1. 295001AA2.02.001/1/1/RO/NEW/H/3/KDS/BLC

Unit 1 was operating at 100% power when APRM 1 failed upscale.

Subsequently, the 1A Recirc Pump tripped and the following conditions currently exist:

- Reactor power: 65%
- APRM 1 has NOT been bypassed

Which ONE of the following completes both statements?

The OPRM TRIP ENABLED annunciator (9-5A, W30) began alarming when it sensed _____ was < 60%.

If Cell #28 in OPRM 3 subsequently exceeds its trip setpoint, an automatic reactor scram signal _____ occur.

A. Recirc Pump Discharge Flow (driving); will

B. Recirc Pump Discharge Flow (driving); will NOT

C. Total Core Flow (driving and driven); will

D. Total Core Flow (driving and driven); will NOT

Answer is B.

295001 (Partial or Complete Loss of Forced Core Flow Circulation) AA2.02: Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Neutron monitoring
(CFR: 41.10 / 43.5 / 45.13) RO IR: 3.1

Plausibility Analysis:
The 1st part of "C" and "D" is plausible because thermal hydraulic instability depends on total core flow. The 2nd part of "A" and "C" is plausible because of the existing APRM 1 upscale failure in combination w/ OPRM 3.

References
ARP-9-5A pages 31, 32 and 39.
OPL171.148 Objective V.B.15.c.

2. 295003G2.1.23 001/1/1/RO/NEW/L/3/KDS/BLC

Unit 1 was operating at 100% power when a total loss of offsite power occurred (all three units).

- All eight diesel generators started and tied to their boards.
- Only one EECW pump is running.

Which ONE of the following completes both statements in accordance with 0-AOI-57-1A, Loss of Offsite Power (161 and 500 KV)/Station Blackout, Attachment 9, Restoration of EECW Pumps?

Secure any Diesel Generator prior to ___(1)___ of operation without cooling water.

Secure any Diesel Generator prior to ___(2)___ of operation with only one EECW Pump supplying cooling water.

A. (1) eight minutes
(2) one hour

B. (1) eight minutes
(2) two hours

C. (1) ten minutes
(2) one hour

D. (1) ten minutes
(2) two hours

Answer is A.

295003 (Partial or Complete Loss of AC) G2.1.23: Ability to perform specific system and integrated plant procedures during all modes of plant operation. (CFR: 41.10 / 43.5 / 45.2 / 45.6) RO IR: 4.3

Plausibility Analysis

A CORRECT: 1st part is correct per 0-AOI-57-1A Attachment 9. 2nd part is correct per 0-AOI-57-1A Attachment 9.

B INCORRECT: 1st part is correct per 0-AOI-57-1A Attachment 9. 2nd part is plausible because 2 hours is the limit for operating a diesel generator at 990 ampres in a 24 hour period.

C INCORRECT: 1st part is plausible because 10 minutes is the distinction between short and long term operation for the diesel generators. EECW pumps supplied by Unit 3 DGs are B1, D1, A3 and C3. 2nd part is correct.

D INCORRECT: 1st part is plausible because 10 minutes is the distinction between short and long term operation for the diesel generators. 2nd part is plausible because 2 hours is the limit for operating a diesel generator at 990 ampres in a 24 hour period.

References

0-AOI-57-1A pages 10, 70-73
0-OI-82 pages 9-10

Lesson Plan Objectives

OPL171.038 r17
~~OPL171.037 r12 Obj C 3,~~
OPL171.074 r8 Obj B2

3. 295004AK1.02 001/1/1/RO/NEW/L/2/KDS/BLC

A complete loss of power to Battery Board #3, Panel 11 has occurred.

Which ONE of the following identifies the status of the Unit 2 annunciators and the procedure required to restore power to Battery Board #3, Panel 11?

A. Unit 2 annunciators are still operable; 2-AOI-57-9, Loss of Annunciator Panel(s) Supplied by Panel 9-9 Cabinet One

B. Unit 2 annunciators are inoperable; 0-AOI-57-8, Loss of 48 V DC Annunciator Power

C. Unit 2 annunciators are inoperable; 2-AOI-57-9, Loss of Annunciator Panel(s) Supplied by Panel 9-9 Cabinet One

D. Unit 2 annunciators are still operable; 0-AOI-57-8, Loss of 48V DC Annunciator Power

Answer is D.

295004 (Partial or Total Loss of DC Pwr) AK1.02: Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Redundant D.C. power supplies:
(CFR: 41.8 to 41.10) RO IR: 3.2

Plausibility Analysis

NOTE: PANEL 2-9-9 CABINET 1 auto transfers to alternate supply when line voltage decreases to 70% voltage.

The 1st part of "B" and "C" is plausible because Battery Board 3 Panel 11 provides power to Panel 9-9, Cabinet 1, which provides power to the annunciators. The 2nd part of "A" and "C" is plausible because Panel 9-9, Cabinet 1 is the power supply to the annunciators; however, it's auto-transfer feature means that the annunciators still have power.

References
0-AOI-57-8 page 11

Lesson Plan Objectives
OPL171.037 Obj C1 and 2

4. 295005AK2.01 001/1/1/RO/NEW/H/2/KDS/BLC

Unit 1 is operating at 28% power and the following annunciator is alarming:

TURBINE TRIP TIMER INITIATED (9-8A, W1)

The turbine has not yet tripped.

Which ONE of the following identifies:

(1) the current status of annunciator TURB CV FAST CLOSURE TURV SV CLOSURE SCRAM/RPT TRIP LOGIC BYPASS (9-5B, W16)

and

(2) whether bypass valve capacity is sufficient to preclude a high reactor pressure condition after the turbine trips?

A. Annunciator is NOT lit;
bypass valve capacity will handle 28% power.

B. Annunciator is NOT lit;
bypass valves will NOT handle 28% power.

C. Annunciator is lit;
bypass valve capacity will handle 28% power.

D. Annunciator is lit;
bypass valve capacity will NOT handle 28% power.

Answer is D.

295005 (Main Turbine Generator Trip) AK2.01: Knowledge of the interrelations between MAIN TURBINE GENERATOR TRIP and the following: RPS
(CFR: 41.7 / 45.8) RO IR: 3.8

Plausibility Analysis:

A - INCORRECT: 1st part is correct. 2nd part is plausible because it is the reason for the initial runback to 75% on U2/U3.

B - CORRECT:

C- INCORRECT: 1st part is plausible because U2/U3 have a 75% anticipatory runback. 2nd part is plausible because it is the reason for the initial runback to 75% on U2/U3.

D - INCORRECT: 1st part is plausible because U2/U3 have a 75% anticipatory runback. 2nd part is correct.

References

1-ARP-9-8A page 4
1-ARP-9-5B page 19
OPL171.010, Obj: D.4
OPL 171.010 pg 6, 46
OPL 171.028 pg 28

5. 295006AK3.06 001/1/1/RO/NEW/H/2/KDS/BLC

Unit 2 was operating at 100% power when a scram occurred.

Which ONE of the following predicts the final recirc pump speed, including the reason that the recirc pumps go to this speed?

Assume no manual operator action is taken after the reactor scram.

A. 28%
mitigates the level shrink from the scram

B. ✔ 28%;
prevent overheating of the recirc pumps or jet pump cavitation

C. 75%;
mitigates the level shrink from the scram

D. 75%;
prevent overheating of the recirc pumps or jet pump cavitation

Answer is B.

295006 (SCRAM) AK3.06: Knowledge of the reasons for the following responses as they apply to SCRAM : Recirculation pump speed reduction
(CFR: 41.5 / 45.6) RO IR: 3.2

Plausibility Analysis

A - INCORRECT: Plausible because Unit 1 recirc pumps do remain at 100%. 2nd part is plausible because flow remaining through the core will remove heat.
B - CORRECT: Unit 2 will run back to 75% to mitigate the level transient from the scram.
C - INCORRECT: Plausible because there is a 28% runback for the reason stated.
D - INCORRECT: Plausible because for a SCRAM/ATWS, this is correct.

References
BFN-23
FSAR 7.9.4.3.6

Lesson Plan Objectives
OPL171.007 pg 34, 6
Obj 6

6. 295016AA1.08 001/1/1/RO/NEW/L/2/KDS/BLC

The Unit 1 control room was required to be evacuated in accordance with 1-AOI-100-2, Control Room Abandonment.

Which ONE of the following identifies:

(1) the initial reactor pressure band required to be established at Panel 25-32

and

(2) whether Panel 25-32 is equipped with an annunciator window for high reactor pressure?

A. Between 500 psig and 800 psig;
The Panel 25-32 annunciator panel does NOT include a window for high reactor pressure.

B. Between 500 psig and 800 psig;
The Panel 25-32 annunciator panel includes a window for high reactor pressure.

C✓ Between 800 psig and 1000 psig;
The Panel 25-32 annunciator panel does NOT include a window for high reactor pressure

D. Between 800 psig and 1000 psig;
The Panel 25-32 annunciator panel includes a window for high reactor pressure

Answer is C.

295016 (Control Room Abandonment) AA1.08: Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: Reactor Pressure. (CFR: 41.7 / 45.6) RO IR: 4.0

Plausibility Analysis
The 1st part of "A" and "B" is plausible because there is a caution in 1-AOI-100-2 "Verifying Reactor Feedwater Pump outlet valves and Startup Level Control Valve closed prior to depressurizing below 500 psig prevents Reactor Vessel flooding from the Condensate System." The 2nd part of "B" and "D" is plausible because there are various alarms at panel 25-32.

References
1-AOI-100-2

Lesson Plan Objectives
OPL171.074r.8 Obj B2

7. 295018AK1.01.001/1/1/RO/NEW/H/2/KDS/BLC

Unit 3 is operating at 100% with the spare RBCCW pump is disassembled for maintenance.

One Unit 3 RBCCW pump trips and cannot be restarted.

WHICH ONE of the following identifies:

(1) when the 3-FCV-070-48, RBCCW Sectionalizing Valve, will auto-close

and

(2) whether a manual reactor scram is required in accordance with 3-AOI-70-1, Loss of RBCCW?

A. 3-FCV-70-48 will close when the supply header pressure reaches 57 psig.
A scram is required.

B. 3-FCV-70-48 will close when the suction header temperature reaches 95 deg.
A scram is required.

C. 3-FCV-70-48 will close when the supply header pressure reaches 57 psig.
A scram is NOT required

D. 3-FCV-70-48 will close when the suction header temperature reaches 95 deg.
A scram is NOT required

Answer is A.

295018 (Partial or Total Loss of CCW) AK1.01: Knowledge of the operational implications of thefollowing concepts as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : Effects on component/system operations. (CFR: 41.8 to 41.10) RO IR: 3.5

Plausibility Analysis
The 1st part of "B" and "D" is plausible because the setpoint for the RBCCW High Suction Temperature alarm is 95 °F. The 2nd part of "C" and "D" is plausible because the procedure states that a scram is required if the cooling cannot be immediately restored, that is, the procedure has an allowance for NOT scramming the plant. However, in this case, the stem states that the spare pump is not available.

References
3-ARP-904C pages 19, 27

Lesson Plan Objectives
OPL171.047 r12 Obj.B4, D5

8. ~~295019AK2.17 009/1/1/RO/NEW/H/2/KDS/BLC~~

Unit 3 is operating at 100% power with all systems in their normal standby lineup.

WHICH ONE of the following describes how the HPCI standby lineup is affected following a loss of control air, in accordance with 3-AOI-32-2, Loss of Control Air?

A. Both the inlet and exhaust drain pots have no automatic method of draining.

B. The Gland Seal Condenser Condensate Pump's discharge path is re-directed to the Reactor Building Equipment Drain Tank.

C. ONLY the inlet drain pot has no automatic method of draining.

D. The Gland Seal Condenser Condensate Pump will automatically pump to clean rad waste (CRW).

Answer is A. (verify w/ licensee that the Reactor Building Equipment Drain Tank (choice "b") is not the same answer as clean rad waste (choice "d")

295019 (Partial or Total Loss of Inst. Air) AK2.17: Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: High pressure coolant injection (CFR: 41.7 / 45.8) RO IR: 2.7

Plausibility Analysis
A - CORRECT:Steam line condensate drain valves (FCV 73-6A & 6B) fail closed.
B- INCORRECT: Plausible because various systems route their drains to this tank.
C- INCORRECT: Plausible because the drain systems are seperate and drain to different places so they could operate differently; and inlet pot affects operability.
D- INCORRECT: Plausible because this alignment could be performed manually.

References
3-ARP-9-3F, pages 24, 29, 36 and 37
3-AOI-32-2, page 22

Lesson Plan Objectives
OPL171.042 r20 Obj. B7 pg 3, 45, 57
OPL 171.040 r23 pg 16

9. 295021AK3.04 001/1/1/RO/NEW/H/3/KDS/BLC

Unit 1 is in Mode 4. A loss of shutdown cooling has occurred.

The crew has placed RWCU in service in accordance with 1-AOI-74-1, Loss of Shutdown Cooling, with two demineralizers in service.

Which ONE of the following identifies:

(1) the reason why AOI-74-1 directs placing RWCU in service

and

(2) the maximum allowed flow with two-pump operation in accordance with 1-OI-69, RWCU System?

A. Maintain reactor coolant temperature < 200 °F;
320 gpm

B. Prevent thermal stratification;
320 gpm

C✓ Maintain reactor coolant temperature < 200 °F;
200 gpm

D. Prevent thermal stratification;
200 gpm

Answer is C.

295021 (Loss of Shutdown Cooling) AK3.04: Knowledge of the reasons for the following responses as they apply to LOSS OF SHUTDOWN COOLING : Maximizing reactor water cleanup flow. (CFR: 41.5 / 45.6) RO IR: 3.3

Plausibility Analysis
The 1st part of "B" and "D" is plausible because RWCU bottom outlet nozzle temperature is a parameter used to ascertain whether thermal stratification is occuring. However, per 1-AOI-74-1 "**RAISE** RWCU flow rate to maximum AND **MAXIMIZE** RWCU blowdown in accordance with 1-OI-69 as required to maintain reactor coolant temperatures less than 200°F on all indications." The 2nd part of "A" and "B" is plausible because of 1-Oi-69, Precaution and Limitation 3.2C.

References
1-OI-69
1-AOI-74

Lesson Plan Objectives
OPL171.074 Obj: C1

10. 295023AA1.05-001/1/1/RO/NEW/H/3/KDS/BLC

Unit 1 plant conditions:

- Core reload is in progress and is almost complete
- A fuel assembly is being lowered into the core
- SRM PERIOD (9-5A, W20) alarms
- Rising count rate observed on all SRMs
- All SRM Period Meters indicate +80 seconds and getting shorter
- REFUELING ZONE EXHAUST RADIATION HIGH (9-3A, W34) alarms

Which ONE of the following:

(1) predicts the status of the Standby Gas Treatment System (SGTS)

and

(2) identifies the required immediate operator action in accordance with 1-AOI-79-2, Inadvertent Criticality During Incore Fuel Movements?

A. SGTS has auto-initiated
Immediately remove the fuel assembly from the Reactor core.

B. SGTS has auto-initiated
Stop all fuel handling and evacuate all non-essential personnel from Refuel Floor

C. SGTS has NOT auto-initiated
Immediately remove the fuel assembly from the Reactor core.

D. SGTS has NOT auto-initiated
Stop all fuel handling and evacuate all non-essential personnel from Refuel Floor

Answer is A.

295023 (Refueling Acc) AA1.05: Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS : Fuel transfer system
(CFR: 41.7 / 45.6) RO IR: 2.8

Plausibility Analysis

A - CORRECT: REFUELING ZONE EXHAUST RADIATION HIGH in alarm will start SBGT. Per 1-AOI-79-2, if due to loading a fuel assembly, immediately remove the fuel assembly from the core.

B - INCORRECT:1st part is correct. 2nd part is incorrect but plausible because it is an immediate action for 1-AOI-79-1 Fuel Damage During Refueling

C - INCORRECT:1st part incorrect but plausible since the applicant has to know the automatic start signals to the SBGT system. 2nd part is correct.

D - INCORRECT: 1st part incorrect but plausible since the applicant has to know the automatic start signals to the SBGT system. 2nd part is incorrect but plausible because it is an immediate action for 1-AOI-79-1 Fuel Damage During Refueling.

