Draft Submittal

(Pink Paper)

BROWNS FERRY
EXAM 2002-301
50-259, 50-260, & 50-296

DECEMBER 13, 16-19, 2002

1. Reactor Operator Operator Written Exam

QUESTIONS REPORT
for Browns Ferry Questions

1. 201001A2.01 001

While operating at 25% power the Unit Operator reports the following:

- CRD Pump A Breaker Disagreement White Light.
- Motor Trip Out Annunciator and Horn Received.
- 1B CRD Pump in Standby.

Which ONE of the following describes the IMMEDIATE actions to be taken for the above conditions?

A. Start CRD pump 1B and open the CRD PUMP DISH TO UNIT 2. Adjust the CRD SYS FLOW CONTROLLER tapeset to adjust CRD cooling water header differential pressure to 20 psid and CRD system flow to approximately 60 gpm.

B. Place CRD SYS FLOW CONTROLLER in MAN at MAXIMUM setting. Start CRD pump 1B. Open CRD PUMP DISCH TO UNIT 2. When CRD cooling water header differential pressure reaches 20 psid, and CRD system flow reaches between 45 and 75 gpm, balance CRD SYS FLOW CONTROLLER and place in AUTO.

C. Start CRD pump 1B. Place CRD SYS FLOW CONTROLLER in MAN at MINIMUM setting. Open CRD PUMP DISCH TO UNIT 2. Adjust CRD SYS FLOW CONTROLLER to establish 20 psid cooling water header differential pressure. Balance CRD SYS FLOW CONTROLLER and place in AUTO.

D. Place CRD SYS FLOW CONTROLLER in MAN at MINIMUM setting. Start CRD pump 1B. Open CRD PUMP DISCH TO UNIT 2. Adjust CRD SYS FLOW CONTROLLER to establish 20 psid CRD cooling water header differential pressure and CRD system flow between 40 and 65 gpm. Balance CRD SYS FLOW CONTROLLER and place in AUTO.

References: 2-AOI-85-3 Rev. 20 pg 1 and 2
NOTE: Revised some of the distractors to make them more plausible. Also, revised stem to ensure that it is clear that these are IMMEDIATE operator actions.

A. Incorrect since flow controller must be adjusted to minimum setting prior to starting the pump.

B. Incorrect since flow controller must be adjusted to MINIMUM instead of MAXIMUM.

C. Incorrect since flow controller must be adjusted to minimum setting prior to starting the pump.

QUESTIONS REPORT

for Browns Ferry Questions

RO Tier:	T2G1	SRO Tier:	T2G2
Keyword:	CRD SYSTEM	Cog Level:	MEM 3.2/3.3
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

2. 201006K3.01 001

The following conditions exist on Unit 3:

RWM Bypass Switch in Normal.
Core Power level is above the Low Power Setpoint.
The RWM program has NOT been initialized
Control Rod 22-35 at position 18 (group limit 00-12)

Which ONE of the following is the reason that control rod 22-35 cannot be moved?

A. Withdraw Block is in effect.

B. Insert Block is in effect.

C. Select Block is in effect.

D. Withdraw Error has occured.

References: OPL171.024 Rev. 10 pg 13-16

A, B and D are incorrect since a Select Block is in effect due to RWM Bypass Switch in NORMAL and the RWM program has not been initiated.

C. Correct answer.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	RWM	Cog Level:	C/A 3.2/3.5
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

3. 202002G2.2.3 002

Which ONE of the following choices correctly describes the response of the Unit 2 and Unit 3 reactor recirculation pump (RRP) speed control to an increase in core differential pressure?

A. On Unit 2 the RRP speed must be manually adjusted by the operator but Unit 3 will automatically reposition the scoop tube to bring speed back to the setpoint.

B. Both Unit 2 and Unit 3 must be manually adjusted by the operator to bring speed back to the setpoint.

C. Unit 2 will automatically reposition the scoop tube to bring speed back to the setpoint but on Unit 3 the RRP speed must be manually adjusted by the operator.

D. Both Unit 2 RRP and Unit 3 will automatically reposition the scoop tube to bring speed back to the setpoint.

JUSTIFICATION
Unit 2 and 3 speed feedback are enabled.
REF: OPL171.007, Rev. 15, Page 36
OPL171R007, Rev. 0, Page 11

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	RECIRC SYSTEM	Cog Level:	MEM 3.1/3.3
Source:	B	Exam:	BF02301
Test:	C	Misc:	

4. 203000A4.01 001

During a level transient on Unit 2 the following events occurred:

- RPV water level decreased to -125 inches during the transient
- ADS actuated
- RHR Pump 2A and 2B started and injected to the reactor vessel
- RPV water level is now +25 inches and increasing
- No operator actions have been taken

Which ONE of the following statements describes the RHR system response if RHR Pump 2A control switch is placed to the STOP position?

A. RHR Pump 2A will stop and the amber auto-start lockout light will light.

B. RHR Pump 2A will stop and the amber auto-start lockout light will extinguish.

C. No change; RHR Pump 2A will continue to run until the LOCA initiation signal is reset.

D. RHR Pump 2A will stop and then restart when the switch is released. The amber auto-start lockout light will not change indication.

References: OPL171.044 Rev. 10 pg 61
Enabling Objective #13
2-OI-74 Rev. 0107 pg 8

A. Correct answer.

B. Incorrect since the RHR system is designed to allow a pump to be secured and auto-initiation lock-out.

C.Incorrect since the amber light is the auto-init. lockout indication and will not extinguish until the LOCA signal is reset.

D. Incorrect since both sentences are incorrect.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	RHR	Cog Level:	C/A 4.3/4.1
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

5. 203000K3.02 001

Gross fuel failure is suspected on Unit 3. The crew is in *3-EOI Appendix 18 - Suppression Pool water Inventory Removal and Makeup* and have just closed *3-FCV-74-63, RHR RADWASTE SYS FLUSH VALVE*. Suppression Pool level is -2.5 inches and steady.

Which ONE of the following are the appropriate actions?

A. Exit *3-EOI Appendix 18 - Suppression Pool water Inventory Removal and Makeup* since Suppression Pool water level is within acceptable limits.

B. Open *3-FCV-74-63, RHR RADWASTE SYS FLUSH VALVE* and direct Suppression Pool water to Radwaste ONLY.

C. Open *3-FCV-74-62, RHR MAIN CNDR FLUSH VALVE* and direct Suppression Pool water to the Main Condenser ONLY.

D. Open *3-FCV-74-62, RHR MAIN CNDR FLUSH VALVE* and direct Suppression Pool water to the Main Conderser or open *3-FCV-74-63, RHR RADWASTE SYS FLUSH VALVE* and direct Suppression Pool water to Radwaste.

References: 3-EOI Appendix 18

WHEN Suppression Pool level can be maintained between -1 in. and -5.5 in. THEN EXIT this procedure.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	SUPPRESSION CHAMBER	Cog Level:	C/A 3.5/3.5
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

6. 204000K5.05 001

Which ONE of the following describes the signals that will close the RWCU Blowdown Valve (FCV 69-15)?

A. Low Reactor Water Level +2", Standby Liquid Control initiation.

B. High downstream pressure 140 psig, low upstream pressure 5 psig.

C. High RWCU Pump Rm temp 140°F, high temp on outlet of NRHX 140°F.

D. High flow 250 gpm, high differential pressure across valve 25 psid.

References: OPL171.013 Rev.12 pg 22-24

A,C and D Incorrect since these signals do not close the blowdown valve.

B. Correct answer.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	RWCU SYSTEM	Cog Level:	MEM 2.6/2.6
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

7. 205000A4.05 001

Unit 2 is in a refueling outage with Loop II of RHR in shutdown cooling. The RHR SYSTEM II MIN FLOW INHIBIT switch is in the INHIBIT position. The Unit Operator then places the RHR Loop II Minimum Flow Valve (2-FCV-74-30) Control Switch to the OPEN position.

Which ONE of the following describes the effect on the Minimum Flow Valve?

A. Valve would not open.

B. Valve would open then immediately go back closed.

C. Valve would open regardless of RHR flow and remain open.

D. Valve would open only if RHR flow was less than min flow closing setpoint.

References: OPL171.044 Rev. 10 pg 33 and 34
2-OI-74 Rev. 107 pg 73
Enabling Objective OPL171.044 #10

A. Incorrect since valve would open and immediately close.

B. Correct answer.

C. Incorrect since valve would not remain open.

D. Incorrect since valve would open regardless of min flow signal.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	RHR SYSTEM	Cog Level:	MEM 3.2/3.2
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

8. 206000A3.05 001

HPCI is operating in the pressure control mode (suction from the CST and return to the CST through FCV 73-35 and 36) when reactor water level lowers to -50".

Which ONE of the following describes HPCI response?

A. HPCI will be unaffected and continue to operate in the pressure control mode.

B. FCV 73-44 (inboard injection valve) opens; FCVs 73-35 and 36 remain open; HPCI does not inject to the reactor.

C. FCV 73-44 (inboard injection valve) opens: FCVs 73-35 and 36 close; HPCI injects to the reactor.

D. FCV 73-44 (inboard injection valve) opens; FCV 73-35 closes; FCV 73-36 remains open; HPCI injects to the reactor.

Reference: OPL171.042 Rev. 16 pg 42

A. Incorrect since HPCI has received an initiation signal from low water level. Setpoint is -45".

B. Incorrect since FCV's 73-35 and 36 receive a closed signal if they were open.

C. Correct answer.

D. Incorrect since both FCV's 73-35 and 36 receive a closed signal.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	HPCI	Cog Level:	C/A 4.3/4.3
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

9. 209001K5.05 001

Unit 3 has been at 100% RTP for the last 6 months. The Flow Rate test for HPCI is in progress to verify OPERABILITY after maintenance was performed on the system. 2-SR-3.5.1.1 (CS 1), Core Spray System Venting Loop 1 was last performed on November 15th, 2002. The UO was sent out to perform the surveillance on December 16th, 2002 and reported back that he was unable to open the High Point Vent valve (2-SHV-075-0071).

Which ONE of the following describes the consequences to Unit 3 of not being able to perform this surveillance?

A. Loop 1 Core Spray must be declared INOPERABLE immediately and Unit 3 enters a 7 day LCO.

B. Loop 1 Core Spray venting must be performed within 24 hours or the system declared INOPERABLE which would place Unit 3 in a 72 hour LCO.

C. Loop 1 Core Spray venting must be performed within 7.75 days or the system declared INOPERABLE which would place Unit 3 in a 72 hour LCO.

D. Loop 1 Core Spray venting must be performed within 7.75 days or the system declared INOPERABLE which would place Unit 3 in a 7 day LCO.

