

Question #1

Given the following conditions:

The Unit is currently at 65% power and increasing load

The dedicated operator is withdrawing Group 6 CEAs

A CEDMCS malfunction causes a 30 second continuous withdrawal of Group 6 CEAs to occur

The operator terminates the withdrawal by placing the CEDMCS selector switch in OFF

Assuming no other operator actions are taken, which of the following is correct?

- A. Pressurizer level setpoint will increase
- B. Cold leg temperature will decrease
- C. Reactor power will remain the same
- D. Steam Generator pressure will remain the same

Answer: A

Question Source: Bank # N40686
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AK1.17	
Importance Rating	3.4		3.7
Tier #	1		1
Group #	2		1

Question #2

Unit 2 is operating at 85% power with all CEAs fully withdrawn, when a group 6 CEA drops to the bottom of the core. SO23-13-13, "Misaligned Control Element Assembly," was entered and power was stabilized per step 1. Substep 1c directs that the initial and stabilized power levels should be recorded in the Control Operator's Log. Assume that rod recovery cannot begin for 75 minutes after the rod drops.

Which one of the following states the MINIMUM REQUIRED Power Reduction and the bases for the requirement to log the initial and stabilized power levels?

- A. 15% power; required for subsequent shutdown margin calculation
- B. 15% power; determine whether a reactor trip is required
- C. 25% power; required for subsequent shutdown margin calculation
- D. 25% power; determine whether a reactor trip is required

Answer: C Lesson Plan 2XIR03

Question Source: Bank # -----

 Modified Bank # N5485

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AK1.04
Importance Rating		3.7
Tier #		1
Group #		1

Question #3

The following conditions exist:

Unit 2 is at 65 % power and CEA recovery of a dropped CEA, # 20, is in progress.

Group 6 is at 149 inches withdrawn

CEA # 20 (a Group 6 CEA) is at 100 inches withdrawn

CEA # 1 (a Group 2 CEA) drops into the core, indicating 6 inches withdrawn

Which ONE of the following is/are the correct required action(s)?

- A. Continue realigning CEA # 20, then align CEA # 1 with their respective groups
- B. Realign CEA # 1, then continue aligning CEA # 20 with their respective groups
- C. Manually trip the reactor
- D. Initiate a rapid downpower

Answer: C Lesson Plan 2AO713

Question Source: Bank # _____
 Modified Bank # N7760
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	AK3.04	
Importance Rating	3.8	
Tier #	1	
Group #	2	

Question #4

According to Technical Specification 3.1.3.1, with Unit 2 at 100% power which ONE of the following situations would require verification of SHUTDOWN MARGIN within (1) hour and the plant to be placed in HOT STANDBY within (6) hours?

- A. A fully withdrawn full length CEA which is immovable due to a bowed extension shaft.
- B. A fully withdrawn full length CEA which is immovable due to a timer module failure.
- C. A full length CEA which was declared inoperable and dropped into the core while being transferred to the "Hold Bus" for maintenance.
- D. A full length CEA which was declared inoperable after slipping into the core, and upon having the rest of its group inserted for realiaongment, resulted in the group being inserted beyond the Long Term Steady State Insertion Limits.

Answer: A Lesson Plan 2XI203

Question Source: Bank # N7357
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AK3.04

Importance Rating	4.1
Tier #	1
Group #	1

Question #5

CEA #44 in Group 5 is determined to be untrippable. Which of the following states the required action to be taken?

- A. Commence an orderly shutdown to be in Mode 3 within 6 hours.
- B. Immediately initiate a boration to restore Shutdown Margin within 1 hour.
- C. Commence a power reduction in accordance with the COLR within 15 minutes.
- D. Immediately trip the Reactor and initiate emergency boration.

Answer: A Lesson Plan CEA Technical Specifications (3.1.5)

Question Source: Bank # N37889
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AK3.04	
Importance Rating	3.4		4.1
Tier #	1		1
Group #	1		1

Question #6

Which ONE of the following states the reason for cooling down the Steam Generators in a large break LOCA?

- A. Minimizes two phase flow.
- B. Prevents the offsite dose rate from exceeding 10CFR100 criteria.
- C. Improves RCS heat removal by enhancing natural circulation and reflux boiling.
- D. Prevents the RCS from exceeding P/T limits.

Answer: C

Question Source: Bank # _____
Modified Bank # _____
New PV48201

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AK1.01	
Importance Rating	4.1		4.4
Tier #	1		1
Group #	2		1

Question #7

A reactor trip has occurred and the immediate actions of SO23-12-1 have been completed. You are attempting to diagnose the accident. Plant conditions are as follows:

CEA #28 indicates fully withdrawn
SG level 30% narrow range
SG pressure 1000 psia
Pressurizer level is lowering
Pressurizer pressure is lowering rapidly
E088 and E089 pressures are 1000 psia and stable
Containment pressure is 0 psig
Containment area radiation monitors and MSL rad monitors are normal

SELECT the proper event in progress:

- A. Steam Generator Tube Rupture
- B. LOCA outside Containment
- C. LOCA inside Containment
- D. Steam Line Break outside Containment

Answer: B Lesson Plan 2EO703

Question Source: Bank # _____

Modified Bank # N10776
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		EA2.1	
Importance Rating	3.4		4.2
Tier #	1		1
Group #	2		1

Question #8

The plant has experienced a reactor trip due to a loss of coolant accident concurrent with a loss of offsite power.

Given the following additional information:

Emergency diesel generators are operating normally
Atmospheric dump valves are tagged closed for maintenance repairs
SBCS operating normal
RCS Th 525 degrees F
Pressurizer Pressure 1200 psia
Pressurizer Level 34% and stable
Reactor Vessel Upper Head Level 16%
Steam Generator #1 WR level 4% with auxiliary feedwater flow established
Containment Temperature 148 Degrees F
Core Exit Temperatures are 530 degrees F

Determine which parameter will NOT allow HPSI throttling with the above information:

- A. Subcooled Margin
- B. Reactor Vessel Upper Head Level
- C. Pressurizer Level
- D. Steam Generator Level

Answer: D

Question Source: Bank # _____
Modified Bank # _____

New WT31627

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis __X__

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		EA2.2	
Importance Rating	3.5		4.0
Tier #	1		1
Group #	2		1

Question #9

Which of the following is NOT an entry condition symptom into AOI SO23-13-6, " RCP Seal Failure ".

- A. Bleedoff head pressure decreasing.
- B. Individual Seal cavity pressure(s) abnormal.
- C. Bleedoff temperature above normal.
- D. Bleedoff relief temperature increasing.

Answer: A Lesson Plan (As available)

Question Source: Bank # N0443
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis __X__

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AK2.07	
Importance Rating	2.9		2.9
Tier #	1		1
Group #	1		1

Question #10

SO23-12-7, Loss of Forced Circulation, identifies FIVE (5) conditions that should exist (and be verified) when Natural Circulation has been established in at least one loop upon a Loss of Forced Circulation.

Which ONE of the following conditions indicates that natural circulation has NOT been established?

- A. Operating loop Th and core exit thermocouples maintaining a constant 10 degree F difference
- B. Operating loop Th increasing slowly with Tc decreasing
- C. Operating loop delta T (Th - Tc) is 40 degrees F and decreasing slowly
- D. Core exit saturation margin of 35 degrees F and increasing slowly

Answer: B Lesson Plan 2EO716

Question Source: Bank # -----
 Modified Bank # _____
 New N0553

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AK1.2
Importance Rating		3.3
Tier #		1
Group #		1

Question #11

A Loss of Forced Circulation has occurred as a result of a Loss of Offsite Power. You are attempting to establish natural circulation in accordance with Emergency Operating Instruction SO23-12-7, Loss of Forced Circulation/Loss of Offsite Power.

Which of the following conditions will require a "Response Not Obtained" action when performing verification of Natural Circulation?

- A. Reactor Vessel plenum level at 82% and constant.

- B. Loop delta-T at 30°F and stable.
- C. T-hot/Representative Core Exit Thermocouples delta-T at 5°F and stable.
- D. Core Exit Saturation Margin at 25°F and slowly rising.

Answer: A

Question Source: Bank # N3208
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	AK1.2	
Importance Rating	3.0	
Tier #	1	
Group #	1	

Question #12

Unit 2 has tripped from 100% power and the following conditions exist:

Reactor power is lowering
 Emergency Boration was initiated at 0800 hours when CEAs #40 and #41 failed to fully insert
 A Pressurizer level control malfunction has resulted in a level of 95% and rising
 T_{AVG} is 545°F and slowly lowering
 Pressurizer pressure is 2400 psia and rising
 Operators are SLOWLY inserting CEA #40 manually and it will be fully inserted at 0815 hours
 CEA #41 remains fully withdrawn and immovable

Which ONE of the following conditions will allow termination of Emergency Boration?

- A. CEA #40 is fully inserted
- B. 30 minutes of Emergency Boration has been completed
- C. Pressurizer level reaches 100%
- D. Pressurizer pressure reaches 2450 psia

Answer: A Lesson Plan 2EO701

Question Source: Bank # N11006
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AK3.02
Importance Rating		4.4
Tier #		1
Group #		1

Question #13

An Emergency Boration is in progress using BAMU pumps when a fault on Train A 1E ESF bus 2B04 causes the bus to deenergize and lockout. Which of the following correctly describes the actions necessary to re-establish an Emergency Boration flowpath to the charging pump suction?

- A. Open BAMU Gravity Feed Valves, close Emergency Boration Block Valve, close VCT Outlet Valve
- B. Open RWST Outlet Valve to charging pump suction, close Emergency Boration Block Valve, manually divert Letdown to Radwaste
- C. No operator action is necessary since the Boric Acid pumps are powered from Train B
- D. No operator action is necessary since the Emergency Boration Block Valve will fail-as-is

Answer: A Lesson Plan 2XAR06

Question Source: Bank # N07719
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	AA1.17	

Importance Rating	3.9
Tier #	1
Group #	1

Question #14

With both Units operating at 100% power, annunciator alarm 64A25, "CCW SURGE TANK T004 LEVEL HI/LO" is received on both units.

The following Component Cooling Water (CCW) parameters are reported:

Unit 2

"A" loop CCW pump discharge pressure 120 psig
surge tank level decreasing

Unit 3

"A" loop CCW pump discharge pressure 100 psig
surge tank level increasing

Which ONE of the following would cause the annunciator alarms and indications?

- A. Surge tank fill valve failed closed on unit 2 with tube leak in the letdown heat exchanger on unit 3.
- B. Surge tank fill valve failed open on unit 3 with tube leak in the letdown heat exchanger on unit 2.
- C. Units 2&3 train A CCW loops are crossconnected via the Aux. Building emergency chillers.
- D. Units 2&3 train A CCW loops are crossconnected via HPSI pump P018.

Answer: C Lesson Plan 2XBL01

Question Source: Bank # 34736
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AK304

Importance Rating	3.7
Tier #	1
Group #	1

Question #15

According to SO23-13-14, "Reactor Coolant Leak", which ONE of the following chemicals found in the containment sump would indicate possible leakage from the Component Cooling Water system?

