EXAM 001

The operating License for Fort Calhoun Station, DPR-40, authorizes the receipt, possession and use of "special nuclear material" at FCS. Which one of the following is classified as "special nuclear material".

A. packing for "CQE" valves

B. Radioactive sources.

C. New fuel elements.

D. Lithium saturated resin

Knowledge of conditions and limitations in the facility license.

STATE the purpose of Title 10, Part 2 of the Code of Federal Regulations and DISCUSS the various actions that can be taken by the Nuclear Regulatory Commission in regards to violations of this part.

Sys/Event K/A:	000000 2.1.10	10CFR55:	43.B1
LP/Objective:	0751-04 01.00	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	10 CFR 20.1003	Handout:	NONE

EXAM 002

The plant was operating at 20% power with all non-trippable CEAs fully withdrawn. One non-trippable CEA was then inadvertently inserted to 110 inches. What action is required by Technical Specifications?

A. ✓ The non-trippable CEA must be raised to 114" or above within one hour.

B. The non-trippable CEA must be fully withdrawn within four hours.

C. The reactor must be tripped immediately.

D. No action is required by Technical Specifications.

Knowledge of less than one hour technical specification action statements for systems.

Describe the Technical Specification LCO challenged by a CEA or Control System malfunction.

Sys/Event K/A:	000000 2.1.11	10CFR55:	41.B5
LP/Objective:	0717-02 01.06	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	TS 2.10.2	Handout:	NONE

EXAM 003

Who is directly responsible for the preparation of Operations "Night Notes"?

A. Manager - Fort Calhoun Station

B. Manager - Operations

C. Supervisor - Operations Support

D. ✔ Supervisor - OCC

Ability to manage short-term information such as night and standing orders.

STATE the major sections of the Standing Orders.

Sys/Event K/A:	000000 2.1.15	10CFR55:	41.B10
LP/Objective:	0762-01 01.00	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	SO-O-1	Handout:	NONE

EXAM 004

You are performing a turbine startup in accordance with OI-ST-2.
Which one of the following statements is correct concerning required sequence of prerequisites and procedural steps?

A. Prerequisites and procedural steps must be satisfied or completed in sequence unless the procedure states otherwise.

B. Prerequisites must be satisfied in sequence but procedure steps are not required to be completed in sequence unless specified in the procedure.

C. ✓ Prerequisites are not required to be satisfied in sequence but procedure steps must be completed in sequence unless the procedure states otherwise.

D. Prerequisites and procedure steps are not required to be satisfied or completed in sequence unless the procedure states otherwise.

Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Prerequisites and Initial Conditions

Sys/Event K/A:	000000 2.1.23	10CFR55:	41.B10
LP/Objective:	0767-09 07.05	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NRC 97 EXAM
Reference:	SO-O-16	Handout:	NONE

EXAM 005

How is the installation of a temporary modification [TM] on a system annotated on Controlled P&ID copy #14 in the Control Room?

A.✔ The P&ID drawing is marked with a green dot which bears the TM number .

B. An entirely new P&ID drawing is issued from the Document Control Center indicating the location of the installed TM.

C. The P&ID drawing is marked with a RED permanent marker to indicate the location of the installed TM.

D. The P&ID drawing is removed from the copy #14 which would indicate that a TM is in progress on that particular system.

Ability to obtain and interpret station electrical and mechanical drawings.

STATE the major sections of the Standing Orders.

Sys/Event K/A:	000000 2.1.24	10CFR55:	41.B10/43.B3
LP/Objective:	07-62-01 01.00	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	SO O-25	Handout:	NONE

EXAM 006

Which one of the following situations requires that Technical Specifications be entered and action taken?

A. High Safety Injection and Refueling Water Storage Tank Temperature

B. ✔ High Control Room Temperature

C. Low Emergency Feedwater Storage Tank Temperature.

D. Low Condensate Storage Tank Temperature

Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

State the Technical Specifications, and the bases associated with the Contol Room Ventilation System.

Sys/Event K/A:	000000 2.1.33	10CFR55:	41.B5/43.B2
LP/Objective:	0714-06 01.09	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	TS 2.12.2	Handout:	NONE

EXAM 007

A plant engineer has developed a core physics test procedure that requires operating in a mode currently not allowed by Technical Specifications. Which one of the following statements is true?

A. The test may be conducted as long as it is approved by the Plant Review Committee. A Tech Spec change is not required.

B. The test may be conducted as long as it does not involve an unreviewed safety question. A Tech Spec change is not required.

C. The test may only be conducted if a change to the Technical Specifications is approved by the Plant Review Committee.

D. ✔ The test may only be conducted if a change to the Technical Specifications is approved by the Nuclear Regulatory Commission.

Knowledge of the process for conducting tests or experiments not described in the safety analysis report.

STATE the purpose of Title 10, Part 2 of the Code of Federal Regulations and DISCUSS the various actions that can be taken by the Nuclear Regulatory Commission in regards to violations of this part.

Sys/Event K/A:	000000 2.2.07	10CFR55:	43.B3
LP/Objective:	0751-04 01.00	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	10 CFR 50.59	Handout:	NONE

EXAM 008

Which one of the following is considered to be a "temporary condition" rather than a temporary modification"?

A. A blank flange is installed to prevent flow in the Potable Water system for 4 hours.

B.✔ A access panel on CB-20 is removed for 4 hours for maintenance.

C. An electrical jumper is placed on a condensate system level switch for less than 2 hours.

D. An EHC control system circuit card is pulled for less than 2 hours.

Knowledge of the process for controlling temporary changes.

STATE the major sections of the Standing Orders.

Sys/Event K/A:	000000 2.2.11	10CFR55:	43.B3
LP/Objective:	0762-01 01.00	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	SO O-25	Handout:	NONE

EXAM 009

Which one of the following statements concerning yellow caution tags is correct?

Yellow Caution Tags:_____

A. Are not required to be logged.

B. ✔ Provide special instructions regarding operation of components/systems.

C. Are placed on electrical grounding devices.

D. Can be used for fuse removal.

Knowledge of tagging and clearance procedures.

STATE the major sections of the Standing Orders.

Sys/Event K/A:	000000 2.2.13	10CFR55:	41.B10
LP/Objective:	0762-01 01.00	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	NRC FCS 1999
Reference:	SO-G-20A	Handout:	NONE

EXAM 010

Which one of the following situations involving equipment required by Technical Specifications requires that the equipment be logged as inoperable?

A. Instrument air is isolated to HCV-1749 during a calibration procedure.

B. ✔ The control room switch for SI-2C is placed in the PULL-TO-LOCK position as part of a planned surveillance test.

C. 91 days have elapsed since the last Tech Spec required quarterly Containmnet Spray Actuation Logic surveillance test was conducted.

D. Lockout Relay 86A/PPLS has been added to the Maintenance Rule A-1 list.

Ability to track limiting conditions for operations.

Limiting Conditions for Operation (LCO)

This is a modification of bank question ADM-CONTROL 015

Sys/Event K/A:	000000 2.2.23	10CFR55:	41.B10/43.B2
LP/Objective:	0762-08 02.03	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	SO-G-100	Handout:	NONE

EXAM 011

What is the minimum level of testing required following 480V electrical breaker preventive maintenance on equipment identified in SO-G-20A?

A. The breaker must be visually inspected.

B. The breaker must be operated in the electrical shop.

C✓ The breaker must be operated in the test position.

D. The breaker must be operated to power its load.

Ability to analyze the affect of maintenance activities on LCO status.

STATE the major sections of the Standing Orders.

Sys/Event K/A:	000000 2.2.24	10CFR55:	43.B2
LP/Objective:	0762-01 01.00	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NRC FCS 2001-1
Reference:	SO O-1	Handout:	NONE

EXAM 012

All CEAs are fully inserted and preparations are being made to perform a reactor startup by CEA withdrawal. According to the Estimated Critical Condition calculation, the boron concentration should be raised by 250 ppm prior to the startup. According to OP-2A, which one of the following sequences of steps is acceptable?

A. Withdraw the non-trippable CEAs, borate to the ECC boron concentration, withdraw the shutdown CEAs, withdraw the regulating CEAs.

B.✓ Borate to the ECC boron concentration, withdraw the shutdown CEAs, withdraw the non-trippable CEAs, withdraw the regulating CEAs.

C. Withdraw the shutdown CEAs, withdraw the non-trippable CEAs, withdraw the regulating CEAs, borate to the ECC boron concentration.

D. Withdraw the regulating CEAs, borate to the ECC boron concentration, withdraw the non-trippable CEAs, withdraw the shutdown CEAs.

Knowledge of control rod programming.

Explain the operation of the Control Rod Drive System (CRDS).

This is a modification of bank question 07-12-26 017

Sys/Event K/A:	000000 2.2.33	10CFR55:	41.B6
LP/Objective:	0712-26 01.00	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	OP-2A	Handout:	NONE

EXAM 013

If a Restricted High Radiation Area is roped off in accordance with Technical Specification Administrative Control 5.11.2, the maximum permissible dose rate at the rope is:

A. 100 mrem/hr

B. 200 mrem/hr

C. 500 mrem/hr

D✔ 1000 mrem/hr

Knowledge of 10CFR20 and related facility radiation control requirements.

High and very high radiation area controls

Question reworded

Sys/Event K/A:	000000 2.3.01	10CFR55:	41.B12/43.B4
LP/Objective:	0762-08 10.04	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	TS 5.11.2	Handout:	NONE

EXAM 014

Under which one of the following conditions is it acceptable to perform an automatic release of a waste gas decay tank with RM-052 and RM-062 inoperable?

A. The atmospheric stability class is verified to be class A or B

B. RM-057 is operable and condenser offgas and the gas decay tank are both lined up to the hydrogen purge filters.

C. The Waste gas decay tank being released has been isolated and all of it's contents allowed to decay for 30 days.

D. ✔ It is not acceptable to release a waste gas decay tank with both RM-052 and RM-062 inoperable.

Knowledge of the process for performing a planned gaseous radioactive release.

COMPLETE applicable portions of a dummy FC-213, waste gas release permit, and EXPLAIN the sections that are reviewed by the Shift Supervisor. (SRO only)

Sys/Event K/A:	000000 2.3.08	10CFR55:	43.B2/43.B4
LP/Objective:	0711-31 03.01	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	OI-WDG-2 ATT 1	Handout:	NONE

EXAM 015

During a Containment Purge using Containment Purge exhaust fan VA-32A, which damper is used to throttle the purge flow rate?

A. ✔ The Purge Exhaust Fan inlet damper (HCV-749)

B. The Purge Exhaust Fan outlet damper (YCV-747)

C. The outside Containment Purge exhaust isolation valve (HCV-742B)

D. Any of the above valves may be used provided the purge rate is not exceeded.

Knowledge of the process for performing a containment purge.

STATE the function of each major component of the Containment Purge System.

Sys/Event K/A:	000000 2.3.09	10CFR55:	41.B9
LP/Objective:	0714-04 01.04	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	OI-VA-1 ATT 8	Handout:	NONE

EXAM 016

Which individual [or position] on the following list would not be a fire brigade member if a fire occurred in the warehouse?

A. Security Officer

B. Equipment operator (EONT)

C. ✓ Radiation Protection Technician

D. Auxiliary operator (AON)

Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment

IDENTIFY the make-up of a shift fire brigade at FCS.

Sys/Event K/A:	000000 2.4.26	10CFR55:	41.B10
LP/Objective:	1064-01 04.00	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	SO-G-28	Handout:	NONE

EXAM 017

10 CFR 50.54 allows a licensed operator to take actions that may depart from a license condition or technical specifications if the action is an emergency where the action is immediately needed to protect the public health and safety or if no action consistent with the license conditions or technical specifications that could produce adequate protection is immediately apparent.

Whose specific approval is required to take such action[s]?

A. Shift Technical Advisor

B. Emergency Director

C. ✓ A Senior Reactor Operator

D. Manager-Operations

Knowledge of the lines of authority during an emergency.

SPECIFY when a licensee may take actions that depart from a license condition or technical specification and STATE whose approval is necessary before such action can be taken.

Sys/Event K/A:	000000 2.4.37	10CFR55:	41.B10/43.B5
LP/Objective:	0751-04 02.05	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	10 CFR 50.54	Handout:	NONE

EXAM 018

During an event that has been declared as a Site Area Emergency, where will maintenance personnel who may be required to provide assistance be located?

A. Maintenance shop.

B. Technical Support Center

C✓ Operations Support Center

D. Emergency Operations Facility

Knowledge of emergency response facilities.