References: Tech Spec 3.5.1, ECCS-Operating
2-SR-3.5.1.1 (CS 1) Rev. 1 pg 4 and 6

A. Incorrect since the grace period for the surveillance hasn't expired.

B. Incorrect since the grace period for the surveillance is 7.75 days and not 24 hours.

C. Incorrect since by the time that the 7.75 days expire then HPCI must be OPERABLE or the unit is already shutdown.

D. Incorrect since HPCI will be OPERABLE by the time the 7.75 days has expired.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	CORE SPRAY	Cog Level:	C/A 2.5/2.5
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

10. 211000K1.01 001

Which ONE of the following describes the relationship between the SLC System and the Core Spray System?

A. The SLC sparger provides a sensing point for the Core Spray Break Detection logic.

B. The SLC sparger provides a sensing point for the Core Spray flow indication.

C. The Core Spray System is totally independent of the SLC System.

D. The same Shutdown Board powers the 2B SLC Pump and the 2B Core Spray Pump.

References: OPL171.045 Rev.11 pg 13
OPL171.039 Rev.13 pg 14,26 and 27
Enabling Objective OPL171.039 #4

A. Correct answer.

B. Incorrect since the sparger has no input to Core Spray flow.

C. Incorrect since Core Spray does interact with SLC through the sparger.

D. Incorrect since 2B Core Spray is powered from SD BD "C" and 2B SLC pump is powered from SD BD "B".

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	SLC	Cog Level:	MEM 3.0/3.3
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

11. 211000K6.03 001

Which ONE of the following describes the power supply and interlocks of the SLC pumps?

A. One pump is powered from 250V RMOV Board A and one from 480V Shutdown Board B. The pumps are electrically interlocked so that both pumps run, if available.

B. One pump is powered from 480V Shutdown Board A and one from 480V Shutdown Board B. The pumps are electrically interlocked so that only one pump will run at a time.

C. One pump is powered from 250V RMOV Board A and one from 480V Shutdown Board B. The pumps are electrically interlocked so that only one pump will run at a time.

D. One pump is powered from 480V Shutdown Board A and one from 480V Shutdown Board B. The pumps are electrically interlocked so that both pumps run, if available.

250 VDC is control power for the valves.

Two 100% capacity, triplex, positive displacement piston pumps powered from 480V Shutdown Bds A and B respectively are installed in parallel. The pumps are electrically interlocked so that only one pump can be run at a time to prevent overpressurization of the system.. This is accomplished by B-finger contacts in the start circuit of the running pump, opening contacts in the start circuit of the idle pump.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	SBLC	Cog Level:	MEM 3.2/3.3
Source:	B	Exam:	BF02301
Test:	C	Misc:	

12. 212000A1.08 001

Unit 3 scrammed due to a spurious Group 1 isolation. The Mode Switch is in Shutdown and all rods are inserted. Reactor water level has been restored to the normal operating band. The Unit Supervisor has ordered the Reactor Operator to reset the scram.

Which ONE of the following describes the status of the Backup Scram Valves when the Reactor Operator moves the "Reset" switch to the right?

Both Backup Scram Valves should be...

A. energized and OPEN.

B. de-energized and CLOSED.

C. energized and CLOSED.

D. de-energized and OPEN.

References: OPL171.028 Rev.13 pg 22

A,C and D are incorrect since the Backup Scram Valves should be de-energized and CLOSED.

B. Correct answer.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	RPS	Cog Level:	MEM 3.4/3.4
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

13. 214000K4.01 001

Which ONE of the following statements is describes the operation of the Rod Position Information System (RPIS)?

A. If both of the S52 and S00 normal full-in reed switches are closed the full core display will be backlit green and display 00.

B. The S48 full-out digital display reed switches also supply rod position input signals to the "CONTROL ROD OVERTRAVEL" alarm.

C. On an uncoupled control rod, the full core display will show position 49 and no red backlight if the rod is withdrawn to the overtravel position.

D. When a CRD is driven beyond the full-in position the S51 over-travel reed switch will be actuated. The full-core digital display for that rod will display 00 and be backlit green.

References: OPL171.029 Rev. 9 pg 19 and 20.

A. Correct answer.

B. Incorrect since the S50 switch provided indication for Rod Overtravel.

C. Incorrect since there is no position indication for an uncoupled control rod.

D. Incorrect since overtravel beyond full-in is --.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	RPIS SYSTEM	Cog Level:	MEM 3.0/3.1
Source:	B	Exam:	BF02301
Test:	C	Misc:	

14. 215004K4.01 001

A reactor startup is in progress on Unit 2 with the following conditions:

Mode Switch is in START/HOT STBY
IRM A is on range 2 with all other IRM's on range 3
The SRM's are partially withdrawn
SRM count rate ranges between 80 and 90 cps

The Reactor Operator attempts to withdraw control rod 24-33 but it will not move.

Which ONE of the following is the reason why the rod cannot be withdrawn?

A. SRM Downscale rod block.

B. Detector Wrong Position rod block.

C. SRM Hi rod block.

D. SRM Inop rod block.

References: OPL171.019 Rev.6 pg 21 and 22
Enabling Objective OPL171.019 #8

A. Incorrect since the SRM downscale rod block is <5 cps.

B. Correct answer.

C. Incorrect since the SRM Hi rod block is 6.8×10^4

D. Incorrect since SRM's are not INOP.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	SRM	Cog Level:	C/A 3.7/3.7
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

15. 215005K3.01 001

Which ONE of the following Mode Switch position and Nuclear Instrumentation signal combinations will cause ONLY a REACTOR CHANNEL "A" AUTO SCRAM?

A. RUN; 2/4 Voter A1 in TEST.

B. STARTUP; 2/4 Voter B2 in TEST.

C. RUN; IRM "G" Upscale.

D. STARTUP; Channel 2 OPRM PBA Trip and Channel 4 OPRM GBA Trip.

References: Tech Specs 3.3.1.1-1 pg 3.3-7 and 3.3-8
OPL171.148 Rev.7 pg 24-56

A. Correct answer.

B. Only required in Mode 1.

C. Incorrect since IRM Hi does not generate trip with Mode Switch in Run.

D. Only required in Mode 1.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	APRM	Cog Level:	MEM 4.0/4.0
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

16. 216000A2.14 001

During a startup the operators begin to raise recirculation pump flow.

How does raising recirc flow from 50% to 65% affect the Panel 9-5 RPV level indicators?

A. Emergency range indicated level will trend downward.

B. Narrow range indicated level will trend upward.

C. Emergency range indicated level will trend upward.

D. Narrow range indicated level will trend downward.

U-068-NO-03

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	LEVEL INSTRUMENTS	Cog Level:	C/A 2.9/2.9
Source:	B	Exam:	BF02301
Test:	C	Misc:	

17. 217000K2.02 001

Unit 2 is operating at 100% RTP when the 250VDC Reactor MOV Board B Logic Bus A de-energizes. An operator has been sent to investigate and reports that the feed breaker has failed.

Which ONE of the following describes the operation of HPCI and RCIC if reactor water level decreases to -45" under these conditions?

A. HPCI and RCIC will both automatically initiate but will not auto isolate if needed.

B. HPCI will automatically initiate but will not auto isolate if needed and RCIC will not automatically initiate.

C. Both HPCI and RCIC will not initiate automatically but may be operated manually.

D. HPCI will not automatically initiate and RCIC will automatically initiate but will not auto isolate if needed.

References: 2-ARP-9-3F pg 4
2-ARP-9-3C pg 2

A. Incorrect since RCIC initiation logic will not work.

B. Correct answer.

C. Incorrect since HPCI will still initiate automatically.

D. Incorrect since HPCI will automatically initiate and RCIC will NOT automatically initiate.

NOTE: RCIC and HPCI recieve an initiation signal when RWL reaches -45".

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	RCIC SYSTEM	Cog Level:	C/A 2.8/2.9
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

18. 218000K6.06 001

Various electrical malfunctions have occurred on Unit 2. Existing conditions are as noted:

- 480V S/D Bd 2A deenergized
- 480V RMOV Bd 2C deenergized
- 250V RMOV Bd 2B deenergized

Which ONE of the following identifies the systems that are still available?

A. ADS, HPCI, RCIC

B. CS Loop I, RHR I, RCIC

C. RHR Loop I, ADS, HPCI

D. CS Loop II, RHR Loop II, HPCI

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	480V DISTRIBUTION	Cog Level:	C/A 3.4/3.6
Source:	B	Exam:	BF02301
Test:	C	Misc:	

19. 223001A2.11 001

Unit 3 is being shutdown due to Suppression Chamber water level outside the Tech Spec operating band. The following conditions exist for Unit 3:

Reactor Power	23% RTP
Suppression Chamber level	15 feet increasing at 1 ft/15 minutes
Current Time	0800
Drywell Pressure	1.5 psig (venting)

Predict which ONE of the following actions will be required per EOI-2 Primary Containment Control.
(Refer to EOI-2 Primary Containment Control)

A. Be in Mode 3 within 12 hours and in Mode 4 within 36 hours.

B. Scram the reactor and lower RPV pressure <900 psig by 0830.

C. Commence Emergency Depressurization when Suppression Chamber level exceeds 18 feet.

D. Scram the reactor and secure venting the containment.

References: EOI-2 Primary Containment Control Rev.6

A. Incorrect since EOI-2 doesn't direct when to be in Mode 3 or Mode 4.

B. Correct answer.

C. Incorrect since when the 18 ft level is reached then EOI-2 directs you to determine if the Curve 4 parameters can be maintained in the safe region.

D. Incorrect since EOI-2 doesn't direct securing containment venting.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	SUPPRESSION CHAMBER	Cog Level:	C/A 3.6/3.8
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

20. 223002K3.16 001

Unit 3 is in a refueling outage with Shutdown Cooling in operation on RHR Sys II. A spurious Group II isolation is initiated by the Instrument Techs while performing a surveillance. All isolation actions operate as designed.

Which ONE of the following describes the actions to take to allow re-opening *3-FCV-74-67, RHR SYS II LPCI INBD INJECT VLV*?

A. Isolation signal has been reset AND either Shutdown Cooling Suction Valve is fully closed.

B. RHR SYS II SD CLG INBD INJECT ISOL RESET pushbutton is depressed followed by the group II isolation signal being reset.

C. Either Shutdown Cooling Suction Valve fully closed followed by the RHR SYS II SD CLG INBD INJECT ISOL RESET pushbutton being depressed.

D. RHR SYS II SD CLG INBD INJECT ISOL RESET pushbutton is depressed followed by either Shutdown Cooling Suction Valve being fully closed.

References: 3-OI-74 Rev.52 pf 12
Enabling Objective OPL171.044 Rev.10 #B10

A. Incorrect since RHR SYS II SD CLG INBD INJECT ISOL RESET pushbutton must be depressed after either of the listed conditions clears.