- A. Nitrates.
- B. Hydrazine.
- C. Ammonia.
- D. Boric Acid.

Answer: A Lesson Plan 2AO714

Question Source: Bank # 27862
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	AA201	
Importance Rating	2.9	
Tier #	1	
Group #	1	

Question #16

After attempting a manual Reactor trip, a Reactor trip still will not occur.

SO23-12-1, Standard Post Trip Actions, requires de-energizing the 480V power to the CEDM MG sets.

Which ONE of the following specifies the proper actions to accomplish this?

- A. Open the CEDM MG set feeder breakers from B15 and B16
- B. Open the CEDM MG set feeder breakers from B04 and B06
- C. Open the feeder breakers to B15 and B16
- D. Open the feeder breakers to B04 and B06

Answer: C Lesson Plan 2EO701

Question Source: Bank # N10910
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

	<u>RO</u>		<u>SRO</u>
Level		EA1.12	
K/A #			
Importance Rating	4.1		4.0
Tier #	1		1
Group #	2		1

Question #17

A steam line break occurs inside containment resulting in harsh containment conditions.

Which of the following describes the status of actual pressurizer level?

- A. Actual level will be lower than indicated level due to reference leg heating.
- B. Actual level will be higher than indicated level due to reference leg heating.
- C. Actual level will be the same as indicated level as long as containment pressure does NOT exceed 8.5 psig.
- D. Actual level will be the same as indicated level as long as containment temperature does NOT exceed 250 degrees F.

Answer: A Lesson Plan OES133

Question Source: Bank # N11637

Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		EA1.1	
Importance Rating	3.9		4.2
Tier #	1		1
Group #	1		1

Question #18

One of the operators reports that he is lowering the Steam Generator feed rates to maintain Core Exit Saturation Margin below 160 degrees F.

What is the basis for this action?

- A. To prevent overcooling the Reactor Coolant System and minimize Pressurized Thermal Shock.
- B. To prevent overfilling the Steam Generators and minimize Feed Ring thermal Shock.
- C. To prevent overcooling the Reactor Coolant System and minimize pressurizer Spray line Thermal Shock.
- D. To prevent overfilling steam generators and minimize feed nozzle Thermal Shock.

Answer: A Lesson Plan 2EO719

Question Source: Bank # N4016
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AK3.3	
Importance Rating	3.1		3.5
Tier #	1		1
Group #	1		1

Question #19

Which ONE of the following correctly describes why MSIS initiation will aid in mitigating the effects of Station Blackout?

- A. Prevents water hammer effects in the auxiliary feedwater system
- B. Prevents Damage to the High Pressure Feedwater heaters.
- C. Prevents damage to main condenser.
- D. Prevents over pressurizing the heater drain tank

Answer: C Lesson Plan 2E0720

Question Source: Bank # _____
Modified Bank # 19162
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		EK3.02	
Importance Rating	4.3		4.6
Tier #	1		1
Group #	1		1

Question #20

Which of the following describes what will be a result from a loss of Vital Bus Inverter 2Y001 per SO23-13-18, RPS Failure/Loss of Vital Bus Inverter?

- A. PPS Channel A Hi Log Power trip
- B. RCP CBO to VCT isolation valve 2HV9218 fails closed
- C. Only Reactor Trip Breakers 1 and 3 open
- D. Quick open capability disabled for SBCS

Answer: A Lesson Plan 2A0719

Question Source: Bank # _____
Modified Bank # N11159

New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AA2.15	
Importance Rating	3.8		4.1
Tier #	1		1
Group #	1		1

Question #21

A liquid release of Radwaste Secondary Tank T-057 is in progress. Why is it necessary to maintain the discharge flowrate greater than 60 gpm?

- A. The Low Flow interlock will not enable the Radwaste Discharge Radiation Monitor Failure alarm function.
- B. The Liquid Radwaste discharge valves, 2/3HV-7641 and 7642, automatic closure would be disabled.
- C. The minimum sensitivity of the Radwaste Discharge Radiation Monitor requires greater than 60 gpm.
- D. Less than 60 gpm will **NOT** maintain the Marineli Canister around the radiation detector full of sample fluid.

Answer: A

Question Source: Bank # N40601
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.3.11	

Importance Rating	2.7	3.2
Tier #	1	1
Group #	2	1

Question #22

During a scheduled monthly surveillance of the plant protection system, the reactor is inadvertently tripped. the control room operators have observed that more than one CEA had failed to fully insert into the core, and remained at their fully withdrawn position. Standard post trip actions have been attempted to fully insert these effected CEAs, but without success.

Which ONE of the following describes the required operator actions:

- A. Initiate emergency boration. open all TCBs locally, and open all M/G set input and output breakers
- B. Initiate emergency boration trip the Main Turbine, and open all TCBs locally
- C. Open all TCBs locally, re-energize the 480V load centers, and enter the functional recovery portion of the EOIs.
- D. Open all TCBs locally, secure all RCPs., and verify natural circulation is established

Answer: A Lesson Plan 2EO712

Question Source: Bank # _____
Modified Bank # N0316
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X____
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		EK3.12
Importance Rating		4.7
Tier #		1
Group #		1

Question #23

During a Shutdown From Outside the Control Room, the procedure (SO23-13-2) recommends the use of " TRAIN A ", Safe Shutdown System. Why is "TRAIN A" preferred ?

- A. The "TRAIN A" components are better protected from fire hazards.
- B. The procedure is significantly easier to use if only one train is specified.
- C. Only "Train A" components are equipped with second point of control.
- D. Only "TRAIN A" components have controls at the Evacuation Shutdown Panel (EVSD).

Answer: A Lesson Plan 2AO702

Question Source: Bank # N0473
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.1.7	
Importance Rating	3.7		4.4
Tier #	1		1
Group #	1		1

Question #24

According to Technical Specification 3.3.3.5, which ONE of the following indications is part of the required Remote Shutdown Monitoring Instrumentation?

- A. Shutdown Cooling Temperature
- B. Shutdown Cooling Flow
- C. Steam Generator Level
- D. Auxiliary Feedwater Flow

Answer: C Lesson Plan 2AO702

Question Source: Bank # 27866

Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AK2.01	
Importance Rating	3.9		4.0
Tier #	1		1
Group #	1		1

Question #25

SO23-12-5, "Excess Steam Demand Event" requires the Containment Hydrogen Monitors to be placed in service if Containment Spray is or has been actuated.

Which ONE of the following sources of post accident hydrogen is of concern during this event?

- A. Hydrogen concentration in the RCS.
- B. Zirconium-water reaction.
- C. Corrosion of metals in containment.
- D. Radiolytic decomposition of water.

Answer: C Lesson Plan 2EO715

Question Source: Bank # 27902
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AK3.01	
Importance Rating	3.8		4.2
Tier #	1		1
Group #	1		1

Question #26

Which of the following is an indication of inadequate core cooling?

- A. Loss of RCS subcooling. RVLMS indicating the lowest detector in the plenum is uncovered.
- B. RCS loop temperatures rising. Pressurizer level decreasing when HPSI is throttled.
- C. Pressurizer level decreasing when HPSI is throttled and CET temperatures increasing.
- D. Pressurizer pressure stabilizing as level reaches 100%. RVLMS indicating level rising in the upper head.

Answer: A Lesson Plan 2E0706

Question Source: Bank # N11431
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		EA2.07	
Importance Rating	4.1		4.7
Tier #	1		1
Group #	1		1

Question #27

Unit 2 has high RCS Activity and is in the process of cooling down on SDC. The SDC Purification System is in service. It has become necessary to perform a MANUAL Backflush of the CVCS Purification Filter, 2(3)F-020.

The CVCS Purification Filter, 2(3)F-020, is initially flushed for 30 seconds with which ONE of the following:

- A. Nuclear Service Water and returned to Radwaste
- B. Nuclear Service Water and returned to the VCT
- C. Primary Plant Make Up Water and returned to the VCT

D. Primary Plant Make Up Water and returned to Radwaste

Answer: A Lesson Plan 2XRL09

Question Source: Bank # _____
Modified Bank # N7975
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AA2.01
Importance Rating		3.2
Tier #		1
Group #		1

Question #28

During Manual Backflush Operation (High RCS Activity method) of the CVCS Purification Filter, 2(3)F-020, it is required to flush the Filter first to Radwaste.

Which of the following systems perform the function of supplying the flush water?

- A. Nuclear Service Water
- B. Domestic Service Water
- C. Crud Tank discharge water
- D. Primary Plant Makeup Water

Answer: A Lesson Plan 2XRL09

Question Source: Bank # _____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	AA2.01	
Importance Rating	2.7	
Tier #	1	
Group #	1	

Question #29

The unit is in Mode 2 and you are emergency borating in accordance with SO23-13-11, Emergency Boration of Reactor Coolant System. Both boric acid makeup pumps trip, and fail, and can not be restarted. Both the RWST and BAMU tanks are above their minimum Technical Specification level.

Which ONE of the following correctly describes the preferred gravity feed method of completing the emergency boration, in accordance with SO23-13-11?

- A. From the Refueling Water Storage Tank (RWST) to the suction of the charging pumps.
- B. From the Boric Acid Makeup Tank (BAMU tank) to the suction of the charging pumps .
- C. From the RWST to the LPSI pumps then to the suction of the charging pumps.
- D. From the Boric Acid Makeup Tank to the HPSI pumps then to the suction of the charging pumps.

Answer: B

Question Source: Bank # 19150
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AA2.01
Importance Rating		4.1
Tier #		1
Group #		1

Question #30

Which ONE of the following is an entry condition for the Emergency Boration (Abnormal Operating Instruction SO23-13-11) of the RCS

- A. Failure of one CEA to drop following a reactor trip.
- B. Tref more than 10 degrees below Tave due to a main feedwater system transient.
- C. Loss of all AC (station blackout) condition.
- D. Group 6 regulating CEAs below Power Dependent Insertion Limit.

Answer: D Lesson Plan 2A0711

Question Source: Bank # 19156
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	AK3.01	
Importance Rating	4.1	
Tier #	1	
Group #	1	

Question #31

During recovery from a Loss Of Coolant Accident (LOCA) on Unit 2, the Shift Technical Advisor reports the Safety Function Status Check for Containment Isolation has failed due to increasing secondary radiation levels.

Which one of the following courses of action should be taken?

- A. Use SO23-12-3, "Loss Of Coolant Accident" and SO23-12-4, "Steam Generator Tube Rupture" in parallel completing all of the steps of both procedures.
- B. Return to SO23-12-1, "Standard Post Trip Actions" for re-diagnoses, then go to SO23-12-9, "Functional Recovery."
- C. Go directly to SO23-12-9, "Functional Recovery" for further recovery guidance.
- D. Refer to SO23-12-4, "Steam Generator Tube Rupture" for guidance on Steam Generator isolation while continuing with SO23-12-3, "Loss Of Coolant Accident."

Answer: B Lesson Plan 2EO713

Question Source: Bank # 34773
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	EA1.3	
Importance Rating	3.6	
Tier #	1	
Group #	2	

Question #32

During use of SO23-13-7, "Loss of CCW/SWC," the section for responding to a low level in a CCW surge tank directs that if the surge tank level transmitter is off-scale low then the actions of the section for high level in a CCW surge tank should be performed.