Generic Objective - allows for linking Task or KA to Lesson Plan

Sys/Event K/A:	000000 2.4.42	10CFR55:	43.B5
LP/Objective:	1070-001 00.00	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	RERP SEC B	Handout:	NONE

EXAM 019

The plant is in mode 3 and surveillance tests are being performed. Annunciator window "flags" are being used in accordance with the OPD 6-04, "Annunciator Marking".?

Which one of the following situations is unexpected and requires use of the Annunciator Response Procedures?

A. A red flagged annunciator window is unlit.

B. A blue flagged annunciator window is unlit.

C. A green flagged annunciator window is lit.

D.✔ An unflagged annunciator window is lit.

Ability to verify that the alarms are consistent with the plant conditions.

DESCRIBE the operator actions for an annunciator in alarm.

Sys/Event K/A:	000000 2.4.46	10CFR55:	41.B10
LP/Objective:	0762-11 01.01	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NRC FCS 2001-1
Reference:	OPD 6-04	Handout:	NONE

EXAM 020

The following plant conditions exist:

- A plant transient has occurred that resulted in an automatic reactor trip
- Pressure in the "A" S/G is 480 psia
- Level in the "A" S/G is 50% WR
- Pressure in the "B" S/G is 575 psia
- Level in the "B" S/G is 60% WR
- The MSIVs are closed

Assuming no operator action, which one of the following is the current status of the AFW system?

A. AFW should be feeding the "A" S/G only.

B. AFW should be feeding the "B" S/G only

C. AFW should be feeding both S/Gs

D. ✔ AFW should not have initiated yet

Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.

EXPLAIN the operation of the AFW System following an Engineered Safeguards AFAS.

Sys/Event K/A:	000000 2.4.48	10CFR55:	41.B7
LP/Objective:	0711-01 01.04	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC EXAM 2001-2
Reference:	STM 19	Handout:	NONE

EXAM 021

The reactor is operating at 30% power. Group 4 rods are being withdrawn to adjust ASI. Upon releasing the IN-OUT-HOLD switch, the control rods continue to withdraw. What is the FIRST action that should be taken by the operator?

A. Move the IN-OUT-HOLD switch to the IN position.

B.✓ Place the Rod Control Mode Selector switch to the OFF position.

C. Manually trip the reactor

D. Open the CRDM clutch power supply breakers

Knowledge symptom based EOP mitigation strategies.

Use the CEA and Control System Malfunctions Procedure to mitigate the consequences of a malfunction of a CEA, the CEA control system or CEA position indication.

Sys/Event K/A:	000001 2.4.06	10CFR55:	41.B6/41.B10
LP/Objective:	0717-02 01.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-02	Handout:	NONE

EXAM 022

Which one of the following control room indications would occur first during a boron dilution event from full power?

A. A low pressurizer level alarm

B. A low steam generator level alarm

C. A low RCS flow pre-trip

D. ✓ A TM/LP pre-trip

Knowledge of the interrelations between the Continuous Rod Withdrawal and the following:

Sensors and detectors

EXPLAIN the operator indications for each of these reactivity events.

Sys/Event K/A:	000001 AK2.03	10CFR55:	41.B5/41.B6
LP/Objective:	0715-32 03.04	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	BANK 7-15-32 20
Reference:	LP 7-15-32	Handout:	NONE

EXAM 023

According to AOP-02, who should be contacted upon discovery of an inoperable control rod?

A.✔ The Reactor Engineer.

B. The I&C Supervisor

C. The Plant Manager

D. The NRC Site Resident

Knowledge of system status criteria which require the notification of plant personnel.

Describe the major recovery actions of this AOP.

Sys/Event K/A:	000003 2.1.14	10CFR55:	43.B6
LP/Objective:	0717-02 01.03	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	AOP-02	Handout:	NONE

EXAM 024

The reactor is operating at 100% power when a control rod having a worth of 0.5% delta K/K is inadvertently dropped. The secondary plant operator reduces load to return cold leg temperature to its programmed value. Which one of the following situations will result in the lowest stable reactor power level following these events?

A. A rod drop at BOC because the power defect is greater.

B.✔ A rod drop at BOC because the power defect is smaller.

C. A rod drop at EOC because the power defect is greater.

D. A rod drop at EOC because the power defect is smaller.

Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod:

Definition and application of power defect

A CEA drop event

Sys/Event K/A:	000003 AK1.15	10CFR55:	41.B1/41.B5
LP/Objective:	0715-32 02.03	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	LP 07-15-32	Handout:	NONE

EXAM 025

One of the regulating CEAs dropped due to a clutch power failure. How will the SCEAPIS respond to this event?

A. ✔ The SCEAPIS will block withdrawal of all regulating rods if power is above 10-4% power.

B. The SCEAPIS will block withdrawal of all regulating rods if power is below 10-4% power.

C. The SCEAPIS will block withdrawal of all other rods in the dropped rod's group if power is above 10-4% power.

D. The SCEAPIS will block withdrawal of all other rods in the dropped rod's group if power is below 10-4% power.

Knowledge of the interrelations between the Dropped Control Rod and the following:

Metroscope

Identify and explain the interlocks that control operation of the CEDM.

Sys/Event K/A:	000003 AK2.03	10CFR55:	41.B2/41.B6/41.B7
LP/Objective:	0712-26 01.08	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC FCS 2001-1
Reference:	CRD STM	Handout:	NONE

EXAM 026

When the regulating CEA groups are inserted beyond the transient insertion limits but above the PDIL, within two hours, either restore the regulating CEA groups to above the transient insertion limits, or:

A. Reduce power to less than 70% within one hour.

B. Be in hot shutdown within 6 hours.

C✓ Reduce reactor power to the allowed power of the PDIL figure of the COLR.

D. Emergency borate in accordance with AOP-03.

Ability to explain and apply all system limits and precautions.

EXPLAIN the operation of the 43D test relay key switch on AI-185.

Sys/Event K/A:	000005 2.1.32	10CFR55:	41.B5/41.B10/43.B2
LP/Objective:	0717-02 01.06	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	TS 2.10.2	Handout:	NONE

EXAM 027

A reactor trip has just occurred and the Standard Post Trip actions are being performed.

Of the following parameters, which one requires that you ensure that your ROs have taken contingency actions per EOP-00?

A. All CEAs	Inserted except for B-15, Rod Deviation Alarm.
B. Instrument Air Pressure	85 psig and stable. Low Plant Air Pressure Alarm
C. S/G 'A' level, S/G 'B' level	85% WR, 85% WR. Low Steam Generator Level Alarm
D. RCS Pressure	2075 psia and stable. Low Pressurizer Alarm

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

GIVEN a set of plant conditions and a copy of the EOP resource Assessment Trees, DETERMINE the correct success path for any of the following safety functions:

Alarms added to better address K/A

Sys/Event K/A:	000007 2.4.50	10CFR55:	43.B5
LP/Objective:	0718-10 01.05	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	EOP-00	Handout:	NONE

EXAM 028

Which one of the following will require that the clutch power supply breakers on AI-57 be reclosed before the CEDM clutches can be reenergized?

A.✔ A manual reactor trip at the RPS cabinets.

B. A manual reactor trip at CB-4.

C. A manual turbine trip.

D. A manual main generator trip.

Ability to operate and monitor the following as they apply to a reactor trip:

MT/G trip; verification that the MT/G has been tripped

EXPLAIN what actions are required to reset (re-energize) the CEDM clutches when tripped by:

Clutch power supplies are FCS equivalent to MT/G set

Sys/Event K/A:	000007 EA1.07	10CFR55:	41.B6/41.B7
LP/Objective:	0712-25 02.05	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	STM 38	Handout:	NONE

EXAM 029

A reactor trip has occurred from 100% power. While performing the standard post trip actions, the RO observes that the main turbine has not tripped.

Which one of the following is a procedurally directed action that may be performed to trip the main turbine?

A.✔ Stop the EHC pumps.

B. Deenergize excitation.

C. Reduce load limit pot to zero.

D. Open generator output breakers.

Knowledge of the reasons for the following as the apply to a reactor trip:

Actions contained in EOP for reactor trip

LIST the sixteen (16) immediate actions of EOP-00 in the order they are required to be performed.

Sys/Event K/A:	000007 EK3.01	10CFR55:	41.B4/41.B10
LP/Objective:	0718-10 01.10	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	NRC FCS 1999
Reference:	EOP-00	Handout:	NONE

EXAM 030

Following a small break in the pressurizer vapor space, the following conditions exist:

- Three HPSI pumps are running
- Three Containment Spray Pumps are running
- One LPSI Pump is Running
- SIRWT Level is 14"
- RCS Pressure is 600 psia
- Containment pressure is 8 psig

Which one of the following actions should be taken?

A. Start a LPSI pump

B.✔ Shutdown a LPSI pump

C. Shutdown a HPSI pump

D. Shutdown all Containment Spray Pumps

Ability to operate and / or monitor the following as they apply to the Pressurizer Vapor Space Accident:

LPI System

EXPLAIN the functions performed by each Engineered Safeguards Control Signal.

slight rewording of question

Sys/Event K/A:	000008 AA1.05	10CFR55:	41.B7/41.B8/41.B10
LP/Objective:	0712-14 01.05	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC EXAM 2001-2
Reference:	STM-19	Handout:	NONE

EXAM 031

A plant cooldown and depressurization is in progress. The RCS pressure is 1680 psia. The I&C technicians are calibrating RCS pressure transmitter,PT-115, and have inserted a high pressure signal. What will happen if you direct the RO to block PPLS as directed by procedure?

A. ✔ PPLS will be blocked and both PORVs will open

B. PPLS block will fail and LTOP will not be enabled

C. Only one channel of PPLS will be blocked

D. An inadvertant PPLS actuation will occur

Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident:

PORV logic control under low-pressure conditions

EXPLAIN how the RCS is started up and shutdown, using applicable Operating Instructions as a guide for major steps, prerequisites and precautions.

Sys/Event K/A:	000008 AA2.06	10CFR55:	41.B7/43.B5
LP/Objective:	0711-20 03.00	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 36	Handout:	NONE

EXAM 032

A pressurizer steam space LOCA has caused PPLS and SIAS actuation. CETs are stable at 550°F. RCS pressure is stable at 1300 psia, pressurizer level is 20% and rising. HPSI flow is 390 gpm.

With no operator action and assuming temperatures remain constant, how will pressurizer level, pressurizer pressure and HPSI flow respond?

A. Pressurizer level will stabilize slightly above 50%, pressure will lower and HPSI flow will increase.

B. Pressurizer level will rise to 100% , pressure and HPSI flow will remain constant.

C✓ Pressurizer level will rise to 100%, pressure will rise and HPSI flow will decrease.

D. Pressurizer level will stabilize slightly above 50%, pressure will rise and HPSI flow will decrease.

Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident:

PZR level indicators

GIVEN a copy of the Technical Basis Documents (TBDs), EXPLAIN the bases behind the major operator actions contained in EOP-03, LOCA.

Sys/Event K/A:	000008 AA2.12	10CFR55:	41.B5/41.B8
LP/Objective:	0718-13 01.04	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	NRC EXAM 2001-2
Reference:	LP 07-15-23	Handout:	NONE

EXAM 033

The plant is operating at 100% power. The following plant conditions exist:

- One charging pump is operating. 30 gpm charging flow is indicated
- Indicated letdown flow is 26 gpm
- VCT level as shown on the lever recorder is lowering
- Pressurizer pressure and level and RCS temperatures are steady on all indicators
- Containment sump levels are steady

Which one of the following could cause these indications?

A. There is a leak in the RCS piping.

B.✓ There is a leak in the charging line.

C. VCT level switch, LCS-218, has failed low.

D. VCT pressure transmitter, PT-220, has failed low.

Ability to determine or interpret the following as they apply to a small break LOCA:

Charging pump flow indication

EXPLAIN, the manual and automatic functions of control valves in the CVCS.

This is a modification of bank question 07-11-02 015

Sys/Event K/A:	000009 EA2.13	10CFR55:	41.B3/41.B5
LP/Objective:	0711-02 01.02	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	CVCS STM	Handout:	NONE

EXAM 034

Under which one of the following conditions is pressurizer level most likely to be a reliable indicator of trends in RCS inventory?

A. A pressurizer Safety Valves has failed open.

B. ✔ All water in the RCS, except for the pressurizer, has remained subcooled.

C. HPSI flow has not been stopped or throttled following PPLS.

D. At least two reactor coolant pumps have continued to operate throughout the event.

Knowledge of the reasons for the following responses as the apply to the small break LOCA:

Observation of PZR level

EXPLAIN the response of primary system parameters.

Sys/Event K/A:	000009 EK3.10	10CFR55:	41.B5/43.B5
LP/Objective:	0715-23 01.01	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	LP 07-15-23	Handout:	NONE

EXAM 035

A total loss of CCW has occured during a LOCA. When will Raw Water Backup cooling need to be provided to the Shutdown Cooling Heat Exchangers?