B. Incorrect since RHR SYS II SD CLG INBD INJECT ISOL RESET pushbutton must be depressed AFTER the condition clears.

C. Correct answer.

D. Incorrect since RHR SYS II SD CLG INBD INJECT ISOL RESET pushbutton must be depressed AFTER the condition clears.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	RHR SYSTEM	Cog Level:	C/A 3.2/3.3
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

21. 226001K1.09 001

Unit 3 is at 90% RTP when a LOCA occurs. The following conditions are present in the Containment:

Drywell Pressure	12.5 psig
Drywell Temperature	260°F
Suppression Pool Level	16 ft
Suppression Pool Temperature	150°F

The Unit Supervisor has ordered Drywell Sprays to be initiated per *EOI-2, Primary Containment Control.*

Which ONE of the following describes the affect on Containment when Drywell Sprays are initiated? (Assume Suppression Chamber sprays have been initiated)

A. A large rapid reduction in Drywell pressure followed by the opening of the Reactor Building to Suppression Chamber vacuum breakers followed by the opening of the Suppression Chamber to Drywell vacuum breakers.

B. A slow reduction in Drywell pressure followed by the opening of the Reactor Building to Suppression Chamber vacuum breakers followed by the opening of the Suppression Chamber to Drywell vacuum breakers.

C. A slow reduction in Drywell pressure followed by the opening of the Suppression Chamber to Drywell vacuum breakers followed by the opening of the Reactor Building to Suppression Chamber vacuum breakers.

D. A large rapid reduction in Drywell pressure followed by the opening of the Suppression Chamber to Drywell vacuum breakers followed by the opening of the Reactor Building to Suppression Chamber vacuum breakers.

References: OPL171.044 Rev.10 pg 59

A. Incorrect since the Suppression Chamber to Drywell vacuum breakers open first.

B. Incorrect since the pressure reduction is rapid due to mainly steam in the Drywell.

C. Incorrect since the pressure reduction is rapid due to mainly steam in the Drywell.

D. Correct answer.

QUESTIONS REPORT

for Browns Ferry Questions

RO Tier:	T2G2	SRO Tier:	T2G1
Keyword:	SUPPRESSION CHAMBER	Cog Level:	C/A 3.0/3.1
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

22. 233000K1.02 001

Which ONE of the following is CORRECT regarding RHR Supplemental Fuel Pool Cooling?

A. The RHR pumps are preferred for use in this mode over the RHR drain pumps.

B. RHR Drain Pump B cannot be used to provide flow.

C. Should only be used when required to maintain Fuel Pool temperature below 125°F.

D. RHR pump suction is taken from the fuel pool cooling pump discharge line.

References: OPL171.052 page 25
2-OI-74 Rev. 107 pg 94
Enabling Objective #6

A. Incorrect since the drain pumps are preferred for use over the RHR pumps.

B. Incorrect since RHR Drain Pump B can be used for this function.

C. Correct answer.

D. Incorrect since the suction is taken from the Skimmer Surge Tank outlet.

Changed the correct answer to a totally different answer.

RO Tier:	T2G3	SRO Tier:	T2G3
Keyword:	FUEL POOL COOLING	Cog Level:	MEM 2.9/3.0
Source:	M	Exam:	BF02301
Test:	C	Misc:	TCK

23. 239001K5.08 001

DC power has been lost to a MSIV solenoid valve.

Which ONE of the following describes the effect on the MSIV?

A. The valve will close if open.

B. The valve will remain open if open.

C. The valve cannot be opened if closed.

D. The slow closure capability of the valve is lost.

References: OPL171.009 Rev.8 pg 26
NOTE: Modified the stem slightly and reordered answers.

A. Incorrect since the AC and DC solenoids must de-energize to close the valve.

B. Correct answer.

C. Incorrect since only ONE of the solenoid valves must be energized to operate the valve.

D. Incorrect since the solenoid valves do not affect the testing circuit.

RO Tier:	T2G2	SRO Tier:	T2G3
Keyword:	MAIN STEAM	Cog Level:	MEM 2.6/2.7
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

24. 239002K5.04 001

The following plant conditions exist:

Reactor Power	100% RTP
Reactor Pressure	1000 psig

Safety Relief Valve (SRV) 1-4 has lifted and failed to reseat.

Which ONE of the following SRV tailpipe temperatures would you expect to see on the SRV that failed to close? (References attached)

A. 212°F

B. 290°F

C. 345°F

D. 545°F

JUSTIFICATION

A. Incorrect since this is saturation temperature for steam at tailpipe pressure (atmospheric).

B. Correct answer. This is a throttling process and is therefore isenthalpic.

C. 340°F would be incorrectly determined if the candidate considered the process to be isenthalpic to the saturation line, then followed the constant superheat line to atmospheric pressure.

D. Incorrect since this is saturation temperature for reactor pressure.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	RELIEF VALVE	Cog Level:	C/A 3.3/3.5
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

25. 241000A4.11 001

Which ONE of the following is the controlling parameter that is illuminated on the Turbine Control Panel during a turbine roll to 1800 rpm?

A. Valve position.

B. Pressure.

C. Speed.

D. Load.

References: OPL171.228 Rev. 0 pg
Enabling Objective OPL171.228 #9

A, B and D are incorrect since SPEED is the controlling parameter until the turbine reaches "AT SET SPEED".

C. Correct answer.

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	EHC SYSTEM	Cog Level:	C/A 3.1/3.1
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

26. 245000K5.03 001

The main turbine shell is being warmed in accordance with GOI-100-1A, Unit Startup and Power Operation and OI-47, Turbine Generator System.

Which one of the following is the correct turbine valve configuration?

	CONTROL VALVES	STOP VALVES	INTRCPT STOPS	INTRCPT CONTROL
A.	Full open	1,3 & 4 closed (# 2 BP open)	Full closed	Full open
B.	Full open	1,3 & 4 closed (#2 BP open)	Full closed	Full closed
C.	Full closed	Full closed	Full open	Full open
D.	Full open	Full open	Full open	Full closed

Taskno: U-047-NO-02

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	TURBINE CONTROLS	Cog Level:	C/A 2.6/2.6
Source:	B	Exam:	BF02301
Test:	C	Misc:	

27. 259001A1.01 001

Unit 2 is at 100% RTP. A heater tube leak activates alarm *2-LA-6-4, HEATER A2 LEVEL HIGH.* The Operator checks the ICS screen and verifies a valid HIGH HIGH (Red) level. Heater level continues to rise.

Whigh ONE of the following describes the required Operator action and the response of the plant?

A. The Operator should be directed reduce Core Thermal Power and verify 2A2 heater high level dump valve to the main condenser OPENS.

B. The Operator should be directed to hold power constant and verify the 2A2 high level dump valve to the heater drain cooler OPENS.

C. The Operator should be directed to reduce Core Thermal Power and verify HP Heater 2A1 extraction isolation valve is OPEN.

D. The Operator should be directed to hold power constant and verify the drain inle flow from the 2A2 heater to the 2A1 heater is isolated.

References: 2-ARP-9-6A Rev.16 pg 10
Note: Modified from a question on the last exam.

A. Correct answer.

B. Incorrect since core thermal power should be lowered.

C. Incorrect since the drain for the 2A2 heater to the 2A1 heater should be open.

D. Incorrect since core thermal power should be lowered.

RO Tier:	T2G1	SRO Tier:	T2G2
Keyword:	FEEDWATER HEATERS	Cog Level:	C/A 3.3/3.3
Source:	M	Exam:	BF02301
Test:	C	Misc:	TCK

28. 262001K4.06 001

Unit 2 is operating at 100% RTP.

-A combination of errors cause an inadvertent Group 1 and Group 4 isolation.
-A loss of I&C 2A also occurs. Panel 9-9 cabinet 2 does not transfer.
-Reactor Water Level is currently at 22".
-The causing event for the group isolations is quickly corrected, however I&C cannot be restored.

Which ONE of the following lists the systems that can be utilized immediately to restore reactor water level?

A. RCIC and CRD only.

B. HPCI , RCIC and CRD.

C. Core Spray, HPCI, and RCIC.

D. Reactor Feed Pumps, RCIC and CRD.

References: 2-AOI-57-5A, Rev. 37 pg 2 and 3
Bank question - Revised answers slightly and reworded last portion of stem.

A. Incorrect since HPCI is also available for injection since the Group 4 isolation is able to be reset even with a loss of I&C A.

B. Correct answer.

C. Incorrect since Core Spray cannot be used with reactor at normal operating pressure.

D. Incorrect since Reactor Feedwater Pumps are not available due to Group 1 isolation not being able to be reset until I&C A is restored.

RO Tier:	T2G2	SRO Tier:	T2G1
Keyword:	AC DISTRIBUTION	Cog Level:	C/A 3.6/3.9
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

29. 262002K6.02 001

Unit 2 UPS Distribution Bus Battery Board 2 Panel 11 has just de-energized.

Which ONE of the following describes the effect this has on the equipment that is supplied by Panel 9-9 Cabinet 6?

A. The equipment is de-energized until power to Panel 9-9 Cabinet 6 is manually transferred to Batt Bd 3 Panel 11.

B. The equipment is de-energized until power is restored to Batt Bd 2 Panel 11.

C. The equipment remains energized due to power supply to Panel 9-9 Cabinet 6 auto transfers to Batt Bd 3 Panel 11.

D. The equipment remains energized due to MMG power supply automatically transferring to its 250VDC supply.

References: OPL171.102 Rev.4 pg 14 and 15
Enabling Objective OPL171.102 #2a and 2b

A. Incorrect since the equipment remains energized due to auto transfer.

B. Incorrect since the equipment remains energized due to auto transfer.

C. Correct answer.

d. Incorrect since the MMG set power supply does not affect the power to Panel 9-9.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	480V DISTRIBUTION	Cog Level:	MEM 2.8/3.1
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

30. 263000K1.04 001

The Unit 2 Unit Operator receives alarm *BAT BD 2 BKR TRIPOUT/FUSE BLOWN OR GROUND*.

Which ONE of the following describes where the Field Operator would be sent to check for a ground?

A. Battery Board Room No. 2, 250V Charger 2A panel.

B. 250V DC Distribution Panel SBA.

C. Battery Board Room No. 2, Panel 1.

D. 4KV Shutdown Bd 250V DC Distribution Panel SD-3EB.

References: 2-ARP-9-8C Page 8 Tile #7
0-OI-57D Rev.62 Pg 42, 46 and 47.