References
1-AOI-79-1 pg 1-6
1-AOI-79-2 pg 1-6

Lesson Plan Objectives
OPL171.053 Obj: B10

11.
A station blackout has occurred on Unit 3 and the following containment conditions currently exist:

- Drywell pressure: 28 psig
- Drywell temperature: 260 °F ↗
- Torus pressure: 25 psig decreasing
- Torus level: 16 ft

Which ONE of the following completes the statements below?

Drywell sprays __(1)__ at this time

A condition that would require IMMEDIATE emergency depressurization in accordance with 3-EOI-2, Primary Containment Control, PC/P is __(2)__?

[REFERENCE PROVIDED]

A. are ~~allowed~~ required
the ACTION REQUIRED region of Curve 8, RPV Saturation Temp, is entered.

B. are ~~allowed~~ required
the ACTION REQUIRED region of Curve 6, Press Suppr Press, is entered.

C. are not ~~allowed~~ required
the ACTION REQUIRED region of Curve 8, RPV Saturation Temp, is entered.

D. are not ~~allowed~~ required
the ACTION REQUIRED region of Curve 6, Press Suppr Press, is entered.

Correct Answer B

Can give Curve 8 and Curve 6?

11. ~~295024EA2.01 001/1/1/RO/NEW/H/2/KDS/BLC~~

A station blackout has occurred on Unit 3 and the following containment conditions currently exist:

- Drywell pressure: 28 psig
- Drywell temperature: 300 °F
- Torus pressure: 25 psig decreasing
- Torus level: 16 ft

Which ONE of the following identifies:

1) whether drywell sprays are required at this time

and

2) a subsequent condition that would require emergency depressurization in accordance with 3-EOI-2, Primary Containment Control, PC/P?

[REFERENCE PROVIDED]

A. DW sprays are required
The ACTION REQUIRED region of Curve 8, RPV Saturation Temp, is entered.

B. DW sprays are required
The ACTION REQUIRED region of Curve 6, Press Suppr Press, is entered.

C. DW sprays are not allowed
The ACTION REQUIRED region of Curve 8, RPV Saturation Temp, is entered.

D. DW sprays are not allowed
The ACTION REQUIRED region of Curve 6, Press Suppr Press, is entered.

Answer is B. [Provide applicants with Curve 5, DW Spray Initiation Limit.]

295024 (High Drywell Pressure) EA2.05: Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: Drywell Pressure
(CFR: 41.10 / 43.5 / 45.13) RO IR: 3.6

Plausibility Analysis:

The 1st part of "C" and "D" is plausible because torus level is provided in the stem; therefore, the applicant has to know that drywell sprays are only allowed when torus level is less than 18ft. The 2nd part of "A" and "C" is plausible because if level cannot be determined, then ED is required.

Reference
EOI-2

12. 295025G2.4.47 001/1/1/RO/NEW/L/3/KDS/BLC

Unit 1 was operating at 100% power when a main turbine trip occurred. The following annunciators alarmed after the turbine tripped:

- REACTOR PRESS HIGH (9-5A, W1)
- MAIN STEAM RELIEF VALVE OPEN (9-3C, W25)

The Unit Operator observes that two MSRVs are cycling.

Which ONE of the following completes the following statement in accordance with EOI-1, RC/P leg?

Manually open ____(1)_____ **using** ____(2)____ .

A. (1) The Turbine bypass valves to lower reactor pressure until no MSRVs are cycling;
(2) Appendix 11H, Alternate RPV Pressure Control systems Main Condenser.

B. (1) MSRVs until RPV pressure drops to the pressure at which all Turbine bypass valves are fully open
(2) Appendix 11A, Alternate RPV Pressure Control systems MSRVs

C. (1) The Turbine bypass valves to lower reactor pressure until no MSRVs are cycling;
(2) Appendix 11A, Alternate RPV Pressure Control systems MSRVs

D. (1) MSRVs until RPV pressure drops to the pressure at which all Turbine bypass valves are fully open
(2) Appendix 11H, Alternate RPV Pressure Control systems Main Condenser.

Answer is B.

295025 (High Reactor Pressure) G2.4.47: Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. (CFR: 41.10 / 43.5 / 45.12) RO IR: 4.2

Plausibility Analysis

A. INCORRECT: 1st part is plausible because the MSRVs are the decision step in the EOI and opening the TBVs would drop pressure to the point at which the MSRVs would close. 2nd part is plausible because the procedure title suggests it will adjust RPV pressure as necessary to reseat the MSRVs or TBVs.

B. CORRECT: Per 1-EOI-1

C. INCORRECT: 1st part is plausible because the MSRVs are the decision step in the EOI and opening the TBVs would drop pressure to the point at which the MSRVs would close. 2nd part is correct.

D. INCORRECT: 1st part is correct. 2nd part is plausible because the procedure title suggests it will adjust RPV pressure as necessary to reseat the MSRVs or TBVs.

References
1-ARP-9-7B pages 7, 9
1-OI-47, pages 23, 154

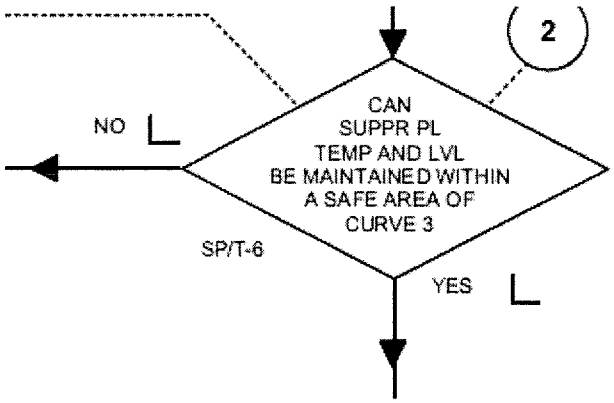
Lesson Plan Objectives
OPL171.228 pg 20-23
Obj: C1

13. 295026EK2.06 001/1/1/RO/NEW/H/3/KDS/BLC

A LOCA has occurred on Unit 1 and the following conditions currently exist:

- Narrow Range Torus Level: -1"
- Torus Temperature: 190 degrees
- Torus Pressure: 5 psig
- RPV Pressure: 900 psig

WHICH ONE of the following identifies the answer to following decision block and the subsequent required action in accordance with EOI-2, Primary Containment Control, SP/T leg?



[REFERENCE PROVIDED]

A. NO; manually lower reactor pressure to 800 psig

B. NO; emergency depressurization is required

C. YES; rapidly depressurize the reactor to the main condenser

D. YES; operate all available loops in torus cooling

Answer is B. [Provide applicants with Curve 3, HCTL]

295026 (Suppression Pool High Water Temp) EK2.06: Knowledge of the interrelations between SUPPRESSION POOL HIGH WATER TEMPERATURE and the following: Suppression pool level (CFR: 41.7 / 45.8) RO IR: 3.5

Plausibility Analysis

A -INCORRECT: 1st part is correct. 2nd part is incorrect but plausible because if the step was worded as "restored and maintained" it would be correct.

B -CORRECT: EOI-2, Primary Containment Control, SP/T leg.

C - INCORRECT: 1st part is incorrect but plausible because the applicant is pulling data off a graph and may interpret incorrectly. 2nd part is plausible because all heat goes to the main condenser avoiding heatup.

D - INCORRECT: 1st part is incorrect but plausible because the applicant is pulling data off a graph and may interpret incorrectly. 2nd part is incorrect but plausible because EOI-2 includes steps in SP/T to place all available torus cooling in service

References

2-EOI-2 Flow Chart

Lesson Plan Objectives

OPL171.203 r7 Obj: B7

14. 295028EA1.03 001/1/1/RO/NEW/H/3/KDS/BLC

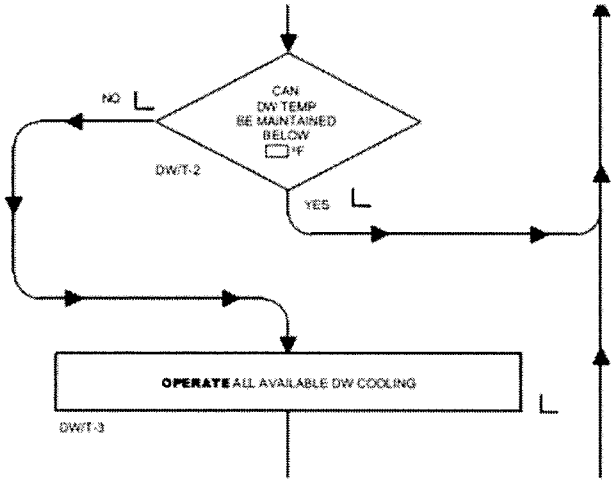
Unit 3 was operating at 100% power with eight drywell coolers in operation:

3A-1, -2, -3, -4 and 3B-1, -2, -3, and -4

A LOCA and partial loss of AC power simultaneously occur and the following conditions currently exist:

- 3A DG is the sole source of power to 4 KV SD Bd 3EA
- 4KV SD Bd 3EA is supplying 480 V SD Bd 3A
- All other 4KV Sd Bds are being supplied from offsite power
- Core Spray has received an auto-actuation signal

The crew is currently implementing the following step in EOI-2, Primary Containment Control:



Which ONE of the following identifies the temperature value listed in step DW/T-2 and the number of drywell coolers that are operating 1 minute after the LOCA and partial loss of AC power?

[Assume no drywell coolers are manually started.]

A. 200 °F;
six

B. 200 °F;
eight

C. 160 °F;
six

D. 160 °F
eight

Answer is D.

295028 (High Drywell Temperature) EA1.03: Ability to operate and/or monitor the following as they apply to HIGH DRYWELL TEMPERATURE : Drywell cooling system. (CFR: 41.7 / 45.6) RO IR: 3.9

Plausibility Analysis
The 1st part of "A" and "B" is plausible because this value is listed in Step DW/T-4.

The 2nd part of "A" and "B" is plausible because [on Unit 3] load shed is divisionalized. Therefore, the applicant may think that the division 1 drywell coolers will still be shedded since 3A DG is the sole source of power to 4 KV SD Bd 3EA.

3A-1 and 3A-2 are powered from 480 V SD Board 3A
3A-3 and 3A-4 are powered from 480 V RMOV Bd 3A
3B-3 and 3B-4 are powered from 480 V RMOV Bd 3B
3A-5 and 3B-5 are powered from 480 V RMOV Bd 3C and
3B-1 and 3B-2 are powered from 480 V SD Board 3B

References
3-OI-64
2-EOI-2

Lesson Plan Objectives
OPL171.036 Obj B8, B12
OPL171.016 (pg14)

15. 295030EA2.01 001/1/1/RO/NEW/L/2/BLC/KDS

Which ONE of the following:

1) describes the low torus water level entry condition value in EOI-2, Primary Containment Control,

and

2) identifies the FIRST system required to be used to add water to the torus in accordance with EOI Appendix 18, Suppression Pool Water Inventory Removal and Makeup?

A. it is the Tech Spec 3.6.2.2, Suppression Pool Water Level LCO value;
HPCI

B. it is the same as the alarm setpoint for SUPPR CHAMBER WATER LEVEL ABNORMAL (9-3B, W15);
HPCI

C. it is the Tech Spec 3.6.2.2, Suppression Pool Water Level LCO value;
RCIC

D. it is the same as the alarm setpoint for SUPPR CHAMBER WATER LEVEL ABNORMAL (9-3B, W15);
RCIC

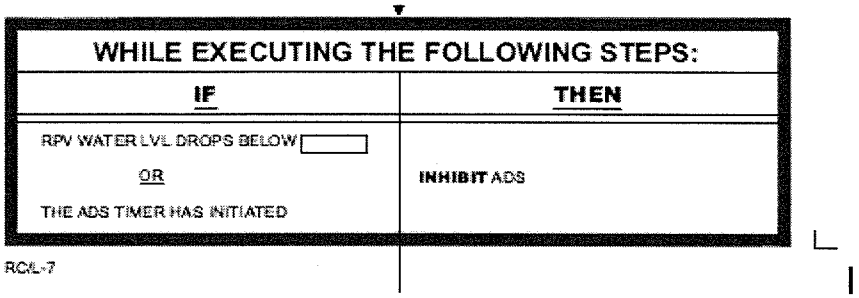
Answer is A

295030 (Low Suppression Pool Wtr Lvl) EA2.01: Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: Suppression pool level. (CFR: 41.10 / 43.5 / 45.13) RO IR: 4.1

Plausibility:
The 1st part of "B" and "D" are plausible because there are several other plant parameters that have annunciator setpoints equal to the EOI entry conditions, e.g., drywell pressure, secondary containment water levels. The 2nd part of "C" and "D" is plausible because this is the second system listed (in order) in EOI Appendix 18 for raising torus water level.

EOI-2 Bases
Tech Spec 3.6.2.2
EOI Appendix 18
Lesson Plan OPL171.203
Objective 2: Given a list of plant parameters, identify which would require entry into EOI-2.
Objective 11: Explain the bases for EOI-2 steps, cautions, notes, and curves.

While implementing 1-EOI-1, RPV Control, the Unit Supervisor (US) reaches the following override step:



WHILE EXECUTING THE FOLLOWING STEPS:	
IF	**THEN**
RPV WATER LVL DROPS BELOW [ ] OR THE ADS TIMER HAS INITIATED	**INHIBIT** ADS

RC/L-7

Which ONE of the following identifies the RPV water level when ADS is required to manually inhibited, including the reason, in accordance with EOI-1, RPV Control, Step RC/L-7?

A. -122"; an auto ADS actuation imposes a severe thermal transient on the RPV

B. -120"; an auto ADS actuation provides positive reactivity

C. -122"; an auto ADS actuation provides positive reactivity

D. -120"; an auto ADS actuation imposes a severe thermal transient on the RPV

Answer is D [Note: Ensure no overlap with Q#41 (218000 A3.01)]

295031 (Reactor Low Water Level) EK3.01: Knowledge of the reasons for the following responses as they apply to REACTOR LOW WATER LEVEL : Automatic depressurization system actuation. (CFR: 41.5 / 45.6) RO IR: 4.2

Plausibility:
The 1st part of "A" and "C" is plausible because this value is the actual level at which ADS will actuate. (The higher value listed in EOI step RC/L-7 was chosen due to the graduations of the level indicators.) The 2nd part of "B" and "D" is plausible because positive reactivity is a concern when the reactor will not remain subcritical under all conditions without boron.

1-EOI-1, Step RC/L-7
OPL171.202 Obj 13: Explain the reason for inhibiting ADS when boron injection is required.
Obj 15: Given appropriate plant information, utilize RC/P, RC/L, and RC/Q concurrently to determine appropriate operator actions.

17. 295037G2.4.46 001/1/1/RO/NEW/H/2/BLC/KDS

Unit 1 was operating at 100% power when vessel level began lowering. The following conditions currently exist:

REACTOR CHANNEL A(B) AUTO SCRAM (9-5B, W1 & 2): alarming

Reactor pressure: 1000 psig

All 8 RPS lights at Panel 9-5 are lit

Reactor level: - 26 " and stable

Which ONE of the following predicts the current status of the ATWS AUTO INITIATE (9-4A, W10) annunciator and identifies the required procedure for the plant conditions?

A. Not lit;
EOI Appendix 1A, Removal and Replacement of RPS Scram Solenoid Fuses

B. Not lit;
EOI Appendix 1F, Manual Scram

C. Lit;
EOI Appendix 1F, Manual Scram

D. Lit;
EOI Appendix 1A, Removal and Replacement of RPS Scram Solenoid Fuses

Answer is A

295037 (SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown) G2.4.46: Ability to verify that the alarms are consistent with the plant conditions. (CFR: 41.10 / 43.5 / 45.3 / 45.12) RO IR: 4.2

Plausibility:
The 1st part of "C" and "D" are plausible because either low reactor level OR high reactor pressure will actuate the alarm. Since both parameter values are provided in the stem, and the level value is abnormal, this makes "C" and "D" plausible. The 2nd part of "B" and "C" is plausible for a hydraulic ATWS; however, since RPS has not been de-energized, this is an electrical ATWS.

EOI Appendix 1F
EOI Appendix 1A
EOI-1, RC/Q leg
Lesson Plan OPL171.007 Obj 18: Describe the basis for the Anticipated Transient Without Scram (ATWS) trip of the recirculation pumps, including the initiating parameters and their setpoints, and the specific system components affected.