Which ONE of the following statements best explains why this is done?

- A. The actual condition revealed is a high level which has allowed the normally dry reference leg to become filled with water resulting in indicated level being off-scale low.
- B. This avoids redundancy and minimizes procedure length since the appropriate actions for a high surge tank level are identical to those for a low surge tank level.
- C. Because the off-scale low level indication will result in a continuous automatic makeup to the CCW surge tank, taking the actions for a high level condition will be appropriate as the surge tank fills.
- D. The actual condition revealed is a high level which has compressed the gas space bubble and increased the pressure seen at the reference leg of the level detector causing it to indicate off-scale low.

Answer: A Lesson Plan 2AO707

Question Source: Bank # N5858
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	G2.1.7	
Importance Rating	3.7	
Tier #	1	
Group #	1	

Question #33

On Unit 2, a Reactor trip has just occurred and the operators are in the process of completing the Standard Post Trip Actions.

The plant conditions are as follows:

CEA 21 indicates fully withdrawn, all other CEAs indicate fully inserted

PZR level is 2 %

PZR pressure is 1700 psia, SIAS has actuated

All four RCPs are running

S/G levels are 20 %, EFAS has actuated

S/G E-089 pressure is 970 psia

S/G E-088 pressure is 600 psia, MSIS has actuated

Tavg is 486 DEG. F, ADVs are closed

Containment Temperature is 108 DEG. F

Containment Pressure is 1.2 psig

For the above conditions, what operator action is required prior to exiting the SPTAs?

- A. Secure one Reactor Coolant Pump
- B. Locally open Trip Circuit Breakers
- C. Ensure two Dome Air Circulators are running
- D. Secure Unloaded Diesel Generators

Answer: A Lesson Plan 2RP208

Question Source: Bank # N7372
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge
 Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		EA1.04	
Importance Rating	3.6		3.7
Tier #	1		1
Group #	2		2

Question #34

Given the following conditions:

Reactor is tripped.
 PZR RELIEF VALVE TRBL alarm actuated and has cleared.
 Pressurizer level is 100%.
 Pressurizer pressure is 1620 psia and slowly rising.
 High pressure safety injection flow indicates 120 gpm (adequate flow).
 Reator Drain Tank High Pressure alarm actuated.
 No reactor coolant pumps are running.

Which ONE of the following identifies the reason primary pressure is rising?

- A. The system is in a water solid condition
- B. The reactor vessel upper head region is acting like a pressurizer
- C. Safety injection flow now matches mass lost out the break
- D. The safety valve has reseated and injection flow is refilling the primary system

Answer: D

Question Source: Bank # _____
 Modified Bank # _____
 New PV49210

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AA1.07	
Importance Rating	4.0		4.2
Tier #	1		1
Group #	2		2

Question #35

Given the following plant conditions:

A small break LOCA is in progress.
The leak is NOT isolable.
2 hours have elapsed from the start of the LOCA.

Which ONE of the following conditions would NOT require simultaneous hot and cold leg injection to be established?

- A. One RCP running in each loop.
- B. At least one SG available for RCS heat removal.
- C. Subcooled margin is 20 degrees F and lowering.
- D. Pressurizer level 10% and steady.

Answer: A

Question Source: Bank # _____
Modified Bank # _____
New PV48225

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		EK2.03
Importance Rating		3.3
Tier #		1
Group #		2

Question #36

Unit 2 tripped 90 minutes ago. You are in EOI SO23-12-3 LOCA attachment for "VOID COMPENSATION".

Which ONE of the following is the purpose of that attachment?

- A. To compensate for RCP restart void collapse.

- B. To correct the RVLMS for accurate readout on QSPDS and CFMS
- C. To ensure that the pressurizer level indication will not go off scale high
- D. To verify that the incore nuclear instrumentation can maintain accurate indication

Answer: A Lesson Plan 2EO713

Question Source: Bank # _____
 Modified Bank # N0436
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	EK3.21	
Importance Rating	4.2	
Tier #	1	
Group #	2	

Question #37

Given the following plant conditions:

The reactor is at 100% power.
 Pressurizer parameters are normal.
 No radiation alarms.
 CHG HDR SYS TRBL alarm is lit.
 Charging Pumps to Regenerative Heat Exchanger Pressure Low computer alarm is in.

Which ONE of the following is the cause of this situation?

- A. Regenerative Heat Exchanger Tube Leak.
- B. Charging Header Leak.
- C. RCS Leak.
- D. Letdown Heat Exchanger Leak.

Answer: B

Question Source: Bank # _____
Modified Bank # _____
New PV48228

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		EA2.02	
Importance Rating	3.2		3.7
Tier #	1		1
Group #	2		2

Question #38

Unit 2 is shutdown in mode 5.
Train B of SDC is out of service due to maintenance.
Train A SDC is in operation, maintaining RCS temperature at 160 degrees F
RCS has been drained to the midloop condition.

Abnormal Operating Instruction SO23-13-15, "Loss of Shutdown Cooling" requires the verification of several parameters by the control room operators.

Which ONE of the following identifies the effected parameters to be verified?

- A. SDCS / LTOP isolation valves open
RCS level greater than 21 inches in the hot leg and stable
SDC flow above 2300 gpm with normal corresponding pump head
CET less than 200 degrees F and NOT rising
- B. RCS level greater than 21 inches in the hot leg and NOT lowering
SDC flow above 2300 gpm with normal pump amperage
Auxiliary Feedwater maintaining steam generator level
CET less than 200 degrees F and NOT rising
- C. SDCS / LTOP isolation valves open
RCS level greater than 21 inches in the hot leg and NOT lowering
SDC flow above 2300 gpm with normal pump amperage
CET less than 200 degrees F and NOT rising
- D. Auxiliary Feedwater maintaining steam generator level
RCS level greater than 21 inches in the hot leg and stable
CET less than 200 degrees F and lowering
SDC flow above 2300 gpm with normal pump amperage

Answer: C SO23-13-15

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.1.7	
Importance Rating	3.7		4.4
Tier #	1		1
Group #	2		2

Question #39

Which ONE of the following signals will automatically de-energize the pressurizer proportional heaters?

- A. Pressurizer level of 25%.
- B. Pressurizer level deviation of +3%.
- C. Safety Injection Actuation Signal.
- D. Pressurizer pressure at the AUTO setpoint.

Answer: A

Question Source: Bank # _____
Modified Bank # _____
New PV48231

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
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K/A #	AA2.10
Importance Rating	3.6
Tier #	1
Group #	2

Question #40

Given the following conditions:

Reactor start-up in progress.
 Shutdown bank "A" being withdrawn.
 2Q0612, non-class 1E instrument bus #2, de-energizes.

Which ONE of the following identify why the approach to criticality must be halted?

- A. One channel of the Boron Dilution Alarm System is INOPERABLE
- B. Feedwater Control System instabilities causing reactivity changes
- C. Control Element Drive Mechanism Control System losses power
- D. Charging pump suction auto-transfers to Refueling Water Tank

Answer: A

Question Source: Bank # _____
 Modified Bank # _____
 New PV49204

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AK2.01
Importance Rating		3.1
Tier #		1
Group #		2

Question #41

Answer: B Lesson Plan 2EO717

Question Source: Bank # 34783
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level K/A #	<u>RO</u>		<u>SRO</u>
Importance Rating	3.5	EK2.2	4.0
Tier #	1		1
Group #	2		2

Question #43

The following plant conditions exists:

A shutdown is required due to Dose Equivalent I-131 level of five microcuries/gram.

Which ONE of the following is the reason for reducing Tcold to less than 500 degrees F. following the reactor shutdown?

- A. Slows the release of noble gas to the reactor coolant, reducing the source term of the activity.
- B. Prevents the release of activity should a steam generator tube rupture occur.
- C. Minimizes the temperature related degradation of the CVCS demineralizers while RCS clean-up is in progress.
- D. Minimizes the magnitude of the iodine spiking phenomena caused by the unit shutdown.

Answer: B

Question Source: Bank # _____
 Modified Bank # _____

New PV40336

Question Cognitive Level: Memory or Fundamental Knowledge __X__
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.3.10	
Importance Rating	2.9		3.3
Tier #	3		3
Group #			

Answer: Lesson Plan (As available)

Question Source: Bank #
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #			
Importance Rating			
Tier #			
Group #			
10 CFR 55.43			

Question #44

Why does EOI Steam Generator Tube Rupture, caution the operator to maintain RCS pressure near the low end of the post accident pressure / temperature limits.

- A. To reduce the mass transfer from the RCS to the affected Steam Generator.
- B. To minimize Pressurized Thermal Shock.
- C. To expedite entry to Shutdown Cooling.
- D. To maximize formation of nucleate bubbles in the core to enhance natural circulation.

Answer: A Lesson Plan 2EO714

Question Source: Bank # N0491
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		Ak3.06
Importance Rating		3.1
Tier #		1
Group #		2

Question #45

Which ONE of the following criteria is used to determine which steam generator is to be isolated if BOTH are diagnosed as ruptured?

- A. The steam generator with the highest radiation levels.
- B. The steam generator with the highest water level.
- C. The steam generator with the lowest steam pressure.
- D. The steam generator with the lowest feedwater flow.

Answer: A Lesson Plan (As available)

Question Source: Bank # _____
 Modified Bank # _____
 New WT39893

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A2.01	
Importance Rating	4.1		4.7

Tier #	1	1
Group #	2	2

Question #46

Which ONE of the following state the basis for stopping all reactor coolant pumps during a loss of all feedwater event?

- A. Enhances plant recovery by allowing slow changes in primary system parameters.
- B. Reduces the heat load to be removed by the steam generators.
- C. Reduces the mass lost to the secondary if tubes break upon reinitiation of feed.
- D. Prevents unwanted primary system depressurization through the main spray valves.

Answer: B

Question Source: Bank # _____
 Modified Bank # _____
 New PV49212

Question Cognitive Level: Memory or Fundamental Knowledge _____ X_____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AK3.04
Importance Rating		4.6
Tier #		1
Group #		2

Question #47

Given the following conditions:

Unit 2 in Mode 3, 500 degree F and 2250 psia.
 Auxiliary Feedwater pump P-504 is out of service.
 Unit Auxiliary Transformer (Unit 2) trips on ground fault on 6.9KV bus 2A01.
 Emergency diesel generator "2G002" trips.
 Auxiliary Feedwater pump P-140 trips when started.
 All other systems are operating as designed.

Which ONE of the following correctly identifies the success path for plant stabilization?

- A. SO23-6-9, 6.9KV, 4KV, and 480V Bus and Feeder Faults
- B. SO23-12-6, Loss of All Feedwater
- C. SO23-12-7, Loss of Forced Circulation / Loss of Offsite Power
- D. SO23-12-9, Functional Recovery Procedure

Answer: B Lesson Plan (As available)

Question Source: Bank # _____
 Modified Bank # _____
 New PV49162

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	AA1.01	
Importance Rating	4.5	
Tier #	1	
Group #	2	

Question #48

Which of the following describes what will result from a loss of 125V DC Bus D1?