A. When LPSI injection to the RCS loops begins.

B. When Containment Spray flow begins.

C. When the SI tanks begin to provide water to the RCS

D✓ When RAS begins to recirculate sump water.

Ability to determine or interpret the following as they apply to a Large Break LOCA:

Consequences of managing LOCA with loss of CCW

EXPLAIN the major strategy used to mitigate the consequences of a LOCA.

Sys/Event K/A:	000011 EA2.03	10CFR55:	41.B5/41.B8/41.B10
LP/Objective:	0718-13 01.01	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP-03	Handout:	NONE

EXAM 036

To prevent pressurized thermal shock from occurring during an EOP-20 event, the EOP'S direct operators to maintain _____.

A. RCS pressure less than 1800 psia.

B. ✔ RCS subcooling less than 200°F.

C. Cold leg temperature greater than 500°F.

D. HPSI flow greater than shown in the EOP figure.

Knowledge of the reasons for the following responses as the apply to the Large Break LOCA:

PTS limits on RCS pressure and temperature

EXPLAIN the operator actions required to mitigate an Excessive Heat Removal Event.

Sys/Event K/A:	000011 EK3.10	10CFR55:	41.B5/41.B10
LP/Objective:	0715-20 02.05	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	EOP-20	Handout:	NONE

EXAM 037

According to AOP-11, Loss of CCW, which of the following conditions would necessate a reactor shutdown?

A. CCW flow lost for 3 minutes.

B. RCP motor upper guide bearing greater than 193 degrees.

C. ✓ RCP upper thrust bearing temperature greater than 203 degrees.

D. Lower seal temperature is greater than or equal 175 degrees.

Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Describe how the plant responds to a Loss of Component Cooling Water in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Sys/Event K/A:	000015 2.4.49	10CFR55:	41.B3/41.B10
LP/Objective:	0717-11 01.02	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-11	Handout:	NONE

EXAM 038

Which one of the following conditions is consistent with the development of adequate subcooled natural circulation in the RCS after all RCPs have been tripped?

A. ✔ RCS T_c and T_h both lowering

B. RCS T_c lowering and T_h rising

C. RCS ΔT = 70°F and stable

D. RCS subcooling = 15°F and stable

Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):

RCS flow

LIST the major steps required to drain the Reactor Coolant System per OI-RC-2A.

Sys/Event K/A:	000015 AA1.05	10CFR55:	41.B2/41.B5
LP/Objective:	0711-20 03.07	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	EOP-02	Handout:	NONE

EXAM 039

The reactor has tripped from 100% power due to a loss of 4160 V busses. The EOP's direct monitoring of the difference between the hot leg temperatures and the maximum CET temperatures. Which one of the following situations would result in the greatest difference between the hot leg temperature and the highest reading CET temperature?

A.✔ All Reactor Coolant Pumps trip.

B. A Reactor Coolant Pump in the RC-2A loop trips.

C. A Reactor Coolant Pump in the RC-2B loop trips.

D. One Reactor Coolant Pump trips in each loop.

Knowledge of the reasons for the following responses as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow) :

Performance of a core power map, calculations of quadrant power tilt, monitoring of core imbalance

EXPLAIN the plant response to the development of natural circulation.

Sys/Event K/A:	000017 AK3.06	10CFR55:	43.B5/41.B5
LP/Objective:	0715-16 01.07	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	LP 07-15-16	Handout:	NONE

EXAM 040

The plant was operating at full power when all three charging pumps became inoperable due to a common mode failure. Assuming the problem can not be corrected, what are the actions and reporting requirements associated with this event?

A. The reactor must be shutdown within 6 hours and a 1 hour verbal report made to the NRC.

B. ✔ The reactor must be shutdown within 6 hours and a 4 hour verbal report made to the NRC.

C. The reactor must be shutdown within 24 hours and a 60 day written report made to the NRC.

D. The reactor must be shutdown within 7 days and a 60 day written report made to the NRC.

Knowledge of which events related to system operations/status should be reported to outside agencies.

Reporting requirements

Sys/Event K/A:	000022 2.4.30	10CFR55:	43.B1/43.B2
LP/Objective:	0762-08 11.00	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	TS AND SO R-1	Handout:	NONE

EXAM 041

The plant has been in mode 4 for a week while maintenance is being performed. A plant heatup to mode 3 is in progress.

The following conditions exist:

	Level	Concentration	Temperature
BAT A	58%	3.1%	50F
BAT B	28%	2.7%	55F
SIRWT	188 in	2225 ppm	53F

Which one of the following actions is required?

A. Increase the borated water level in the SIRWT

B. ✔ Increase the borated water temperature in BAT A

C. Increase the boron concentration in BAT B

D. Increase the boron concentration in the SIRWT

Knowledge of the operational implications of the following concepts as they apply to Emergency Boration:

Low temperature limits for boron concentration

Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

Sys/Event K/A:	000024 AK1.04	10CFR55:	41.B5/41.B8
LP/Objective:	0762-08 05.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC EXAM 2001-2
Reference:	TS 2.2.7	Handout:	TS 2.2.7 COLR PG 9

EXAM 042

The RO is performing a normal boration of the RCS during a power reduction when he is directed by the CRS to perform an emergency boration. What action should he take?

A. Complete the normal boration prior to initiating emergency boration.

B. Continue the normal boration but raise the flow rate on the controller to the maximum.

C. Continue the normal boration and initiate emergency boration concurrently.

D✓ Terminate the normal boration and initiate emergency boration.

Knowledge of the interrelations between the Emergency Boration and the following:

Controllers and positioners

Use the Emergency Boration AOP to mitigate the consequences of an uncontrollable or unexplained positive reactivity addition.

Sys/Event K/A:	000024 AK2.03	10CFR55:	41.B6/41.B10
LP/Objective:	0717-03 01.00	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	AOP-03	Handout:	NONE

EXAM 043

The Reactor is operating at 100% power. CH-1B is running. All other charging pumps are operable and in a normal standby alignment. A pressurizer level control failure causes the letdown flow controller to go to provide maximum output. At what rate will pressurizer level be lowering prior to the startup of the backup charging pumps?

A. Between 0% and 1% level per minute

B.✔ Between 1% and 2% level per minute

C. Between 2% and 3% level per minute

D. Between 3% and 4% level per minute.

Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions:

Charging and letdown flow capacities

Describe how the plant responds to a Reactor Coolant Leak in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Sys/Event K/A:	000028 AA2.09	10CFR55:	41.B5/41.B8
LP/Objective:	0717-22 01.02	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 12 & 37	Handout:	NONE

EXAM 044

The plant is operating at 80% power with all systems in automatic control,when the following alarm is received, "FEEDWATER CONTROL STEAM GENERATOR RC-2B LEVEL LO"

The narrow range level indicators show that the level in RC-2B is 52% and lowering. Two feedwater pumps, two condensate pumps and two heater drain pumps are operating. Which one of the following actions should be taken first?

A. Trip the Reactor and enter EOP-00

B.✔ Take manual control of the RC-2B FW reg valve controller.

C. Start an additional condensate pump.

D. Start an additional feedwater pump.

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

DESCRIBE the operator actions for an annunciator in alarm.

Sys/Event K/A:	000029 2.4.50	10CFR55:	41.B5/41.B10
LP/Objective:	0762-11 01.01	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	ARP CB-4 A8	Handout:	NONE

EXAM 045

A plant startup is in progress. Criticality has just been achieved at 5 x 10 -5 %. 24 hours prior to startup, "A" wide range was removed due to a failed fission chamber. "B" and "D" wide range channels have just failed low due to a voltage spike on DC bus #2.

The reactor should be tripped because:

A. "D" channel must be operable for AI-212 during critical operations.

B. SCEAPIS requires at least 2 wide range channels greater than 10 -4 % to enable the rod block function.

C. ✓ Startup rate protection will be inadequate with 3 of the 4 wide range channels failed low.

D. APD trip requires at least 2 wide range channels greater than 10 -4 to be enabled.

Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

Using the Technical Specifications as a reference, EXPLAIN the time limitations associated with placing an RPS trip unit in a tripped or bypass condition.

Sys/Event K/A:	000033 2.2.25	10CFR55:	41.B2/43.B2
LP/Objective:	0712-25 04.01	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC 97 EXAM
Reference:	TS TABLE 2.2	Handout:	NONE

EXAM 046

If a fuel handling incident occurs in the Auxiliary Building, AOP-08 directs the operator to align ventilating equipment by performing the following steps at AI-44:

A. Stop VA-40C, Auxiliary Building Exhaust Fan

B. Ensure all Auxiliary Building Exhaust Fans, VA-40A, VA-40B and VA-40C are in service.

C. Ensure both Auxiliary Building Supply Fans, VA-35A and VA-35B are in service.

D. Ensure VA-66, Spent Fuel Area Charcoal filter, is in the filtered mode.

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Describe the two Technical Specification LCOs that are challenged by a fuel handling incident.

Sys/Event K/A:	000036 2.4.50	10CFR55:	41.B13/43.B4/43.B7
LP/Objective:	0717-08 01.06	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-08	Handout:	NONE

EXAM 047

Which one of the following actions will be directed from the Control Room upon discovery of a steam generator tube leak?

A. Minimize condenser evacuation flow.

B. Isolate blowdown sample flow.

C. Place VA-66 in service.

D. ✓ Isolate condensate overflow to the CST

Knowledge of system status criteria which require the notification of plant personnel.

Describe the major recovery actions of this AOP.

Sys/Event K/A:	000037 2.1.14	10CFR55:	41.B13/43.B4
LP/Objective:	0717-22 01.03	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	AOP-22	Handout:	NONE

EXAM 048

A steam generator tube rupture has occurred and the ruptured steam generator has been isolated.

What causes the pressure in the secondary side of the ruptured, isolated steam generator to stay higher than the pressure in the secondary side of the intact steam generator during RCS cooldown and depressurizerion?

A. Natural circulation in the isolated loop

B.✔ Temperature stratification in the ruptured S/G

C. ECCS flow through the ruptured tube

D. Void formation in the ruptured S/G tubes

Ability to determine or interpret the following as they apply to a SGTR:

Plant conditions, from survey of control room indications

EXPLAIN how temperature stratification in an isolated steam generator affects its' pressure response during a cooldown following a steam generator tube rupture.

Sys/Event K/A:	000038 EA2.07	10CFR55:	41.B5/41.B14
LP/Objective:	0715-33 02.06	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	LP 07-15-33	Handout:	NONE

EXAM 049

AC-3B is the running CCW pump when a loss of offsite power occurs. Both Diesel generators operate as designed. The event does not result in SIAS actuation. Assuming no operator action, what will be the status of the CCW pumps 60 seconds after the diesels start?

A. Only AC-3B will be running

B. AC-3A and AC-3C will be running

C. All three CCW pumps will be running

D. ✔ No CCW pumps will be running

Ability to determine and interpret the following as they apply to the Loss of Offsite Power:

CCW pump ammeter, flowmeter and run indicator

EXPLAIN standby operation of CCW pumps in terms of switch positions and automatic actions.

Sys/Event K/A:	000056 AA2.24	10CFR55:	41.B7/41.B10
LP/Objective:	0711-06 01.04	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 8	Handout:	NONE

EXAM 050

The plant is operating at 80% power. The turbine-generator is being controlled on the load limiter when a ground occurs on Instrument Bus "B" resulting in a total loss of bus voltage. According to AOP-16, how will the turbine load respond to the loss of Instrument Bus "B"?

A. Turbine load will slowly increase.

B. Turbine load will slowly decrease

C. ✓ Turbine load will remain steady

D. The turbine will trip

Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus:

Turbine load limiter control

Describe how the plant responds to a loss of instrument bus power in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Sys/Event K/A:	000057 AA2.10	10CFR55:	41.B4/43.B5
LP/Objective:	0717-16 01.02	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 26	Handout:	NONE

EXAM 051

The reactor tripped due to a loss of offsite power. A fault occurred on DC bus#1. What DC control power Emergency MTS buttons must be operated before FW-6 can be used to supply water to the steam generators?

A.✔ The 1A1-1A3 and the D1 Emergency Source pushbuttons.

B. The 1A1-1A3 and the D2 Emergency Source pushbuttons.

C. The 1A2-1A4 and the D1 Emergency Source pushbuttons.

D. The 1A2-1A4 and the D2 Emergency Source pushbuttons.

Ability to determine and interpret the following as they apply to the Loss of DC Power:

That a loss of dc power has occurred; verification that substitute power sources have come on line

Given the Resource Assessment Trees, basically DESCRIBE the Method, Path and Acceptance Criteria for each success path.