18. ~~295038EK1.03 001/1/1/RO/NEW/L/2/BLC/KDS~~

A General Emergency has been declared on Unit 1. The control room crew is assisting the Radiation Protection Staff to perform EPIP-8, Dose Assessment.

The following information has been obtained using the METDATA Screen and 0-SI-4.8.B.1.a.1, Airborne Effluent Release Rate:

Wind Direction: 225°
Release is from the Reactor Building Refuel Floor

Which ONE of the following identifies the plume direction and release category?

A. Plume direction is towards Athens; elevated release

B. Plume direction is towards Cullman; elevated release

C. Plume direction is towards Athens; ground release

D. Plume direction is towards Cullman; ground release

Answer is C

295038 High Off-site Release Rate: Knowledge of the operational implications of the following concepts as they apply to HIGH OFF-SITE RELEASE RATE : †Meteorological effects on off-site release. (CFR: 41.8 to 41.10) RO IR: 2.8

Note: To obtain plume direction, add 180 deg to wind direction if the wind direction is less than or equal to 180 deg; OR subtract 180 deg if the wind direction is greater than 180 deg.

0-SI-4.8.B.1.a.1, Airborne Effluent Release Rate
EPIP-8, Dose Assessment
RO Task # U-090-AL-41 Respond to Plant Site or Environs Radiation High

0° is

19. 600000G2.4.34 001/1/1/RO/NEW/H/2/BLC/KDS

A control building fire has occurred and the Unit Supervisor has determined that 0-SSI-16, Control Building Fire EL 593 Through EL 617, is required because multiple failures/spurious actuations of components have occurred on Unit 2.

Which ONE of the following identifies a local operator action required for UNIT 2 in accordance with 0-SSI-16?

A. Reset 2-FCV-67-51 using EECW SOUTH HDR SPLY TO RBCCW HX RESET, 2-HS-67-51B on 2-LPNL-925-0032

B. Initiate RCIC from Panel 25-32

C. Locally vent the air from 2-FCV-069-0094, RWCU Appendix R Valve near Panel 25-2

D. Locally close RFPT Discharge Valves

Answer is C

600000 (Plant Fire On Site) G2.4.34: Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects. (CFR: 41.10 / 43.5 / 45.13) RO IR: 4.2

Note: This K/A is different than the 295016 (control room abandonment) and requires testing the applicants' knowledge of fire response tasks performed outside the control room.

Plausibility: "A", "B", and "D" are plausible because these are local field actions listed in abnormal procedures, which are NOT the controlling procedures at this point because the SSIs have been entered and the control rooms evacuated.

OPL171.031 Obj 4: Identify the final plant system lineup used for core cooling and decay heat removal.
2-AOI-100-2

20. ~~700000AK1.02 001/1/1/RO/NEW/L/2/BLC/KDS~~

Which ONE of the following completes both statements in accordance with 0-GOI-300-4, Switchyard Operations, and 2-OI-47, Turbine Generator?

A ____ MVAR maximum outgoing limit applies to all three units for both 500-kV and 161-kV offsite power source qualification.

If the outgoing MVAR limit is exceeded for a unit and is not corrected within _____ , the TOp must immediately inform BFN that both offsite power sources are disqualified for the unit that is exceeding the limit.

A. 300;
5 minutes

B. 150;
5 minutes

C. 300;
15 minutes

D. 150;
15 minutes

Answer is C

700000 (Generator Voltage and Electric Grid Disturbances) AK1.02: Knowledge of the operational implications of the following concepts as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Over-excitation. (CFR: 41.4, 41.5, 41.7, 41.10 / 45.8) RO IR: 3.3

Plausibility:
The 1st part of "B" and "D" are plausible because 150 MVAR is the incoming limit listed in OI-47, Section 3.3.a. The 2nd part of "A" and "B" are plausible because 5 minutes is listed in 2-OI-47, Section 3.1.d as the time limit allowed for operating at low rpms.

2-OI-47, Section 3.1.d and 3.3.a
0-GOI-300-4
Lesson Plan OPL171.089 Obj 12: Determine the maximum leading and lagging reactive load for Browns Ferry generators.
Obj 13: Determine the conditions that must be met for 161KV switchyard to be considered as a valid off-site source of electrical power.

21. ~~295002AA1.08 001/1/2/RO/NEW/L/2/KDS/BLC~~

Unit 2 was operating at 100% when the Unit Operator (UO) noted main condenser vacuum degrading on the Hotwell Temperature and Pressure Recorder 2-XR-2-2.

The UO depressed the Recirc Mid-Power Runback Pushbutton.

Which ONE of the following identifies how far reactor power will be reduced and when the Reactor Feedpumps will trip if vacuum continues to degrade?

A. Recirc Pump speeds will lower until total steam flow is less than 90%; 10 " Hg

B. Recirc Pump speeds will lower until total steam flow is less than 78.5%; 10 " Hg

C. Recirc Pump speeds will lower until total steam flow is less than 90%; 7 "Hg

D. Recirc Pump speeds will lower until total steam flow is less than 78.5%; 7" Hg

Answer is D

295002 (Loss of Main Condenser Vac) AA1.08: Ability to operate and/or monitor the following as they apply to LOSS OF MAIN CONDENSER VACUUM : Recirculating flow control system. (CFR: 41.7 / 45.6) RO IR: 2.6

Plausibility:

The 1st part of "A" and "C" are plausible because this is the Upper Power Runback pushbutton setpoint. The 2nd part of "A" and "B" is plausible because this is the RCIC turbine trip setpoint on low suction pressure.

2-AOI-47, Loss of Condenser Vacuum
OPL171.074 Objective B.2

22. ~~295010AA2.01 001/1/2/RO/NEW/L/2/KDS/BLC~~

Unit 2 has been operating in Mode 1 for one year.

The crew has entered 2-AOI-64-1, Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell.

Which ONE of the following identifies:

1) the minimum required frequency for calculating drywell sump leakage in accordance with accordance with 2-AOI-64-1

and

2) an actual leakage value that exceeds the Tech Spec 3.4.4, Operational Leakage, limits?

A. Once every 4 hours;
Unidentified leakage has increased 3 gpm within the previous 24 hours

B. Once every 4 hours;
Unidentified leakage is 4 gpm

C. Once every 2 hours;
Unidentified leakage is 4 gpm

D. Once every 2 hours;
Unidentified leakage has increase 3 gpm within the previous 24 hours

Answer is D

295010 (High Drywell Pressure) AA2.01: Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE : Leak Rates
(CFR: 41.10 / 43.5 / 45.13) RO IR: 3.4

Plausibility: The 1st part of "A" and "B" are plausible because of Tech Spec 3.4.4 required completion times for action statements A.1 and B.1. The 2nd part of "B" and "C" are plausible because there is a limit for unidentified leakage listed in Tech Spec 3.4.4 (5 gpm).

2-AOI-64-1
Tech Spec 3.4.4
OPL171.074 Obj B.2

23. 295013G2.4.3 001/1/2/RO/NEW/H/2/BLC/KDS

A startup is being performed on Unit 3 and all IRMs are on Range 8.

Which ONE of the following describes:

1) how 3-TI-64-162, Suppression Pool Bulk Temperature, at Panel 9-3 is identified as a "post accident monitoring instrument"

and

2) a situation where an action statement is required to be entered in accordance with Tech Spec 3.6.2.1, Suppression Pool Average Temperature?

A. Orange EOI label tag on the indicator at Panel 9-3
3-TI-64-162 indicating 103°F while RCIC is operating for a surveillance test

B. Black frame around the indicator at Panel 9-3
3-TI-64-162 indicating 96°F with no testing in progress

C. Orange EOI label tag on the indicator at Panel 9-3
3-TI-64-162 indicating 96°F with no testing in progress

D. Black frame around the indicator at Panel 9-3
3-TI-64-162 indicating 103°F while RCIC is operating for a surveillance test

Answer is B

295013 (High Suppression Pool Temp) G2.4.3: Ability to identify post-accident instrumentation. (CFR: 41.6 / 45.4) RO IR: 3.7

Plausibility:
The 1st part of "A" and "C" are plausible because this is how equipment used in the EOIs is marked/labeled in accordance with EOIPM 0-X-A, EOI Tools & Equipment and 0-GOI-300-1, Operations Rounds Logs. The 2nd part of "A" and "D" is plausible because this closely mirrors TS 3.6.2.1 LCO item b.

Tech Spec and Bases 3.3.3.1 and 3.6.2.1
EOIPM 0-X-A, EOI Tools & Equipment
0-GOI-300-1, Operations Rounds Logs

Lesson Plan OPL171.016, Obj 16: Show a general knowledge of the Technical Specifications related to the primary and secondary containment system by locating the specific requirements in the Technical Specifications Manual as presented in this lesson plan.

24. 295022AK1.02 001/1/2/RO/NEW/H/2/BLC/KDS

Unit 2 is starting up with reactor pressure at 750 psig.

The 2A CRD Pump trips.

CRD ACCUM Press LOW/LEVEL HIGH (9-5A, W29): alarming

CRD Charging Water Header Pressure: 1000 psig and slowly lowering

Four Accumulator lights are lit on the full core display

Which ONE of the following describes the required operator sequence of actions in accordance with 2-AOI-85-3, CRD System Failure?

A. Manually scram and immediately place the mode switch to shutdown; then place 1B CRD Pump in service

B. Immediately attempt to place 1B CRD Pump in service; do not manually scram

C. Immediately attempt to restart 2A CRD Pump; do not manually scram

D. Manually scram and immediately place the mode switch to shutdown and then attempt to restart 2A CRD Pump

Answer is B (Discuss whether this question overlaps w/ Scenario #2, Event 5)

295022 (Loss of CRD Pumps) AK1.02: Knowledge of the operational implications of the following concepts as they apply to LOSS OF CRD PUMPS: Reactivity control. (CFR: 41.8 to 41.10) RO IR: 3.6

Plausibility:
All choices are individually listed in AOI-85-3 and the sequence of actions are plausible because of Tech Spec 3.1.5, Scram Accumulators, required actions.

Tech Spec 3.1.5, Scram Accumulators
OPL171.074, Obj 1: Identify the immediate operator actions for a particular AOI.

25. ~~295033EK2.02 001/1/2/RO/NEW/L/2/BLC/KDS~~

Unit 3 is operating at 100% power.

Which ONE of the following identifies an annunciator that requires entry to 3-EOI-3, Secondary Containment Control and the radiation detector/sensor/monitor that triggers the annunciator?

A. RX BLDG AREA RADIATION HIGH (9-3A, W22);
Rx Zone HVAC Rad Monitors 142/143

B. RX BLDG AREA RADIATION HIGH (9-3A, W22);
area rad monitor on the 565' elevation of the Reactor Bldg

C. RX BLDG, TURB BLDG, RF ZONE EXH RADIATION HIGH (9-3A, W4);
Rx Zone HVAC Rad Monitors 142/143

D. RX BLDG, TURB BLDG, RF ZONE EXH RADIATION HIGH (9-3A, W4);
area rad monitor on the 565' elevation of the Reactor Bldg

Answer is B

295033 (High Secondary Containment Area Radiation Levels) EK2.02: Knowledge of the interrelations between HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS and the following: Process radiation monitoring system. (CFR: 41.7 / 45.8) RO IR: 3.8

Plausibility:

The 1st part of "C" and "D" is correct; however, the RX BLDG, TURB BLDG, RF ZONE EXH RADIATION HIGH (9-3A, W4) annunciator is only triggered by the 90-250 rad monitor. The 2nd part of "A" is plausible because the 142/143 are radiation monitors.

3-ARP-9-3A, W4 and W22
Lesson Plan OPL171.204, Obj 2: Given a list of plant parameters, identify which would require entry into EOI-3.
Lesson Plan OPL171.033, Obj 5: Given plant and Process Radiation Monitoring System status, determine the appropriate actions to be performed as stated in Technical Specifications, OIs, ARPs, and AOIs.

26. ~~295035EK3.01 001/1/2/RO/NEW/L/2/KDS/BLC~~

Which ONE of the following choices completes the following statements in accordance with the FSAR?

The reason that that the main steam vault is equipped with blowout panels is to ___(1)___ following a main steam line rupture between the outboard isolation valve and the secondary containment wall.

Following a main steam line rupture between the outboard isolation valve and the secondary containment wall, the main steam vault blowout panels will relieve the steam and the steam would flow to the ___(2)___.

A. (1) Ensure the steam release is routed via a pathway monitored for radioactivity;
(2) Refuel Floor

B. (1) Ensure the steam release is routed via a pathway monitored for radioactivity;
(2) Turbine Building

C. (1) Prevent overpressurization of the Reactor Building;
(2) Refuel Floor

D. (1) Prevent overpressurization of the Reactor Building;
(2) Turbine Building

Answer is D.

295035 Secondary Containment High Differential Pressure: Knowledge of the reasons for the following responses as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE : Blow-out panel operation
(CFR: 41.5 / 45.6) RO IR: 2.8

Plausibility Analysis
The 1st part of "A" and "B" is plausible because 1) both the turbine building and reactor building are equipped with HVAC exhaust radiation monitors and 2) 0-EOI-4 override contains steps to start HVAC to ensure that any radioactivity is monitored. The 2nd part of "A" and "C" is plausible because blow out panels do exist
References
TS Bases 3.6.4.1

Lesson Plan Objective
OPL171.016r18 Obj: B1 pg 60

27. ~~500000EK1.01 001/1/2/RO/NEW/L/2/KDS/BLC~~

Which ONE of the following identifies (1) the hydrogen value listed as an entry condition in 1-EOI-2, Primary Containment Control, and (2) the method used to control hydrogen and oxygen concentration in accordance with 1-EOI-2?

A. (1) Primary Containment hydrogen concentration above 4%;
(2) The CAD Tank is injected to the containment

B. (1) Primary Containment hydrogen concentration above 4%;
(2) The "B" Nitrogen Storage Tank is injected to the containment

C. (1) Primary Containment hydrogen concentration above 2.4%;
(2) The CAD Tank is injected to the containment

D. (1) Primary Containment hydrogen concentration above 2.4%;
(2) The "B" Nitrogen Storage Tank is injected to the containment

Answer is C.

500000 (High CTMT Hydrogen Conc) EK1.01: Knowledge of the operational implications of the following concepts as they apply to HIGH CONTAINMENT HYDROGEN CONCENTRATIONS: Containment integrity.
(CFR: 41.8 to 41.10) RO IR: 3.3

Plausibility Analysis
The 1st part of "A" and "B" is plausible since this is the lower explosive limit of hydrogen in air. The 2nd part of "A" and "C" is plausible because the CAD tank is utilized for hydrogen control (in the SAMGs) following severe core damage.

References
1-EOI-2
2-EOI-2
EOI-2 Bases

Lesson Plan Objectives
OPL171.203 r17 Obj: B13

28. ~~203000K6.01 001/2/1/RO/NEW/H/3/MJR/BLC~~

Current conditions on Unit 2:

- Reactor power is at 100%.
- 480V Shutdown Board '2B' is de-energized
- 480 V RMOV Bd 2A is de-energized

Which ONE of the following predicts how the Low Pressure Coolant Injection (LPCI) system is affected if a large break LOCA occurred and reactor pressure lowers to 120 psig?

A. Loop 1 and Loop 2 will inject.

B. Loop 1 will inject.
Loop 2 will NOT inject.

C. Loop 1 and Loop 2 will NOT inject.

D. Loop 1 will NOT inject.
Loop 2 will inject.

Answer is A.

203000 (RHR/LPCI: Injection Mode) K6.01: Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: INJECTION MODE: A.C. electrical power (CFR: 41.7/ 45.7) (RO IR: 3.6)

Plausibility Analysis

A. CORRECT. Even though power will be lost to RMOV boards B, C, and E, the inboard injection valves (FCV-74-53 and -67 - normally closed) are supplied by RMOV boards D and E which will auto-transfer to their backup power source. Even though Loop 2's outboard injection valve receives power from RMOV board B, the outboard injection valves (FCV-74-52 and -66) are already open.