C. Correct answer.

A, B and D. Plausible distractors.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	GROUND DETECTION	Cog Level:	MEM 2.6/2.9
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

31. 264000A1.03 001

Diesel Generator 3A is synchronized to 4KV Shut Down Board 3A. The instrumentation readings for the diesel generator are as follows:

voltage: 4160 VAC
frequency = 59.8
current = 340 amps
vars = 1600 Kvars
watts = 2585 KW
oil temp = 145°F

Which ONE of the following actions are required if the diesel is expected to be operated for an extended period?

A. The operator must take the voltage regulator control switch to raise to avoid excessive stator currents.

B. The operator must take the voltage regulator control switch to lower to avoid excessive stator currents.

C. The operator must take the governor control switch to lower to avoid excessive field current.

D. The operator must take the governor control switch to raise to avoid excessive field current.

References: OI-82
OPL171.038 Rev. 9, page 31

RO Tier:	T2G1	SRO Tier:	T2G1
Keyword:	DIESEL GENERATOR	Cog Level:	C/A 2.8/2.9
Source:	B	Exam:	BF02301
Test:	C	Misc:	

32. 268000A4.01 001

Given the following information along with *2-SR-2, Instrument Checks and Observation Rev.29 pg 20:*

Unit 2 has been at 100% RTP for 3 weeks.

Current 2-FQ-77-6 Reading at 0800	63624.3
Previous Days 2-FQ-77-6 Reading at 0800	63125.4
Previous Days Leakrate	.34 gpm

Which ONE of the following describes the status of the LEAKAGE limits?

A. No limits are being exceeded.

B. Increase in unidentified LEAKAGE limit is being exceeded.

C. Unidentified LEAKAGE limit is being exceeded.

D. Increase in unidentifed LEAKAGE and unidentified LEAKAGE limit are both being exceeded.

References: 2-SR-2 Rev.29 pg 20

A. Incorrect since increase in LEAKAGE limit is being exceeded at 3.12 gpm. Limit is $\leq$ 2 gpm. If use decimal point when subtracting readings then this would be the answer that the student would get. Procedure says to ignore decimal point.

B. Correct answer. Increase in LEAKAGE is at 3.12 gpm and limit is $\leq$ 2 gpm.

C. Incorrect since the increase in LEAKAGE is the only limit not met.

D. Incorrect since the increase in LEAKAGE is the only limit not met.

RO Tier:	T2G3	SRO Tier:	T2G3
Keyword:	LEAKAGE LIMITS	Cog Level:	C/A 3.4/3.6
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

33. 271000K3.02 001

Which ONE of the following describes the effect on Offsite Release Rates and the reason why if the Off-Gas System Glycol pumps fail?

A. Offsite Release Rates will INCREASE due to the Charcoal Adsorbers becoming less efficient.

B. Offsite Release Rates will DECREASE due to better H_2O_2 Recombination.

C. Offsite Release Rates will INCREASE due to the Off-Gas Condenser becoming less efficient.

D. Offsite Release Rates will DECREASE due to the Charcoal Adsorbers becoming more efficient.

References: OPL171.030 Rev. 13 Pg 29 and 31

A. Correct answer. The glycol cools the Cooler Condenser which is used to remove moisture from the gases entering the Charcoal Adsorbers. Water is a poison to the adsorbers so if the gases contain more moisture then the adsorbers are less efficient.

B. Incorrect since the glycol system has no affect on the Recombiners.

C. Incorrect since the Condensate System supplies cooling to the Off-Gas condenser.

D. Incorrect since the Charcoal Adsorbers become less efficient.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	OFF-GAS SYSTEM	Cog Level:	C/A 3.3/3.9
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

34. 286000A3.01 001

The following conditions currently exist on Unit 2:

- A fire at one station service transformer has actuated the water spray system.
- Fire header pressure has been 115 psig for 35 seconds after the spray system actuated.
- All system controls are in a normal lineup.

Based on these conditions, the diesel fire pump....

A. and all three electric fire pumps are operating.

B. and two of the three electric fire pumps are operating.

C. is in standby and all three electric fire pumps are operating.

D. and two electric fire pumps are in standby; the selected electric fire pump is operating.

References: OPL171.049 Rev. 12 pg 43
Enabling Objective (HLT) 5
0-OI-26 Rev. 55 pg 10

A. Incorrect since the diesel fire pump doesn't start until 45 seconds after pressure is below 120#.

B. Incorrect since the diesel fire pump doesn't start until 45 seconds after pressure is below 120#.

C. Correct answer.

D. Incorrect since all of the electric fire pumps should be running.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	FIRE PROTECTION	Cog Level:	C/A 3.4/3.4
Source:	M	Exam:	BF02301
Test:	C	Misc:	TCK

35. 290001A3.01 001

Which ONE of the following conditions will cause the Reactor Bldg ventilation fans to trip and isolate?

A. Reactor water level reaches +14 inches on a scram.

B. Drywell pressure reaches 2.3 psig before the Drywell can be vented.

C. Reactor Bldg static pressure reaches +.6 inches of water due to high winds.

D. Reactor Zone exhaust duct radiation level reaches 62 mR/hr due to a steam leak.

References: OPL171.016 Rev.12 pg 62 and 63

A. Incorrect since the isolation setpoint for RWL is +11.2".

B. Incorrect since the isolation setpoint for Drywell High pressure is +2.45 psig.

C. Correct answer.

D. Incorrect since the isolation setpoint for exhaust duct hi rads is 72 mR/hr.

RO Tier:	T2G2	SRO Tier:	T2G1
Keyword:	SECONDARY CONTAINMEN	Cog Level:	MEM 3.9/4.0
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

36. 290002K4.03 001

Which ONE of the following describes the design and purpose of the orificing in the lower section of the reactor core?

A. All orifices are the same size to ensure all bundles have the same flow.

B. The interior bundles have more orifices to ensure equalized core flow at high power levels.

C. Center portions of the core have smaller orifices to ensure the neutron thermalization is equalized across the core.

D. The outer portions of the core have smaller orifices to ensure adequate cooling in the interior fuel bundles at high power levels.

References: OPL171.002 Rev.5 pg 24-26
Enabling Objective OPL171.002 #2

A. Incorrect since all orifices are not the same size.

B. Incorrect since more orifices are not provided but larger orifices are provided.

C. Incorrect since center orifices are larger than outer orifices.

D. Correct answer.

RO Tier:	T2G3	SRO Tier:	T2G3
Keyword:	VESSEL INTERNALS	Cog Level:	MEM 3.2/3.3
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

37. 295002AA1.05 001

The following plant conditions exist on Unit 2:

- Reactor mode switch: STARTUP/HOT STANDBY
- Main turbine: Shell warming
- Feedwater lineup: RFP A maintaining level in single element

Which ONE of the following statements describes the expected sequence of actions as a condensate system leak causes condenser vacuum to decrease from 24 inches Hg Vacuum to atmospheric pressure?

A. The RFP turbine trips, then later, the turbine bypass valves close, followed by a reactor scram on low condenser vacuum.

B. The RFP turbine trips and the main turbine bypass valves close at the same time, then later, the Main Turbine trips.

C. The Main Turbine trips, then later, the RFP turbine trips and the main turbine bypass valves close at the same time.

D. The Main Turbine trips and the reactor scrams in response to the turbine trip, then later, the RFP turbine trips and Main Turbine bypass valves close at the same time.

JUSTIFICATION

a. There is no reactor scram on low main condenser vacuum.
b. A true statement at 7" Hg Vac; however, this is preceded by a main turbine trip at 21" Hg Vac.
c. Correct answer.
d. The reactor won't trip on a turbine trip below 30% RTP.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	MAIN TURBINE	Cog Level:	C/A 3.2/3.2
Source:	B	Exam:	BF02301
Test:	C	Misc:	

38. 295003AK1.02 001

Unit 2 is at 100% power and has a special test in progress with the C D/G tied to 4KV SD Bd C as the sole source. The following occurs:

MSIVs go closed due to high steam tunnel temperature.
All rods do not insert.
Reactor pressure is 800 psig.
Reactor power is 2.5%.
Reactor level is -45".

If reactor water level decreased to -122 inches, which ONE of the following describes the effect this would have on the RBCCW system?

A. Both pumps trip, 2A will auto restart in 40 seconds.

B. RBCCW pump 2B will trip, pump 2A not effected.

C. Both pumps trip and auto restart in 40 seconds.

D. No effect on the system.

References: OPL171.072 Rev. 8 pg 7 & 15
Enabling Objective OPL171.072 #4
Bank Question - Comment: 480V load shed will occur due to C diesel, only 2A pump auto restarts.

A. Correct answer since the D/G is the sole power supply to the Shutdown Board and water level reaches 122".

B. Incorrect since both pumps trip and the 2A restarts after 40 seconds.

C. Incorrect since the 2B pump restarts automatically only if the 2A pump fails to start.

D. Incorrect since the RBCCW pumps trip due to D/G tied to the Shutdown Board and water level reaches -122".

RO Tier:	T1G2	SRO Tier:	T1G1
Keyword:	LOAD SHED	Cog Level:	C/A 3.1/3.2
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

39. 295004AA1.03 001

Unit 2 was operating at 100% power when a reactor scram occurrs. The following plant conditions exist:

Main turbine is tripped.
Main generator PCBs are closed.
Position indication for DC powered RCIC valves is out.
CORE SPRAY SYS I LOGIC POWER FAILURE annunciator is lit.

Which ONE of the following is the likely cause of this event?

A. Loss of 250 VDC RMOV Bd "A".

B. Loss of 250 VDC RMOV Bd "B".

C. Loss of 250 VDC RMOV Bd "C".

D. Loss of 250 VDC Turb Bldg Dist. Bd 2.

References: 2-ARP-9-8C #11
0-OI-57D Rev.

This is a bank question. B is the correct answer. Not verified yet.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	250 VDC	Cog Level:	MEM 3.21/3.5
Source:	B	Exam:	BF02301
Test:	C	Misc:	

40. 295007AK1.01 001

Unit 2 has scrammed with the following conditions present:

All rods inserted.
Reactor pressure 475 psig
Reactor water level +53"
Shutdown Board "A" de-energized
MSIV's open

Which ONE of the following lists the systems able to inject at this time?

A. HPCI, RCIC, 2A CRD Pump.

B. Reactor Feedwater Pumps, 1B CRD Pump, SLC.

C. SLC, Reactor Feedwater Pumps, 2A CRD Pump.

D. Core Spray, RHR, HPCI.

References: OPL171.026 Rev.11 pg 25
OPL171.040 Rev.18 pg 27
OPL171.042 Rev.16 pg 41
OPL171.044 Rev.10 pg 26
OPL171.045 Rev.11 pg 15

A. Incorrect since HPCI and RCIC are isolated due to reactor high water level.

B. Incorrect since 1B CRD Pp does not have power.

C. Correct answer.

D. Incorrect since Core Spray and RHR injection permissive is 450# and HPCI is isolated due to high reactor water level.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	REACTOR LEVEL	Cog Level:	C/A 2.9/3.2
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

41. 295008AK1.02 001

The Unit 3 reactor has received a spurious scram signal. During recovery actions the crew identifies that reactor water level is +117 inches. Reactor pressure is stable at 780 psig.