Sys/Event K/A:	000058 AA2.01	10CFR55:	41.B7/43.B5
LP/Objective:	0718-18 01.05	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NRC FCS 2001-1
Reference:	AOP-16	Handout:	NONE

EXAM 052

A piping repair has been completed in room 10. A radiation source is being used to inspect the welds associated with the repair. Which one of the following operations is likely to be affected by testing of the weld?

A.✔ The release of waste monitor tank WD-22A

B. The release of waste gas decay tank, WD-29A

C. Movement of fuel assemblies in the spent fuel pool.

D. Containment purge.

Knowledge of the operational implications of the following concepts as they apply to Accidental Liquid Radwaste Release:

Effects of placing a radioactive source near a radiation monitor; in particular, near a radioactive-liquid

EXPLAIN the characteristics of the components which make up the Radiation Monitoring System.

Sys/Event K/A:	000059 AK1.03	10CFR55:	43.B2/43.B4
LP/Objective:	0712-03 02.00	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	OI-WDL-3	Handout:	NONE

EXAM 053

Placing the keyswitch on Process Radiation Monitor RM-055's Control Room Ratemeter in the KEYPAD position will:

A.✔ Still allow countrate to be viewed on the ratemeter but will block outputs to annunciation and equipment actuations.

B. Still allow countrate to be viewed on the ratemeter and provide outputs for annunciation and equipment actuations.

C. Prevent countrate from being viewed on the ratemeter and block outputs for annunciation and equipment actuations.

D. Still allow countrate to be viewed on the ratemeter and provide outputs for annunciation but will block equipment actuations.

Knowledge of the reasons for the following responses as they apply to the Accidental Liquid Radwaste

Declaration that a radioactive-liquid monitor is inoperable

EXPLAIN the operations, actuations and applications of the individual radiation monitors.

Sys/Event K/A:	000059 AK3.03	10CFR55:	41.B11
LP/Objective:	07-12-03 04.00	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	OI-RM-1	Handout:	NONE

EXAM 054

RM-052 is aligned to the Aux Building stack.The rupture of a gas decay tank has resulted in a reading on RM-052 0f 2.5 X 10^5 CPM. This event should be classified as:

A. ✔ A Notification of Unusual Event

B. An Alert

C. A Site Area Emergency

D. A General Emergency

Knowledge of the reasons for the following responses as they apply to the Accidental Gaseous Radwaste:

Implementation of E-plan

Given EPIP-OSC-1, explain how the event would be classified. (SRO ONLY)

Sys/Event K/A:	000060 AK3.01	10CFR55:	43.B4/43.B5
LP/Objective:	0717-09 01.07	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	EPIP-OSC-1 TDB-IV.7	Handout:	EPIP-OSC-1 TDG-IV.7

EXAM 055

Which ONE of the following is NOT an entry condition for AOP-09, High Radioactivity?

A. a Ventilation Isolation Actuation Signal (VIAS)

B. a Containment Area Radiation Monitor Alarm.

C. an Auxiliary Building Area Radiation Monitor Alarm.

D. a High Condenser Off-Gas Radiation Monitor Alarm.

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

Describe the entry conditions for this AOP.

Sys/Event K/A:	000061 2.4.04	10CFR55:	41.B10/43.B5
LP/Objective:	0717-09 01.04	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-09	Handout:	NONE

EXAM 056

Technical Specification requirements for operability of the raw water pumps, valves and piping are based on which one of the following?

A. RCS and CVCS cooling loads during shutdown to cold shutdown.

B. RCS and CVCS cooling loads during accident conditions.

C. Containment cooling loads during shutdown to cold shutdown.

D. ✔ Containment cooling loads during accident conditions.

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Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

Given the Technical Specification Manual, EXPLAIN the Technical Specification and bases associated with the Raw Water System.

Sys/Event K/A:	000062 2.2.25	10CFR55:	41.B7/43.B2
LP/Objective:	0711-19 01.02	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NRC 97 EXAM
Reference:	TS 2.4 BASIS	Handout:	NONE

EXAM 057

In the event of loss of all four raw water pumps, how can makeup water be supplied to the Raw Water System [preferred method]?

A.✔ Connect fire hoses at drains of the RW/CCW heat exchangers and supply water from the fire system.

B. Cross connect the system with demineralized water through fire hoses.

C. Cross connect the system with turbine plant cooling water system.

D. Drain from the system and makeup from the circulation water system.

Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water:

Control of flow rates to components cooled by the SWS

Describe how the plant responds to a Loss of Raw Water in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Sys/Event K/A:	000062 AA1.06	10CFR55:	41.B4/41.B8/41.B10
LP/Objective:	0717-18 01.02	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-18	Handout:	NONE

EXAM 058

In responding to an oil spill and fire within the RCA, which one of the following serves as the Incident Commander?

A. Any Radiation Protection Tech trained in fire fighting.

B. The Plant Industrial Safety Coordinator.

C. The Shift CRS.

D✓ A Shift RO.

Knowledge of operator responsibilities during all modes of plant operation.

IDENTIFY who is designated as the Fire Brigade Leader at FCS.

Sys/Event K/A:	000000 2.4.34	10CFR55:	41.B10/41.B12
LP/Objective:	1064-01 05.00	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	NRC EXAM 1995
Reference:	SO-G-28	Handout:	NONE

EXAM 059

After a fire is extinguished in the switchgear rooms, which of the following fans can be started with an override switch to clear the smoke?

A. The ventilation supply fans VA-45A and VA-45B

B.✔ The ventilation exhaust fan VA-41

C. The battery rooms fans VA-71A and VA-71B

D. Any of the fans listed above can be restarted once the override switch is operated.

Ability to operate and / or monitor the following as they apply to the Plant Fire on Site:

Re-installation of a fire detector

STATE the functional relationships between the Auxiliary Building Ventilation System and the following systems:

overriding detector closest match to K/A for FCS

Sys/Event K/A:	000067 AA1.02	10CFR55:	41.B7/43.B5
LP/Objective:	0714-01 01.02	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	STM 3	Handout:	NONE

EXAM 060

Which one of the following fires could create a common mode failure that prevents the operator from initiating emergency boration from the control room?

A. A fire in room 19 affecting all 3 air compressors

B. A fire in the battery room affecting DC bus #2

C. A fire in the switchgear room affecting Instrument Inverter "B"

D.✓ A fire in the switchgear room affecting electrical bus 1A3

Ability to determine and interpret the following as they apply to the Plant Fire on Site:

Systems that may be affected by the fire

EXPLAIN the operation of the CVCS for boration, dilution and blended makeup of the Reactor Coolant System during normal power operation and when depressurized.

Sys/Event K/A:	000067 AA2.17	10CFR55:	41.B5/41.B7
LP/Objective:	0711-02 02.01	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	NRC EXAM 2001-2
Reference:	STM 12	Handout:	NONE

EXAM 061

Which one of the following is true concerning Fire Detector Surveillance Testing.

A. Fire Protection Impairment Permits, FC-1142, must be prepared for all Fire Detector Surveillance Testing.

B. Fire Protection Impairment Permits, FC-1142, must be prepared for Fire Detector Surveillance Testing only if the area served by the detector contains Safe Shutdown equipment.

C. Fire Protection Impairment Permits, FC-1142, must be prepared for Fire Detector Surveillance Testing unless the detector is located inside containment..

D. ✔ Fire Protection Impairment Permits, FC-1142, are not required for Fire Detector Surveillance Testing.

Knowledge of the reasons for the following responses as they apply to the Plant Fire on Site:

Fire detector surveillance test

EXPLAIN the administrative actions that are required to be taken when fire protection equipment becomes inoperative.

Sys/Event K/A:	000067 AK3.03	10CFR55:	43.B2
LP/Objective:	0711-12 01.02	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	G-58	Handout:	NONE

EXAM 062

What actions are taken to trip the reactor and turbine during an AOP-06 control room evacuation?

A. Prior to evacuation, the reactor and the main generator are manually tripped. The turbine is tripped from the front standard.

B.✔ Prior to evacuation, the reactor is manually tripped and the clutch power supply breakers are opened. The turbine is tripped from the front standard.

C. Prior to evacuation, the reactor is manually tripped and the EHC pumps are placed in pull-out.

D. Prior to evacuation, the reactor is manually tripped and the MSIV's and the MSIV bypass valves are closed.

Ability to operate and / or monitor the following as they apply to the Control Room Evacuation:

Manual trip of reactor and turbine

Describe the major recovery actions of this AOP

Sys/Event K/A:	000068 AA1.23	10CFR55:	41.B6/41.B10
LP/Objective:	0717-06 01.03	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NRC 97 EXAM
Reference:	AOP-06	Handout:	NONE

EXAM 063

The control room has been evacuated per AOP-06. Control has been established at AI-179 and AI-185. Steam Generator pressure is lowering due to a malfunction affecting the turbine bypass valve, PCV-910. How will this event be mitigated assuming no manual operator actions are taken?

A. Solenoid valves that enable operation of PCV-910 will deenergize when steam generator pressure falls below 500 psia.

B. Solenoid valves that enable operation of PCV-910 will deenergize when RCS Tav falls below 535F.

C✓ Main Steam Isolation Valves will close when steam generator pressure falls below 500 psia.

D. Main Steam Isolation Valves will close when RCS Tav falls below 535F.

Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation:

Safety injection setpoint of main steam line pressure

EXPLAIN how each prime and backup actuation signal is developed.

Sys/Event K/A:	000068 AK3.14	10CFR55:	41.B4/41.B7
LP/Objective:	0712-14 01.04	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	STM 19	Handout:	NONE

EXAM 064

If the primary system temperatures all drop below saturation temperature coresponding to the steam generator pressures during a loss of coolant accident, it indicates that:

A. The ECCS flow is inadequate to remove decay heat.

B. HPSI "Stop and Throttle" should be performed..

C✓ The break flow is adequate to remove decay heat..

D. The safety injection tanks are injecting into the RCS.

Ability to determine or interpret the following as they apply to a Inadequate Core Cooling:

Relationship between RCS temperature and main steam pressure

EXPLAIN how the decay heat removal capacity of the break affects plant response.

This is a modification of bank question 07-15-23 004

Sys/Event K/A:	000074 EA2.04	10CFR55:	41.B5/41.B14
LP/Objective:	0715-23 01.02	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	SHB 0715-23	Handout:	NONE

EXAM 065

In AOP-21, RCS High Activity, the operators direct the chemist to verify:

A. RCS Boric Acid concentration is within limits.

B. ✔ The decontamination factor of the inservice CVCS ion exchanger is within limits.

C. The hydrogen concentration in the VCT is within limits.

D. The RCS dissolved oxygen is within limits.

Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity:

Corrective actions required for high fission product activity in RCS

Describe how the plant responds to a RCS High Activity in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Sys/Event K/A:	000076 AA2.02	10CFR55:	41.B13/43.B4
LP/Objective:	0717-21 01.02	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-21	Handout:	NONE

EXAM 066

The technical specification limiting conditions for operation on RCS activity are based on the analysis of which one of the following accidents?

A.✓ Steam generator tube rupture.

B. Reactor coolant pump siezed rotor.

C. Boron dilution accident.

D. Loss of coolant accident.

Knowledge of the operational implications of the following concepts as they apply to High Reactor Coolant

Radiation source term and transport pathway

EXPLAIN how the steam generator tube rupture analysis is used in determining the basis for Technical Specification requirements.

Sys/Event K/A:	000076 AK1.02	10CFR55:	43.B2/43.B4
LP/Objective:	0715-33 03.04	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NRC 97 EXAM
Reference:	TS 2.8 BASIS	Handout:	NONE

EXAM 067

The following plant conditions exist:

• The plant is at 90% during an increase in power.
• A CEA in Control Group 4 is discovered to be at 50 inches.
• All other Group 4 CEAs are at 120 inches.
• Attempts to move the rod are unsuccessful.
• I&C investigates and reports that there is an electrical fault in the rod drive panel and it will take 48 hours to repair.
•The PRC has determined that the CEA is trippable.

Which one of the following actions is required as a result of these conditions?

A. The power level increase and operations may continue without restriction.

B. Power level must be maintained at or below 70% until the CEA is repaired.

C. ✓ Power level must be maintained at or below 20% until the CEA is repaired.

D. Verify shutdown margin and be in HOT SHUTDOWN within 5 hours.

Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

Limiting Conditions for Operation (LCO)

Sys/Event K/A:	001000 2.1.33	10CFR55:	41.B2/43.B2/43.B6
LP/Objective:	0762-08 02.03	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	SRO EXAM 95
Reference:	TS 2.10.2	Handout:	PDIL CURVE

EXAM 068

The plant was operating at 25% power when a group 4 control rod dropped into the core due to a failed fuse. The fuse was replaced and recovery of the dropped rod is to be initiated. Which one of the following methods should be used to recover the rod.