B. *INCORRECT. Plausible since Loop 1 valves are supplied by RMOV board A, which in turn is supplied by480V Shutdown Board A. However, only one Loop 2 valve loses power (FCV-74-52), which is already open.*

C. *INCORRECT. Plausible since 480V Shutdown board B feeds multiple RMOV boards (B, C, and E). The applicant may be unsure which RMOV boards are actually supplied by 480V Shutdown Board B.*

D. *INCORRECT. Plausible if the applicant thinks the Loop 1 valves are supplied by RMOV boards B and E. However, these RMOV boards provide power to the Loop 2 valves.*

References

OPL171.044, Obj V.B.8, pgs. 27, 124 (TP-25).
OPL171.036 Obj. V.B.6 & V.B.8, pg. 36

29. 205000A1.02 001/2/1/RO/NEW/H/3/MJR/BLC

Current conditions on Unit 1:

- Reactor is in Mode 3.
- 1A Recirculation Pump is running.
- The operator is placing RHR Loop 1 in Shutdown Cooling in accordance with 1-OI-74, Section 8.12.1, Initiation / Operation of RHR Loop I in Shutdown Cooling.
- The operator is at the step in the procedure for starting the 1A RHR pump.

Which ONE of the following predicts the expected flow indications on 1-FI-74-50, RHR SYS I FLOW, and Jet Pumps 1 through 10 (Panel 9-4) when the operator places the 1A RHR pump control switch to START? (Assume no further actions are taken.)

A. FI-74-50 flow indication will rise;
flow indication for Jet Pumps 1 thru 10 will rise.

B. FI-74-50 flow indication will rise;
flow indication for Jet Pumps 1 thru 10 will remain the same.

C. FI-74-50 flow indication will be zero;
flow indication on Jet Pumps 1 thru 10 will remain the same.

D. FI-74-50 flow indication will be zero;
flow indication on Jet Pumps 1 thru 10 will rise.

Answer is C.

205000 (Shutdown Cooling) A1.02: Ability to predict and/or monitor changes in parameters associated with operating the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) controls including: SDC/RHR pump flow.
(CFR: 41.5 / 45.5) RO IR: 3.3

Plausibility Analysis

A. INCORRECT. Plausible since you would expect flow to increase once the 1A RHR pump is started. However, there is no flow path to the vessel or through the minimum flow valve, which is in INHIBIT. A rise in jet pump flow might be expected if RHR flow were injecting into the RCP 'A' discharge piping increasing the reverse flow through the jet pumps. However, flow indication on Jet Pumps 1 thru 10 would not be effected since an RHR SDC flow path does not exist.

B. INCORRECT. Plausible since you would expect flow to increase once the 1A RHR pump is started. However, there is no flow path to the vessel or through the minimum flow valve, which is in INHIBIT. No change in jet pump flow is plausible if the applicant thought RHR SDC flow did not recognize that reverse flow through Jet Pumps 1 through 10 was occurring.

C. CORRECT. No flow path is available for SDC flow when RHR pump 1A is started. The LPCI Outboard Injection Valve is not opened until after the RHR pump is started. The Min Flow Valve is not functional in Shutdown Cooling.

D. INCORRECT. Plausible if the applicant thinks that the RHR flow indication is derived from the Min flow line; Min Flow Valve not functional in SDC. However, flow indication on Jet Pumps 1 thru 10 would not be effected by the RHR pump start.

References

1-OI-74, pp.117 – 122.

On Unit 1, HPCI has automatically started following a valid low water level initiation signal and is currently injecting to the RPV. The following alarm is received while HPCI is operating:

HPCI TURBINE BEARING OIL PRESSURE LOW (9-3F, W19)

Which ONE of the following:

identifies the required operator action in accordance with the alarm response procedure,

and

predicts the final position of the HPCI stop (FCV-73-18) and control (FCV-73-19) valves if a complete loss of control oil pressure were to subsequently occur?

Assume the initiation signal remains present.

A. Start the Auxiliary Oil Pump.
1-FCV-73-18 and 1-FCV-73-19 will be open.

B. Raise and maintain turbine speed above 2,400 RPM.
1-FCV-73-18 and 1-FCV-73-19 will be closed.

C. Start the Auxiliary Oil Pump.
1-FCV-73-18 and 1-FCV-73-19 will be closed.

D. Raise and maintain turbine speed above 2,400 RPM.
1-FCV-73-18 and 1-FCV-73-19 will be open.

Answer is A.

206000 (HPCI) A2.15: Ability to (a) predict the impacts of the following on the High Pressure Coolant Injection System, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of control oil pressure: BWR-2, 3, 4.
(CFR: 41.5/45.6) (RO – 3.4)

K/A Match Analysis

The RO applicant must recognize that ARP 9-3F W 19 directs starting the Auxiliary Oil Pump. Applicant must also recognize that failure of the action to be taken will not result in an immediate closure of the stop and control valves on the HPCI turbine.

Plausibility Analysis

The 1st part of "B" and "D" are plausible since OI-73 and annunciator procedure HPCI AUX OIL PUMP MOTOR OVERLOAD (9-3F, W20) direct maintaining the turbine speed greater than 2400 rpm; however, the stem states that a complete loss of oil pressure subsequently developes. The 2nd part of "A" and "D" are plausible since RCIC control valves fail open following a loss of oil pressure and if the applicant thinks the initiation signal will maintain the valves open.

References

- OPL171.042, "High Pressure Coolant Injection" rev. 20, Obj V.B.3.a., pgs 14-16, 21 & 59 (TP-4).
- ARP 9-3F, Window 19, "HPCI TURBINE BEARING OIL PRESSURE LOW", Rev. 16, pg. 23.

31. 206000A3.06 001/2/1/RO/NEW/H/3/MJR/BLC

Unit 1 is starting up and the crew is performing 1-SR-3.5.1.8, HPCI Main and Booster Pump Set Developed Head and Flow Rate Test at 150 psig Reactor Pressure. The following conditions currently exist:

- Reactor pressure is 155 psig with two bypass valves fully open.
- HPCI is operating with its flow controller in AUTO set at 5300 gpm
- Unit Operator (UO) is throttling 1-FCV-73-35, HPCI Pump CST Test Valve, to establish the discharge pressure required by the surveillance.

Which ONE of the following predicts the automatic HPCI response if the UO inadvertently fully closes 1-FCV-73-35?

A. 1-FCV-73-30 (min flow valve) will auto-open; turbine speed will rise

B. 1-FCV-73-30 will NOT auto-open; turbine speed will rise

C. 1-FCV-73-30 will auto-open; turbine speed will lower

D. 1-FCV-73-30 will NOT auto-open; turbine speed will lower

Answer is B.

206000 (HPCI) A3.06: Ability to monitor automatic operations of the High Pressure Coolant Injection including: System discharge pressure: BWR-2, 3, 4. (CFR: 41.7/45.7) RO IR: 3.8

Plausibilty Analysis

The 1st part of "A" and "C" is plausible if the applicant thinks that the min flow valves respond to a low flow condition without an initiation signal present. The 2nd part of "C" and "D" is plausible if the applicant thinks that the 1-FCV-73-35 closure will lower turbine speed.

References

Lesson Plan OPL171.042
Obj 4: Given current plant and HPCI status determine which valves may be operated/aligned and any auto actions which may occur due to this alignment.

Obj 8: Select the correct response of the HPCI turbine speed controlsystem.

32. 209001A4.05 001/2/1/RO/NEW/H/3/MJR/BLC

Current conditions on Unit 2:

- All power has been lost to 'B' 4KV Shutdown Board.
- A reactor scram has occurred due to high drywell pressure.
- Reactor pressure is 85 psig.

Which ONE of the following describes the response of the Core Spray system and the action(s) that must be taken in accordance with 2-OI-75, Core Spray System?

A. Core Spray pumps A, C and D will auto start.
Loop II Outboard Injection valve, FCV-75-51, must be throttled.

B. Core Spray pumps A, B and D will auto start.
Loop I Inboard Injection valve FCV-75-23 must be throttled.

C. Core Spray pumps A and C will auto start.
Core Spray Pump 'D' must be manually started and Loop II Inboard Injection valve, FCV-75-53, must be throttled.

D. Core Spray pumps B and D will auto start.
Core Spray Pump 'A' must be manually started and Loop I Inboard Injection valve, FCV-75-25, must be throttled.

Answer is D.

209001 (LPCS) A4.05: Ability to manually operate and/or monitor in the control room: Manual initiation controls (CFR: 41.7 / 45.5 to 45.8) RO IR: 3.8

Plausibility Analysis

A. INCORRECT. It is plausible because 'D' Core Spray (CS) pump is the companion pump to 'B' CS pump on Loop 2 and it is plausible that it would still receive an auto-start signal. However, 'B' CS pump is supplied from the 'C' 4 KV Shutdown Board rather than the 'B' 4 KV Shutdown Board. Also, FCV-75-51 would be on the correct CS loop if 'B' CS pump failed to start, but FCV-75-51 is the outboard injection, which cannot be closed until the logic is reset.

B. INCORRECT. It is plausible because 'A' CS pump is the companion pump to 'C' CS pump on Loop 1 which is powered from the 'B' 4 KV Shutdown Board. However, 'A' CS pump will not auto start if power is lost to its companion pump on the same loop. Also, FCV-75-23 would be on the correct CS loop if 'C' CS pump failed to start, but FCV-75-23 is the outboard injection, which cannot be closed until the logic is reset.

C. INCORRECT. It is plausible since a manual start of the companion pump is required if power is lost to one of the CS pumps on the same loop. However, 'C' 4KV Shutdown Board supplies 'B' CS pump; the loss of 'B' 4 KV Shutdown Board would not impact either of the Loop 2 pumps. Also, FCV-75-53 would be the correct Loop 2 (inboard) injection valve to throttle if 'B' CS pump failed to start.

D. CORRECT. 'C' CS pump is powered from the 'B' 4 KV Shutdown Board. Loss of power to a CS pump will prevent auto-starting of its companion pump on the same loop, in this case 'A' CS pump. Also, FCV-75-52 is the correct Loop 1 (inboard) injection valve to throttle if 'C' CS pump failed to start.

References

OPL171.045, Obj V.B.3.a., pg. 14, 16 and 27
2-OI-75, pgs.14 [P&L 3.8.B], 19-20

33. 211000K1.07 001/2/1/RO/NEW/H/3/MJR/BLC

Which ONE of the following choices completes the following statement for how the Jet Pump Flow Indications at Panel 9-4 are developed at the SLC injection sparger?

The SLC injection sparger's _____ tube is used to obtain a pressure signal for _____.

A. Inner; all 20 jet pumps.

B. Inner; 16 jet pumps

C. Outer; all 20 jet pumps

D. Outer; 16 jet pumps

Answer is B.

211000 (Standby Liquid Control) K1.07: Knowledge of the physical connections and/or cause-effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Jet pump differential pressure indication:
(CFR: 41.2 to 41.9/45.7 to 45.8) RO IR:2.6

Plausibility Analysis

A. *INCORRECT. Plausible since the first half is correct. However, the four calibrated jet pumps have their own taps rather than using the tap off the inner tube of the Standby Liquid Control sparger.*

B. CORRECT. The jet pump dp signal is generated using the inner tube of the Standby Liquid Control sparger for sixteen of the twenty jet pumps.

C. INCORRECT. It is plausible if the applicant is unsure which tube of the sparger assembly is used to develop the dp signal. However, the four calibrated jet pumps have their own taps rather than using the tap off the inner tube of the Standby Liquid Control sparger

D. *INCORRECT. It is plausible if the applicant is unsure which tube of the sparger assembly is used to develop the dp signal. The second half of the answer is correct.*

Supporting References

- OPL171.039, "Standby Liquid Control System", rev. 16, Obj V.B.5.b., pgs. 14, 27 & 36 (TP-4)
- OPL171.007, "Recirculation System", rev. 24, Obj V.B.23, pg. 38.

34. ~~212000K2.01 001/2/1/RO/NEW/L/3/MJR/BLC~~

Which ONE of the following completes both statements for the Unit 1 "B" RPS MG set?

The normal power supply feed to the Unit 1 "B" RPS MG set is via the _____.

The alternate power supply feed to the "1B" RPS MG set is from_____.

A. 4 KV SD Bd "C"; the Unit Preferred Transformer

B. 4 KV SD Bd "B"; 480 V RMOV Bd "1B"

C. 4KV SD Bd "C"; 480 V RMOV Bd "1B"

D. 4KV SD Bd "B"; the Unit Preferred Transformer

Answer is C

212000 (Reactor Protection System) K2.01: Knowledge of electrical power supplies to the following: RPS motor-generator sets (CFR: 41.7) RO IR: 3.2

Plausibility Analysis

The 1st part of "B" and "D" are plausible since the MG set is the "B." The 2nd part of "A" and "D" are plausible since Unit 2 has this feature.

Supporting References

- OPL171.028, "Reactor Protection System", rev. 18, Obj V.B.2., pgs. 9, 10 & 38 (TP-1)
- OPL171.036, "AC Electrical Distribution", rev. 12, Obj V.B.6., pg. 37.

35. 215003K3.01 001/2/1/RO/NEW/H/3/MJR/BLC

A startup is in progress on Unit 1 with the following conditions:

- Reactor Power is 6%
- All IRMs are on Range 9
- RPV Pressure 750 psig
- IRM "D" failed upscale and annunciator procedure actions are complete

Which ONE of the following predicts the plant response if the Unit Operator subseqently places IRM "B" to Range 8 by mistake?

A. No rod block or scram signals exist.

B. A rod block and half scram exist.

C. ONLY a rod block exists (no half scram exists).

D. A full scram exists.

Answer is B. (verify initial conditions are operationally valid w/ the licensee)

215003 (IRM) K3.01: Knowledge of the effect that a loss or malfunction of the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM will have on following: RPS (CFR: 41.7 / 45.4) RO IR: 3.9

Plausibility Analysis

A. INCORRECT. It is plausible if the Reactor Mode Switch were in RUN.. However, 1-GOI-100-1A directs placing the mode switch to RUN after reaching 950 psig (before exceeding 12% power).

B. CORRECT. Downranging from 40% on Range 9 will result in a corresponding reading of 126 on Range 8 which is above the scram trip of 120/125 resulting in a scram signal on RPS Channel 'B'. The upscale on IRM 'D' will also generate a scram signal on RPS Channel 'B'.

C. INCORRECT. Plausible if the applicant is unsure of the annunciator procedure required actions to bypass the failed IRM "D."

D. INCORRECT. Plausible if the applicant thinks that the two IRMs are on different RPS channels.

Supporting References

- OPL171.020, "Intermediate Range Monitor System", rev. 11, Obj V.B.4., pgs. 16, 20, 44.
- 1-GOI-100-1A, "Unit Startup and Power Operation", rev. 143, pgs.116-118

A startup is in progress on Unit 1 in accordance with 1-GOI-100-1A, Unit Startup.

The following conditions currently exist:

SRM "D" failed upscale; actions in SRM HIGH/INOP (9-5A, W14) have been taken

IRM "A": 35 on Range 8
IRM "B": 40 on Range 8
IRM "C": 60 on Range 7
IRM "D": 30 on Range 8
IRM "E": 30 on Range 8
IRM "F": 50 on Range 7
IRM "G": 45 on Range 8
IRM "H": 40 on Range 8

Which ONE of the following identifies:

1) The required position of the SRMs "A", "B", and "C" at this point in the startup,

and

2) The status of the CONTROL ROD WITHDRAWAL BLOCK (9-5A, W-7) alarm

A. fully inserted;
illuminated

B. fully withdrawn;
illuminated

C. fully inserted;
not illuminated

D. fully withdrawn;
not illuminated

Answer is D.

215004 (SRM) K4.06: Knowledge of SOURCE RANGE MONITOR (SRM) SYSTEM design feature(s) and/or interlocks which provide for the following: IRM/SRM interlock. (CFR: 41.7) RO IR: 3.6

Plausibility Analysis

The 1st part of "A" and "C" is plausible because a startup is in progress. (1-GOI-100-1A states: SRMs are fully withdrawn when IRMs are on Range 3 or above and indicating above their downscale trip point.) The 2nd part of "A" and "B" is plausible if the applicant thinks that the SRM "D" is only withdrawn and not already bypassed in accordance with its annunciator procedure. (All four IRMs associated with the SRM trip circuit must be at or above Range 8 for the SRM Hi Rod block to be bypassed. IRMs B, D, F, and H provide inputs to the trip circuit for SRMs 'B' and 'D'.)