Based on this condition, which ONE of the following actions should the operators immediately perform?

A. Reduce reactor water level using RWCU.

B. Trip any operating CRD pump.

C. Isolate HPCI and RCIC.

D. Close the MSIVs.

References: 3-OI-1 Rev. 0017 pg 6
Added reactor pressure in the stem for clarification.

A. Incorrect since this does not need to be performed immediately. Throttle condensate or trip RFP's as necessary to control RWL.

B. Incorrect since CRD mechanisms still need to be cooled. Procedures direct to secure feedwater along with other injection systems.

C. Incorrect since these systems should have isolated on Hi water level.

D. Correct answer since the water level is above the main steam lines and reactor pressure is greater than 50 psig.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	MSIV	Cog Level:	C/A 2.8/2.8
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

42. 295009AK2.01 001

Unit 2 is making preparations to perform a startup after a maintenance outage. Reactor vessel level is being maintained at +33" with Shutdown Cooling still in service. Both Recirc Pumps are on at minimum speed.

Which ONE of the following is the most accurate level indicator under these conditions?

A. LI 3-53 (0 to +60) on the 9-5 panel.

B. LI 3-58A (-155 to +60) on the 9-5 panel.

C. LI 3-55 (0 to +400) on the 9-3 panel.

D. LI 3-52 (-268 to +32) on the 9-3 panel.

References: OPL171.003 Rev. 15 pg 19-21

A. Incorrect since instrument is calibrated at normal operating temperatures and pressures.

B. Incorrect since instrument is calibrated at normal operating temperatures and pressures.

C. Correct answer since the instrument is calibrated under cold conditions.

D. Incorrect since level band does not reach +33 inches.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	LEVEL INSTRUMENTS	Cog Level:	C/A 3.9/4.0
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

43. 295010AA1.01 001

Which ONE of the following conditions would prevent the Drywell Air Cooler fans from operating?

A. Drywell pressure at 2.25 psig with reactor pressure at 435 psig.

B. Reactor water level at -110" with reactor pressure at 425 psig.

C. Reactor water level at +1" with reactor pressure at 475 psig.

D. Drywell pressure at 2.55 psig with reactor pressure at 440 psig.

References: OPL171.016 Rev.12 pg 70
OPL171.045 Rev.11 pg 12

A. Incorrect since Drywell pressure is below 2.45 psig.

B. Incorrect since Reactor water level is greater than -122".

C. Incorrect since Reactor water level is greater than -122" and pressure is greater than 450 psig.

D. Correct answer since Drywell pressure is greater than 2.45 psig and Reactor pressure is less than 450 psig.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	DRYWELL COOLING	Cog Level:	MEM 3.8/4.0
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

44. 295012AK2.01 001

The Unit 2 Reactor Operator notices that the Drywell Temperature is increasing slowly as reactor power is increased. He verifies the normal Drywell Cooling Units are in operation on Panel 2-9-25.

Which ONE of the following indicates the normal lineup of the Drywell Cooler Fans and the Drywell temperature that should be maintained?

A. 3 of 5 cooling units in each train should be operating and attempting to maintain Drywell temperature less than or equal to 150°F.

B. 4 of 5 cooling units in each train should be operating and attempting to maintain Drywell temperature less than or equal to 135°F.

C. All the Drywell cooling units should be in operation and attempting to maintain Drywell temperature less than or equal to 135°F.

D. 4 of 5 cooling units in each train should be operating and attempting to maintain Drywell temperature less than or equal to 150°F.

References: 2-OI-64 Rev.74 pg 13

A. Incorrect since 4 of 5 coolers should be operating in each train trying to maintain temp less than 135°F.

B. Correct answer.

C. Incorrect since 4 of 5 coolers should be operating in each train trying to maintain temp less than 135°F.

D. Incorrect since the coolers should be trying to maintain temp less than 135°F.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	DRYWELL COOLING	Cog Level:	MEM 3.4/3.5
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

45. 295013AK3.02 001

Which ONE of the following describes why the reactor must be shutdown immediately if the Suppression Pool temperature reaches >110°F?

A. To ensure that the design pressure of 56 psig is not reached during a Design Basis Accident.

B. To ensure that the pool is not heated beyond design limits by the steam generated if the reactor is not shutdown.

C. To maintain HPCI and RCIC OPERABLE since they exhaust into the suppression pool.

D. This ensures that the non-condensibles will remain in the suppression pool air space following a Design Basis Accident.

References: Tech Spec Bases 3.6.2.1, Suppression Pool Average Temperature pg B 3.6-57.

A. Incorrect since the design pressure that is being protected is 62 psig.

B. Correct answer.

C. Incorrect since pool temperature does not affect the operation of HPCI and RCIC.

D. Incorrect since the temperature limit also ensures that complete steam condensation occurs.

RO Tier:	T1G2	SRO Tier:	T1G1
Keyword:	SUPPRESSION CHAMBER	Cog Level:	MEM 3.6/3.8
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

46. 295014AA1.03 001

A startup is in progress with the RWM bypassed. A shift turnover has just been completed when the on coming peer check notices that two rods in RWM Group 6 (16-48) are at position 16 and the operator is pulling rods in Group 16.

Which ONE of the following describes the proper action to take?

A. Insert a manual scram.

B. Verify no indications of fuel damage and continue withdrawal of rods.

C. Stop rod withdrawal and notify the Shift Manager, Shift Technical Advisor, Operations Superintendent, and Reactor Engineer.

D. With the concurrence of the Reactor Engineer and Shift Manager withdraw the control rods to their required position and continue the startup.

References: 2-AOI-85-7, Section 4.2.1-4.2.3, rev. 14

A. Incorrect since this is not a required action.

B. Incorrect since must recover mispositioned control rods prior to normal rod withdrawal.

C. Correct answer. Operator must determine that control rod is mispositioned otherwise he doesn't notify the Operations Superintendent.

D. Incorrect since must notify other individuals prior to withdrawing mispositioned control rods to their correct position.

Note: Reworded stem slightly and reordered answers.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	REACTIVITY ADDITION	Cog Level:	MEM 3.5/3.5
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

47. 295015AK2.09 001

Unit 3 has received a Scram signal and all of the control rods fully inserted except one rod is still at position 48.

Per *3-AOI-100-1, Reactor Scram* which ONE of the following actions would detect this condition?

A. Verifying the "ONE ROD PERMISSIVE" light is lit with the Mode Switch in Shutdown.

B. Verifying the "ONE ROD PERMISSIVE" light is out with the Mode Switch in Refuel.

C. Pausing in START/HOT STBY for 5 seconds when moving the Mode Switch to Refuel.

D. Move the Mode Switch to Shutdown and back to Refuel to look for the "ONE ROD PERMISSIVE" light to be lit.

References: 3-AOI-100-1 Rev.29 pg 2

A. Incorrect since the ONE ROD PERMISSIVE light should only light with all rods in and the Mode Switch in Refuel.

B. Correct answer.

C. Incorrect since this action is taken if the scram is due to a loss of RPS.

D. Incorrect since there is no direction to move the Mode Switch back to Refuel once it is in Shutdown.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	REACTOR SCRAM	Cog Level:	MEM 3.5/3.6
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

48. 295016AA1.08 002

The control room has been abandoned.
All MSRV transfer switches at panel 25-32 have been placed in EMERGENCY.
All MSRV control switches at panel 25-32 have been checked in CLOSE.

Which ONE of the following statements below describes the operation of these MSRVs?

A. The associated ADS valves will open upon receipt of an ADS initiation signal.

B. Any associated ADS valve will open only when its control switch is placed in OPEN.

C. The associated ADS valves will open if their respective pressure relief setpoints are exceeded.

D. The associated ADS valves will open if their respective control switches on panel 9-3 are placed in OPEN.

References: OPL171.009 Rev.8 pg 22
Enabling Objective OPL171.009 #3

A. Incorrect since automatic operation of ADS is prevented with transfer switches in EMERGENCY.

B. Incorrect since valves will open when the pressure setpoint is reached.

C. Correct answer.

D. Incorrect since function from the 9-3 Panel is prevented with transfer switches in EMERGENCY.

RO Tier:	T1G2	SRO Tier:	T1G1
Keyword:	ADS	Cog Level:	MEM 4.0/4.0
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

49. 295018AK3.03 001

Unit 2 is operating at 100% RTP. Alarm "RECIRC PUMP A COOLING WATER FLOW LOW" is received at 8:07 am on 10/22/02. It is confirmed that RBCCW Seal Cooling is lost to the 2A Recirc Pump but CRD seal purge is still in operation.

Which ONE of the following describes the actions that should be taken and the reason for that action?

A. Monitor seal temperatures and no further action is required; the Recirc Pump can be operated indefinitely under these conditions.

B. Restore RBCCW seal cooling by 8:14 am or Trip the 2A Recirc Pump; Recirc seal temperatures will exceed 200°F after 7 minutes.

C. Trip the 2A Recirc Pump immediately; Recirc seal temperatures will exceed 200°F in a short period of time.

D. Reduce 2A Recirc Pump speed to minimum by 8:14 am; the Recirc Pump can be operated indefinitely at minimum speed under these conditions.

References: 2-OI-68 Rev 91 pg 11
2-ARP-9-4A Rev. 18 pg 37

A. Correct answer.

B. Incorrect since the 7 minute time frame is when both CRD and RBCCW are lost to the Recirc Pump seals.

C. Incorrect since the Recirc Pump only needs to be tripped if seal cavity temperatures exceed 200°F.

D. Incorrect since the speed of the Recirc Pump doesn't need to be reduced.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	RECIRC SYSTEM	Cog Level:	C/A 3.1/3.3
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

50. 295020AA1.03 001

Unit 2 is holding load at 24% RTP after starting up from a refueling outage. Drywell inerting is in progress per *2-OI-76, Containment Inerting System.* A Scram occurs from Scram Air Header Low Pressure with the following conditions present:

- Oxygen concentration at 7% by volume and decreasing.
- Leak has been isolated.
- Mode Switch is in Shutdown.
- All rods are inserted.
- No entry conditions have been met for the EOI's.

Concerning the Drywell, which ONE of the following describes the status of inerting the containment?

A. Drywell inerting has been isolated due to a containment isolation when reactor water level decreased to +0" on the scram.