A. The "mode selector switch" should be in the "manual group" position. The Group Selector Switch should be in the "group 4" position. The dropped rod should be selected on the "Rod Selector Switch" switch.

B. The "mode selector switch" should be in the "manual group" position. The Group Selector Switch should be in the "group 4" position. The dropped rod should be selected on the "Rod Selector Switch" switch. The Rod Block Bypass switch should be operated.

C. The "mode selector switch" should be in the "manual individual" position. The Group Selector Switch should be in the "group 4" position. The dropped rod should be selected on the "Rod Selector Switch" switch.

D. ✔ The "mode selector switch" should be in the "manual individual" position. The Group Selector Switch should be in the "group 4" position. The dropped rod should be selected on the "Rod Selector Switch" switch. The Rod Block Bypass switch should be operated.

Knowledge of CRDS design feature(s) and/or interlock(s) which provide for the following:

Override (bypass) for rod bank motion when one rod is bottomed

Explain the operation of the Control Rod Drive System (CRDS).

Sys/Event K/A:	001000 K4.17	10CFR55:	41.B6/41.B10
LP/Objective:	07-12-26 01.00	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	AOP-02	Handout:	NONE

EXAM 069

While conducting rounds, the EONT informs you of the following conditions:

- The voltmeters on EE-22 indicate 30 and 90 VAC.
- Both lights on EE-22 are dimly lit.

What would you conclude from these indications?

A.✓ A ground is developing in the rod drive circuits.

B. A ground is developing in the core mimic bus.

C. A ground is developing which affects both the rod drive circuits and the core mimic bus.

D. These are normal indications for power operations.

Knowledge of the effect of a loss or malfunction on the following CRDS components:

Location and operation of CRDS fault detection (trouble alarms) and reset system, including rod control

Describe the operation and purpose of the Control Rod Drive and CEA Mimic Bus ground detection system.

Sys/Event K/A:	001000 K6.11	10CFR55:	41.B2/41.B6
LP/Objective:	0712-26 01.10	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	NRC 97 EXAM
Reference:	STM 11	Handout:	NONE

EXAM 070

When RCS level is _____, then two shutdown cooling loops shall be operable.

A.✓ <than 23' above the top of the irradiated fuel assemblies

B. <than the 1010' elevation

C. below the Reactor vessel flange

D. below the pressurizer surge line

Ability to explain and apply all system limits and precautions.

DESCRIBE the design characteristics of each of the RCS Instrumentation Subsystems including type and relative location of sensors.

Sys/Event K/A:	002000 2.1.32	10CFR55:	41.B2/41.B3/41.B10
LP/Objective:	0711-20 04.03	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	TS 2.8.1	Handout:	NONE

EXAM 071

The plant is operating normally at 100% power when a malfunction in the pressurizer pressure transmitter (A/PT-102) to "A" channel of the RPS fails such that the pressurizer pressure inputs to the High Pressurizer Pressure, AND Thermal Margin/Low Pressure (TM/LP) trip units on "A" channel drop to 1600 psia.

Assuming no other additional failures, choose the answer which best describes the effect of this failure.

A. The plant will trip due to High Pressurizer Pressure and TM/LP on "A" channel going to the tripped condition satisfying the required 2/4 logic.

B. BOTH the High Pressurizer Pressure and TM/LP trip units on channel "A" will go to the tripped condition. However NO plant trip occurs.

C.✓ ONLY the TM/LP trip unit will go to the tripped condition on channel "A". NO plant trip occurs.

D. ONLY the High Pressurizer Pressure trip unit will go to the tripped condition on channel "A". NO plant trip occurs.

Knowledge of the effect or a loss or malfunction on the following RCS components:

Sensors and detectors

EXPLAIN the principles of operation of the Reactor Protective System (RPS).

Sys/Event K/A:	002000K6.06	10CFR55:	41.B7
LP/Objective:	0712-25 01.00	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	STM 38	Handout:	NONE

EXAM 072

Upon starting a Reactor Coolant Pump, the oil lift pump will:

A. require manual shutdown after 5 minutes of RCP operation.

B. automatically shutdown at 75% of rated RCP operation.

C✓ automatically shutdown at 90% of rated RCP speed.

D. require manual shutdown when RCP reaches rate speed.

Ability to manually operate and/or monitor in the control room:

RCP lube oil and lift pump motor controls

When given specific plant conditions, EXPLAIN operating principles to predict response of Reactor Coolant System (RCS) Instrumentation

Sys/Event K/A:	003000 A4.03	10CFR55:	41.B3/41.B7
LP/Objective:	0711-20 04.00	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	STM 37	Handout:	NONE

EXAM 073

The plant is in "Hot Shutdown" and all systems are aligned for normal operation.

The "CCW Surge Tank Hi/Low" alarm is received and the Auxiliary Building operator reports that he hears a load rumbling noise from AC-3A. You observe fluctuating current and discharge pressure for AC-3A (the operating CCW pump). The CCW surge tank level is 8 inches and decreasing.

Which one of the following actions should be performed if AC-3A is tripped and CCW flow conditions are not improved?

A. Alternately run one RCP at a time until cooling water is restored.

B. Established Raw Water backup cooling to the RCPs with 5 minutes.

C. ✔ Shutdown all RCPs within 5 minutes.

D. Trip one RCP in each loop, and trip the remaining RCPs when high temperature alarms occur.

Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems:

CCWS

Describe the entry conditions for this AOP.

Sys/Event K/A:	003000 K1.12	10CFR55:	41.B3/41.B4/41.B10
LP/Objective:	0717-11 01.04	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	AOP-11	Handout:	NONE

EXAM 074

You have been asked to verify an emergency boration lineup. The equipment lineup is as follows:

FCV-269X and Y are closed
HCV-258 is open
HCV-265 is open
HCV-268 is open
LCV-218-2 is closed
LCV-218-3 is closed
HCV-257 is closed
HCV-264 is closed
Both Boric Acid pumps are running
All three charging pumps are running.

What is the result of your verification?

A. HCV-268 should be closed

B. LCV-218-3 should be open

C. Two charging pumps should be shutdown

D.✓ This is the proper lineup for emergency boration.

Ability to monitor automatic operation of the CVCS, including:

Interpretation of emergency borate valve position indicating lights

EXPLAIN the automatic and manual controls associated with the charging pumps and boric acid pumps.

Sys/Event K/A:	004000 A3.16	10CFR55:	41.B6/41.B10
LP/Objective:	0711-02 01.03	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-03	Handout:	NONE

EXAM 075

Given the following:

- The plant is at 100% power
- CVCS charging and letdown are secured for a short period to perform maintenance
- Tavg is maintained constant

Which one of the following trends will occur?

A. ✔ Decrease in pressurizer level with an increase in VCT level.

B. Constant pressurizer level with a decrease in VCT level.

C. Decrease in pressurizer level with a constant VCT level.

D. Constant pressurizer level with a constant VCT level.

Knowledge of the effect that a loss or malfunction of the CVCS will have on the following:

PZR LCS

EXPLAIN from memory CVCS operation and flowpaths.

Sys/Event K/A:	004000 K3.02	10CFR55:	41.B5
LP/Objective:	0711.02 02.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC FCS 1999
Reference:	STM 37	Handout:	NONE

EXAM 076

A plant event has resulted in both PPLS and CPHS actuation. Which one of the following actions will occur when the SIRWT level lowers to cause STLS actuation?

A. Containment spray header valves close.

B. LPSI Injection header valves close.

C. HPSI pump recirculation valves open.

D✓ CCW valves to the Shutdown Cooling heat exchangers open. .

Knowledge of the physical connections and/or cause-effect relationships between the RHRS and the following systems:

RWST

Explain overall system response to actuation of automatic engineered safeguards signals.

Sys/Event K/A:	005000 K1.11	10CFR55:	41.B7
LP/Objective:	0711-22 01.08	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	MODIFIED
Reference:	STM 19	Handout:	NONE

EXAM 077

Which one of the following statements is true concerning the potential for Pressurized Thermal Shock during an excessive heat removal event?

A. The rapid cooldown associated with an excessive heat removal event causes the transition temperature where brittle fracture is more likely to occur to increase.

B. The rapid cooldown associated with an excessive heat removal event causes the transition temperature where brittle fracture is more likely to occur to decrease.

C. The rapid cooldown associated with an excessive heat removal event causes compressive stress in the reactor vessel wall which makes brittle fracture more likely to occur.

D✔ The rapid cooldown associated with an excessive heat removal event causes tensile stress in the reactor vessel wall which makes brittle fracture more likely to occur.

Knowledge of the operational implications of the following concepts as they apply the RHRS:

Nil ductility transition temperature (brittle fracture)

EXPLAIN how an Excessive Heat Removal Event can lead to Pressurized Thermal Shock (PTS) to the reactor vessel.

Sys/Event K/A:	005000 K5.01	10CFR55:	41.B5/41.B14
LP/Objective:	0715-20 01.04	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	LP 07-15-20	Handout:	NONE

EXAM 078

A small break LOCA is in progress. PPLS has actuated and all HPSI and LPSI pumps are running. The following conditions exist:

Charging pumps are in Pull-to Lock
Pressurizer pressure is 1030 psia and steady
Steam generator pressure is 900 psia and steady
Pressurizer level is 70% and rising slowly
SIRWT level is 140" and lowering slowly
Containment pressure is 4.8 psig and lowering slowly

Which one of the following actions will reduce RCS subcooling margin?

A.✔ Stopping or throttling HPSI pumps

B. Stopping or throttling LPSI pumps

C. Lowering steam generator pressure

D. Starting charging pumps

Ability to predict and/or monitor changes in parameters

RCS temperature, including superheat, saturation, and subcooled

STATE from memory what must done if HPSI Stop and Throttle Criteria cannot be maintained when required

Sys/Event K/A:	006000 A1.16	10CFR55:	41.B5/41.B14
LP/Objective:	0718-13 03.02	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	LP 07-15-23	Handout:	NONE

EXAM 079

A SGTR has occurred. PPLS actuated as required, and at the completion of isolating the affected S/G, offsite power was lost. A transition to EOP-20 was made and during performance of the Safety Function Status Check, the STA announced that the HPSI pumps did not restart when the DG's reenergized the busses.

Should the HPSI pumps have restarted at this time?

A. ✔ Yes, OPLS should have reset the sequencers which would have restarted the pumps

B. No, OPLS will not restart the pumps until 60 seconds after the undervoltage relays reset

C. No, OPLS did not actuate because no SIAS signal is present

D. Yes, the pumps should have restarted as OPLS does not load shed 480 volt breakers

Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following:

Autostart of HPI/LPI/SIP

DEMONSTRATE the knowledge required to use EOP-04, Steam Generator Tube Rupture (SGTR), to mitigate the consequences of a SGTR.

Sys/Event K/A:	006000 K4.05	10CFR55:	41.B7
LP/Objective:	0718-14 01.00	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	STM 19	Handout:	NONE

EXAM 080

The 69 permissive switch on the breaker cubicle for SI-3B has been placed in the after-trip position. Which one of the following statements will be true in this condition?

A. The pump can be started by the sequencer or with the control room control switch

B. The pump can be started by the sequencer but not with the control room control switch

C. The pump can not be started by the sequencer but can be started with the control room control switch

D. ✔ The pump can not be started by the sequencer or by using the control room control switch

Knowledge of the effect of a loss or malfunction on the following will have on the ECCS:

Breakers, relays and disconnects

State the power supply for each major pump in the ECCS.

Sys/Event K/A:	006000 K6.04	10CFR55:	41.B7/43.B5
LP/Objective:	0711-22 01.10	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 14	Handout:	NONE

EXAM 081

A total loss of the CCW system has occurred. Which one of the following components that are normally cooled by CCW does not have Raw Water backup cooling available to it?

A. Control room air conditioning units

B. HPSI Pumps

C. ✓ Letdown heat exchanger

D. Shutdown cooling heat exchangers

Knowledge of the effect that a loss or malfunction of the CCWS will have on the following:

Loads cooled by CCWS

EXPLAIN the operation of the CCW/RW interface valves including function, components cooled, impact on the environment and CCW System and the design features that prevent inadvertent opening of the valves.

This is a modification of bank question 07-11-06 019

Sys/Event K/A:	008000 K3.01	10CFR55:	41.B4/41.B8
LP/Objective:	0711-06 01.03	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	MODIFIED
Reference:	STM 12	Handout:	NONE

EXAM 082

A LOCA has occurred 8 1/2 hour ago. Which one of the following situations would require the use of EOP/AOP attachment 11, "Alternate Hot leg injection"?