- A. DC Control power to A04, 4KV bus has been lost.
- B. Reactor trip breakers 2 and 4 open.
- C. All RCPs ammeters indicate 0.
- D. SDC suction isolation valve HV9377 fails open.

Answer: A Lesson Plan 2LC708

Question Source: Bank # N11613
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AA2.03
Importance Rating		3.9
Tier #		1
Group #		2

Question #49

Given the following conditions:

A planned release of waste gas decay tank "1" is in progress.
A high spike occurs on 2(3)RI-7865[2] Plant Vent Stack Gaseous Ch High Radiation
The spike causes a HIGH alarm which subsequently clears.

Which ONE of the following describes the automatic action(s), if any, due to the high spike on the radiation monitor?

- A. Initiates Control Room Essential Filtration Actuation
- B. Stops all waste gas compressors
- C. Closes 2/3HV-7202, waste gas discharge isolation valve
- D. Starts all auxiliary building supply and exhaust fans

Answer: C

Question Source: Bank # _____
Modified Bank # _____
New PV49214

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AA1.02	
Importance Rating	3.2		3.1
Tier #	2		1
Group #	2		2

Question #50

Which one of the following events, occurring simultaneously with a Loss Of Coolant Accident (LOCA), has specific guidance provided for it in the LOCA Emergency Operating Procedure (EOP) and therefore should NOT require exiting to the Functional Recovery EOP?

- A. Steam Generator Tube Rupture.
- B. Excess Steam Demand Event.
- C. Total Loss Of Feedwater.
- D. Loss Of Offsite Power.

Answer: D

Question Source: Bank # 30038
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		EA2.1
Importance Rating		4.4
Tier #		1
Group #		2

Question #51

Which ONE of the following areas will the Instrument Air Supply automatically isolate if an air leak developed in that area?

- A. Containment
- B. Fuel Handling Building
- C. Radwaste Building
- D. Penetration Area

Answer: A 2AO705

Question Source: Bank # 27855
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		AK3.03
Importance Rating		3.4
Tier #		1
Group #		2

Question #52

Given the following plant conditions:

Reactor has tripped.

No Vital 4160V nor Non-Vital 6.9KV bus energized.

RCS T-cold is 568 degree F and stable, controlled by ADVs.

Steam Generator levels are 42% WR and slowly trending down.

The CRS has completed the Standard Post Trip Actions and entered the Station Blackout procedure.

MSIS has been initiated.

Auxiliary Feedwater pump P-140 has tripped on overspeed.

Which ONE of the following correctly describes the action the CRS is to take?

- A. Re-enter the Standard Post Trip Actions and rediagnose.
- B. Continue in e Blackout procedure.
- C. Exit Blackout and enter the Functional Recovery procedure.
- D. Exit Blackout and enter the Loss of All Feedwater procedure.

Answer: C

Question Source: Bank # _____

Modified Bank # _____
New PV49120

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.1.9
Importance Rating		4.0
Tier #		1
Group #		2

Question #53

The following plant conditions exist:

The plant is operating at 100% power.

Pressurizer level control channel Temperature Setpoint is selected to Tave Loop 1

Which ONE of the following indicates the plant response (Letdown flow, Pressurizer Backup heaters and the signal to the Backup Charging pump) when the output signal from Loop 1 Cold Leg control channel RTD fails HIGH.

	<u>L/D FLOW</u>	<u>B/U HTRS</u>	<u>SIGNAL TO B/U CHGING PUMP</u>
A.	Increases	Energize	Stop
B.	Increases	Deenergize	Start
C.	Decreases	Deenergize	Start
D.	Decreases	Energize	Stop

Answer: C Lesson Plan 2X1R02

Question Source: Bank # _____
Modified Bank # N11614
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis

 X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A2.10	
Importance Rating	3.3		3.4
Tier #	1		1
Group #	3		3

Question #54

Which of the following is designed to provide the first line of automatic Reactor Protection if a complete loss of electrical load occurs, but the Loss of Load Reactor trip does NOT function?

- A. Hi Pressurizer Pressure Trip.
- B. Low Steam Generator Level.
- C. ATWS/DSS Actuation.
- D. High Local Power Density

Answer: A

Question Source: Bank # _____
 Modified Bank # N37898
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		AA2.42	
Importance Rating	4.1		4.1
Tier #	1		1
Group #	3		3

Question #55

The following plant conditions exist:

Unit 2 is in MODE 1.

The latest leak rate data is as follows:

Total RCS leakage rate	10.9 gpm
Leakage into the Reactor Drain Tank.	5.2 gpm
Leakage past check valves from RCS to SI system.	1.5 gpm
Total primary to secondary leakage (From S/G-1).	0.4 gpm
Charging pump leakage.	2.5 gpm

Which ONE of the following defines the type of Technical Specification leakage that is occurring which requires plant shutdown actions to be taken?

- A. Pressure isolation valve leakage
- B. Unidentified leakage.
- C. Identified leakage
- D. Primary to secondary leakage

Answer: B Lesson Plan 2A0714

Question Source: Bank # _____
Modified Bank # _____
New PV40236

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		Ak3.4
Importance Rating		3.4
Tier #		1
Group #		3

Question #56

The basis for limiting reactor power and the time allowed for continued operation with CEAs inserted beyond the transient insertion limits is to minimize the effect on shutdown margin and:

- A. prevent unacceptable fuel damage in the event of an Anticipated Operational Occurrence.

- B. limit behavior of the axial peaking factors to within the assumptions of the Safety Analysis.
- C. ensure the potential effects of an ejected CEA accident are limited to acceptable levels.
- D. ensure the potential effects of additional CEA misalignments are limited to acceptable levels.

Answer: C

Question Source: Bank # _____
 Modified Bank # _____
 New PV49151

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
 Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K5.04	
Importance Rating	4.3		4.7
Tier #	2		2
Group #	1		1

Question #57

The reactor protection system requires a minimum 2 channels of reactor trip signal to cause a loss of power to the CEDM coils.

Which ONE of the following states the condition that will result in a reactor trip signal to be generated?

- A. SSR K3 and SSR K4 deenergized.
- B. SSR K1 and SSR K2 energized.
- C. SSR K1 and SSR K2 deenergized.
- D. SSR K2 and SSR K4 deenergized.

Answer: D Lesson Plan 2XCR09

Question Source: Bank # _____
 Modified Bank # N11617

New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis __X__ _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K1.05	
Importance Rating	4.5	
Tier #	2	
Group #	1	

Question #58

Given the following Reactor Coolant Pump (RCP) seal data, determine what action should be directed by the Shift Superintendent.

Pressurizer pressure 2250 psia

Middle Seal Cavity pressure 1520 psia

Upper Seal Cavity pressure 700 psia

Vapor Seal Cavity pressure 75 psia

- A. Commence a normal plant shutdown and 5 seconds after tripping the reactor trip the affect RCP
- B. Continue normal plant operation
- C. Monitor affected RCP seal data on PMS and perform calibration checks on each of the seal cavity pressure sensors
- D. Immediately trip the reactor and 5 seconds after tripping the reactor trip the affect RCP

Answer: B Lesson Plan 2XA202

Question Source: Bank # _____
Modified Bank # N8178
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis __X__ _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A4.04	
Importance Rating	3.0		3.1
Tier #	2		2
Group #	1		1

Question #59

With multiple seal failures on the same RCP the controlled bleed off flow will increase.

What design feature prevents this increased bleed off flow rate from exceeding the capacity of the charging pumps ?

- A. The excess flow check valve that shuts at 10 GPM.
- B. The pressure breakdown capillary will restrict flow.
- C. Tolerances in the seal cartridge will limit flow to 10 GPM.
- D. The flow orifice in the controlled bleed off line.

Answer: A Lesson Plan 2AO706

Question Source: Bank # N0445
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #	K1.03		
Importance Rating	3.3		
Tier #	2		
Group #	1		

Question #60

The following plant conditions exist:

The reactor was manually tripped.

3 Full Length CEAs are fully stuck out.
 RWST level is 70%.
 RCS pressure is 1950 psia.

Which ONE of the following is a correct Emergency Boration Flowpath per SO23-13-11, "Emergency Boration of the RCS / Inadvertent Dilution or Boration"?

- A. Open Emergency Boration Block Valve. to the BAMU pump, and then the High Pressure Safety Injection Pumps.
- B. Open the gravity feed valves to supply BAMU tank directly to suction of Charging Pumps
- C. Open Emergency Boration Block Valve. to the BAMU pump, and then the Charging Pumps.
- D. RWST to the High Pressure Safety Injection Pumps.

Answer: C

Question Source: Bank # _____
 Modified Bank # _____
 New PV48175

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K6.17	
Importance Rating	4.4		4.6
Tier #	2		2
Group #	1		1

Question #61

Given the following conditions:

Reactor has tripped from 100% power.
 Reactor coolant system pressure is 1650 psia and dropping.
 Pressurizer level is 10% and dropping.
 Steam generator levels have turned at 36% wide range and are recovering on AFB-P01.

Steam generator pressures are 1020 psia and rising.
 Containment pressure is 7.4 psig and rising.
 Safety Injection and Containment Isolation actuations have occurred.

Which ONE of the following states the additional Engineered Safety Features actuation(s) present assuming all systems functioned as designed?

- A. Main Steam Isolation.
- B. Auxiliary Feedwater Actuation.
- C. Auxiliary Feedwater Actuation and Containment Spray Actuation
- D. Containment Spray Actuation and Main Steam Isolation.

Answer: A

Question Source: Bank # _____
 Modified Bank # _____
 New PV49130

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K1.01	
Importance Rating	4.2		4.4
Tier #	2		2
Group #	1		1

Question #62

Given the following conditions:

Unit 3 operating at 50% full power during power ascension.
 A single CEA in shutdown group "A" slips from a fully withdrawn position to 105 inches withdrawn.
 The slipped CEA is a target rod for core protection calculator "D".
 A Reactor trip results

Which ONE of the following identify the reason for the reactor trip?

- A. Lo DNBR and High LPD on CPC "D"
- B. Variable Overpower Trip channels "A", "B" and "C"
- C. CEAC penalty factors to all four CPCs

D. Low Pressurizer Pressure all four channels

Answer: C

Question Source: Bank # _____
Modified Bank # _____
New PV49179

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A2.04	
Importance Rating	3.4		3.9
Tier #	2		2
Group #	2		1

Question #63

Given the following conditions:

Unit operating at 100% full power.

Channel "D" upper detector of excore safety monitors fails HIGH.

Assume no other failures are present.

Which ONE of the following describes the expected response of Channel "D" Reactor Protection System to this failure?

- A. High Linear Power Density and Low DNBR trips without pre-trips.
- B. Variable Overpower pre-trip without trip, and High Linear Power Density and Low DNBR trips and pre-trips.
- C. Variable Overpower pre-trip and trip, and High Linear Power Density and Low DNBR trips without pre-trips.
- D. Variable Overpower, High Linear Power Density and Low DNBR trips and pre trips.