Supporting References

OPL171.019, Obj V.B.8., pg. 22, 50 (TP-10), 51 (TP-11).
OPL171.020, Obj V.B.5., pgs. 17, 20, 44.
1-GOI-100-1A, pg.109

37. ~~215004K5.03 001/2/1/RO/NEW/H/3/MJR/BLC~~

A reactor startup is in progress on Unit 1 with the following conditions:

- All SRMs are reading between 125 and 135 cps.
- All IRMs are on Range 2 and reading 30 - 40.

Which ONE of the following:

1) identifies the current status of the SRM RETRACT NOT PERMITTED (9-5A, W27) alarm

and

2) predicts whether the CONTROL ROD WITHDRAWAL BLOCK (9-5A, W7) annunciator will alarm if the Unit Operator attempted to withdraw SRM "D"?

A. illuminated;
will alarm

B. illuminated;
will NOT alarm

C. NOT illuminated;
will alarm

D. NOT illuminated;
will NOT alarm

Answer is C

215004 (SRM) K5.03: Knowledge of the operational implications of the following concepts as they apply to SOURCE RANGE MONITOR (SRM) SYSTEM: Changing detector position (CFR: 41.5 / 45.3) (RO – 2.8)

Plausibility Analysis

The 1st part of "A" and "B" are plausible if the applicant thinks that the alarm clears after 145 cps has been achieved. The 2nd part of "B" and "D" is plausible if the applicant thinks that withdrawing the detector will result in the SRM RETRACT NOT PERMITTED annunciator but not the CONTROL ROD WITHDRAWAL BLOCK alarm. (Detector movement is always allowed.)

1-ARP-9-5A, W27, SRM RETRACT NOT PERMITTED
Lesson Plan OPL171.19 Obj 6: Distinguish between the retract permissive indicating lights on Panel 9-5 and Panel 9-12.

38. 215005K5.04 001/2/1/RO/MODIFIED/L/2/MJR/BLC

Which ONE of the following completes both statements pertaining to the LPRMs?

There are a total of _____ LPRM detectors in the core.

LPRMs are located such that _____ .

A. 185;
every core location or its symmetrical counterpart in another quadrant is monitored.

B. 172;
every core location or its symmetrical counterpart in another quadrant is monitored.

C. 185;
the "A" detectors are at the top of the core and the "D" detectors are at the bottom of the core.

D. 172;
the "A" detectors are at the top of the core and the "D" detectors are at the bottom of the core.

Answer is B.

215000 (APRM/LPRM: Average Power Range Monitor / Local Power Range Monitor) K5.04: Knowledge of the operational implications of the following concepts as they apply to AVERAGE POWER RANGE MONITOR / LOCAL POWER RANGE MONITOR SYSTEM: LPRM detector location and core symmetry.
(CFR: 41.5/45.3) (RO – 2.9)

Plausibility Analysis

The 1st part of "A" and "C" are plausible because there are 185 control rods in the core. The 2nd part of "C" and "D" is plausible because the LPRM assignments are from "A" (bottom) up to "D"(top).

References

Lesson Plan OPL171.148, Power Range Neutron Monitoring System
Obj 1: Describe the arrangement of LPRMs in the core.
Obj 2: State the total number of LPRM detectors in the core.

39. 217000A3.01 001/2/1/RO/NEW/H/2/MJR/BLC

Unit 2 was operating at 100% power when RCIC auto-initiated.

RCIC STEAM LINE FLOW EXCESSIVE (9-3B, W21) annunciator was subsequently received.

The following indications currently exist:

FCV-71-2, Inboard Steam Isolation Valve – **GREEN** light is lit.

FCV-71-3, Inboard Steam Isolation Valve – **GREEN** light is lit.

FCV-1-55, Main Steam Line Inboard Drain Valve – **GREEN** light is lit.

FCV-1-56, Main Steam Line Outboard Drain Valve – **GREEN** light is lit.

FCV-71-8, Steam Supply Valve – **RED** light is lit.

FCV-71-34, RCIC Pump Min Flow Valve – **GREEN** light is lit.

RPV level is currently at -60 inches.

Which ONE of the following describes the valve alignment?

A. All valves are properly aligned.

B. FCV-71-8 is misaligned.

C. FCV-71-34 is misaligned.

D. FCV-1-55 and -56 are misaligned.

Answer is A

217000 (RCIC) A3.01: Ability to monitor automatic operations of the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) including: Valve operation
(CFR: 41.7 / 45.7) RO IR: 3.5

Plausibility:

"B" is plausible if the applicant thinks that the valve will remain open (following an isolation signal) because of the auto-initiation signal being present OR if the applicant confuses this valve with the FCV-71-9, which fails open.

"C" is plausible if the applicant is not aware that the min-flow valve closes following an isolation signal even though an initiation signal is present and a low flow condition exists.

"D" is plausible if the applicant thinks that these valves are normally open at power.

2-ARP-9-3B, Window 21
Lesson Plan OPL171.017, Objective 2
Identify the relationships between PCIS and the following, evaluate how loss or malfunction of the following effects PCIS, and evaluate how loss or malfunction of PCIS effects the following: e. RCIC

Unit 2 is operating at 100% power.

SR-3.5.3.3, RCIC System Rated Flow at Normal Operating Pressure, is in progress with RCIC operating to the CST.

A loss of 250 VDC RMOV Bd 2B occurs.

Five minutes later, the following annunciator is received:

RCIC STEAM LINE LEAK DETECTION TEMP HIGH (9-3D, W10)

Which ONE of the following:

(1) predicts how the loss of 250 VDC RMOV Bd 2B will affect RCIC

and

(2) identifies whether EOI-3 is required to be entered?

	(1)	(2)
A.	Only 71-2 will auto-close (71-3 remains open)	EOI-3 entry is NOT required
B.	Both 71-2 and 71-3 will auto-close	EOI-3 entry is NOT required
C.	Only 71-2 will auto-close (71-3 remains open)	EOI-3 entry is required
D.	Both 71-2 and 71-3 will auto-close	EOI-3 entry is required

Answer is D

217000 (RCIC) A2.05: Ability to (a) predict the impacts of the following on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC); and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: D.C. power loss
(CFR: 41.5/45.6) RO IR: 3.3

tPlausibilty

The 1st part of "A" and "C" are plausible if RMOV Bd 1A had been lost instead. The 2nd part of "A" and "B" is plausible if the applicant thinks that no accident conditions exist, a surveillance was in progress, does not recognize the 9-3B, W10 temperature setpoint, or reasons that since the system has auto-isolated that there is no need to enter the EOIs.

References

OPL171.040, Obj V.B.7 and V.B.9, pp. 15 & 34.
- 1-AOI-64-2c, pg. 6, Immediate Actions

41. ~~218000A3.01 001/2/1/RO/MODIFIED/H/2/GWL/BLC~~

Unit 3 was operating at 100% power with HPCI tagged out for maintenance.

The following timeline of events subsequently occurred:

T-0: LOOP on Unit 3; 3A and 3D EDGs failed to start
T+5 minutes: Drywell pressure reached 2.45 psig slowly rising
T+7 minutes: Level lowered to +2 inches
T+10 minutes: Level is currently at the Reactor Vessel Water Level -Low, Level 1 setpoint and slowly lowering with RCIC injecting

Which ONE of the following predicts:

1) when ADS will actuate

and

2) how the valves would respond if the operator depressed the timer reset pushbutton AFTER the ADS actuation occurred?

A. 360 seconds after level reached Level 1;
ADS valves will remain open

B. 95 seconds after level reached Level 1;
ADS valves will remain open

C. 360 seconds after level reached Level 1;
ADS valves close

D. 95 seconds after level reached Level 1;
ADS valves close

Answer is D (Need to verify D is correct with licensee)

218000 (ADS) A3.01: Ability to monitor automatic operations of the AUTOMATIC DEPRESSURIZATION SYSTEM including: ADS valve operation
(CFR: 41.7 / 45.7) RO IR: 4.2

Plausiblity Analysis:

Note: The "Reactor Vessel Water Level -Low, Level 1" terminology is used to preclude overlap with Q#16 (295031 EK3.01)

A. Incorrect, ADS valves will open in 95 seconds. Lesson material state the valves will close if reset button is depressed, and a new 95 second timer will start if conditions still exist.

B. Incorrect, ADS valve will open in 95 seconds, but lesson material state the valves will close if reset button is depressed, and a new 95 second timer will start if conditions still exist.

C. Incorrect, wrong time

D. Correct, 95 seconds and lesson material state the valves will close if reset button is depressed, and a new 95 second timer will start if conditions still exist.

Lesson Plan 171.043
Obj 3: Given current plant conditions and ADS status determine if an ADS valve will operate
Obj V.C.3: Given current plant conditions, determine if an automatic depressurization will occur.
Obj V.C.4: Evaluate ADS logic to determine what actions or conditions are necessary to reset the ADS logic after each timer is initiated.

42. ~~218000G2.1.7 001/2/1/RO/MODIFIED/H/2/GWL/BLC/~~

An ATWS occurred on Unit 3 and the following conditions exist:

- Reactor Power 35%
- MSIV's Open
- Turbine Tripped
- Reactor Pressure Initially peaked at 1140 psig (maximum)
- Appendix 8G complete, Drywell Control Air header "A" is depressurized

The Unit Supervisor directs you to stabilize reactor pressure using MSRVs.

Which ONE of the following identifies the number of MSRVs that initially auto-cycled and which main steam lines should be used to stabilize reactor pressure per 3-EOI Appendix-11A?

A. 4 MSRV's cycling; open MSRV's associated with the A and B main steam lines to stabilize reactor pressure.

B. 6 MSRV's cycling; open MSRV's associated with the A and B main steam lines to stabilize reactor pressure.

C. 4 MSRV's cycling; open MSRV's associated with the C and D main steam lines to stabilize reactor pressure.

D. 6 MSRV's cycling; open MSRV's associated with the C and D main steam lines to stabilize reactor pressure.

Answer is C

218000 (ADS) G2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. (CFR: 41.5 / 43.5 / 45.12 / 45.13) RO IR: 4.4

Plausibility:

A. Incorrect, since 4 MSRV's should be open at 1135 psig, but reactor pressure should be stabilized with C and D steam lines.

B. Incorrect, since 4 MSRV's should be open at 1135 psig. wrong main steam lines

C. Correct, 4 MSRVs should by cycling open and C and D steam lines should be used.

D. Incorrect, wrong number of MSRVs cycling, correct steam line.

References: 3-EOI Appendix 11A, Rev.1
OPL171.202, Rev.6, step RC/P-6
Bank Question used on 2005 BF NRC exam Modified.
OPL171.043 ADS Many objectives

43. ~~223002A4.06 001/2/1/RO/MODIFIED/H/2/GWL/BLC/~~

The following LOCA conditions exist on Unit 1:

- Drywell pressure is 2.2 psig
- Reactor water level is - 40"
- Main Steam Tunnel temperature is 180°F
- RCIC Pump Room temperature is 180 °F
- HPIC Pump room temperature is 180 °F

Which ONE of the following identifies whether PCIS Groups 4, 5,and 8 have received an automatic isolation signal?

A. Groups 4, 5, and 8 all have automatically isolated.

B. Only Groups 4 and 5 have automatically isolated.

C. Only Group 8 has automatically isolated.

D. Only Groups 5 and 8 have automatically isolated.

Answer is D

223002 (Primary Containment Isolation System/Nuclear Steam Supply Shut-off) A4.06: Ability to manually operation and/or monitor in the control room: Confirm initiation to completion. (CFR: 41.7 / 45.5 / 45.8) RO IR: 3.6

Plausibility:

Note: U1 MSL Tunnel Temp setpoint is 194 deg F (Group 1)
U1 HPCI Pump Room Hi Temp setpoint is 190 deg F (Group 4)
U1 RCIC Pump Room Hi Temp setpoint is 160 deg F (Group 5)
TIP guide tube isolation is low RPV level (+2") or Hi DW Press (Group 8)

A. Plausible that HPCI would also isolate if RCIC has isolated.

B. Plausible if the applicant does not know the TIP Isolation setpoint

C. Plausible if the applicant thinks that the HPCI and RCIC auto-isolation temperature setpoints are the same, i.e., no isolation.

D. Correct, both of these groups will receive an automatic isolation signal

Reference OP171.017 r 15 PCIS lesson plan objectives V.B.2 and V.C.2

44. ~~239002G2.1.20 001/2/1/RO/NEW/H/2/GWL/BLC~~

Unit 3 is operating at 100% power when the following conditions are observed:

- MAIN STEAM RELIEF VALVE OPEN 3-FA-1-1 (9-3C, Window 25) Alarms
- GENERATOR LOAD recorder, 3-XR-57-57 indicates MWs lowering
- SRV 1-5 has several LEDs illuminated on the SRV Tailpipe Flow monitor
- A fire is reported in the Unit 3 Diesel Generator building
- Suppression Pool temperature is stable at 85°F

Which ONE of the following describes the required actions to take in accordance with 3-AOI-1-1, Relief Valve Stuck Open?

A. Immediately initiate a load reduction to 90%, **THEN** cycle the affected relief valve control switch several times as required in an attempt to close the valve.

B. Immediately cycle the affected relief valve control switch several times and if the MSRV does not close, **THEN** initiate a load reduction to 90% power .

C. Immediately insert a scram, **THEN** cycle the affected relief valve control switch several times.

D. Immediately cycle the affected relief valve control switch several times and if the MSRV does not close, **THEN** initiate a scram.

Answer is A

239002 (SRVs) G2.1.20: SRVs Ability to interpret and execute procedure steps
(CFR: 41.10 / 43.5 / 45.12) RO IR: 4.6

Plausibility:

[2] **IF** relief valve transient occurred while operating above 90% power, **THEN**

PERFORM the following (Otherwise N/A):

[2.1] **INITIATE** a load reduction to ≤90% power with recirc flow. ☐

[3] **WHILE OBSERVING** the indications for the affected Relief valve on the Acoustic Monitor;

CYCLE the affected relief valve control switch several times as required:

- CLOSE to OPEN to CLOSE positions ☐

4.2.1 Action if a fire exists with SRV stuck open

[1] **IF** an SRV is open and a fire exists in ANY Appendix R fire area, **THEN** (Otherwise N/A):

INITIATE a manual scram before the Suppression Pool temperature exceeds 95°F. ☐

Reference
3-AOI-1-1 "Relief Valve Stuck Open"
Lesson Plan 171.043 objective V.B.6

45. 259002K1.02 001/2/1/RO/NEW/H/2/GWL/BLC

Unit 2 is operating at 100% power with the following alarms due to a failure of the Turbine 1st stage pressure transmitter:

- RFWCS INPUT FAILURE (9-6C, W-14)
- MAIN STEAM LINE VS STEAM FLOW MISMATCH (9-5B, W-24)

Maintenance is investigating the transmitter failure and FWLC is currently in 3-element mode.

Subsequently, the "A" main steam line flow signal slowly fails over a 10 minute period to zero.

Which ONE of the following predicts the reactor water level (RWL) and FWLC response?

A. RWL will initally lower until the "A" steamline flow signal is > 1.2 Mlbm/hr from the average, then the FWLC shift to single element control.

B. RWL will initally lower until the "A" steamline flow signal is > 1.2 Mlbm/hr from the average, then the "A" signal will be discarded and the average of the remaining steam flows will be used. FWLC will remain in 3 element control.

C. RWL will remain constant.
When the "A" steamline flow signal > 1.2 Mlbm/hr from the average, then the FWLC will shift to single element control.

D. RWL will remain constant.
When the "A" steamline flow signal > 1.2 Mlbm/hr from the average, then the "A" signal will be discarded and the average of the remaining steam flows will be used. FWLC will remain in 3 element control.

Answer is A (Needs to be verified on the simulator)

259002 (RWL Control System) K1.02: Knowledge of the physical connections and/or cause effect relationship between the REACTOR WATER LEVEL CONTROL SYSTEM and the following: Main steam flow.
(CFR: 41.2 / 41.9 / 45.7 to 45.8) RO IR: 3.2

Plausibility analysis:

A. Correct, RWL will initially lower, and the system will shift to single element control.
B. Incorrect, RWL will initially lower, however, the system will shift to single element control.
C. Incorrect, RWL will not remain constant.
D. Incorrect, RWL will not remain constant.