A. Inability to start either of the LPSI pumps.

B. ✔ Inability to open either of the pressurizer auxiliary spray valves.

C. A loss of instrument air pressure.

D. A loss of 4160V electrical bus 1A3

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Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions

Spray valve failures

GIVEN a copy of Attachment 9, EXPLAIN the steps necessary to establish Simultaneous Hot and Cold Leg Injection.

This attachment is designed for use when only one charging pump is available, but would also work when aux spray valves are failed closed.

Sys/Event K/A:	010000 A2.02	10CFR55:	41.B7/41.B10
LP/Objective:	0718-13 02.06	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP/AOP ATT 11	Handout:	NONE

EXAM 083

Plant controls are aligned as follows:

- Channel X is selected as the controlling pressurizer level channel, the controller is in CASCADE
- CH-1A control switch is in the PULL-TO-LOCK position
- CH-1B is off and the control switch is in the AFTER STOP position
- CH-1C is running and the control switch is in the AFTER START position
- Charging pumps mode select switch is in the CH-1A, CH-1B position

What Charging Pumps will be running if LT-101X fails high?

A. No charging pumps will be running.

B. Only CH-1B will be running.

C. ✓ Only CH-1C will be running.

D. CH-1B and CH-1C will be running.

Ability to (a) predict the impacts of the following malfunctions or operations on the PZR LCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions

Failure of PZR level instrument - high

EXPLAIN the automatic and manual controls associated with the charging pumps and boric acid pumps.

This is a modification of bank question 07-11-02 014

Sys/Event K/A:	011000 A2.10	10CFR55:	41.B7
LP/Objective:	0711-02 01.03	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	STM 12	Handout:	NONE

EXAM 084

The plant experienced a loss of all offsite power. D/G #1 failed to start. D/G # 2 started normally. Assuming that no action is taken to cross tie busses, what is the maximum available charging flow capacity in this condition?

A. 0 gpm.

B. 40 gpm.

C. ✓ 80 gpm.

D. 120 gpm.

Knowledge of bus power supplies to the following:

Charging pumps

EXPLAIN the automatic and manual controls associated with the charging pumps and boric acid pumps.

This is a modification of bank question 07-11-02 004

Sys/Event K/A:	011000 K2.01	10CFR55:	41.B7/41.B8
LP/Objective:	0711-02 01.03	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	STM 12	Handout:	NONE

EXAM 085

What provides the power reference to the SCEAPIS for calculating the power dependent insertion limit (PDIL) setpoint?

A. Turbine first stage pressure

B. RCS T-cold calculated by the RPS TM/LP calculator

C. Wide range log NI's

D✓ Qmax

Knowledge of the physical connections and/or cause effect relationships between the RPS and the following RPIS

Describe the interface/interaction between the CRDS and the following systems/components: Secondary CEA Position Indication (SCEAPIS).

Sys/Event K/A:	012000 K1.04	10CFR55:	41.B2/41.B6
LP/Objective:	0712.26 01.02B	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NRC FCS 1999
Reference:	STM 11	Handout:	NONE

EXAM 086

According to OPD 4-11, "Policy for When and by What Authority it is Appropriate to Bypass Engineered Safeguards", what are the restrictions on bypassing Engineered Safeguards during EOP events?

A. Engineered Safeguards may not be bypassed unless specifically directed by procedure.

B.✔ Engineered Safeguards may not be bypassed unless the Operators have control of the process to be bypassed.

C. Engineered Safeguards may not be bypassed unless authorized by the Shift Technical Advisor.

D. Only one train of Engineered Safeguards may be bypassed at a time.

Knowledge of operator responsibilities during all modes of plant operation.

Use the Reset of Engineered Safeguards Procedure to mitigate the consequences of an inadvertent

safeguards actuation

Sys/Event K/A:	013000 2.1.02	10CFR55:	41.B10/43.B5
LP/Objective:	0717-23 01.00	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NRC FCS 2001-1
Reference:	OPD 4-11	Handout:	NONE

EXAM 087

In the event of a VIAS, the Control Room Ventilation System is automatically brought to the:

A. Recirculation mode with both VA-46A/B running and only one filtered air fan VA-63A or B running.

B. Recirculation mode with both VA-46A/B running and no filtered air fans running.

C✓ Filtered air mode with both VA-46A/B running and only one filtered air fan VA-63 A or B running.

D. Filtered air mode with both VA-46A/B running and both filtered air fans VA-63A/B running.

Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems:

HVAC

Given the caution statements and/or notes listed in this AOP, explain the reason for each.

Sys/Event K/A:	013000 K1.13	10CFR55:	41.B7/41.B11
LP/Objective:	0717-08 01.05	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	OI-VA-3	Handout:	NONE

EXAM 088

The primary rod group position indicators (synchros) on CB-4 display:

A. ✔ The position of the CEDM selected on the group's rod selector switch

B. The average position of the CEDMs in the group

C. The position of the most inserted CEDM in the group.

D. The position of the most withdrawn CEDM in the group.

Ability to manually operate and/or monitor in the control room:

Rod selection control

Describe the methods of control rod position indication. Include the readouts and displays associated with each method. (CID No. 931191/02)

Sys/Event K/A:	014000 A4.01	10CFR55:	41.B2/41.B6
LP/Objective:	0712-26 01.07	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	CRDM STM	Handout:	NONE

EXAM 089

While at 100% power the following alarm comes in: "Rod Drop Nuclear Instrumentation Channel" on CB-4. Which of the following would be positive indication of which Power Range N.I. Channel has sensed the dropped rod **AND** what caused the dropped rod indication?

A. The High Voltage light on the drawer will be flashing, **AND** N.I. power has dropped 8% in 8 seconds

B.✓ The Dropped Rod light on the drawer will be lit, **AND** N.I. power has dropped 8% in 8 seconds

C. The High Voltage light on the drawer will be extinguished, **AND** N.I. power has dropped, and then leveled out at its original power level in 8 seconds

D. The Dropped Rod light on the drawer will be extinguished, **AND** N.I. power has dropped, and then leveled out at its original power level in 8 seconds

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Explain the function performed by each of the following Power Range NI System components

Sys/Event K/A:	015000 2.4.50	10CFR55:	41.B2/41.B6
LP/Objective:	0712-19 01.07	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	STM 29	Handout:	NONE

EXAM 090

The power range instruments have been set in accordance with the most recent plant calorimetric heat balance calibration (XC-105). When the heat balance was performed, an error existed in the instrument used to measure feed flow. Actual feed flow was higher than measured feed flow. This will affect the degree of conservatism of the power range high power trip set point in which one of the following ways?

A. It is unaffected.

B. It becomes more conservative (trips at a lower power than required).

C. It becomes less conservative (trips at a higher power than required).

D. It depends upon flux shape and core life and cannot be predicted from this data.

Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the NIS controls including:

NIS calibration by heat balance

Explain the relationship between neutron flux and reactor power.

Sys/Event K/A:	015000 A1.01	10CFR55:	41.B2/41.B14
LP/Objective:	0712-19 01.01A	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	NRC EXAM 1995
Reference:	GENERIC FUNDAMENTALS	Handout:	NONE

EXAM 091

The audio count rate circuitry receives its input from the:

A. Averaged output of all the WR channels.

B. Auctioneered high output of the four (4) WR channels.

C. Output of the Channel "D" linear amplifier only.

D✔ Manually selected WR channel.

Knowledge of the effect of a loss or malfunction on the following will have on the NIS:

Audio indication, including deaf spots in control room and containment

Explain the operation and use of the WR NIS audio count rate drawer.

Sys/Event K/A:	015000 K6.05	10CFR55:	41.6/43.6/43.7
LP/Objective:	0712-18 02.09	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	STM 29	Handout:	NONE

EXAM 092

The plant is operating with the channel "B" high pressurizer pressure trip unit bypassed.when pressurizer pressure transmitters PT-103X and PT-103Y both fail high. What will be the resulting RCS High Pressure Trip Logic immediately following the transmitter failures.?

A. ✔ None of the non-bypassed trip units will be in a tripped condition , the reactor will not trip.

B. One of the non-bypassed trip units will be in a tripped condition, the reactor will not trip

C. Two of the non-bypassed trip units will be in a tripped condition, the reactor will trip.

D. Three of the non-bypassed trip units will be in a tripped condition, the reactor will trip

Knowledge of the operational implication of the following concepts as they apply to the NNIS:

Separation of control and protection circuits

EXPLAIN the principles of operation of the Reactor Protective System (RPS).

Sys/Event K/A:	016000 K5.01	10CFR55:	41.B7
LP/Objective:	0712-25 01.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 38	Handout:	NONE

EXAM 093

CHOOSE the statement below that correctly describes the temperature range of the thermocouple of the Incore Nuclear Detection System.

A. 32°F - 2200°F

B. 100°F - 2200°F

C. ✔ 32°F - 2300°F

D. 100°F - 2300°F

Ability to explain and apply all system limits and precautions.

EXPLAIN the data generated from the Incore NI System using the CECOR program.

Sys/Event K/A:	017000 2.1.32	10CFR55:	41.B2/41.B7
LP/Objective:	0712-20 01.06	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	STM 29	Handout:	NONE

EXAM 094

Following a loss of coolant accident, the ECCS system has fully actuated. The operators have tripped all four reactor coolant pumps. The RCS pressure is 50 psia, Core Exit Thermocouple indication has failed, hot leg temperatures are reading between 520°F and 540°F and RVLMS = 14%. Which one of the following statements is true?

A. The core is covered. Natural circulation has been established.

B.✔ The core is covered. Natural circulation has not been established.

C. The core is uncovered. Natural circulation has been established.

D. The core is uncovered. Natural circulation has not been established.

Knowledge of the effect that a loss or malfunction of the ITM system will have on the following:

Natural circulation indications

Excore Instrumentation

This is a modification of bank question 07-15-28 004.

Sys/Event K/A:	017000 K3.01	10CFR55:	41.B5/41.B10/43.B5
LP/Objective:	0715-28 01.16A	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	TDB III.28	Handout:	NONE

EXAM 095

Of the following, what will be the configuration of containment cooling and filtering units following an event which caused containment pressure to rise rapidly to 4 psig and RCS pressure to lower to 1580 psia?

A. Full CCW flow to all coolers, VA-3A/B and VA-7C/7D running

B. CCW flow to VA-1A/B, VA-3A/B running

C. CCW flow to VA-8A/B, VA-7C/D running

D.✓ Full CCW flow to all coolers, VA-3A/3B running

Ability to monitor automatic operation of the CCS, including:

Initiation of safeguards mode of operation

Explain automatic controls associated with the Containment Air Cooling and Filtering System.

Sys/Event K/A:	022000 A3.01	10CFR55:	41.B8/41.B9
LP/Objective:	0714.02 01.04	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	NRC FCS 1999
Reference:	STM 10	Handout:	NONE

EXAM 096

What system acts as the backup cooling water system for the Containment Air Cooling and Filter System?

A. Turbine Plant Cooling Water System

B. Component Cooling Water System

C. ✔ Raw Water System

D. Circulating Water System

Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following

SWS/cooling system

Given specific plant conditions, apply the principles of operation of the Containment Air Cooling and Filtering

System to diagnose system response

Sys/Event K/A:	022000 K1.01	10CFR55:	41.B4/41.B9
LP/Objective:	0714-02 01.00	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-11	Handout:	NONE

EXAM 097

The RO reports that the following plant conditions exist following a loss of coolant accident:

- RCS Pressure = 700 psia
- Containment Pressure = 8 psig
- RAS has occurred
- HPSI and Containment Spray pumps are operating
- LPSI pumps are not running
- HCV-385 and HCV-386 are open
- LCV-383-1 and LCV-383-2 are closed
- HCV-383-3 and HCV-383-4 are open

Which of the following statements is true:

A. All systems are operating as designed.

B. Action must be taken to prevent damage to the HPSI and/or Containment Spray Pumps.

C. Action must be taken to provide more ECCS flow.

D✓ Action must be taken to isolate a radiation release path.

Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Explain overall system response to actuation of automatic engineered safeguards signals: Recirculation Actuation Signal (RAS).

Sys/Event K/A:	026000 2.1.23	10CFR55:	41.B7/41.B13/43.B4
LP/Objective:	0711-22 01.08C	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC FCS 2001-1
Reference:	EOP-03	Handout:	NONE

EXAM 098

Per the Floating Step for Containment Spray Termination, if Containment temperature is less than _____, then Containment Ventilation fans, VA-7C and VA-7D, can be stopped.

A. 100°F

B. 110°F

C. ✓ 120°F

D. 130°F

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CSS controls including:

Containment temperature

GIVEN a copy of the Containment Spray Termination floating step, EXPLAIN the steps necessary to terminate containment spray flow.