Answer: D

Question Source: Bank # _____
 Modified Bank # _____
 New PV49128

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K1.01	
Importance Rating	4.1		4.2
Tier #	2		2
Group #	1		1

Question #64

A Loss of Coolant Accident has occurred and the RCS is at saturation conditions (no subcooled margin exists).

Which ONE of the following provide the control room operators with the indication of the onset of core uncover?

- A. Excore nuclear instrumentation indicates constant reactor power
- B. Fuel centerline temperatures display RCS condition as superheated
- C. Pressurizer level rapidly increases at a rate greater than possible by normal coolant injection
- D. High coolant flow in the RCS.

Answer: B Lesson Plan 2LC750

Question Source: Bank # _____
 Modified Bank # N20564
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K5.03	

Importance Rating	3.7	4.1
Tier #	2	2
Group #	1	1

Question #65

Given the following plant conditions:

The reactor is tripped.
 A feed line break has occurred inside containment.
 Containment pressure is 1.2 psig and rising slowly.
 86 Lockout on normal supply breaker for bus 2A04
 SIAS/CIAS were manually initiated.
 Train A SIAS load shed panels are re-energized.

Which ONE of the following components is NOT available due to these conditions?

- A. Containment spray pump 2P012 feeder breaker
- B. Two reactor coolant pumps
- C. Turbine driven auxiliary feedwater pump
- D. Condensate Pump, CDN-P01B.

Answer: A

Question Source: Bank # _____
 Modified Bank # _____
 New PV48166

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K2.01	
Importance Rating	3.0		3.6
Tier #	2		2
Group #	1		1

Question #66

Per SO23-12-1, SPTA's, which ONE of the following parameters would indicate a complicated Reactor Trip:

- A. Steam generator pressure at 1100 psia and decreasing slowly
- B. 30 degrees F core delta T during natural circulation
- C. Pressurizer pressure at 2000 psia and pressurizer narrow range level at 35% each increasing slowly
- D. One CEA in a shutdown group not fully inserted into the core

Answer: B Lesson Plan 2EO701

Question Source: Bank # N0413
 Modified# _____
 New # _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.4.1	
Importance Rating	4.3		4.6
Tier #	3		3
Group #			

Question #67

Which ONE of the following Emergency Operations will allow you to transition from the CRS Safety Function Flowchart directly to a Recovery Operations Procedure?

- A. Loss of All Feedwater, Blackout
- B. Excess Steam Demand, Steam Generator Tube Rupture
- C. Loss of Offsite Power, Loss of Coolant Accident
- D. Loss of Offsite Power, Blackout

Answer: A

Question Source: Bank # _____
Modified Bank # _____
New PV37092

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.4.14	
Importance Rating	3.0		3.9
Tier #	3		3
Group #			

Question #68

The plant has just tripped from 100% power.

Select the response of the FWCS to a reactor trip override (RTO) signal.

- A. Main feed pump speed goes to 3600 rpm
Main feed reg valves close
Bypass valves close
- B. Main feed pump speed goes to 3000 rpm
Main feed reg valves are 5% open
5% of rated feedwater flow signal sent to bypass valves
- C. Main feed pump speed goes to 3600 rpm
Main feed reg valves are closed
5% of rated feedwater flow signal sent to bypass valves
- D. Main feed pump speed remains unchanged
Main feed reg valves are closed
Bypass valves are approximately 50% open

Answer: C Lesson Plan 2XIR06

Question Source: Bank # 39279

Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K4.18	
Importance Rating	2.8		3.0
Tier #	2		2
Group #	1		1

Question #69

Which ONE of the following describes the purpose of the OVERRIDE feature for the Auxiliary Feedwater discharge valves?

- A. Overrides the OPEN signal from EFAS actuation.
- B. The operator can manually control Aux Feed flow to the SGs when level is above the EFAS level setpoint.
- C. Allows automatic throttling of Aux. Feed flow to the SGs to maintain "normal" levels.
- D. Overrides the block signal from a CIAS so that Aux Feed flow can be re-established to an isolated SG.

Answer: B Lesson Plan 2XP207

Question Source: Bank # 27831
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.2.2	
Importance Rating	4.0		3.5
Tier #	2		2
Group #	1		1

Question #70

Which ONE of the following is the normal lineup for the 125 V DC bus, D3?

- A. DC Bus D3 is powered from battery charger "B003 which is powered from 480 VAC bus BE.
- B. DC Bus D3 is powered from battery charger B0038 which is powered from Lighting Panel LP13.
- C. DC Bus D3 is powered from Inverter Y003 which is powered from Instrument Vital Bus Y03.
- D. DC Bus D3 is powered from DC Bus D1 through DC bus cross-tie breaker D106.

Answer: A

Question Source: Bank # _____
Modified Bank # _____
New PV40235

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K1.03	
Importance Rating	2.9		3.5
Tier #	2		2
Group #	2		1

Question #71

A liquid release of radwaste tank T-057 is in progress. Why is it necessary to maintain the discharge flowrate greater than the low flow interlock of 60 gpm?

- A. The low flow interlock will disable the radiation monitor, RE- 7813 alarm function.
- B. The liquid radwaste discharge valves, 2/3HV-7641 and 7642 fail closed on low flow.

- C. The minimum sensitivity of radiation monitor, RE-7813 requires greater than 60 gpm flow.
- D. Less than 60 gpm flowrate will not maintain the Marineli Canister around the radiation detector full of sample fluid.

Answer: A Lesson Plan 2XRR08

Question Source: Bank # 39330
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K4.01	
Importance Rating	3.4		4.1
Tier #	2		2
Group #	1		1

Question #72

Which ONE of the following describes the action(s) that occur when RE-7865, Containment Purge and Plant Vent Stack Wide Range Effluent Monitor, receives a HIGH radiation alarm while it is aligned to the Plant Vent Stack?

- A. Shuts the outside Containment Purge valves.
- B. Trips the Continuous Exhaust Fans A310, A311 and A312.
- C. Generates a CPIS signal which closes Containment Purge and Mini-purge Supply and Exhaust valves.
- D. Closes FV-7202, Waste Gas Isolation valve.

Answer: D Lesson Plan 2XR203

Question Source: Bank # 27823
 Modified Bank # _____

New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A3.03	
Importance Rating	3.6		3.8
Tier #	2		2
Group #	1		1

Question #73

The Area Radiation Monitoring System generates a signal to perform specific isolation functions.

Which one (1) of the following isolation functions can be generated by the Area Radiation Monitoring System?

- A. Containment purge isolation.
- B. Containment isolation.
- C. Blowdown isolation.
- D. Fuel building ventilation isolation.

Answer: A Lesson Plan

Question Source: Bank # 19116
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		K4.01
Importance Rating		4.3
Tier #		2
Group #		1

Question #74

The area radiation monitoring system generates a signal to perform specific isolation functions. Which ONE of the following isolation functions can be generated by the area radiation monitoring system?

- A. Containment isolation actuation system (CIAS).
- B. Fuel building ventilation isolation.
- C. Blowdown isolation.
- D. Containment purge isolation.

Answer: D Lesson Plan 2XRR08

Question Source: Bank # 39287
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K4.01	
Importance Rating	4.0	
Tier #	2	
Group #	1	

Question #75

Unit 2 is in the process of a Hot Restart at End of Life (EOL) in accordance with plant operating instruction SO23-5-1.3.1, Plant Startup from Hot Standby to Minimum Load. An Estimated Critical Position (ECP) has been determined. The reactor operator has followed the procedure in pulling rods to the ECP but does not have indication that the reactor is critical.

Which ONE of the following conditions will cause the actual critical rod CEA position to be HIGHER than the ECP?

- A. Misadjustment of the steam bypass controller to be 50 psig higher than the normal no load setting.

New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A4.04	
Importance Rating	3.2		3.6
Tier #	2		2
Group #	1		1

Question #77

Following a reactor trip from 100% power, the setpoint is lowered on the FWCS Master Controllers to 55%. As a result of this action RTO resets.

Steam Generator levels are at 35% and slowly rising.

Auxiliary Feedwater flow is at zero gpm due to EFAS resetting on recovering Steam Generator Water level.

FWCS Master Controllers indication:

Red pointer at 35%
Black and white pointer at 55%
Output at 50% and increasing

Which ONE of the following should immediately be done?

- A. Match the Master Controller's black and white pointer and red pointer.
- B. Put individual controllers in manual, and run their signals to zero.
- C. Contact I&C
- D. Put Master Controller in manual, decrease output to zero.

Answer: A Lesson Plan 2XIR06

Question Source: Bank # N4113
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K1.04	
Importance Rating	3.4	
Tier #	2	
Group #	1	

Question #78

The plant has just tripped from 100% power.

Which ONE of the following describes the response of the FWCS to a Reactor Trip Override (RTO) signal?

- A. Main Feed Pump speed goes to 3600 rpm. Main Feed Reg Valves are closed, and Bypass Valves are 50% open.
- B. Main Feed Pump speed goes to 3600 rpm. Main Feed Reg Valves are closed and Bypass Valves are closed.
- C. Main Feed Pump speed goes to 3000 rpm. Main Feed Reg Valves are 5% open and Bypass Valves are 50% open.
- D. Main Feed Pump speed remains unchanged. Main Feed Reg Valves are closed, and Bypass Valves are at approximately 50% open.

Answer: A Lesson Plan 2XIR06

Question Source: Bank # N2780
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K4.05	
Importance Rating	2.5	
Tier #	2	
Group #	1	

Question #79

When manually starting auxiliary feedwater pump, P-140, the operator is directed to de-energize the steam inlet valve, HV4716 by opening the knife switch inside MS-4716 or by opening the power supply breaker.

The power supply breaker is located on:

- A. 1E 120 VAC bus Y01.
- B. 1E 120 VAC bus Y02.
- C. 1E 125 VDC bus D3.
- D. 1E 125 VDC bus D4.

Answer: C Lesson Plan 2XPR07

Question Source: Bank # 39283
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K2.01	
Importance Rating	2.2		2.3
Tier #	2		2
Group #	1		1

Question #80

Which ONE of the following is an indication of a "ground" on a 125 VDC bus?

- A. Bus voltage indication is LOW, current indication is normal, and White ground indicating light is ON.
- B. Bus voltage indication is HIGH, current indication is LOW, and White ground indicating light is OFF.

- C. Bus voltage indication is normal, current indication is normal, and WHITE ground indicating light is ON.
- D. Bus voltage indication is LOW, current indication is LOW, and WHITE ground indicating light is OFF.

Answer: C

Question Source: Bank # _____
 Modified Bank # _____
 New PV29279

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.1.33	
Importance Rating	3.4		4.0
Tier #	2		2
Group #	1		1

Question #81

Given the following conditions:

Unit 2 is at 100% power
 Waste gas release is in progress
 Wide range gas monitor, (WRGM) 2RE-7865 aligned to the plant vent stack for normal power operation

Annunciator alarm 61A08, "Airborne Radiation Hi" is received.
 Concurrently, the alert (Amber) LED associated with the effluent channel is lit at the RM-23 communication module (L-405).

Select the automatic action initiated by the WRGM for the above set of conditions.