New Question.

References: OP171.012 Reactor Feed Water Control System, OBJ. V.C. 5
OI-3

Unit 3 is operating at 100% power with a small coolant leak in the drywell. Standby Gas Treatment (SGT) Train "C" was placed in service to vent the drywell.

- Drywell pressure has stabilized at 1.6 psig
- SGT "C" vent flow rate is 100 scfm

Which ONE of the following predicts how drywell pressure will respond and the status of the "A" and "B" SGTs if the normal feeder breaker to 3ED 4KV Shutdown Board subsequently trips open?

	(1)	(2)
A.	Remains constant	"A" and "B" SGTs will auto-start
B.	Remains constant;	"A" and "B" SGTs will NOT auto-start
C.	Rise;	"A" and "B" SGTs will auto-start
D.	Rise;	"A" and "B" SGTs will NOT auto-start

Answer is: D

261000 (SGTS) K3.03: Knowledge of the effect of a loss or malfunction of the STANDBY GAS TREATMENT SYSTEM will have on the following: Primary Containment pressure (CFR: 41.7/45.6) RO IR: 3.2

Plausibilty Analysis

The 1st part of "A" and "B" are plausible if the applicant does not know the power supply to the 480 V SGT Board. The 2nd part of "A" and "C" are plausible if the applicant thinks that the 4 KV Board results in a loss of an RPS MG set.

References

OPL171.018 Obj V.B.10b, pg. 12, 23 & 34.
OPL171.017 Obj. V.B.2c, pg. 27.
3-AOI-64-1, pg. 6.
3-0I-99, pg. 58

Question History: Modified from BANK question 261000K3.03 Item 2

A LOCA with significant fuel failure has occurred on Unit 3.

The "A" and "B" Standby Gas Treatment (SGT) trains have been used several times to vent the drywell.

The "A" and "B" Standby Gas Treatment (SGT) trains are currently operating in accordance with 3-EOI-Appendix-12, Primary Containment Venting

The "A" SGT train subsequently trips.

Which ONE of the following choices identifies:

1) whether annunciator SGT TRAIN A UNAVAILABLE (9-3B, W11) will alarm if the charcoal bed temperature in the "A" SGT rises

and

2) the minimum temperature at which decay heat removal is required to be initiated in accordance with 0-OI-65, Standby Gas Treatment System?

A. 1) will alarm
2) 150°F

B. 1) will NOT alarm
2) 150°F

C. 1) will alarm
2) 180°F

D. 1) will NOT alarm
2) 180°F

Answer is: A

261000 (STANDBY GAS TREATMENT SYSTEM) A1.07: Ability to predict and/or monitor changes in parameters associated with operating the STANDBY GAS TREATMENT SYSTEM controls including: SBGTS Train Temperature
(CFR: 41.7 / 45.5) RO IR: 2.8

Plausibilty Analysis

The 1st part of "B" and "D" are plausible because the annunciator title is not specific for a discreet condition and the SGT train is not running. The 2nd part of "C" and "D" is plausible because this is the temperature at which the annunciator will alarm.

ARP 9-3B, W11
0-OI-65
Lesson Plan OPL171.018, Obj 5: State how the control room operator can know if the SGT System dampers are misaligned.
Obj 10: Describe the effect(s) that a loss or malfunction of the SGT System will have on the following:
a) HPCI System
b) Primary Containment pressure
c) Secondary Containment differential pressure
d) Secondary Containment radiation/contamination levels
e) Off-site release rate

48. ~~262001K2.01 001/2/1/RO/MODIFIED/L/2/GWK/BLC~~

Which ONE of the following identifies for Unit 1:

(1) a transformer that is part of a required offsite power circuit in accordance with Technical Specification 3.8.1, "AC Sources-Operating"

and

(2) the shutdown board that normally feeds 4KV SD Bd "B"?

A. USST 1A: SD Bus 1

B. USST 1A: SD Bus 2

C. USST 1B: SD Bus 1

D. USST 1B: SD Bus 2

Answer is C

262001 (AC Electrical) K2.01: Knowledge of bus power supplies to the following: offsite source of power. (CFR: 41.7) RO IR: 3.3

Plausibility:
A. Incorrect, qualified source must come throuh USST "B" to SD board 1
B. Incorrect, qualified source must come through USST "B" to SD board 1
C. Correct, qualified source must come through USST "B" to SD board 1
D. Incorrect, qualified source must come through USST "B" to SD board 1

BFN 2000 NRC Exam - Modified
Lesson Plan OPL 171.036 Objectives V.B. 2,3, 6 and V.C. 1
PIP 02-3a Plant electrical drawing

Which ONE of the following describes the normal and alternate power supplies to Battery Board 1, Panel 11?

A. Normal power is supplied by an inverter; alternate power is from the unit preferred transformer from 480 volt RMOV board 1A, or the Unit 3 MMG set.

B. Normal power is supplied by an inverter; alternate power is from the unit preferred transformer from 480 volt RMOV board 1A, or the Unit 2 MMG set.

C. Normal power is supplied by the unit preferred transformer; alternate power is from the Unit 3 MMG set.

D. Normal power is supplied by the unit preferred transformer; alternate power is from the Unit 2 MMG set.

Answer is B

262002 (UPS) K4.01: Knowledge of the UNINTERRUPTIBLE POWER SUPPLY (A.C./D.C.) design feature(s) and/or interlocks which provide for the following: Transfer from preferred power to alternate power supplies.
(CFR: 41.7) RO IR: 3.1

Plausibility:

A. Incorrect, the U3 MMG does not feed unit 1.
B. Correct, the normal supply is from an inverter, and either of the alternates can supply power.
C. Incorrect, the normal supply is an inverter and Unit 2 MMG set can supply an alternate
D. Incorrect, the normal supply is an inverter .

OPL171.102 120V AC power supplies and distribution system, Objective V.B.3. A

All three units are operating at 100% power with all battery chargers in normal operation.

Which ONE of the following completes both statements in accordance with 0-OI-31 Section 7.11, "Shutdown of Battery and Board Room Exhaust Fans?

Battery Room ventilation is required to _____.

Obtain_____ permission prior to shutting down the Battery Room Exhaust fan.

A. be in operation in accordance with Tech Spec LCO 3.8.4, DC Systems Operating; Electrical Maintenance

B. to prevent buildup of explosive hydrogen; Electrical Maintenance

C. be in operation in accordance with Tech Spec LCO 3.8.4, DC Systems Operating; Unit Supervisor

D. to prevent buildup of explosive hydrogen; Unit Supervisor

Answer is D

Note: Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state, while supplying adequate power to the connected DC loads.

263000 (DC Elec) K5.01: Knowledge of the operational implications of the following concepts as they apply to D.C. ELECTRICAL DISTRIBUTION: Hydrogen generation during battery charging. (CFR: 41.5 / 45.3) RO IR: 2.6

Plausibility:

A. Incorrect, ventilation is required to prevent the buildup of hydrogen gas, and the Unit Supervisors permission is required.

B. Incorrect, Unit Supervisors permission is required.

C. Incorrect, ventilation is required to prevent the buildup of hydrogen gas

D. Correct. ventilation is required to prevent the buildup of hydrogen gas, and the Unit Supervisors permission is required.

Modified from a 2005 NRC exam bank question.
OPL 171.037, OBJ V.C.10
0-OI-31 Section 7.11, "Shutdown of Battery and Board Room Exhaust Fans

51. 264000K6.03 001/2/1/RO/NEW/H/2/GWL/BLC

Unit 3 is at 100% power

The supply breaker for the 3A diesel generator circulating oil pump trips open.

Which one of the following describes the plant response, and D/G operability in accordance with 3-OI-82, "Standby Diesel Generator Systems?"

A. "Diesel Generator 3A Trouble"(9-23A, W2) and "Diesel Generator 3A Lube Oil Abnormal" (9-23A W4) will BOTH alarm;
3A diesel generator is NOT operable.

B. Only "Diesel Generator 3A Lube Oil Abnormal" (9-23A W4) will alarm;
3A diesel generator is NOT operable.

C. "Diesel Generator 3A Trouble"(9-23A, W2) and "Diesel Generator 3A Lube Oil Abnormal" (9-23A W4) will BOTH alarm;
3A diesel generator remains operable.

D. Only "Diesel Generator 3A Lube Oil Abnormal" (9-23A W4) will alarm;
3A diesel generator remains operable.

Answer is D

264000 (EDGs) K6.03: Knowledge of the effect that a loss or malfunction of the following will have on the EMERGENCY GENERATORS (DIESEL/JET): Lube oil pumps (CFR: 41.7 / 45.7) RO IR: 3.5

Plausibility
A. Incorrect, only window 4 will alarm, and IAW 3-OI-82, the diesel is still operable.
B. Incorrect, IAW 3-OI-82, the diesel is still operable.
C. Incorrect, only window 4 will alarm.
D. Correct, window 4 will alarm and, IAW 3-OI-82, the diesel is still operable.

3-OI-82, "Standby Diesel Generator Systems"
OPL171.038 "Diesel Generators and Standby Auxiliary Power System"
OBJs V.B.2, V.D.2, V.E.2

52. ~~300000K4.03 001/2/1/RO/MODIFIED/L/2/MJR/BLC~~

The following plant conditions exist:

- "G" Air Compressor is in service
- 0-TCV-32-2945, Cooling System Heat Exchanger Bypass Valve, has failed such that the air compressor has lost its cooling

Which ONE of the following completes the following statement?

Compressor 'G' will trip if ___(1)___ reaches ___(2)___.

A. air discharge temperature
170°F

B. air discharge temperature
125°F

C. lube oil temperature
170°F

D. lube oil temperature
125°F

Answer is B.

300000 (INSTRUMENT AIR) K4.03: Knowledge of INSTRUMENT AIR SYSTEM design feature(s) and/or interlocks which provide for the following: Securing of IAS upon loss of cooling water. (CFR 41.7) RO IR: 2.8

Plausibility:

The 1st part of "C" and "D" are plausible because lube oil temperature is a trip parameter. The 2nd part of "A" and "C" is plausible because this is the setpoint value for the lube oil temperature trip.

References

OPL171.054, Obj V.B.2, pp. 19, & 21.
0-OI-33, pg. 9
0-OI-32, pg. 82 (Table 7)

Question History: Modified. (Used on BF02301 – reworked stem and choices for 'G' Control Air compressor rather than 'A' Control Air compressor.)

53. 400000A1.01 001/2/1/RO/MODIFIED/H/2/GWL/BLC

The Unit 2 control room crew is adjusting the RBCCW system flow in accordance with 2-OI-70, Section 6.5, RBCCW Flow Control.

During the evolution, the following annunciator begins alarming:

RBCCW 2-FCV-70-48 CLOSED (9-4C, W-19)

Which ONE of the following:

1) identifies the required method for adjusting RBCCW flow in accordance with 2-OI-70, Section 6.5

and

2) predicts another annunciator that will alarm as a result of the 2-FCV-70-48 closure?

A. Flow is required to be adjusted locally by manually throttling the heat exchanger outlet valves;
RBCCW PUMP SUCT HDR TEMP HIGH (9-4C, W5)

B. Flow is required to be adjusted locally by manually throttling the heat exchanger outlet valves;
RWCU NON-REGNERATIVE HX DISCH TEMP HIGH (9-4B, W17)

C. Flow is required to be adjusted locally by manually adjusting 2-TIC-24080, RBCCW HX A (B) temperature controller, 2-TIC-024-0080 on Panel 25-196;
RBCCW PUMP SUCT HDR TEMP HIGH (9-4C, W5)

D. Flow is required to be adjusted locally by manually adjusting 2-TIC-24080, RBCCW HX A (B) temperature controller, 2-TIC-024-0080 on Panel 25-196;
RWCU NON-REGNERATIVE HX DISCH TEMP HIGH (9-4B, W17)

Answer is B

400000 (Component Cooling) A1.01 Ability to predict or monitor changes in parameters associated with operating the CCWS controls including CCW flow rate (CFR: 41.5 / 45.5) RO IR: 2.8

Plausibility

The 1st part of "C" and "D" is plausible because an applicant may think that 2-TIC-024-0080 adjusts the bypass flow around the CCW heat exchangers. The 2nd part of "A" and "C" is plausible if the applicant does not know the location of the suction header temperature switch (following the 70-48 closure).

2-OI-70, section 6.5, RBCCW flow Control
OPL171.047 OBJ V.B 2,3,4 V.C.4

54. ~~201001A3.04 001/2/2/RO/MODIFIED/H/2/MJR/BLC~~

Unit 1 plant conditions are as follows:

- Reactor startup is in progress.
- Reactor Power is at 75%.
- 1-FIC-85-11, CRD System Flow Controller, is in automatic.
- The handswitch for 1-HS-85-23, Drive Water Pressure Control Valve, has been held in the CLOSE position for two seconds.
- Power ascension has been halted until the CRD system stabilizes.

WHICH ONE of the following completes the following statement?

After conditions have stabilized, CRD Drive Water Pressure will ___(1)___ and CRD Cooling Water Flow will ___(2)___.

	(1)	(2)
A.	increase	remain the same
B.	increase	decrease
C.	decrease	remain the same
D.	decrease	decrease

Answer is A.

201000 (Control Rod Drive Hydraulics) A3.04: Ability to monitor automatic operations of the CONTROL ROD DRIVE HYDRAULIC SYSTEM including: System Flow. (CFR: 41.7/ 45.7) RO IR: 2.8

Plausibility Analysis

A. CORRECT. Closing PCV 85-23 will cause drive water pressure to increase. FCV-85-11 will maintain system flow constant, which means cooling water flow will remain the same once the system stabilizes, because there is not a constant flow path through the Drive Water Header.

B. INCORRECT. *Plausible since the first half of the answer is correct. The second half of the answer is plausible if the applicant believes closing PCV 85-23 forces more flow through the Drive Water Header.*

C. INCORRECT. *Plausible if the applicant believes that the Drive Water Pressure Control valve is located upstream of the Drive Water Header. The second half of the answer is correct.*

D. *INCORRECT. Plausible if the applicant believes that PCV 85-23 is located upstream of the Drive Water Header. The second half of the answer is plausible if the applicant believes closing PCV 85-23 restricts flow downstream of the valve.*

References

OPL171.005, Obj V.B.13, pp. 20 & 21.

Question History: Modified. Changed direction Drive Water Pressure control valve handswitch is turned from OPEN to CLOSE.

Unit 2 is operating at 100% power and the following alarm is received:

CONTROL ROD DRIVE UNIT TEMP HIGH (9-5A, W17)

WHICH ONE of the following completes both statements?

This set point for this alarm is _____ .

In accordance with 2-TI-393, Evaluation of CRD Temperature Alarms, IF a CRD's temperature is greater than 350 °F, THEN _____ .

A. 250 °F;
the rod must be declared slow in accordance with Tech Specs 3.1.4, Control Rod Scram Times

B. 350 °F;
the rod must be declared slow in accordance with Tech Specs 3.1.4, Control Rod Scram Times

C. 250 °F;
the accumulator must be declared inoperable in accordance with Tech Specs 3.1.5, Control Rod Scram Accumulators

D. 350 °F;
the accumulator must be declared inoperable in accordance with Tech Specs 3.1.5, Control Rod Scram Accumulators

Answer is B.

201003 (CONTROL ROD AND DRIVE MECHANISM) A4.01: Ability to manually operate and/or monitor in the control room: CRD mechanism temperature.
(CFR: 41.7/ 45.5 to 45.8) RO IR: 2.6

Plausibility Analysis

The 1st part of "A" and "C" is plausible because this is the numerical value of the drive water differential pressure required to be established. The 2nd part of "C" and "D" is plausible because a leaking Scram Valve can be associated with a CRD accumulator.

References

ARP 9-5A, W17
OPL171.006, Obj V.B.2, pg. 23.
OPL171.005, Obj. V.B.18, pg. 30.

56. 204000G2.1.28 001/2/2/RO/NEW/L/2/MJR/BLC

Which ONE of the following identifies the function of the Appendix R Isolation Valve 2-FCV-69-94, including its location in the RWCU system?