B. Drywell inerting has been isolated due to the Mode Switch being taken out of Run on the scram.

C. Drywell inerting is still in progress since there has not been an isolation signal processed for this event.

D. Drywell inerting is still in progress but will isolate when the PC PURGE DIV I AND II RUN MODE BYPASS switches are taken to NORMAL.

References: OPL171.032 Rev.10 pg 14-17
Enabling Objective OPL171.032 #4
2-OI-76 Rev.46 pg 10

A. Incorrect since reactor water level did not reach 0". Stem says no EOI's have been entered.

B. Incorrect since valves do not close when Mode Switch is taken out of Run.

C. Correct answer.

D. Incorrect since Mode Switch is no longer in Run.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	CONTAINMENT	Cog Level:	C/A 2.9/3.1
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

51. 295023AK3.02 001

Interlocks or limit switches on the refueling equipment are provided for specific protective functions.

Which ONE of the following describes these protection devices?

A. The Refueling Interlocks are not required during fuel handling as long as there is a second qualified individual performing the functions of the interlocks.

B. Jumpering a refueling interlock should not cause the refuel bridge operator any concern as long as a TACF tag is clearly visible at the controls.

C. Switches and interlocks act as a backup protection rather than principle means for stopping travel of the refueling equipment.

D. Fuel handlers may rely on limits and interlocks to terminate refuel equipment travel, as long as they are within their surveillance frequency.

References: 0-GOI-100-3A Rev. 29 pg 14

A. Incorrect because Tech Specs do not allow for a second qualified individual to take the place of the refueling interlocks.

B. Incorrect since jumpering interlocks is a concern.

C. Correct answer.

D. Incorrect since the operators should not rely on the interlocks.

RO Tier:	T1G3	SRO Tier:	T1G1
Keyword:	REFUELING	Cog Level:	MEM 3.4/3.8
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

52. 295024EK1.01 001

Given the following conditions:

- Suppression Chamber pressure	53.0 psig
- Drywell temperature	350°F
- RPV pressure	425 psig

Which ONE of the following is the reason why the Drywell or the Suppression Chamber is vented under these conditions irrespective of offsite release rates?

A. Pressure capability of the containment will be reached if Suppression Chamber pressure reaches 55 psig.

B. ✓ The maximum containment pressure that the vent valves can be opened and closed to reject decay heat will be reached at 55 psig.

C. The maximum containment pressure that the MSRV's can be opened and remain open will be reached at 55 psig.

D. Chugging is prevented if the containment is vented prior to reaching 55 psig.

References: OPL171.203 Rev. 5 pg 29 and 36
Enabling Objective OPL171.203 #8

A. Incorrect since the pressure capability of the containment is approx. 100 psig.

B. Correct answer.

C. Incorrect since the pressure limit for the MSRV's is 65 psig.

D. Incorrect since chugging depends on the amount of non condensibles in the containment.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	CONTAINMENT	Cog Level:	MEM 4.1/4.2
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

53. 295025EK1.06 001

The Unit 2 Mode Switch is in the S/U position with the Unit at normal operating pressure and temperature following a short maintenance outage. The RVLIS system is out-of-service at this time. The Wide Range level instruments (+60 to -155") are reading approximately +34" at this time.

Which ONE of the following describes the accuracy of the instruments under these conditions?

A. The instruments are showing accurate level indication due to being calibrated for normal operating pressure and temperature.

B. The instruments are NOT showing accurate level indication due to being calibrated for cold shutdown conditions.

C. The instruments are showing accurate level indication because they are within the level range of the instruments.

D. The instruments are NOT showing accurate level indication because the RVLIS system is not providing flow to the reference leg fill lines.

Reference: OPL171.003 Rev. 15 pg 20

A. Correct answer.

B. Incorrect since the instruments are calibrated for hot conditions.

C. Incorrect since being within the indicated range doesn't mean that the instrument is accurate.

D. Incorrect since RVLIS has no affect on how the instrument reads. It does have an affect on the indication when a rapid depressurization occurs.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	LEVEL INSTRUMENTS	Cog Level:	C/A 3.9/4.0
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

54. 295028EK3.01 001

Which ONE of the following describes the reason why Emergency Depressurization is required if Drywell Temperature cannot be maintained below 280°F?

A. At this temperature all of the RPV level instruments are affected such that there is no reliable level indication and RPV flooding is required.

B. Primary Containment has reached the structural design limit and actions are required to minimize further release of energy from the RPV.

C. Ensures the equipment in the Drywell that is required to reach cold shutdown conditions remains operable by terminating heat input into the containment.

D. Above 280°F containment failure is emminent which would cause the release rates at the site boundary to reach 10 CFR 100 limits.

References: OPL171.203 Rev.5 pg 26

A. Incorrect since these conditions do not make all of the level instruments unreliable.

B. Correct answer.

C. Incorrect since the containment is threatened and not the EQ equipment.

D. Incorrect since containment failure is not emminent and it would not cause the 10 CFR limits to be exceeded.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	EOI INSTRUCTIONS	Cog Level:	MEM 3.6/3.9
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

55. 295029EK1.01 001

Unit 2 is operating at 100% RTP. The Suppression Pool water level is required to be maintained at ≥ -6.25 inches and ≤ 1.0 inches per Tech Specs.

Which ONE of the following is available to protect the containment against overpressurization if Suppression Pool water level is allowed to go above the maximum level?

A. Suppression Chamber-to-Drywell Vacuum Breakers.

B. Reactor Building-to-Suppression Chamber Vacuum Breakers.

C. Drywell Spray system.

D. Residual Heat Removal (RHR) Suppression Pool Cooling System.

References: Tech Spec Bases Section B 3.6.2.2 pg B 3.6-66

A. Incorrect since these valves protect the Drywell from negative pressure upon inadvertent operation of the Drywell Spray system.

B. Incorrect since these valves protect the Suppression Chamber from negative pressure upon inadvertent operation of the Suppression Pool Spray system.

C. Correct answer.

D. Incorrect since this system is needed to maintain the containment within design temperature limitations.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	PRIMARY CONTAINMENT	Cog Level:	C/A 3.4/3.7
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

56. 295030EA1.02 002

Unit 2 has had an event with the following conditions present:

Reactor Water Level	-60" and steady
Reactor Pressure	920 psig
Suppression Chamber Level	9 ft
Drywell Pressure	1.3 psig
Suppression Pool Temperature	98°F
RCIC Pump Room Temperature	150°F

Operator reports leak on suction header of Torus.

The Unit 2 Reactor Operator reports that the RCIC turbine has tripped.

Which ONE of the following is the most likely cause of the turbine trip?

A. High RCIC Pump room temperature.

B. High RCIC exhaust pressure.

C. Low suction pressure.

D. High Reactor Water Level.

References: OPL171.040 Rev.18 pg 29 and 30
Enabling Objective OPL171.040 #5

A. Incorrect since the High RCIC Room Temperature isolation is at 160°F.

B. Incorrect since high exhaust pressure can't happen if Drywell pressure is low.

C. Correct answer based on low Drywell pressure and low torus level.

D. Incorrect since the High Reactor Water Level trip is +51".

RO Tier:	T1G2	SRO Tier:	T1G1
Keyword:	RCIC SYSTEM	Cog Level:	C/A 3.4/3.5
Source:	N	Exam:	BF02301
Test:	C	Misc:	

57. 295030EK2.01 001

Unit 3 EOI-2, "Primary Containment Control", has the operators perform the following action if suppression pool water level CANNOT be maintained above 12.75 feet.

Secure HPCI irrespective of adequate core cooling.

Which ONE of the following HPCI system responses will this action prevent?

A. Overpressurization of the primary containment.

B. Loss of back pressure on the exhaust line.

C. HPCI exhaust check valve chatter.

D. Unstable HPCI operation.

References: OPL171.203 Rev 5 pg 50 & 51
Enabling Objective OPL171.203 #7

A. Correct answer.

B. Incorrect since the exhaust line will still have the backpressure from the torus airspace.

C. Incorrect since water level in the torus doesn't affect the HPCI exhaust check valve.

D. Incorrect since torus water level doesn't affect HPCI operation.

Note: Reordered answers.

RO Tier:	T1G2	SRO Tier:	T1G1
Keyword:	HPCI	Cog Level:	MEM 3.8/3.9
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

58. 295031EK3.05 001

A loss of all high pressure injection systems has resulted in RPV level lowering to TAF. An emergency RPV depressurization has been directed.

Which ONE of the following states the reason that a minimum of 4 MSRVs must be opened?

A. Ensures that sufficient steam flow will exist to remove decay heat at low enough pressure for the lowest head ECCS pump to make up for steam flow.

B. Ensures that at the worst case in core life, the APLHGR thermal limit will not be exceeded and inhibit adequate radiant heat transfer.

C. Ensures that the reactor will be depressurized to below ECCS shut off head before the RPV level reaches two thirds core height.

D. Prevents exceeding 1% plastic strain on the hottest fuel pin in the core allowing fuel cladding failure to release radioactive fission products.

References: OPL171.205 Rev. 4 pg 29

A. Correct answer.

B,C and D are incorrect since 4 relief valves open do not affect these conditions.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	EMERG DEPRESS	Cog Level:	MEM 4.2/4.3
Source:	B	Exam:	BF02301
Test:	C	Misc:	

59. 295032EK3.03 001

Which ONE of the following is the basis for the Main Steam Line (MSL) Tunnel high temperature isolation?

A. Protect the integrity of the secondary containment and ensure the continued operability of safe shutdown equipment.

B. Prevent exceeding the Environmental Qualification temperature limits on the MSIV control air solenoids.

C. Minimize radioactive releases to the environment and limit the inventory loss from the reactor under all accident conditions.

D. Limit the escape of radioactivity from the MSL Tunnel to the Reactor Building HVAC system.

PCIS purpose

BSEP BANK LOI-CLS-LP-012A*017001

RO Tier:	T1G3	SRO Tier:	T1G2
Keyword:	MAIN STEAM	Cog Level:	MEM EK3.03
Source:	B	Exam:	BF02301
Test:	C	Misc:	

60. 295033EK2.01 002

Unit 2 is in a Refueling outage with work in progress on the Turbine Floor. When the High Pressure Turbine casing is removed the radiation levels increase significantly.

Which ONE of the following describes the indications available to the Control Room Operator and the actions required to be taken?

A. Turbine Bldg ventilation trips and isolates. The Control Room Operator announces evacuation of turbine floor and contacts RADCON.

B. Reactor Bldg ventilation trips and isolates. SGT starts automatically. The Control Room Operator announces evacuation of the turbine floor and contacts RADCON.

C. Turbine Operating Floor High Radiation Alarm sounds. The Control Room Operator announces evacuation of the turbine floor, contacts RADCON and monitors other alarms with inputs to this annunciator.