- A. Initiates a containment purge isolation signal (CPIS).
- B. Shifts the monitor to containment purge.
- C. Closes the waste gas discharge control valve, HV-7202.
- D. Closes the outside containment mini & normal purge isolation valves.

Answer: C Lesson Plan 2XRR08

Question Source: Bank # 39285
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K4.05	
Importance Rating	2.7		3.0
Tier #	2		2
Group #	1		1

Question #82

The plant is shutdown with the RCS drained to the midloop condition. Planned outage activities include steam generator inspections over the next few weeks. One train of shutdown cooling is in operation. Given that a loss of shutdown cooling occurs, which one of the following is capable of providing the only valid temperature indication to monitor reactor core conditions:

- A. Core Protection Calculators
- B. Core Operating Limit Supervisory System
- C. Heated Junction Thermocouples
- D. Shutdown Cooling loop temperature

Answer: C Lesson Plan AOI SO23-13-15 Loss of Shutdown Cooling

Question Source: Bank # _____
 Modified Bank # _____
 New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #	K6.01		
Importance Rating	2.7		

Tier # 2
 Group # 1

Question #83

Unit 2 reactor tripped from 100% power. The following conditions exist:

- SPTAs are in progress
- Pressurizer pressure is 800 psia and stable
- 3 RCPs are running
- T_{HOT} is 500°F
- T_{COLD} is 480°F
- Pressurizer level is 30% and dropping slowly
- S/G flow is being controlled by Main Feed in RTO
- S/G Pressures are 565 psia and being controlled by SBCS
- Containment temperature is 186°F

Which ONE of the following is correct concerning Reactor Coolant Pump operation?

- A. Conditions are adequate for 3 RCP operation
- B. RCP operation should be 1 per loop (2 RCP operation)
- C. RCP operation should be restored to 2 per loop (4 RCP operation)
- D. Conditions are NOT adequate for any RCP operation

Answer: D Lesson Plan 2EO703

Question Source: Bank # _____
 Modified Bank # N11165
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A4.03	
Importance Rating	4.4		4.3
Tier #	2		2
Group #	2		2

Question #84

Following a Loss Of Coolant Accident (LOCA), RCS pressure is at 250 psia and decreasing.

Which ONE of the following statements describes the "NORMAL" status of Emergency Core Cooling INJECTION flow?

- A. Constant HPSI flow exists with no LPSI flow.
- B. Increasing HPSI flow exists with no LPSI flow.
- C. Constant HPSI and LPSI flow exists.
- D. Increasing HPSI and LPSI flow exists.

Answer: B

Question Source: Bank # _____
Modified Bank # _____
New PV31576

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		K6.03
Importance Rating		3.9
Tier #		2
Group #		2

Question #85

Following a Loss of Coolant Accident (LOCA), the RCS pressure is at 400 psia and slowly decreasing.

Which ONE of the following describes the expected status of the High Pressure Safety Injection (HPSI), Low Pressure Safety Injection (LPSI), and Safety Injection Tanks (SITs) flows?

- A. Increasing HPSI flow, no LPSI flow, SITs have injected.
- B. Increasing HPSI and LPSI flow, SITs have injected.
- C. Constant HPSI flow, no LPSI flow, SITs have not injected.

D. Increasing HPSI and LPSI flow, SITs have not injected.

Answer: A

Question Source: Bank # _____
Modified Bank # _____
New PV37051

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	A1.17	
Importance Rating	4.2	
Tier #	2	
Group #	2	

Question #86

The failure of a Pressurizer narrow range pressure instrument PT-0101- 1, 2, 3, or 4, will affect the "Pressurizer Pressure - High" Reactor Trip.

What are the other TWO Reactor Trips which will be affected by the loss of a Narrow Range Pressurizer Pressure Instrument?

- A. Local Power Density - High DNBR - Low
- B. Pressurizer Pressure - High (CIAS/CCAS), and Pressurizer Pressure - Low (RPS)
- C. Pressurizer Pressure - Low (CCAS), and Pressurizer Pressure - Low RPS
- D. Local Power Density - Low DNBR - High

Answer: A Lesson Plan 2A0718

Question Source: Bank # _____
Modified Bank # N4039
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis

 X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K1.01	
Importance Rating	3.9		4.1
Tier #	2		2
Group #	2		2

Question #87

The unit is operating at 100% power with charging pump P-191 in operation and with charging pump P-192 selected as first backup when the NON 1E Uninterruptable Power Source (UPS) is lost.

Which ONE of the following statements correctly describes the response of the Chemical and Volume Control System?

- A. Charging pump P-192 will start due to a simulated low pressurizer level.
- B. Charging pump P-191 will stop and charging pump P-192 will start to maintain pressurizer level.
- C. Charging pump P-191 will stop due to a simulated high pressurizer level.
- D. Charging pump P-192 and P-190 will start due to a simulated low pressurizer level.

Answer: C

Question Source: Bank # 19449
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K3.01	
Importance Rating	3.2		3.4
Tier #	2		2
Group #	2		2

Question #88

According to SO123-0-14, "Notification And Reporting Of Significant Events", which ONE of the following would require One-Hour Telephone Notification to the NRC?

- A. Manual or automatic actuation of any Engineered Safety Feature (ESF).
- B. Any condition that alone could have prevented the fulfillment of the safety function of systems that are needed to remove residual heat.
- C. The declaration of any of the emergency classes specified in the Emergency Plan Implementing Procedures.
- D. Any event, related to the health and safety of the public, for which a news release is planned.

Answer: C Lesson Plan 2LC705

Question Source: Bank # 27883
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.4.40
Importance Rating		4.0
Tier #		3
Group #		

Question #89

According to Technical Specification (Basis), which ONE of the following Reactor Trips is provided for the sole purpose of assuring that the reactor is tripped prior to or concurrent with Engineered Safety Features Actuations?

- A. Containment High Pressure.
- B. Pressurizer High Pressure.

- C. Steam Generator Low Pressure.
- D. Steam Generator Low Level.

Answer: A Lesson Plan 2XC209

Question Source: Bank # N7368

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___

 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		K4.02
Importance Rating		4.3
Tier #		2
Group #		2

Question #90

Given the following:

A MANUAL trip test is being performed on the Reactor Trip pushbuttons on panel CR-56. The Channel "A" Manual Reactor Trip pushbutton on CR-56 has just been depressed. The trip test has NOT been RESET.

Which ONE of the following will occur if the Channel "B" Reactor Trip button on CR-53 is depressed?

- A. RTBs 1 & 5 and 2, 6 will be open and the reactor will NOT trip.
- B. RTBs 1 & 5 and 3, 7 will be open and the reactor will trip.
- C. RTBs 4 & 8 and 2, 6 will be open and the reactor will trip.
- D. RTBs 4 & 8 and 3, 7 will be open and the reactor will NOT trip.

Answer: A

Question Source: Bank # N8358
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	A4.01	
Importance Rating	4.5	
Tier #	2	
Group #	2	

Question #91

Given the following plant conditions:

Unit 2 is operating at 100% power
SG level selection for both feedwater control systems in the "BOTH" position.
Steam generator E089 control channel level transmitter, LT-1111, fails upscale high.

Select the expected automatic plant response assuming no operator action.

- A. Reactor trip on high SG level.
- B. No impact, since selected to "BOTH."
- C. Level will increase until terminated by high level override.
- D. Reactor trip on low SG level.

Answer: D Lesson Plan 2XIR06

Question Source: Bank # 39281
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis _____ X _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	A2.01	

Importance Rating	3.0	3.1
Tier #	2	2
Group #	2	2

Question #92

The "azimuthal power tilt" value used by the Core Protection Calculators (CPCs) is:

- A. Calculated by COLSS (Core Operating Limits Supervisory System) and manually input to each CPC.
- B. Calculated by each CPC based upon inputs from the Excore Nuclear Instruments (ENIs) and COLSS.
- C. Calculated by each CPC based upon inputs from the Control Element Assembly Calculators (CEACs) and COLSS.
- D. Calculated by COLSS and automatically input to each CPC.

Answer: A Lesson Plan 2XC202

Question Source: Bank # N7345
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis _____ X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	G2.1.31	
Importance Rating	4.2	
Tier #	2	
Group #	2	

Question #93

The Containment Spray Chemical Addition Tank has been inadvertently drained while in Mode 1 at full power.

The consequences of this action would be increased:

- A. corrosion of containment materials during a LOCA.
- B. containment pressure during a LOCA.
- C. formation of hydrogen during a LOCA.
- D. containment iodine levels during a LOCA.

Answer: D

Question Source: Bank # _____
 Modified Bank # _____
 New PV31614

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K1.01	
Importance Rating	3.4		3.7
Tier #	2		2
Group #	3		2

Question #94

The Hydrogen Recombiners are designed to maintain Containment hydrogen concentration, post LOCA, less than:

- A. 3.0% by weight
- B. 3.0% by volume
- C. 4.0% by volume
- D. 4.0% by weight

Answer: C Lesson Plan 2XA209

Question Source: Bank # _____
 Modified Bank # 27858

New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A1.01	
Importance Rating	3.4		3.8
Tier #	2		2
Group #	3		2

Question #95

In what order will the following Reactor Protection System components "actuate" during the processing of an automatic reactor trip signal?

- A. Bistable relays, Matrix relays, K (initiating) relays, UV coils
- B. Matrix relays, K (initiating) relays, UV coils, Bistable relays
- C. K (initiating) relays, Matrix relays, Bistable relays, UV coils
- D. Matrix relays, Bistable relays, UV coils, K (initiating) relays

Answer: A Lesson Plan 2XCR09

Question Source: Bank # _____
Modified Bank # N0514
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K2.01	
Importance Rating	3.3		3.7
Tier #	2		2
Group #	2		2

Question #96

During Refueling, a spurious Containment Isolation Actuation Signal (CIAS) and Containment Purge Isolation Signal (CPIS) occur.

Which ONE of the following explains why SPENT FUEL POOL temperatures would rise after this event?

- A. A CIAS would isolate the Component Cooling Water supply to the Spent Fuel Pool Heat Exchangers.
- B. A CIAS would isolate the Nuclear Service Water supply to the Spent Fuel Pool Heat Exchangers.
- C. A CPIS would isolate the Component Cooling Water supply to the Spent Fuel Pool Heat Exchangers.
- D. A CPIS would isolate the Nuclear Service Water supply to the Spent Fuel Pool Heat Exchangers.

Answer: A Lesson Plan 2XB201

Question Source: Bank # 19153
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		A3.01
Importance Rating		2.7
Tier #		2
Group #		2

Question #97

A spurious Safety Injection Actuation Signal (SIAS) and Containment Purge Isolation Signal (CPIS) has occurred. Operators in the Fuel Handling building notice pool temperatures rising.

Which ONE of the following states why Spent Fuel Pool temperatures would rise after this event?

- A. A SIAS would isolate the Component Cooling Water Non-critical loop supplying the Spent Fuel Pool Heat Exchangers.

- B. A SIAS would isolate the Nuclear Service Water Non-critical loop supplying the Spent Fuel Pool Heat Exchangers.
- C. A CPIS would isolate the Nuclear Service Water cooling the Transfer Canal, subsequently heating the Spent Fuel Pool.
- D. A CPIS would isolate the Component Cooling Water Non-critical loop cooling the Transfer Canal, subsequently heating the Spent Fuel Pool.