A. Mitigates spurious opening of 69-1 and/or 69-2; Located upstream of the RWCU pumps

B. Mitigates spurious opening of 69-1 and/or 69-2; Located downstream of the RWCU pumps

C. Mitigates the spurious opening of the RWCU Blowdown valve 69-15; Located upstream of the RWCU pumps

D. Mitigates the spurious opening of the RWCU Blowdown valve 69-15; Located downstream of the RWCU pumps

Answer is A.

204000 (REACTOR WATER CLEANUP SYSTEM) G2.1.28: Knowledge of the purpose and function of major system components and controls.
(CFR: 41.7) RO IR: 4.1

Plausibility Analysis

The 1st part of "C" and "D" is plausible because a loss of the condenser vacuum will result if the RWCU Blowdown valve 69-15 spuriously opens. The 2nd part of "B" and "D" is plausible because this is before the filter demins and before 69-15.

References

OPL171.013, Obj V.B.2, pgs. 20 & 21.

57. 215001K1.05 001/2/2/RO/NEW/H/3/MJR/BLC

Unit 3 plant conditions are as follows:

- Reactor Power is at 75%
- Traversing In-core Probe (TIP) scans are in progress
- The 'B' TIP Drive Control Unit Mode Switch (S-7) is in MANUAL
- The main turbine subsequently trips and RCIC and HPCI automatically start

WHICH ONE of the following predicts the status of the TIP Purge Valve and Ball Valve?

	Purge Valve	Ball Valve
A.	Closed	Open
B.	Open	Closed
C.	Open	Open
D.	Closed	Closed

Answer is D

215000 (Traversing In-core Probe) K1.05: Knowledge of the physical connections and/or cause-effect relationships between TRAVERSING IN-CORE PROBE and the following: Primary containment isolation system: (Not BWR-1)
(CFR: 41.2 to 41.9 / 45.7 to 45.8) RO IR: 3.3

Plausibility Analysis:

The 1st part of "B" and "C" is plausible if the applicant believes that the purge system will continue to maintain the indexer tube pressurized above containment pressure to provide a barrier to inleakage. The 2nd part of "A" and "C" is correct if the applicant thinks that Switch S-7 being in Manual will preclude a Group 8 isolation signal.

Lesson Plan OPL171.23, Obj 5: Describe the operation of the TIP system, including automatic and manual operation

58. 215002K2.03 001/2/2/RO/NEW/L/2/MJR/BLC

Which ONE of the following completes both statements regarding the APRM and Voter power supply arrangement?

Each APRM chassis is powered from _____ Quadruple Low Voltage Power Supply (ies) (QLVPS).

Each 2/4 Voter chassis is powered from _____ .

A. Two;
the RPS bus that it serves

B. Two;
the QLVPS

C. One;
the QLVPS

D. One;
the RPS bus that it serves

Answer is D.

215002 (Rod Block Monitor), K2.03: Knowledge of the electrical power supplies to the following: APRM channels. (CFR: 41.7) (RO – 2.8)

Plausibility Analysis

The 1st part of "A" and "B" is plausible because both RPS busses supply ONE QLVPS; (therefore the applicant may incorrectly reason that two OLVPS power a single APRM chassis). The 2nd part of "B" and "C" is plausible because the Voter chassis are located in the same Panels as the APRM drawers.

References

OPL171.148, Obj V.B.16, pp. 20 & 21, 92 (TP-14).

59. 216000K3.02 001/2/2/RO/NEW/H/3/MJR/BLC

Unit 1 is operating at 100% power with the following conditions:

- Surveillance in progress on LIS-3-203A, Reactor Water Level Low
- RX VESSEL WTR LEVEL LOW HALF SCRAM (9-4A, W2): lit

Before the half scram is reset, LT-3-203C fails downscale.

Which ONE of the following predicts the status of the Group 3 PCIS valves?

A. RWCU remains in service

B. ONLY 69-1, RWCU Inboard Isolation Valve, auto-closes

C. ONLY 69-2, RWCU Outboard Isolation Valve, auto-closes

D. BOTH 69-1 & 69-2 auto-close

Answer is A (Discuss whether 730E927 Sh 7 is required as a reference)

216000 (NUCLEAR BOILER INSTRUMENTATION) K3.02: Knowledge of the effect that a loss or malfunction of the NUCLEAR BOILER INSTRUMENTATION will have on the following: PCIS/NSSSS. (CFR: 41.7 / 45.4) (RO IR: 4.0)

Plausibility Analysis:

A. correct
B. Plausible if the applicant thinks that the "A" + "C" transmitter causes one half of the logic to actuate.
C. Plausible if the applicant thinks that the "A" and "C" transmitters are assigned to the outboard isolation valve
D. Plausible if the applicant thinks that one logic's successful isolation generates a redundant closure signal in the adjacent valve's logic

References
OPL171.017, TP-1, PCIS Trip Logic Circuitry
Drawing 730E927, Sheet 7
OPL171.003, Obj. V.B.11.b., pp. 27 & 28.
OPL171.017, Obj. V.B.2.n., pg. 17.

60. 223001K4.06-001/2/2/RO/NEW/L/3/MJR/BLC

Which ONE of the following completes both statements pertaining to the Drywell d/P Air Compressor?

The air compressor will auto-start when torus pressure is _____ drywell pressure.

The air compressor will stop when torus pressure is _____ drywell pressure.

A. 1.30 psig lower than;
   1.15 psig lower than

B. 1.15 psig lower than;
   1.30 psig lower than

C. 1.30 psig higher than;
   1.15 psig higher than

D. 1.15 psig higher than;
   1.30 psig higher than

Answer is D.

223001 (PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES) K4.06: Knowledge of PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES design feature(s) and/or interlocks which provide for the following: Maintains proper containment/secondary containment to drywell differential pressure.
(CFR: 41.7) RO IR: 3.1

Plausibility Analysis:

The plausibility of the incorrect choices ("A", "B", and "C") is based on 1) whether an applicant knows that the drywell pressure is required to be maintained higher than torus pressure and 2) the starting/stopping setpoints (reversed) for the compressor.

References

OPL171.016, Obj V.B.19.c., pp. 16 &17

61. 230000K5.07 001/2/2/RO/MODIFIED/H/3/MJR/BLC

A LOCA has occurred on Unit 2 and Torus Spray is in service in accordance with the PC/P leg of EOI-2, Primary Containment Control, and 2-EOI-Appendix-17C, RHR System Operation – Suppression Chamber Sprays.

After torus sprays were initiated, the following conditions are noted:

- Torus pressure: 1 psig and lowering
- Torus level : 17 ft

Which ONE of the following identifies:

(1) a concern with the automatic operation of the Reactor-Building-to-Torus Vacuum Breakers if torus pressure continues to lower,

and

(2) the water level at which the Torus-to-Drywell Vacuum Breakers are FIRST covered?

A. (1) ECCS Pump NPSH Limits;
(2) 19.5 ft

B. (1) ECCS Pump NPSH Limits;
(2) 18.5 ft

C. (1) Oxygen Concentration;
(2) 19.5 ft

D. (1) Oxygen Concentration;
(2) 18.5 ft

Answer is C.

230000 (RHR/LPCI: Torus/Suppression Pool Spray Mode) K5.07: Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI:TORUS/SUPPRESSION POOL SPRAY MODE: Vacuum breaker operation. (CFR: 41.5/ 45.3) RO IR: 2.9

Plausibility Analysis

The bottom of the Torus-to-Drywell Vacuum breakers is 19.25".
The Suppression Pool-to-Reactor Building vacuum breakers are located much higher (~31').

The 1st part of "A" and "B" are plausible because of EOI Caution # 2. The 2nd part of "B" and "D" is plausibe because EOI-2 directs stopping the Drywell Sprays if Suppression Pool level cannot be maintained below 18 feet.

Supporting References

0-TI-394, Illustration 1: RPV & Containment EOI SAMG

OPL171.203, Obj V.B.7.c., pp. 53.

2-EOI-2, Primary Containment Control, step SP/L-13 and SP/L-14.

62. ~~245000K6.03 001/2/2/RO/NEW/H/3/MJR/BLC~~

Unit 1 was operating at 100% power when the Main Hydrogen Seal Oil Pump tripped and seal oil pressure initially dropped to 105 psig.

Which ONE of the following predicts (1) the status of the Seal Oil Vaccum Pump and (2) the effect that the Main Pump trip will have on the main generator?

A. (1) Seal Oil Vacuum Pump will trip
(2) Hydrogen purity will drop

B. (1) Seal Oil Vacuum Pump will trip
(2) Air in-leakage across the rotor seals will increase

C. (1) Seal Oil Vaccum Pump will NOT trip
(2) Hydrogen purity will drop

D. (1) Seal Oil Vacuum Pump will NOT trip
(2) Air in-leakage across the rotor seals will increase

Answer is A.

245000 (MAIN TURBINE GENERATOR / AUXILIARY SYSTEMS) K6.03: Knowledge of the effect that a loss or malfunction of the following will have on the MAIN TURBINE GENERATOR / AUXILIARY SYSTEMS: Hydrogen seal oil.
(CFR: 41.7 / 45.7) RO IR:2.8

Plausibility Analysis
Note: Trip of the MSOP will cause an automatic start of the ESOP when pressure reaches 110 psig.

The 1st part of "C" and "D" is plausible if the applicant doesn't know about the vacuum pump trip. The 2nd part of "B" and "D" is plausible if the applicant doesn't know that the ESOP auto-starts.

Supporting References

OPL171.135, Obj V.B.15.b., pg. 29.
OI-35B, Hydrogen Seal Oil System, Rev. 2, pg. 30.

63. 259001A1.01-001/2/2/RO/MODIFIED/H/3/MJR/BLC

Unit 2 is operating at 100% power and all Reactor Feedwater Controllers are in AUTO with the setpoint at 33".

Which ONE of the following predicts how the feed pumps will respond if the Unit Operator depresses the Column Selector pushbutton, selects Column 2, and then depresses the Ramp Up Pushbutton on one feedpump?

[REFERENCE PROVIDED]

A. The selected feedpump's speed will rise;
the other two feedpumps' speed will lower.

B. The selected feedpump's speed will lower;
the other two feedpumps' speed will rise.

C. The selected feedpump's speed will remain the same;
the other two feedpumps' speeds will rise.

D. All three feedpumps' speeds will remain the same (no effect).

Answer is A. (Provide 2-OI-3, Illustration 2, Page 1 of 4 to applicants)

259001 (REACTOR FEEDWATER) A1.01: Ability to predict and/or monitor changes in parameters associated with operating the REACTOR FEEDWATER SYSTEM controls including: Feedwater flow/pressure.
(CFR: 41.5 / 45.5) RO IR: 3.3

Plausibility Analysis:

Note: 2-OI-3, Section 6.5 (Adjusting RFPT Bias) performs the activity described in the stem. Column 2 is Bias.

The incorrect choices ("B", "C", and "D") plausibility is based on 1) knowing that raising bias will raise the preference of the circuitry for the pump (make it speed up), 2) knowing that when the controller is in AUTO that column 2 means bias, and 3) if the actual speed of the selected pump changes, how the other pumps' speeds change.

2-OI-3, Section 6.5,Adjusting RFPT Bias
OPL171.012, Obj C.7: Determine the response of the RFWCS / PDS to a change when given the mode of operation and column selected.

This question is modified OPL171.012 Item # 12.

64. ~~290003A2.04 001/2/2/RO/NEW/H/3/MJR/BLC~~

A fire has resulted in actuation of the CO2 system in the Unit 3 control room.

The Shift Manager subsequently determined that the control room was required to be abandoned in accordance with 0-AOI-100-6, Release of Hazardous Chemicals or Gases.

Which ONE of the following identifies:

(1) how actuation of the fire suppression system affected the Unit 3 HVAC system

and

(2) whether 0-SSI-16, Control Building Fire EL 593 Through EL 617, is required to be implemented?

FCO-31-150D is the fresh air makeup duct to Unit 3 Control Room AHU
FCO-31-150F is the exhaust from Unit 3 toilet, locker, and other rooms at 617 'elev

A. FCO-31-150D and FCO-31-150F auto-close
0-SSI-16 is required

B. FCO-31-150D and FCO-31-150F auto-close
0-SSI-16 is NOT required

C. FCO-31-150D and FCO-31-150F remain open
0-SSI-16 is required

D. FCO-31-150D and FCO-31-150F remain open
0-SSI-16 is NOT required

Answer is D.

290003 (CONTROL ROOM HVAC) A2.04: Ability to (a) predict the impacts of the following on the CONTROL ROOM HVAC ; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Initiation/failure of fire protection system. (CFR: 41.5 / 45.6) (RO IR: 3.1)

Plausibility Analysis:

The 1st part of "A" and "B" are plausible since this actuation occurs as the result of a high radiation signal. The 2nd part of "A" and "C" is plausible because 0-SSI-16 involves abandoning the main control room when the SSIs have been entered. In this case, the abandonment was due to a toxic gas.

References

OPL171.067, Obj V.B.2.i., pg. 32.
1-AOI-100-2, pp. 9-10.
0-SSI-16, Control Building Fire EL 593 Through EL 617
0-AOI-100-6, Release of Hazardous Chemicals or Gases

65. 290002K3.01 001/2/2/RO/NEW/L/2/MJR/BLC

Which ONE of the following choices completes both statements regarding the design basis (DBA) LOCA analysis?

The DBA LOCA analysis is based on the double-ended break of one of the recirculation loop's _____ .

IF another break at the _____ exists, THEN reactor water level will NOT be maintained above two-thirds core height, without injection.

A. suction piping
jet pump inlet riser

B. suction piping
jet pump diffuser

C. ring header
jet pump inlet riser

D. ring header
jet pump diffuser

Answer is B.

290002 (REACTOR VESSEL INTERNALS) K3.01: Knowledge of the effect that a loss or malfunction of the REACTOR VESSEL INTERNALS will have on the following: Reactor water level. (CFR: 41.7 / 45.4) RO IR: 3.2

Plausibility Analysis

The 1st part of "C" and "D" is plausible if the applicant is not aware of the design basis LOCA analysis. The 2nd part of "A" and "C" is plausible if the applicant does not understand the relative location of the jet pump slip joint fitting with respect to the top of active fuel.

References
FSAR Page 14.6-16, Long Term Response.
OPL171.002, TP-5 & TP-26.
OPL171.205, "EOI Contingency Procedures," Rev. 8, Obj V.B.7.c., pp. 20 & 21.

66. G2.1.18 002/3/2.1/RO/NEW/L/2/DMB/BLC

Unit 2 is operating at 100% power.

An annunciator began alarming because one of its inputs had failed downscale, i.e.; not a valid indication.

The invalid input was subsequently disabled in accordance with OPDP-4, Annunciator Disablement.

Which ONE of the following describes 1) how the annunciator is required to be flagged and 2) the details required for the associated narrative log entry?

A. A blue magnetic border;
The method used to disable the annunciator is required to be described in the narrative log entry

B. A blue magnetic border;
The method used to disable the annunciator is NOT required to be described in the narrative log entry

C. A white magnetic border;
The method used to disable the annunciator is required to be described in the narrative log entry

D. A white magnetic border;
The method used to disable the annunciator is NOT required to be described in the narrative log entry

Answer is A.

Tier 3: Generic.
2.1.18. Ability to make accurate, clear and concise logs, records, status boards, and reports. (CFR: 41.10/45.12) RO IR: 3.6

Plausibility: "C" and "D" first part plausible because a white magnetic border is used to identify an out-of-service annunciator during testing or maintenance per OPDP-4 section 5.0.
"B" and "D" second part plausible because this item is not included in the list of items that are required to be entered in the narrative log per OPDP-1 section 4.6.

References
OPDP-4 section 3.2.7 and 5.0
OPDP-1 section 4.4 and 4.6
OPL171.071

Lesson Plan Objectives
OPL171.071 Rev. 15, Conduct of Operations Lesson Plan Enabling Objectives 16.c and 16.e

67. G2.1.25 003/3/2.1/RO/NEW/H/3/DMB/BLC

Unit 2 turbine generator is operating as follows:

- GENERATOR LOAD RECORDER: 1100 MW.
- GENERATOR MVAR, 2-EI-57-51: 200 MVARs outgoing.
- GENERATOR HYDROGEN PRESSURE, 2-PI-35-17A: 70 psig and lowering at a rate of 10 psig per hour.

Which ONE of the following identifies the longest amount of time that the generator can be operated without exceeding the limits of the Estimated Reactive Capability Curves? (Assume no operator action.)