D. Turbine Operating Floor High Radiation Alarm sounds. The Control Room Operator notifies Unit Supervisor this is an expected alarm since the turbine casing is being removed.

References: OPL171.034 Rev.8 pg 16
2-ARP-9-3A Rev.18 pg 31
Enabling Objective OPL171.034 B5

A. Incorrect since Turbine Building vents do not trip.

B. Incorrect since Reactor Building vents do not trip.

C. Correct answer.

D. Incorrect since this is not an expected alarm. The ARP actions should be followed.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	RAD MONITORS	Cog Level:	C/A 3.8/4.0
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

61. 295034EK1.01 001

Which ONE of the following describes why the Reactor Zone and Refueling Floor Exhaust Radiation - High allowable values are set at their current levels?

A. ✓ They provide timely detection of system process barrier leaks inside containment but they are far enough background levels to avoid spurious isolations.

B. They provide positive indication of system leaks but they are low enough to ensure proper instrument indications.

C. The values are set to ensure the isolation function is fast enough to prevent exceeding the 10 CFR 100 exposure limits at the site boundary.

D. The values are set such that trends are able to be determined before the isolations occur.

References: Tech Spec Section 3.3 Bases pg B 3.3-251

A. Correct answer.

B,C and D. Incorrect per Bases statement.

RO Tier:	T1G2	SRO Tier:	T1G2
Keyword:	SECONDARY CONTAINMEN	Cog Level:	MEM 3.8/4.1
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

62. 295036EK2.03 001

A relief valve is leaking on the Unit 2 RBCCW system which is causing the Reactor Building Equipment Drain Tank to fill up. The Reactor Building Equipment Drain Sump Pump has started and is pumping to Radwaste.

Which ONE of the following identifies the first indication that Radwaste will see due to the increased leakage?

A. Chemical Waste Tank level will increase.

B. Floor Drain Collector Tank level will increase.

C. Waste Collector Tank level will increase.

D. Waste Surge Tank level will increase.

References: OPL171.084 Rev.3 pg 17

A. Incorrect since the water from the Reactor Bldg Equipment Drain Sump goes to the Waste Collector Tank first.

B. Incorrect since the water from the Reactor Bldg Equipment Drain Sump goes to the Waste Collector Tank first.

C. Correct answer.

D. Incorrect since the water from the Reactor Bldg Equipment Drain Sump goes to the Waste Collector Tank first.

RO Tier:	T1G3	SRO Tier:	T1G2
Keyword:	RADWASTE	Cog Level:	C/A 2.8/3.1
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

63. 295037EA1.04 001

The reactor has experienced an ATWS and you have been directed to initiate SLC injection. SLC Pump A was started at 0700 with the boron concentration at 8.5% and the tank level at 85%. The following conditions exist at 0730 for SLC Pump A:

* Red Light On
* Squib Continuity Lights Off
* Flow Light On
* Alarm "SLC Injection Flow to Reactor"
* Alarm "SLC Squib Valve Continuity Lost"
* SLC Pressure 1200 psig
* Reactor Pressure 1000 psig
* Tank Level 70%, lowering

Which ONE of the following is the appropriate action to take?

A. Start SLC Pump B and continue running SLC Pump A.

B. ✓ Stop SLC Pump A and start SLC Pump B.

C. Initiate Alternate SLC Injection.

D. Continue running SLC Pump A.

References: OPL171.039 Rev. 13 pg 17, 26 and 27
2-OI-63 Rev. 26 pg 4
Enabling Objective OPL171.039 # 4

A. Incorrect since an interlock is installed to prevent running both pumps at the same time.

B. Correct answer since tank level should be down to 55% if SLC Pump A was operating properly.

C. Incorrect since B SLC Pump should be started first.

D. Incorrect since A SLC Pump is pumping at a degraded rate.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	SLC	Cog Level:	C/A 4.5/4.5
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

64. 295038EK3.01 001

An accicent has happened on Unit 2 which causes radiation levels at the site boundary to reach 11 mRem/Hr gamma. An ALERT has been declared by the Shift Manager.

Which ONE of the following describes why the Emergency Plan was implemented for this condition?

A. Ensures that all individuals are accounted for at the time of the accident.

B. Provides protective measures for TVA employees and contractors located on the site at the time of the accident.

C. Ensures lines of communication are established between the site and the NRC.

D. Provides protective measures for TVA employees and the public.

References: OPL171.075 Rev.17 pg 9
Enabling Objective OPL171.075 #B1

A. Incorrect since implementing the Emergency Plan does not ensure all people are accounted for.

B. Incorrect since it also provides protective measures for the public.

C. Incorrect since implementing the Emergency Plan does not mean that communication lines are open with the NRC.

D. Correct answer.

RO Tier:	T1G2	SRO Tier:	T1G1
Keyword:	EMERGENCY PLAN	Cog Level:	MEM 3.6/4.5
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

65. 300000K4.03 001

The Raw Cooling Water regulating valve to the "A" Control Air Compressor has failed closed.

Which ONE of the following conditions would trip the "A" Control Air Compressor?

A. Air discharge temperature reading 312°F.

B. Air discharge temperature reading 128°F.

C. Lube oil temperature reading 175°F.

D. Seal Air Pressure reading 8 psig.

References: OPL171.054 Rev.4 pg 13, 41 and 45
Learning Objective OPL171.054 #2

A. Correct answer.

B. Incorrect but it is correct for the G Compressor.

C. Incorrect since Lube Oil Hi Temp trip is 180°F.

D. Incorrect but it is correct for the G Compressor.

RO Tier:	T2G2	SRO Tier:	T2G2
Keyword:	CONTROL AIR	Cog Level:	MEM 2.8/2.8
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

66. 500000EK2.07 001

An event has occurred on Unit 3 with the following conditions present:

Drywell Pressure	30 psig
Drywell Temperature	275°F
SGT Systems	"A" out of service, "B" and "C" fail to start
SGT Inlet pressure	+0.5 psig
CAD System	Shutdown

The Unit Supervisor has ordered the Drywell to be vented due to high H2 concentrations.

Which ONE of the following describes the reason why the Drywell CANNOT be vented at this time?

A. SGT System "B" and "C" failed to start.

B. SGT Ssytem inlet pressure is too high.

C. Drywell pressure is too high.

D. Drywell temperature is too high.

References: 3-OI-83 Rev. 17 pg 5
OPL171.032 Rev.10 pg 21
Enabling Objective OPL171.032 #B.4

A. Correct answer.

B. Incorrect since the pressure for the SGT inlet is .79 psig.

C. Incorrect since High Drywell pressure prevents nitrogen purge.

D. Incorrect since Drywell Temp does not affect venting the containment.

RO Tier:	T1G1	SRO Tier:	T1G1
Keyword:	DRYWELL VENTING	Cog Level:	C/A 3.2/3.7
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

67. G2.1.28 001

According to SPP-7.2, Outage Management, which ONE of the following defines a FUNCTIONAL system?

A. A system, structure or component that is in service or can be placed in service in an OPERABLE state by immediate manual or automatic actuation.

B. A system that has the ability to perform its intended function with considerations that applicable technical specifications or licensing/design basis assumptions may not be maintained.

C. A system that had PERs generated during the previous operating cycle that have been evaluated as operable but degraded / non-conforming conditions, have not been justified for resolution in the future and have a specified required completion date that is the current outage which has been agreed to by outage management.

D. A System that is capable of performing its specified safety function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal or emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

A. AVAILABLE (Availability)- The status of a system, structure or component that is in service or can be placed in service in a FUNCTIONAL or OPERABLE state by immediate manual or automatic actuation.

B. FUNCTIONAL - The ability of a system or component to perform its intended function with considerations that applicable technical specifications or licensing/design basis assumptions may not be maintained.

C. (SPP 3.1) Operable - Operability - A system, subsystem, train, component, or device shall be operable or have operability when it is capable of performing its specified safety function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal or emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

D. OPERABLE BUT DEGRADED - PERs generated during the previous operating cycle that have been evaluated as operable but degraded / non-conforming conditions, have not been justified for resolution in the future, (i.e., more than one refueling cycle) in accordance with SPP-3.1, "Corrective Action Program", and have a specified required completion date that is the current outage which has been agreed to by outage management.

RO Tier:	T3	SRO Tier:	T3
Keyword:	SYSTEM STATUS	Cog Level:	MEM 3.2/3.3
Source:	B	Exam:	BF02301
Test:	C	Misc:	

68. G2.1.3 001

The on-coming Unit 3 Board Unit Operator (BUO) has been on vacation for 7 days. The BUO is preparing to assume shift at 0700 on 12/30/2002.

Which ONE of the following is the date, at a minimum, that the BUO must review back to concerning the Unit 3 Narrative Log?

A. 0700 on 12/29/2002.

B. 1500 on 12/27/2002.

C. 0700 on 12/25/2002.

D. 1500 on 12/23/2002.

References: SSP-12.1, Section 3.12.2, page 64

C. Correct answer.

A, B and D are incorrect since the operator must only review the previous 5 days in the narrative log.

Note: Did not have a copy of the procedure to verify answer.

RO Tier:	T3	SRO Tier:	T3
Keyword:	ADMIN	Cog Level:	C/A 3.0/3.4
Source:	M	Exam:	BF02301
Test:	C	Misc:	

69. G2.2.12 001

The Unit Operator has just completed the required readings for his shift and documented them in *2-SR-2, Instrument Checks and Observations.*

Which ONE of the following lists the individuals that are qualified to perform an independent review?

A. RO or SRO.

B. RO or STA.

C. Ops Manager or SRO.

D. STA or SRO.

References: 2-SR-2, Rev.29 pg 8

A. Incorrect since RO cannot perform independent review.

B. Incorrect since RO cannot perform independent review.

C. Incorrect since Ops Manager cannot perform independent review unless he is an SRO or qualified STA.

D. Correct answer.

RO Tier:	T3	SRO Tier:	T3
Keyword:	SURVEILLANCE REQUIRE	Cog Level:	MEM 3.0/3.4
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

70. G2.2.3 001

Assume that one of the 48V DC inverters that supplies 120V AC to the Control Room annunciators has failed.

Which ONE of the following describes the effects this will have?

A. If the failure is on Unit 1 a buzzer will sound and a white light will illuminate.

B. If the failure is on Unit 1,2 or 3 a buzzer will sound and a red light will illuminate.

C. If the failure is on Unit 2 the power supply will auto swap to Battery Board 2.

D. If the failure is on Unit 3 the power supply will auto swap to Battery Board 3.

References: OPL171.037 Rev.8 pg 16
Enabling Objective OPL171.037 #B8
Note: Taken from 2001 Exam.

