the fuel would melt through into the open, spewing out much worse levels of radiation.

22) What was the worst case scenario after a simulation was done with respect to the spread of radiation?

The worst-case scenario was an evacuation of 120 to 190 miles (200 to 300 kilometers) around the plant. If that happened, Tokyo and the rest of Japan would grind to a halt.

23) How far did the Japanese government eventually widen the evacuation zone?

The government widened the evacuation zone, ordering everyone within 12 miles (20 kilometers) of the plant to flee.