Sys/Event K/A:	026000 A1.02	10CFR55:	41.B7/41.B10
LP/Objective:	0718-13 03.10	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	EOP-03 FS-F	Handout:	NONE

EXAM 099

How is the spent fuel pool cooling system designed to maintain spent fuel pool water cleanliness?

A.✔ A portion of the spent fuel pool cooling system flow is diverted through a filter and demineralizer.

B. All of the spent fuel pool cooling system flow goes through a filter. A portion is diverted to flow through a demineralizer.

C. All of the spent fuel pool cooling system flow goes through a demineralizer. A portion is diverted to flow through a filter.

D. All of the spent fuel pool cooling system flow goes through a filter and demineralizer.

Knowledge of design feature(s) and/or interlock(s) which provide for the following:

Maintenance of spent fuel cleanliness

STATE the function of each of the following major components of the Spent Fuel Pool Cooling System:

Demineralizer (AC-7)

Sys/Event K/A:	033000 K4.02	10CFR55:	43.B7
LP/Objective:	0711-24 01.03D	Applicability:	SRO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	STM 44	Handout:	NONE

EXAM 100

After a Loss of Offsite Power, both steam generators are being fed via the AFW nozzles. RC-2A and RC-2B levels are being maintained between 35% and 60% wide range.

Of the following, is this an allowable method of S/G level control?

A. Yes, this is the range for automatic control by AFAS

B. Yes, 35% is adequate to maintain a heat sink and is within the required band of 35% to 85%

C. ✔ No, when feeding in this configuration, level must be maintained > 85% NR

D. No, extended operation in this mode will cause undue cycling of the AFW pumps

Ability to manually operate and/or monitor in the control room:

Fill of dry S/G

DEMONSTRATE the knowledge required to use EOP-02, Loss of Off-site Power/Loss of Forced Circulation (LOOP/LOFC), to mitigate the consequences of an electrical emergency or loss of forced circulation.

Sys/Event K/A:	035000 A4.02	10CFR55:	41.B4/41.B10
LP/Objective:	0718-12 01.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	EOP-06	Handout:	NONE

EXAM 101

RM-064 has been placed in service with the selector switch placed in the "auto" position. There is high activity in the RCS and a steam generator tube leak exists in RC-2B. How would the indication from RM-064 respond?

A. RM-064 indication would read background radiation only.

B. RM-064 indication would peg high and stay that way.

C. ✓ RM-064 indication would alternate between high and low readings.

D. RM-064 indication would continuously rise.

Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or

Indications and alarms for main steam and area radiation monitors (during SGTR)

LIST the systems and components that interface with the Radiation Monitoring System.

Sys/Event K/A:	039000 A2.03	10CFR55:	41.B11
LP/Objective:	0712-03 01.04	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 33	Handout:	NONE

EXAM 102

On July 3, 1992, a transient occurred at Fort Calhoun in which RCS average temperature increased to 575°F and steam generator pressure increased to over 1000 psia before the reactor and turbine tripped. What is the expected response of the steam dump and bypass valves to this transient prior to the turbine trip?

A. PCV-909-(1-4) will remain closed and PCV-910 will also remain closed.

B. PCV-909-(1-4) will open but PCV-910 will remain closed.

C. ✓ PCV-909-(1-4) will remain closed but PCV-910 will open.

D. PCV-909-(1-4) will open and PCV-910 will also open.

Ability to monitor automatic operation of the SDS, including:

Main steam pressure

Given specific plant conditions, PREDICT the response of the Reactor Regulating System (RRS).

Sys/Event K/A:	041000 A3.05	10CFR55:	41.B4/41.B5
LP/Objective:	0712-31 01.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	STM 36	Handout:	NONE

EXAM 103

Which one of the following describes the Tech Spec Requirements for HCV-1384?

A. Tech specs require that HCV-1384 be open during power operation.

B. Tech Specs require that HCV-1384 be tested to ensure it will isolate on a SGIS signal

C. ✓ Tech Specs require that HCV-1384 be tested to ensure it can be opened to provide a flowpath from FW-6

D. Tech Specs require HCV-1384 be tested to ensure it will open on an AFAS signal

Knowledge of limiting conditions for operations and safety limits.

Given a copy of the Technical Specifications, INTERPRET the requirements for the AFW System

Sys/Event K/A:	059000 2.2.22	10CFR55:	41.B4/41.B10
LP/Objective:	0711-01 01.05	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	TS 3.9	Handout:	NONE

EXAM 104

EOP-06 directs the operators to trip all RCPs following a loss of all feedwater. What is the basis for this action?

A. Flow from the RCPs would interfere with once-through cooling

B. ✔ To eliminate the RCPs as a source of heat input to the RCS

C. To reduce the risk of clad damage due to quenching if a void forms in the vessel

D. To allow the stratification of phases so that water remains in the reactor vessel.

Knowledge of the physical connections and/or cause-effect relationships between the MFW and the following systems:

RCS

GIVEN a copy of the Technical Basis Documents (TBDs), EXPLAIN the bases behind the major operator actions contained in EOP-06, LOAF

Sys/Event K/A:	059000 K1.05	10CFR55:	41.B3/41.B14
LP/Objective:	0718-16 01.06	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	NRC EXAM 2001-2
Reference:	LP 07-15-17	Handout:	NONE

EXAM 105

FW-10 is being operated from AI-179. The 43/RC-2A and 43/RC-2B switches are in the "LOCAL" position. There is a sudden loss of instrument air due to a pipe break in room 19? What will the status of YCV-1045 be 5 minutes after the loss of instrument air?

A. ✔ YCV-1045 will be in the fully open position.

B. YCV-1045 will be in the fully closed position

C. YCV-1045 will be in a mid position and will be opening slowly

D. YCV-1045 will be in a mid position and will be closing slowly

Ability to (a) predict the impacts of the following malfunctions or operations on the AFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or

Loss of air to steam supply valve

EXPLAIN the automatic operations of AFW System components

Sys/Event K/A:	061000 A2.02	10CFR55:	41.B4/41.B7
LP/Objective:	0711-01 01.07	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-17	Handout:	NONE

EXAM 106

A reactor startup is in progress. FW-54 is being used as a feedwater source. If a loss of offsite power occurs and DG-2 fails to start, how will power be supplied to MCC-4C6 to power FW-54 auxiliaries?

A. Power will automatically be supplied from D/G-1 via MCC-4C5.

B.✔ Power will automatically be supplied from FW-54's shaft driven generator.

C. Power will be supplied from D/G-1 via MCC-4C5 after transfer switch EE-55 is manually operated.

D. Power will be supplied from FW-54's shaft driven generator after transfer switch EE-55 is manually operated.

Knowledge of bus power supplies to the following:

AFW diesel driven pump

DESCRIBE the operational conditions associated with the operation of each of the three AFW pumps: FW-6, FW-10, and FW-54.

Sys/Event K/A:	061000 K2.03	10CFR55:	41.B4/41.B7
LP/Objective:	0711-01 01.10	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC FCS 2001-1
Reference:	STM 4	Handout:	NONE

EXAM 107

A Plant startup is in progress and you, as Control Room Operator attempt to synchronize the Main Generator to the grid using breaker 3451-4. You turn the breaker control switch to the CLOSE position, the breaker does not close, and the WHITE indicating light is lit.

CHOOSE the statement that most correctly describes this situation and your required actions in accordance with OI-ST-2.

A. The 3451-4 breaker is now locked out and 86/BF4 Breaker Failure Relay must be reset before another attempt can be made by synchronize.

B. The 3451-4 breaker mismatch has occurred and synchronization must be accomplished [3451-4 closed] within 15 seconds or the turbine will trip.

C. The 3451-4 breaker is now locked out and 86/BF4 Breaker Failure Relay must be reset within 15 seconds or the turbine will trip.

D✔ The 3451-4 breaker mismatch has occurred and the control switch for breaker 3451-4 must be green flagged [placed in the After Trip position] within 15 seconds or the turbine will trip.

Knowledge of operator responsibilities during all modes of plant operation.

Explain how the system configuration is manipulated from the Control Room including

Sys/Event K/A:	062000 2.1.02	10CFR55:	41.B4/41.B/43.B5
LP/Objective:	0713-01 01.05	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	OI-ST-2	Handout:	NONE

EXAM 108

The island buses contain tie breakers with interlocks. What is the purpose of the interlock?

A. prevents overvoltage condition

B. ✔ prevents two sources from supplying the bus at same time

C. prevents lightning from interrupting the power

D. prevents undervoltage condition

Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Keeping the safeguards buses electrically separate

State the functional relationships between the 480 VAC Electrical Distribution System and the following

Sys/Event K/A:	062000 A2.06	10CFR55:	41.B7
LP/Objective:	0713-03 01.02	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	STM 14	Handout:	NONE

EXAM 109

To shutdown the EDG, the load is reduced to approximately _____ prior to opening the output breaker to prevent reverse powering the diesel.

A. ✓ 300 KW

B. 100 KW

C. 40 KW

D. 30 KW

Ability to monitor automatic operation of the ED/G system, including:

Rpm controller/megawatt load control (breaker-open/breaker-closed effects)

Briefly explain the operation of each subsystem of the diesel engine.

Sys/Event K/A:	064000 A3.13	10CFR55:	41.B7/41.B10
LP/Objective:	0713-05 01.14	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	OI-DG-1	Handout:	NONE

EXAM 110

Which one (1) of the following conditions and actions are required before using the Breaker Emergency Control Switch on AI-30 to close an Emergency Diesel Generator (EDG) output breaker?

A. 183-MES is in EMERGENCY and turn the breaker emergency control switch to CLOSE.

B.✔ 183-MES is in NORMAL and turn the breaker emergency control switch to CLOSE.

C. NO EDG lockout trips are present and turn the breaker emergency control switch to CLOSE.

D. Breakers 1A13, 1A33, and RC-3B are OPEN and turn the breaker emergency control switch to CLOSE.

Knowledge of the effect that a loss or malfunction of the ED/G system will have on the following:

ED/G (manual loads)

Explain the methods of controlling the EDG output breaker including the requirements for opening and closing the breaker from the various control points and the various breaker trips.

Sys/Event K/A:	064000 K3.03	10CFR55:	41.B7/41.B10
LP/Objective:	0713-05 01.08	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	STM 16	Handout:	NONE

EXAM 111

With the reactor in Mode 3, hot shutdown, the following conditions exist:

- Circulating Water Pump, CW-1A is running
- Circulating Water Pumps, CW-1B & 1C are secured
- Raw water Pump, AC-10A is operating
- Waste Monitor Tank, WD-22B, is being released

Which one of the following actions should be taken if CW-1A trips?

A. One of the other Circulating Water Pumps should be started immediately.

B.✔ The Waste Monitor Tank Release should be terminated immediately.

C. An additional Raw water Pump should be started immediately.

D. No immediate action is required as long as one Raw Water Pump remains in service.

Ability to manually operate and/or monitor in the control room:

Remote radwaste release

Using the Offisite Dose Calculation Manual (ODCM) and OI's as reference, explain the minimum circulating

water requirements during radioactive liquid effluent releases

Sys/Event K/A:	068000 A4.02	10CFR55:	41.B13
LP/Objective:	0711-03 01.06	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	NRC 97 EXAM
Reference:	OI-WDL-3	Handout:	NONE

EXAM 112

A liquid waste discharge of the 'B' monitor tank is in progress. Which one of the following describes ALL the automatic actions that will occur if, during the release, a high alarm is received on the liquid effluent radwaste monitor, RM-055?

A. Liquid waste control valve, HCV-691 will close.

B.✔ Liquid waste control valves, HCV-691 and HCV-692 will close and WD-23B Monitor tank pump will receive a trip signal.

C. Liquid waste control valves HCV-691 and HCV-692 will close.

D. Both WD-23A and WD-23B (Monitor tank pumps) and both WD-16 A/B (Hold tank pumps) will receive a trip signal.

Knowledge of the effect of a loss or malfunction on the following will have on the Liquid Radwaste System :

Radiation monitors

LIST radiation monitors with automatic actuations and STATE the automatic actuations that occur.

Sys/Event K/A:	068000 A4.02	10CFR55:	41.B11/41.B13
LP/Objective:	0712-03 04.01	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	SRO EXAM 1999
Reference:	STM 33	Handout:	NONE

EXAM 113

Waste gas decay tank, WD-29A, is being released. The waste gas controller, FIC-532, is in automatic with an output of 100%. Which one of the following will automatically terminate the release by closing FCV-532A/B/C?