Answer: A Lesson Plan 2A0720

Question Source: Bank # 19506

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis __X__

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	A3.01	
Importance Rating	2.5	
Tier #	2	
Group #	2	

Question #98

During refueling operations while moving an irradiated fuel assembly over the reactor core, a total failure of the Steam Generator Nozzle Dam Seals occurs.

Which ONE of the following describes the preferred location the fuel assembly should be placed in?

- A. Upender and then lowered to the horizontal position.
- B. Any available location in the core.
- C. Suspended on the refueling grapple above the reactor core.
- D. Deep area of the pool in a water trap.

Answer: B Lesson Plan

Question Source: Bank # 34787
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K1.01	
Importance Rating	2.5		3.2
Tier #	2		2
Group #	3		2

Question #99

Given the following plant conditions:

Unit 3 is operating at 50% power
Main Steam Isolation Valve 3HV-8404 failed CLOSED

Which ONE of the following describes the plant response?

- A. Turbine Trips due to a Reactor Trips generated by a Core Protection Calculator (CPC) Auxiliary Trip.
- B. Turbine load does NOT change since the remaining S/G is capable of delivering the required steam demand.
- C. Turbine load will stabilize at a lower load due to lower steam pressure being supplied from the remaining OPERABLE S/G.
- D. Turbine trips due to loss of Governor Arming Circuit caused by an auxiliary contact in the MSIV control circuit.

Answer: A

Question Source: Bank # N41857
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		K6.01
Importance Rating		3.6
Tier #		2
Group #		2

Question #100

Unit is operating at full power. The S/G level selection for both FWCS is in "BOTH " position. Control channel level transmitter LT-1111 for E-089 failed HIGH to 90 % .

Which ONE of the following best describes the plant response WITHOUT operator action ?

- A. A subsequent Reactor trip on low S/G level.
- B. A subsequent Reactor trip on high S/G level.
- C. No impact, since selected to " BOTH " .
- D. An immediate Reactor trip on high S/G level.

Answer: A Lesson Plan 2XIR06

Question Source: Bank # N2783
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K6.03	
Importance Rating	2.6	
Tier #	2	
Group #	2	

Question #101

Which ONE of the following is used to maintain RCS subcooling during a Station Blackout?

- A. Steam Bypass Control Valves.
- B. Main Steam Safety Valves.
- C. Atmospheric Dump Valves.
- D. Pressurizer Safety Valves.

Answer: C

Question Source: Bank # _____
Modified Bank # _____
New PV31624

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.4.49	
Importance Rating	4.0		4.0
Tier #	2		2
Group #	2		2

Question #102

With the plant operating steadily at full power, the primary operator notes that since his last meter scan the megawatt output meter has decreased by about 25 MW, while reactor power, Tref, and Tavg have remained constant. What is the most likely cause of this unnoticed main generator output/reactor power mismatch?

- A. A load reduction on the grid.
- B. A feed excursion causing increased SG levels.
- C. A leaking SG code safety valve.
- D. An air leak in the main condenser.

Answer: D Lesson Plan ZTYH-702-00

Question Source: Bank # _____
Modified Bank # _____
New WT22304

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K3.01	
Importance Rating	2.5	
Tier #	2	
Group #	2	

Question #103

Given the following conditions:

Unit 2 is operating at 100% power.
Control room notified that lift setpoint for one of the pressurizer code safety valves is out of tolerance high due to error in test calculation.
The other pressurizer code safety valve is OPERABLE.

Which ONE of the following state the required Technical Specification actions for this condition?

- A. Restore within 15 minutes or be in at least HOT STANDBY in the next 6 hours.
- B. Restore within 1 hour or be in at least HOT STANDBY in the next 6 hours.
- C. Restore within 15 minutes or be in at least HOT SHUTDOWN in the next 6 hours.
- D. Restore within 1 hour or be in at least HOT SHUTDOWN in the next 6 hours.

Answer: A

Question Source: Bank # _____
Modified Bank # _____
New PV48190

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		K6.12	
Importance Rating	3.0		3.5
Tier #	2		2
Group #	2		2

Question #104

Which ONE of the following is the loading sequence for Emergency Diesel Generator G002 following a loss of ALL off-site power?

- A. High Pressure Safety Injection pump, Emergency Feedwater pump, Containment Spray pump
- B. Low Pressure Safety Injection pump, Salt Water pump, Containment Spray pump
- C. Class 1E battery chargers, Salt Water pump, Low Pressure Safety Injection pump
- D. Class 1E battery chargers, Component Cooling Water pump, Emergency Feedwater pump

Answer: D

Question Source: Bank # _____
Modified Bank # _____
New PV35257

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #			A3.07
Importance Rating			3.7
Tier #			2
Group #			2

Question #105

The following plant condition exists:

EDG 2G003 is paralleled to the grid.

Which ONE of the following is expected when the EDG GOVERNOR and VOLTAGE control handswitches are both taken to RAISE/INCREASE?

- A. MWs and EDG speed increase.
- B. MVARs and MWs increase.
- C. Output voltage and MVARs are constant.
- D. EDG speed and output voltage increase.

Answer: B

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	PV40260

Question Cognitive Level:	Memory or Fundamental Knowledge	_____	<u> X </u>
	Comprehension or Analysis	_____	

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	A3.05	
Importance Rating	2.8	
Tier #	2	
Group #	2	

Question #106

The plant is operating at 100% power.

All control systems are in automatic and operating properly.

One (1) Circulating Water (CW) Pump has just tripped due to an electrical fault; three (3) CW Pumps are still running.

Which ONE of the following is MINIMUM amount that power must be reduced to sustain 3 pump operation, while maintaining?

- A. 5%
- B. 14%
- C. 25%
- D. 34%

Answer: C

Question Source: Bank # _____
 Modified Bank # 19127
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A2.02	
Importance Rating	2.5		2.7
Tier #	2		2
Group #	2		2

Question #107

SO23-13-21 describes the duties and responsibilities of personnel during a fire. A fire is reported inside the protected area of San Onofre Unit 2.

Which ONE of the following correctly describes the duties of the Common Control Operator (41), after obtaining a copy of the zone evaluation?

- A. Remain in the control room, and coordinate the fire fighting effort
- B. Remain in the control room, and act as technical advisor
- C. Proceed to the scene, and act as fire brigade leader
- D. Proceed to the scene, and act as technical advisor

Answer: D

Question Source: Bank # 19089
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.4.27	
Importance Rating	3.0		3.5
Tier #	3		3
Group #			

Question #108

Which one of the following areas are protected by a Halon Automatic Fire Suppression System?

- A. Turbine Generator Bearing Housing & Radiochemistry Count Room
- B. Units 2/3 Control Rooms & Units 2/3 Computer Rooms
- C. Units 2/3 Computer Rooms & Radiochemistry Count Room
- D. Battery Rooms & Units 2/3 Control Rooms

Answer: C Lesson Plan 2XRF01

Question Source: Bank # 34723
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
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K/A #		A3.02	
Importance Rating	2.9		3.3
Tier #	2		2
Group #	2		2

Question #109

Which ONE of the following statements describes the proper sequence for placing the SDC system in service following a loss of coolant accident?

- A. 1. Secure LPSI pumps. 2. Isolate Containment Spray headers. 3. Open SDC Suction Isolation. 4. Start LPSI pump. 5. Throttle SDC Heat Exchanger outlet isolation.
- B. 1. Isolate Containment Spray headers. 2. Secure LPSI pumps. 3. Throttle SDC Heat Exchanger Outlet Isolation. 4. Open SDC Suction Isolation. 5. Start LPSI pump.
- C. 1. Secure LPSI pumps. 2. Isolate Containment Spray headers. 3. Throttle SDC Heat Exchanger Outlet Isolation. 4. Open SDC Suction Isolation. 5. Start LPSI pump.
- D. 1. Secure LPSI pumps. 2. Throttle SDC Heat Exchanger Outlet Isolation. 3. Open SDC Suction Isolation. 4. Start LPSI pump. 5. Isolate Containment Spray headers.

Answer: A Lesson Plan 2XA203

Question Source: Bank # N0066
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		K1.06
Importance Rating		3.6
Tier #		2
Group #		3

Question #110

Saturated steam from the pressurizer at 2050 psia is leaking through the pressurizer relief valve to the Quench Tank, which is being maintained at 50 psia. What is the temperature and phase of the fluid entering the Quench Tank?

- A. 653°F; superheated steam
- B. 640°F; superheated steam
- C. 298°F; wet steam
- D. 281°F; wet steam

Answer: D Lesson Plan 2RP321

Question Source: Bank # _____
 Modified Bank # N8014
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		A4.10	
Importance Rating	3.6		3.8
Tier #	2		2
Group #	3		3

Question #111

Component Cooling Water Pumps P-024 and P-026 are operating, P-025 is aligned to Train A and is in standby. A Safety Injection Actuation Signal (SIAS) and a Loss of Voltage Signal (LOVS) (on both safety related busses for greater than five seconds) have been received.

Which ONE of the following correctly describes the CCW pump responses when the busses are reenergized?

- A. P-024 and P-026 start P-025 does not start.
- B. P-025 and P-026 start P-024 does not start.

- C. P-024 and P-025 start P-026 does not start.
- D. All CCW pumps start.

Answer: B

Question Source: Bank # 19471
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		K2.02
Importance Rating		3.2
Tier #		2
Group #		3

Question #112

Component Cooling Water (CCW) has been lost to a Reactor Coolant Pump (RCP) while in Mode 1. You have entered OI SO23-13-6, RCP Seal Failure, and AOI SO23-13-7 Loss of CCW / SWC.

What is the MAXIMUM time that a Reactor Coolant Pump can be operated without Component Cooling Water (CCW)?

- A. 3 minutes
- B. 5 minutes
- C. 15 minutes
- D. 30 minutes

Answer: A

Question Source: Bank # 19470
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K3.03	
Importance Rating	4.1	
Tier #	2	
Group #	3	

Question #113

Which ONE of the following is required to block a quick open signal in the Steam Bypass Control System ?

- A. Low Tave and a Reactor Trip
- B. Low Tave and low condenser vacuum
- C. High Tave and low condenser vacuum
- D. High Tave and a Reactor Trip

Answer: A Lesson Plan 2X1205

Question Source: Bank # _____
Modified Bank # N2997
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	A4.08	
Importance Rating	3.0	
Tier #	2	
Group #	3	

Question #114

Which ONE of the following signals from the Turbine Protection System is used by the Reactor Protection System to initiate a reactor trip on Loss of Load?

- A. Hydraulic oil pressure from the Main Turbine Unitized Actuators.
- B. Steam pressure from the Main Turbine first stage steam chest.
- C. Valve position indication of the Main Turbine Stop Valves.
- D. Breaker position of the Main Generator 22 KV output breakers.

Answer: A Lesson Plan 2XT205

Question Source: Bank # N2995
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		K4.11
Importance Rating		3.9
Tier #		2
Group #		3

Question #115

Which ONE of the following signals from the Turbine Protection System is used by the Reactor Protection System to initiate a reactor trip on Loss of Load ?