[REFERENCE PROVIDED]

A. 1 hour

B. 1.25 hours

C. 2.5 hours

D. 3 hours

Answer is B. [Provide applicants with Illustration 6 of 2-OI-47, Generator Kilovar Limitations (Capability Curve): ONLY THE CURVE PORTION of the Illustration; not the Notes listed at the top of the Illustration]

Tier 3: Generic.
2.1.25. Ability to interpret reference materials, such as graphs, curves, tables, etc.
(CFR: 41.10/43.5/45.12) RO IR: 3.9

Plausibility: "A" is plausible if the examinee does not realize H2 psig can be interpolated. "C" is plausible if the examinee considers only that due to Unit 2 generator rewind, generator operation with H2 pressure <42 psig is **NOT** recommended. This is stated at the bottom of Illustration 2 of 2-OI-35. "D" is plausible if the examinee believes that H2 pressure only needs to be above the lowest H2 pressure curve listed on the graph (30 psig).

Note: Operation is within the heating limits when the generator operating point is inside the hydrogen pressure curve.

Supporting References
2-OI-35
2-OI-47
OPL171.134

Illustration 6 of 2-OI-47, Generator Kilovar Limitations (Capability Curve)

Lesson Plan Objectives
OPL171.134,Main Generator and Exciter Lesson Plan includes, "Given a set of operating parameters and the unit's generator capability curve, determine if operation is acceptable." (Enabling objective V.B.15).

68. ~~G2.1.37 003/3/2.1/RO/NEW/H/2/DMB/BLC~~

Unit 2 is in Mode 2 with single notch rod withdrawal in progress per 2-GOI-100-1A, Unit Startup and Power Operation.

When the Unit Operator withdrew the next rod, it moved from "00" to "04" and the following indications are observed:

- CHANNEL A PERIOD, 2XI-92-7/44A – 25 seconds
- CHANNEL B PERIOD, 2XI-92-7/44B – 25 seconds
- CHANNEL C PERIOD, 2XI-92-7/44C – 25 seconds
- CHANNEL D PERIOD, 2XI-92-7/44D – 25 seconds

Which ONE of the following identifies:

1) the required actions in accordance with 2-GOI-100-1A, Unit Startup and Power Operation

and

2) whether or not the rod is considered "mispositioned" in accordance with 2-AOI-85-7, Mispositioned Control Rod?

A. make the reactor subcritical;
the Control Rod is mispositioned

B. make the reactor subcritical;
the Control Rod is NOT mispositioned

C. reinsert the last control rod pulled to obtain a stable period greater than 60 seconds;
the Control Rod is mispositioned

D. reinsert the last control rod pulled to obtain a stable period greater than 60 seconds;
the Control Rod is NOT mispositioned

Answer is B.

Tier 3: Generic.
2.1.37 Knowledge of procedures, guidelines, or limitations associated with reactivity management. (CFR: 41.1/45.6) RO IR: 4.3

Plausibility: "A" is plausible because a rod being moved notch wise is considered mispositioned if it is more than 2 notches from its intended position in accordance with 2-AOI-85-7. "C" is plausible because this is the action required per 2-GOI-100-1A, Unit Startup and Power Operation when a single notch rod withdrawal results in a reactor period of less than 60 seconds and a rod being moved notch wise is considered mispositioned if it is more than 2 notches from its intended position in accordance with 2-AOI-85-7. "D" is plausible because this is the action required per 2-GOI-100-1A, Unit Startup and Power Operation when a single notch rod withdrawal results in a reactor period of less than 60 seconds.

Supporting References
NPG-SPP-10.4, Reactivity Management Program
2-GOI-100-1A, Unit Startup and Power Operation
OPL 171.059, Unit Startup Lesson Plan
2-AOI-85-7, Mispositioned Control Rod

Lesson Plan Objectives
Training objective V.B.5.c of OPL171.059, Unit Startup, states, "With respect to reactor period, determine what action should be taken if a reactor period of 30 seconds is obtained."

69. G2.2.7 003/3/2.2/RO/NEW/L/2/DMB/BLC

Which ONE of the following completes both statements in accordance with NPG-SPP-06.9.1, Conduct of Testing?

The Test Director is _____ to perform Line Verification (QC function) activities.

When continuing a test past an Operations shift change, timely notification of the oncoming Operations personnel is required **EXCEPT** for _____.

A. NOT permitted;
tests being recorded in a Chronological Test Log (CTL)

B. NOT permitted;
those tests being conducted by Operations personnel in the Main Control Room

C. permitted;
tests being recorded in a Chronological Test Log (CTL)

D. permitted;
those tests being conducted by Operations personnel in the Main Control Room

Answer is B.

Tier 3: Generic.
2.2.7. Knowledge of the process for conducting special or infrequent tests.
(CFR: 41.10/43.3/45.13) (RO – 2.9)

Plausibility:"C" and "D" first part is plausible because the Test Director must have the experience, knowledge and skills to perform or oversee the conduct of the test per section 3.1.C of NPG-SPP-06.9.1, Conduct of Testing. "A" and "C" second part is plausible because the Chronological Test Log (CTL) will provide a means to transfer information from shift-to-shift for extended tests per section 3.4.A of NPG-SPP-06.9.1, Conduct of Testing.

Supporting References
NPG-SPP-06.9.1, Conduct of Testing
OPL171.078, Conduct of Testing Lesson Plan

Lesson Plan Objectives
Enabling Objectives of OPL171.078, Conduct of Testing include, "Describe the situations that require the Test Director to notify Operations personnel" (objective V.B.8).

70. G2.2.12 003/3/2.1/RO/NEW/L/2/DMB/BLC

Unit 2 is critical in Mode 2 with a Reactor Coolant System heatup in progress.

Which ONE of the following completes both statements?

The maximum heatup rate allowed by 2-SR-3.4.9.1(1), Reactor Heatup and Cooldown Rate Monitoring, is _____ °F in any one hour period.

After commencing rod withdrawal, data is required to be recorded on Attachment 2, Reactor Heatup and Cooldown Rate Monitoring, every _____ minutes during the heatup.

A. 90; 30

B. 90; 15

C. 100; 30

D. 100; 15

Answer is C.

Tier 3: Generic.
2.2.12 Knowledge of surveillance procedures (CFR: 41.10/45.13) RO IR: 3.7

Plausibility: "A" and "B" first part is plausible because 90F/hr is the administrative heatup limit specified in 2-GOI-100-1A, Unit Startup and Power Operation. "B" and "D" second part is plausible because heatup rate must be determined 15 minutes prior to control rod withdrawal for the purpose of achieving criticality and every 30 minutes during heatup or cooldown in modes 2 and 3 per 2-SR-3.4.9.1(1), Reactor Heatup and Cooldown Rate Monitoring.

References
2-SR-3.4.9.1(1), Reactor Heatup and Cooldown Rate Monitoring
2-GOI-100-1A, Unit Startup and Power Operation
OPL171.059, Unit Startup Lesson Plan

Lesson Plan OPL171.059
"Given a set of plant conditions, equipment operability, determine if ITS requirements are met and if mode changes are allowed."

71. G2.3.7 004/3/2.3/RO/NEW/L/2/DMB/BLC

Unit 3 has entered the EOIs and immediate entry into a High Radiation Area by an Auxiliary Unit Operator (AUO) is required; however, the AUO is not signed on to any Radiation Work Permit (RWP) and no other AUO is available.

Which ONE of the following identifies the requirements for immediate entry into a High Radiation Area during an emergency without meeting the prior approval requirements of a RWP in accordance with RCI-9.1, Radiation Work Permits?

A. Must be authorized by the Shift Manager;
a Radiation Protection individual equipped with a dose rate monitoring device must escort the AUO.

B. Must be authorized by the Radiation Protection Shift Supervisor;
a Radiation Protection individual equipped with a dose rate monitoring device must escort the AUO.

C. Must be authorized by the Shift Manager;
a Radiation Protection individual escort is not required.

D. Must be authorized by the Radiation Protection Shift Supervisor;
a Radiation Protection individual escort is not required.

Answer is A.

Tier 3: Generic.
2.3.7. Ability to comply with radiation work permit requirements during normal or abnormal conditions. (CFR: 41.12/45.10) RO IR: 3.5

Plausibility:"B" and "D" first part plausible because according to RCI-9.1, section 3.1.1, the RP Shift Supervisor normally approves RWPs. "C" and "D" second part plausible because according to RCI-9.1, section 3.2.8.A, personnel normally use a dose rate warning device as indicated on the RWP vice RP surveillance for High Radiation Area entry.

References
NPG-SPP-05.1, section 3.6.4
RCI-9.1, Radiation Work Permits, section 3.2.17

Radiological Worker Training RWT 010/000 Obj: "State the required actions to be taken if the work scope or radiological conditions change so that they are not within the scope of an RWP",
Obj: "Ability to extract information from an RWP".

72. G2.3.12 004/3/2.3/RO/NEW/H/2/DMB/BLC

Unit 3 initial drywell entry is in progress in accordance with 3-GOI-200-2, Primary Containment Initial Entry and Closeout.

The entry will be made by a team consisting of a Rad Protection Technician, a mechanic, laborer, and an Auxiliary Unit Operator (AUO). All of these personnel will inspect all accessible elevations in the drywell.

The following conditions currently exist:

- All control rods have been inserted
- Reactor Pressure is 50 psig
- The Mode Switch is in the Shutdown position

Which ONE of the following identifies:

1) the minimum required Oxygen concentration that allows entry without a Self Contained Breathing apparatus (SCBA)

and

2) whether an additional member of Operations is required to remain at the Personnel Airlock Door while the team is inspecting the drywell?

A. Oxygen concentration must be at least 20.8%;
An additional member of Operations is NOT required to stay at the Personnel Airlock doors; this function can be performed by another work group.
because

B. Oxygen concentration must be at least 19.5%;
An additional member of Operations is NOT required to stay at the Personnel Airlock doors; this function can be performed by another work group.

C. Oxygen concentration must be at least 20.8%;
Another member of Operations is required to stay at the Personnel Airlock doors.

D. Oxygen concentration must be at least 19.5%;
Another member of Operations is required to stay at the Personnel Airlock doors.

Answer is D.

Tier 3: Generic.
2.3.12 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.
(CFR: 41.12/45.9) RO IR: 3.2

Plausibility: The 1st part of "A" and "C" is plausible because 20-21% is the normal Oxygen concentration in air. The 2nd part of "A" and "B" is plausible because the stem states that a member of Operations will be inside the drywell anyway.

References
3-GOI-200-2, Primary Containment Initial Entry and Closeout
3-OI-64, Primary Containment System
OPL171.016, Primay and Secondary Containment Lesson Plan

73. G2.4.2 003/3/2.4/RO/NEW/L/2/DMB/BLC

Which ONE of the following identifies a plant parameter value that is listed as an entry condition on 3-EOI-3, Secondary Containment Control, and will also cause an automatic Secondary Containment isolation signal?

A. Reactor Vessel Water Level at 0"

B. Drywell Pressure at 3 psig

C. Refueling Floor Exhaust Radiation at 50 mR/hr

D. Reactor Zone Exhaust Radiation at 100 mR/hr

Answer is D.

Tier 3: Generic.
2.4.2. Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. (CFR: 41.7/45.7/45.8) RO IR: 4.5

Plausibility: "A" is plausible because Reactor Vessel Water Level – Low, Level 3 will cause an automatic Secondary Containment Isolation signal, however this is not a 3-EOI-3 entry condition. "B" is plausible because Drywell Pressure – High will cause an automatic Secondary Containment Isolation signal, however this is not a 3-EOI-3 entry condition. This would meet 3-EOI-2 entry conditions. "C" is plausible because Refueling Floor Exhaust Radiation – High will cause an automatic Secondary Containment Isolation signal if the setpoint was reached and would meet 3-EOI-3 entry conditions if the radiation level reached 72 mR/hr.

References
3-EOI-2
3-EOI-3
OPL171.204, EOI-3 and EOI-4 Lesson Plan
TS 3.3.6.2, Secondary Containment Isolation Instrumentation
OPL 171.016, Primary and Secondary Containment Systems Lesson Plan

Lesson Plan Objectives
Enabling objectives of OPL171.204.r7 (EOI-3 and EOI-4) include, "Given a list of plant parameters, identify which would require entry into EOI-3" (enabling objective V.B.2). Enabling objectives of OPL171.016.r18 (Primary and Secondary Containment Systems) include, "Identify the design features that prevent over pressurization of the secondary containment" (enabling objective V.B.15).

74. G2.4.4 003/3/2.4/RO/NEW/H/2/DMB/BLC

Unit 2 is operating at 100% RTP and the following alarms are received:

OG POST TRTMT RADIATION HIGH (9-4C, W33)
OG POST TRTMT RADIATION HIGH - HIGH, (9-4C, W34)

Which ONE of the following:

1) predicts the <u>current</u> status of the Offgas System Isolation Valve, 2-FCV-66-28,

and

2) identifies the required actions if OG POST TRTMT RADIATION HI–HI-HI/INOP (9-4C, W35) subsequently alarms?

A. closed;
reduce power to maintain off-gas radiation within ODCM limits (Scram not required)

B. closed;
reduce core flow to between 50-60% and manually scram the reactor if a scram has not already occurred

C. open;
reduce power to maintain off-gas radiation within ODCM limits (Scram not required)

D. open;
reduce core flow to between 50-60% and manually scram the reactor if a scram has not already occurred

Answer is D.

Note: The triple high annunciator is an AOI-66-2 entry condition.

Tier 3: Generic.
2.4.4 Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures. (CFR: 41.10 / 43.2 / 45.6) RO IR: 4.5

Plausibility:
The 1st part of "A" and "B" is plausible because the 2-FCV66-28 will auto-close when the triple high annunciator (OG POST TRTMT RADIATION HI–HI-HI/INOP) alarms. The 2nd part of "A" and "C" is plausible because reducing power to maintain off-gas radiation within ODCM limits is an action listed in the Alarm Response Procedures for OG POST TRTMT RADIATION HIGH and OG POST TRTMT RADIATION HIGH - HIGH, 2-RA-90-265B.

References
2-AOI-66-2, Offgas Post-Treatment HI-HI-HI
OPL171.030, Off-Gas System Lesson Plan
2-ARP-9-4C, Alarm Response Procedures for alarm windows [33], [34] and [35]

Lesson Plan OPL171.030, ObjV.B.6: Given current plant conditions, determine if the Off-Gas isolation valve should close.

75. G2.4.35 001/3/2.4/RO/NEW/H/2/AG/BLC

Unit 1 has experienced an ATWS and RPS cannot immediately be de-energized.

The US has dispatched an AUO to perform 1-EOI-Appendix 1B, Vent and Depressurize the Scram Pilot Air Header.

Which ONE of the following:

1) identifies <u>where</u> the AUO will perform this appendix

and

2) how the AUO will depressurize the scram air header?

A. CRD catwalk above Hydraulic Control Units;
The AUO will vent the scram air header at the pressure switch used for the SCRAM PILOT AIR HEADER PRESS LOW (9-5B, W28) annunciator.

B. 565' elevation north east at the CRD station;
The AUO will vent the scram header at one of the 3-way Alternate Rod Insertion (ARI) solenoid valves.

C. 565' elevation north east at the CRD station;
The AUO will vent the scram air header at the pressure switch used for the SCRAM PILOT AIR HEADER PRESS LOW (9-5B, W28) annunciator.

D. CRD catwalk above Hydraulic Control Units;
The AUO will vent the scram header at one of the 3-way Alternate Rod Insertion (ARI) solenoid valves.

Answer is C.

Tier 3: Generic.
2.4.35. Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects. (CFR: 41.10/43.5/45.13) RO IR: 3.8

Plausibility: The 1st part of "A" and "D" is plausible because this is the location for AUO actions in 1-EOI Appendix 1E for venting CRD over piston area. The 2nd part of "B" and "D" is plausible because the ARI valves are an "alternate means" to vent the scram air header.

References
Unit 1 EOI flow chart
1-EOI Appendix 1B
1-EOI Appendix 1D
1-ARP-9-5B
OPL171.206

Lesson Plan Objectives
OPL171.206 Objective D.1.b (Given an EOI and SAMG Appendix, identify the location of performance).