A. Process flowrate 30 scfh below the set point.

B. Pressure in WD-29A falls below 2 psig.

C. ✓ Process flowrate below 25 scfh.

D. The release must be manually terminated.

Ability to manually operate and/or monitor in the control room:

Opening and closing of the decay tank discharge control valve

EXPLAIN the operation of controls located in the Control Room associated with the Waste Disposal (Gas)

System.

Sys/Event K/A:	071000 A4.27	10CFR55:	41.B13/43.B4
LP/Objective:	0711-31 01.02	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	SRO EXAM 1999
Reference:	STM 48	Handout:	NONE

EXAM 114

Hydrogen, nitrogen and oxygen are present in the Waste Gas system. Which one of the following gas mixtures is potentially explosive?

A. 2% hydrogen, 86% nitrogen, 12% oxygen

B.✔ 20% hydrogen, 68% nitrogen, 12% oxygen

C. 30% hydrogen, 70% nitrogen, 0% oxygen

D. 90% hydrogen, 5% nitrogen, 5% oxygen

Knowledge of the operational implication of the following concepts as they apply to the Waste Gas Disposal

Relationship of hydrogen/oxygen concentrations to flammability

APPLY the principles of operation of the Waste Disposal (Gas) System to diagnose system response for

specific plant conditions

Sys/Event K/A:	071000 K5.04	10CFR55:	41.B5/41.B13
LP/Objective:	0711-31 01.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	LP 07-15-28	Handout:	NONE

EXAM 115

Concerning the Controlled Access side of the Auxiliary Building Ventilation System, VIAS will:

A. Automatically valve in all charcoal filter units.

B. Automatically valve in charcoal filter units for SI Pump and Spent Regenerant Tank rooms only.

C✓ Automatically valve in ventilation for SI Pump and Spent Regenerant Tank rooms.

D. Automatically trip Controlled Side Supply and Exhaust Fans and close associated dampers.

Knowledge of ARM system design feature(s) and/or interlock(s) which provide for the following:

Plant ventilation systems

STATE the functional relationships between the Auxiliary Building Ventilation System and the following systems:

Sys/Event K/A:	072000 K4.03	10CFR55:	41.B7/41.B11
LP/Objective:	0714-01 01.02	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-23 ATT D	Handout:	NONE

EXAM 116

Which of the following statements is correct concerning the Raw Water System following a Safeguards actuation? Assume that busses 1A3 and 1A4 are energized.

A. All starts of the Raw Water pumps are disabled except sequencer starts

B. All trips of the Raw Water pumps except manual trips are disabled

C. ✔ All Raw Water pumps will be started by the sequencers

D. All trips of the Raw Water pumps except overload [115% for 17 seconds] are disabled

Ability to manually operate and/or monitor in the control room:

Emergency/essential SWS pumps

Given EPIP-OSC-1, explain how the event would be classified. (SRO ONLY)

Sys/Event K/A:	075000 A4.01	10CFR55:	41.B4/41.B7
LP/Objective:	0717-10 01.07	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-23 ATT G	Handout:	NONE

EXAM 117

Which one of the following is a function of the Raw Water system?

A. Provide a backup water supply directly to the suction of the AFW pumps

B.✔ Provide backup cooling to the control room air conditioning units.

C. Provide normal makeup to the condensate storage tank.

D. Provide normal cooling to the condensate cooler.

Knowledge of system purpose and or function.

EXPLAIN the operation of the CCW/RW interface valves including function, components cooled, impact on the environment and CCW System and the design features that prevent inadvertent opening of the valves.

Sys/Event K/A:	076000 2.1.27	10CFR55:	41.B4/41.B8
LP/Objective:	0711-06 01.03	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	NEW
Reference:	AOP-11	Handout:	NONE

EXAM 118

The following plant conditions exist:

The RCS pressure boundary is intact.
Shutdown cooling is lost due to a Raw Water system pipe break.

What is the preferred method of decay heat removal in accordance with AOP-19?

A.✔ Steaming the steam generators

B. Once through cooling

C. Using the refueling cavity

D. Charging and Letdown

Knowledge of the effect that a loss or malfunction of the SWS will have on the following:

RHR components, controls, sensors, indicators, and alarms, including rad monitors

Describe the major recovery actions of this AOP.

Sys/Event K/A:	076000 K3.05	10CFR55:	41.B4/41.B10
LP/Objective:	0717-19 01.03	Applicability:	RO ONLY
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	AOP-19	Handout:	NONE

EXAM 119

The following plant conditions exist:

AC-10A and AC-10D are running
Raw Water flow is isolated to RW/CCW heat exchanger AC-1B
River Temperature is 70.5F
River Level is 998'

Which one of the following actions should be taken?

A. Start an additional Raw Water pump.

B. Shutdown one of the running Raw Water pumps

C.✓ Restore Raw Water flow to the isolated RW/CCW heat exchanger

D. Isolate Raw Water flow to an additional RW/CCW heat exchanger

Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following:

Service water train flow and discharge pressure when service water flow to heat exchanger for closed cooling water is throttled

Given the Technical Specification Manual, EXPLAIN the Technical Specification and bases associated with the Raw Water System.

Sys/Event K/A:	076000 K4.05	10CFR55:	43.B2
LP/Objective:	0711-19 01.02	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	OI-RW-1	Handout:	NONE

EXAM 120

While the plant was operating at 100% power, the "Air compressors Bkr Trip" annunciator alarmed. Operators responded to the alarm and found that air Compressor CA-1A had tripped on Bus 1B3C undervoltage.

What operator action is required to clear this automatic trip condition?

A. Place the local control plant load transfer switch into the "2" position.

B. No action required as the breaker will automatically reset.

C. Place the local panel 3-position selector switch in "Standby" position.

D. ✓ Take control switch on CB-10/11 to "after stop"

Knowledge of annunciators alarms and indications, and use of the response instructions.

Explain the principles of normal operation of the Compressed Air System in terms of flow paths, major parameters, (temperature, pressure, flow, etc.), and control devices.

Sys/Event K/A:	079000 K2.01	10CFR55:	41.B4/41.B7/41.B10
LP/Objective:	0711-07 01.04	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC FCS 1999
Reference:	STM 43	Handout:	NONE

EXAM 121

The technical specification limits on containment leakage are based on:

A. Offsite radiological limits during normal operation.

B.✔ Offsite radiological limits during postulated accidents

C. Containment cooling requirements during normal operation.

D. Containment cooling requirements during postulated accidents.

Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

EXPLAIN how the assumptions used in the chapter 14 safety analysis are related to the Technical Specification limiting conditions for operation.

Sys/Event K/A:	103000 2.2.25	10CFR55:	41.B9/43.B2
LP/Objective:	0715-31 01.02	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	TS 3.5 BASES	Handout:	NONE

EXAM 122

When annunciator window CB-1/2/3, A4, E3, "Personnel Air Lock Door Open" is in alarm, it informs the control room operator that:

A. The outer PAL door is open or ajar.

B. The Inner PAL door is open or ajar.

C. Both of the PAL doors are open or ajar.

D✓ Either of the PAL doors are open or ajar.

Knowledge of the physical connections and/or cause-effect relationships between the containment system and the following systems:

Personnel access hatch and emergency access hatch

Describe the entry conditions for this AOP.

Sys/Event K/A:	103000 K1.05	10CFR55:	41.B9/41.B10
LP/Objective:	0717-12 01.04	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	NRC FCS 2001-1
Reference:	ARP CB-1/2/3	Handout:	NONE

EXAM 123

What are the potential consequences of defeating the automatic rampdown feature of the main feedwater regulating valves with the plant operating at 100% power?

A. AFAS actuation following a reactor trip.

B. A steam generator water hammer following a reactor trip.

C. A loss of RCS heat removal following a reactor trip.

D. ✔ Overcooling of the RCS following a reactor trip.

Ability to operate and / or monitor the following as they apply to the (RCS Overcooling)

Operating behavior characteristics of the facility.

EXPLAIN the operation of the Feedwater Control System following a turbine trip.

Sys/Event K/A:	CE-A11 AA1.02	10CFR55:	41.B1/41.B5
LP/Objective:	0711-11 02.05	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NRC FCS 2001-1
Reference:	LP 0715-20	Handout:	NONE

EXAM 124

A plant startup is in progress. Steam generator pressure is below 550 psia. The steam generator low pressure signal for the Engineering Safeguards Control System (ESCS) is blocked with the associated key operated block circuit. During the heatup, steam generator pressure rises above 600 psia. A malfunction then causes steam flow to increase and steam generator pressure to drop below 500 psia.

Assuming the key-operated block switches were not used to change the block condition, which ONE of the following would you expect to occur?

A.✔ An SGLS will occur and the MSIV's and Feedwater isolation valves will close.

B. SGLS will not activate and action must be taken manually by the operator.

C. SGLS will not activate but the MSIV's will shut on a high steam flow.

D. An SGLS will occur and only the MSIV's will be shut.

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

DESCRIBE the operation of the Engineered Safeguards Control System during normal and emergency conditions.

Sys/Event K/A:	CE-E05 2.4.50	10CFR55:	41.B7
LP/Objective:	0712-14 02.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	STM 19	Handout:	NONE

EXAM 125

Which one of the following statements is true regarding HPSI stop and throttle?

A. HPSI flow should be reduced prior to the pressurizer level exceeding 70% during a UHE.

B. HPSI flow should be reduced prior to the affected steam generator drying out in an UHE.

C✓ HPSI flow should NOT be reduced until all stop and throttle criteria are met in a UHE.

D. HPSI flow should NOT be reduced during a UHE.

Knowledge of the reasons for the following responses as they apply to the (Excess Steam Demand)

RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.

GIVEN a copy of the HPSI Stop and Throttle Criteria floating step, EXPLAIN the four indications used to determine the HPSI Stop and Throttle Criteria are met.

Sys/Event K/A:	CE/E05 EK3.04	10CFR55:	41.B8/41.B10
LP/Objective:	0718-15 03.01	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	EOP-05	Handout:	NONE

EXAM 126

The operating crew has just entered EOP-06 due to a loss of all feedwater. After EOP-06 is entered, it is discovered that the loss of feed was due to a feed line break that is not isolatable from the S/G. To recover from this accident condition, the crew should:

A. Continue with the execution of EOP-06.

B. Return to EOP-00 Diagnostic Actions.

C. ✓ Leave EOP-06 and enter EOP-05 for uncontrolled heat extraction.

D. Leave EOP-06 and enter EOP-20 to initiate functional recovery.

Ability to operate and / or monitor the following as they apply to the (Loss of Feedwater)

Desired operating results during abnormal and emergency situations.

STATE from memory the Contingency Action in EOP-06 which requires the operator to GO TO EOP-05, Uncontrolled Heat Extraction.

Sys/Event K/A:	CE/E06 EA1.03	10CFR55:	43.B5
LP/Objective:	0718-16 01.05	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	FCS BANK
Reference:	EOP-06	Handout:	NONE

EXAM 127

The following plant conditions exist:

The plant is operating at 100% power
FW -2A, FW-2B, FW-4B, FW-4C, FW-5B and FW-5C are running
The 43-SIAS/FW2 selector switch is in the FW-2B position
The 43-SIAS/FW4 selector switch is in the FW-4C position
An Inadvertant PPLS signal initiates safeguards

Assuming no operator action, which of the following condensate, feedwater and heater drain pumps will be operating following the load sheds that result from the inadvertant safeguards actuation?

A. FW-2B

B. ✔ FW-2B and FW-4C

C. FW-2A, FW-4B, FW-5B and FW-5C

D. None of the listed pumps will be running

Knowledge of the operational implications of the following concepts as they apply to the (Loss of Feedwater)

Annunciators and conditions indicating signals, and remedial actions associated with the (Loss of

DESCRIBE the operation of the Engineered Safeguards Control System during normal and emergency conditions.

Sys/Event K/A:	CE-E06 EK1.03	10CFR55:	41.B7
LP/Objective:	0712-14 02.00	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM-19	Handout:	NONE

EXAM 128

The following plant conditions exist:

A loss of offsite power has occurred
D/G #1 has failed to start
RCS Pressure is 2170 psia
One charging pump is running
WR S/G levels indicate 28% in both steam generators
FW-10 and FW-54 have both failed to operate
Cold leg temperatures indicate 556°F, they have risen 11 degrees and are continuing to rise.

Which one of the following actions should be taken?

A. Start two Reactor Coolant Pumps.

B.✔ Initiate once-through cooling

C. Initiate emergency boration

D. Start FW-6

Knowledge of the interrelations between the (Functional Recovery) and the following:

Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

EXPLAIN the operator actions required during a total loss of feedwater event.

Sys/Event K/A:	CE-E09 EK2.02	10CFR55:	43.B5
LP/Objective:	0715-17 02.03	Applicability:	SRO ONLY
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP-06	Handout:	NONE