- A. Hydraulic oil pressure from the Main Turbine Stop Valve Actuators.
- B. Steam pressure from the Main Turbine first stage steam chest.
- C. Valve position indication of the Main Turbine Stop Valves.
- D. Breaker position of the Main Generator 220 KV output breakers.

Answer: A Lesson Plan 2XCR09

Question Source: Bank # N3515
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K1.18	
Importance Rating	3.6	
Tier #	2	
Group #	3	

Question #116

Given the following:

Unit in Mode 5, 140 degree F and 250 psia.
Shutdown cooling "A" in service.
Letdown is in the normal alignment.
Steam generator temperature is 240 degree F.
Reactor coolant pump "1A" is started.

Which ONE of the following identifies the component(s) that mitigate the resultant transient?

- A. Letdown backpressure control valves
- B. Low temperature over-pressure relief valves
- C. Steam bypass control valves
- D. Shutdown cooling thermal relief valves

Answer: B

Question Source: Bank # _____
Modified Bank # _____
New PV49191

Question Cognitive Level: Memory or Fundamental Knowledge _____ X _____
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	K4.01	
Importance Rating	3.0	
Tier #	2	
Group #	3	

Question #117

Given the following:

Unit 2 is in Mode 1

You are the SM on watch

Shifts are 12 hours long

All shifts are manned to the minimum composition per Technical Specifications

Your relief is NOT on site for shift turnover

Which ONE of the following describes the Tech Spec requirements regarding the shift composition and required action in this situation?

- A. Cannot drop below the minimum due to your relief being absent. Remain on watch until properly relieved.
- B. Cannot drop below the minimum unless you will exceed 16 hours on watch. If 16 hours will be exceeded then leave a turnover for the oncoming SM and depart.
- C. May be one less than the minimum for two hours. Turnover to one of the Unit CRS's if your relief will be arriving within the next two hours.
- D. May be one less than the minimum while attempting to contact the absent individual. Turnover to one of the Unit CRS's and have the CRS attempt to contact the absent individual.

Answer: A

Question Source: Bank # N37982
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.1.4
Importance Rating		3.4
Tier #		3
Group #		

Question #118

SONGS Procedure SO123-0-10, "Operations Shift Relief", requires you to complete Shift Relief Status sheets.

Which ONE of the following correctly describes when the Shift Relief Status sheets should be completed?

- A. One hour after shift turnover, if any plant action was required by technical specification
- B. Continually during the shift
- C. During shift turnover
- D. 1-2 hours following shift relief, regardless of plant status involving technical specifications

Answer: B

Question Source: Bank # _____
 Modified Bank # 19432
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X_____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.1.3	
Importance Rating	3.0		3.4
Tier #	3		3
Group #			

Question #119

The following plant condition exists:

Toxic gas ingress to the Control Room requires a control room evacuation and plant shutdown from outside the control room

The reactor has been manually tripped.

The turbine has been manually tripped.

Which ONE of the following identifies the order in which the "IMMEDIATE ACTIONS" for Shutdown From Outside the Control Room AOI, SO23-13-2 are to be completed?

- A. 1) Manually initiate MSIS
2) Select manual and stop all Charging Pumps
3) Stop all RCPs
- B. 1) Select manual and stop both backup Charging Pumps
2) Manually initiate MSIS
3) Stop all RCPs
- C. 1) Stop all RCPs
2) Manually initiate MSIS
3) Select manual and stop all Charging Pumps
- D. 1) Manually initiate MSIS
2) Stop all RCPs
3) Select manual and stop all Charging Pumps

Answer: A Lesson Plan 2AO702

Question Source: Bank # N0475
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.1.20	
Importance Rating	4.3		4.2
Tier #	3		3
Group #			

Question #120

Which of the following situations requires an independent verification for a valve lineup?

- A. When preparing to enter a Mode where the valve is required to be operable per Technical Specifications.

- B. When performing a surveillance which verifies system valve alignment.
- C. During the installation and removal of a temporary modification involving a valve, in the waste water system.
- D. Work Authorization installation and removal of Red Man-at-Work tags on valves, on the stator cooling system.

Answer: A

Question Source: Bank # 39254
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.1.29	
Importance Rating	3.4		3.3
Tier #	3		3
Group #			

Question #121

Given the following conditions:

The unit is at 100% power.
 All charging pumps are exhibiting gas binding and are unable to be vented.
 All charging pump handswitches are placed in the pull-to-lock position.

Which ONE of the following describes the required operator action?

- A. Within one minute trip the reactor and stop one RCP per loop.
- B. Run the charging pumps one at a time to maintain seal injection, even if venting is NOT complete.
- C. Commence a unit shutdown as directed by Technical Specification 3.0.3.
- D. Completely vent the VCT to reduce the cover gas pressure and to minimize the gas entering the charging pumps.

Answer: C Lesson Plan (As available)

Question Source: Bank # _____
Modified Bank # _____
New PV37127

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	G2.1.33	
Importance Rating	3.4	
Tier #	3	
Group #		

Question #122

Answer:

Question Source: Bank # _____
Modified Bank # _____
New

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	G2.1.33	
Importance Rating	4.0	
Tier #	3	
Group #		

Question #123

Which of the following situations requires an independent verification for a valve lineup?

- A. When preparing to enter a Mode where the valve is required to be operable per Technical Specifications.
- B. When performing a surveillance which verifies system valve alignment.
- C. During the installation and removal of a temporary modification involving a valve, in the waste water system.
- D. Work Authorization installation and removal of Red Man-at-Work tags on valves, on the stator cooling system.

Answer: A

Question Source: Bank # 39254
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.2.13	
Importance Rating	3.6		3.8
Tier #	3		3
Group #			

Question #124

Given the following conditions:

Current date and time are November 18 at 1300 hours.

Electrical maintenance notifies the control room that the 92 Day Class Battery Surveillance Test, was not performed on Channel C within the required 1.25 interval.

The Shift Technical Advisor determines the interval expired at 0700 today.

Electricians inform the Shift Supervisor the test will take an additional 12 hours to complete.

All other surveillance tests are current.

Which ONE of the following identifies the technical specification required time to declare Channel C INOPERABLE and the action(s) for this condition?

- A. 0700 and commence plant shutdown.
- B. 1300 and commence plant shutdown.
- C. 1300 and complete the surveillance test within 24 hours or commence plant shutdown at that time.
- D. Complete the surveillance test within 24 hours or declare in operability at that time and commence plant shutdown.

Answer: C

Question Source: Bank # _____
 Modified Bank # _____
 New PV49126

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.2.22	
Importance Rating	3.4		4.1
Tier #	3		3
Group #			

Question #125

Given the following:

Technical Specification 3.4.7 restricts starting a RCP when Tcold is less than 256 degrees F and steam generator secondary water temperature is more than 100 degrees F. above each RCS Tcold.

Which ONE of the following is the reason for this limit?

- A. Minimize RCS pressure transient caused by reverse heat transfer from a hot S/G.
- B. Prevent outsurge from emptying the pressurizer following RCP start.
- C. Minimize RCS pressure transient caused by additional heat transfer from the core

D. Minimize RCS pressure transient due to additional RCP pressure head added to RCS pressure

Answer: A

Question Source: Bank # _____
Modified Bank # _____
New PV40228

Question Cognitive Level: Memory or Fundamental Knowledge _____ __X__
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	RO		SRO
K/A #		G2.2.25	
Importance Rating	2.5		3.7
Tier #	3		3
Group #			

Question #126

Given the following:

During refueling operations, Technical Specifications 3.9.8.1 and 3.9.8.2 allow shutdown cooling flow to be stopped for up to one (1) hour in an eight (8) hour period for certain activities.

Which ONE of the following is an activity that permits stoppage of Shutdown Cooling flow?

- A. Whenever turbulence reduces visibility.
- B. To allow removal of reactor vessel internals.
- C. To seat assemblies near the hot legs.
- D. To keep unsupported assemblies from falling.

Answer: C

Question Source: Bank # _____

Modified Bank # _____
New PV40255

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.2.26	
Importance Rating	2.5		3.7
Tier #	3		3
Group #			

Question #127

The following plant condition exists:

You are reloading fuel into the reactor vessel when the Shift Supervisor informs you that one startup channel neutron flux monitor has failed channel checks.

Which ONE of the following is the required action?

- A. Continue fuel reload as only one (1) channel is required.
- B. Continue fuel reload, the LCO allows 12 hours to return the effected channel to service before suspending refueling operations.
- C. Suspend core alterations until boron sampling has been initiated every 12 hours for 36 hours.
- D. Suspend core alterations until two (2) S/U neutron channels are declared operable by the Shift Supervisor.

Answer: D Technical Specification 3.9.2

Question Source: Bank # _____
Modified Bank # _____
New PV40252

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.2.29
Importance Rating		3.8
Tier #		3
Group #		

Question #128

According to 10 CFR 20, which ONE (1) of the following correctly lists the requirements which must be met if the whole body dose annual limit is to be exceeded?

- A. Cannot exceed 25 Rem whole body lifetime dose, and you must have planned special exposures documented
- B. Cannot exceed 3 Rem/Qtr whole body, and you must have planned special exposures documented
- C. Planned special exposures need to be documented only if you might exceed your 5(N-18) Rem whole body lifetime dose
- D. You are never permitted to exceed the annual whole body dose limit.

Answer: A

Question Source: Bank # _____
 Modified Bank # 19081
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.3.4
Importance Rating		3.1
Tier #		3
Group #		

Question #129

A point source in the auxiliary building is reading 500 mrem/hr at distance of Two (2) feet. Two options exist to complete rework on a valve near this radiation source.

Option 1: Operator X can perform the assignment in thirty minutes working at a distance of four feet from the point source.

Option 2: Operators Y and Z, who have been trained in the use of a special extension tool can perform the same task in 75 minutes at a distance of eight feet from the point source.

Which ONE of the following options is preferable and consistent with the ALARA program?

- A. Option 1 as X s exposure is 31.25 mrem.
- B. Option 1 as X s exposure is 62.50 mrem.
- C. Option 2 as the exposure per person is 39.06 mrem.
- D. Option 2 as the exposure per person is 78.12 mrem.

Answer: B

Question Source: Bank # _____
Modified Bank # _____
New PV48247

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>		<u>SRO</u>
K/A #		G2.3.2	
Importance Rating	2.5		2.9
Tier #	3		3
Group #			

Question #130

Given the following conditions:

Unit 1 operating at 100% full power.
Core Exit Thermocouple fails to 0 output.

Which ONE of the following describes the response of the Qualified Safety Parameter Display System representative CET reading to an input failing low?

- A. Indicates lower, input used in calculation

- B. Does not change, input used in calculation
- C. Indicates lower, flagged as invalid.
- D. Does not change, input not used in calculation.

Answer: D

Question Source: Bank # _____
 Modified Bank # _____
 New PV49156

Question Cognitive Level: Memory or Fundamental Knowledge _____ X_____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	A1.01	
Importance Rating	3.7	
Tier #	2	
Group #	1	