A. Correct answer.

B. Incorrect since a red light will not illuminate on Unit 1 but it will illuminate on Units 2 and 3.

C. Incorrect since the power supply does not swap.

D. Incorrect since the power supply does not swap.

RO Tier:	T3	SRO Tier:	T3
Keyword:	DC SYSTEMS	Cog Level:	MEM 3.1/3.3
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

71. G2.3.1 001

You are called at home and directed to go to the Hatch Facility to assist in the recovery efforts following a refueling accident. You are informed that you will require a TLD during the assist visit.

Which ONE of the following describes the dosimetry requirement for this emergency visit per *SPP-5.1, RADIOLOGICAL CONTROLS*?

A. You must obtain your BFN dosimetry and wear it along with the dosimetry provided by Hatch. Following your return you must report to RADCON to obtain any required bioassay and update your exposure records.

B. You must inform RADCON of your intended visit and obtain your BFN dosimetry to wear with the dosimetry provided by Hatch. Upon your return you must present copies of your dose records from Hatch.

C. You must turn in your dosimetry and check out prior to leaving BFN, unless exempted by the Shift Manager or Operations Manager.

D. You must turn in your dosimetry and check out prior to leaving BFN, unless exempted by RADCON.

References: SPP-5.1, Radiological Controls Rev.3 pg 9

A. Incorrect since a bioassay is not required and you must also turn in your BFN dosimetry.

B. Incorrect since you must turn in your BFN dosimetry.

C. Incorrect since you can only get exemption from RADCON.

D. Correct answer.

RO Tier:	T3	SRO Tier:	T3
Keyword:	RADIATION CONTROL	Cog Level:	MEM 2.6/3.0
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

72. G2.4.1 001

Which ONE of the following is NOT an immediate action of 2-AOI-1-1, Relief Valve Stuck Open?

A. Inhibit MSRV Auto Actuation Logic on Panel 2-9-3.

B. PLACE affected relief valve control switch from CLOSE to OPEN to CLOSE several times, and OBSERVE indications to see whether valve closes.

C. IDENTIFY stuck open relief valve by OBSERVING SRV TAILPIPE FLOW MONITOR, 2-FMT-1-4, on Panel 2-9-3.

D. IDENTIFY stuck open relief valve by OBSERVING MSRV DISCHARGE TAILPIPE TEMPERATURE recorder, 2-TR-1-1 on Panel 2-9-47.

4.1 Immediate actions:

4.1.1 IDENTIFY stuck open relief valve by OBSERVING following:

4.1.1.1 SRV TAILPIPE FLOW MONITOR, 2-FMT-1-4, on Panel 293, or

4.1.1.2 MSRV DISCHARGE TAILPIPE TEMPERATURE recorder, 2TR11 on Panel 2947.

4.1.2 PLACE affected relief valve control switch from CLOSE to OPEN to CLOSE several times, and OBSERVE indications to see whether valve closes.

4.2 Subsequent Action

4.2.1 IF ANY EOI entry condition is met, THEN
ENTER the appropriate EOI(s).

RO Tier:	T3	SRO Tier:	T3
Keyword:	RELIEF VALVE	Cog Level:	C/A 4.3/4.6
Source:	B	Exam:	BF02301
Test:	C	Misc:	

73. G2.4.10 001

Alarm tile "MSIV ISOL SCRAM BYPASS" on the Unit 2 9-5 Panel is illuminated. No other alarms are illuminated.

Which ONE of the following identifies which Scram signals are not active?

A. MSIV closure scram and Turbine Stop Valve closure scram.

B. Generator Load Reject Scram and Condenser low vacuum scram.

C. MSIV closure scram and Condenser low vacuum scram.

D. MSIV closure scram and Generator Load Reject Scram.

References: 2-ARP-9-5B Rev.12

A. Incorrect since the Turbine Stop Valve closure scram is still active.

B. Incorrect since the Generator Load Reject scram is still active.

C. Correct answer.

D. Incorrect since the Generator Load Reject scram is still active.

RO Tier:	T3	SRO Tier:	T3
Keyword:	RPS	Cog Level:	MEM 3.0/3.1
Source:	N	Exam:	BF02301
Test:	C	Misc:	TCK

74. *G2.4.11 001*

A diesel fuel oil spill has occurred in the Diesel Generator Building. The On Scene Coordinator requests that absorbent material be delivered to the scene.

Which ONE of the following contains a list of the locations of stored absorbent material?

A. MSDS for diesel fuel oil.

B. Emergency Plan Implementing Procedure.

C. Spill Prevention Control and Countermeasures Plan.

D. Browns Ferry Master Materials Index Data Base (MMIDB).

Reference: OPL171.068 Rev. 4 pg 10
Enabling Objective #5

C is the only answer that provides a table for location of spill cleanup material therefore answers A,B and C are incorrect.

Note: Reordered answers.

RO Tier:	T3	SRO Tier:	T3
Keyword:	ADMIN	Cog Level:	MEM 3.4/3.6
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

75. G2.4.3 001

Per Regulatory Guide 1.97 post accident instrumentation must be appropriately identified in control rooms to provide information required by the control room operators during accident conditions.

Which ONE of the following describes how RPV level instruments are designated as post accident monitoring and which instruments are used?

A. Black labels are placed on the Emergency Systems Range instruments only.

B. Blue labels are placed on the Post Accident Flood Range instruments only.

C. Black labels are placed on both the Emergency Systems Range and Post Accident Flood range instruments.

D. Blue labels are placed on both the Post Accident Flood Range and the Shutdown Vessel Flood Range instruments.

References: OPL171.003 Rev.15 pg 24 and 26
Tech Spec Bases B 3.3.3.1 pg B 3.3-84
Note: Modified stem and answers slightly. On last exam.

A. Incorrect since on more than the instruments listed.

B. Incorrect since wrong color and on more than the instruments listed.

C. Correct answer.

D. Incorrect since wrong color and wrong instruments listed.

RO Tier:	T3	SRO Tier:	T3
Keyword:	POST ACCIDENT	Cog Level:	MEM 3.5/3.8
Source:	B	Exam:	BF02301
Test:	C	Misc:	TCK

76. 201001G2.1.28 001

Each control rod blade has a small valve disc which is located directly below the control rod coupling release handle.

Which ONE of the following states the purpose of the control rod assembly valve disc and how it functions?

A. The valve disc is open during the full length of control rod travel and at any latched position to permit continuous cooling water flow into the reactor and at the same time allow reactor water to be routed to the ball check assembly for scram feature without accumulator.

B. The valve disc is open during the full length of control rod travel to permit the continuous flow of cooling water into the reactor and a path for reactor water to scram the rod along with accumulator pressure.

C. The valve disc is closed unless the control rod is full out at position '48' where the control rod is backseated against the guide tube, then the valve disc opens to permit drive insertion flow into the reactor.

D. The valve disc is closed unless the control rod is full out at position '48' to permit passage of reactor water into the drive for scramming.

Old TEGRS Number (DeletedBank) 12651 Taskno: U-000-AB-04

RO Tier:	T2G1	SRO Tier:	
Keyword:	CONTROL ROD	Cog Level:	C/A 3.2/3.3
Source:	B	Exam:	BF02301
Test:	R	Misc:	

77. 201003A1.02 001

Unit 2 is at 100% RTP. CRD exercising is in progress and control rod 22-23 has been inserted to position 46. When trying to withdraw the control rod it will not move with normal drive pressure. The Reactor Operator OPENS *2-HS-85-23A, CRD DRIVE WATER PRESSURE CONTROL VLV* per procedure *2-OI-85, Control Rod Drive System.*

Which ONE of the following describes the effect on drive water pressure and whether the control rod is likely to move?

A. Drive water pressure should decrease and the control rod is likely to move.

B. Drive water pressure should increase and the control rod is likely to move.

C. Drive water pressure should decrease and the control rod probably will not move.

D. Drive water pressure should increase and the control rod probably will not move.

References: OPL171.005 Rev.11 pg 25 and 26
Enabling Objective OPL171.005 #13
2-OI-85 Rev.81 pg 86

A. Incorrect since control rod is not likely to move since drive water pressure is less.

B. Incorrect since drive water pressure should decrease when opening the valve.

C. Correct answer.

D. Incorrect since drive water pressure should decrease when opening the valve.

RO Tier:	T2G2	SRO Tier:	
Keyword:	CRD SYSTEM	Cog Level:	C/A 2.8/2.8
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

78. 202002A3.03 001

Unit 2 is at 35% RTP performing a power ascension when an unexpected turbine trip occurs.

Reactor water level lowers to +2 inches, resulting in PCIS Group 2, 3, 6, and 8 isolations; CREV and SGT auto-starts.

Which ONE of the following describes the status of the Recirc Pumps?

A. Both Recirc Pumps are tripped; scoop tubes are locked; however, there is NO Bailey lock.

B. Both Recirc Pumps are tripped; scoop tubes are locked AND Bailey locks are enforcing.

C. Both Recirc Pumps are running at minimum speed; there is NO scoop tube or Bailey lock.

D. Both Recirc Pumps are running at minimum speed; scoop tubes are locked AND Bailey locks are enforcing.

References: OPL171.007 Rev.20 pg

Have not been able to verify this answer. Utility needs to verify that it is correct and give me the references.

RO Tier:	T2G1	SRO Tier:	
Keyword:	RECIRC SYSTEM	Cog Level:	C/A 3.1/3.0
Source:	B	Exam:	BF02301
Test:	R	Misc:	

79. 209001K6.05 001

Unit 3 is at 100% RTP. The Core Spray Quarterly Flow Rate Test surveillance is in progress for the A and C pumps. The Equipment Operator walking down the equipment reports the following conditions:

Ambient Room Temperature	89°F
Area Room Cooler	Not running
Area radiation levels	30 mR/hr general area
Fire suppression system	Tagged out-of-service

Which ONE of the following describes the status of the Core Spray system and the reason why?

A. The Core Spray system is OPERABLE since the room cooler is not required to be on at this time.

B. The Core Spray system is OPERABLE since the room cooler is only required to be in operation during a LOCA condition.

C. The Core Spray system is INOPERABLE due to no fire suppression system available.

D. The Core Spray system is INOPERABLE due to the room cooler not operating.

References: OPL171.045 Rev.11 pg 17
Enabling Objective OPL171.045 #B4
Technical Requirements Manual TR3.5.3

A. Incorrect since the room cooler should be on any time a Core Spray pump is running.

B. Incorrect since the room cooler should be on any time a Core Spray pump is running.

C. Incorrect since the fire system doesn't affect Core Spray.

D. Correct answer.

RO Tier:	T2G1	SRO Tier:	
Keyword:	CORE SPRAY	Cog Level:	C/A 2.8/2.9
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

80. 215003K1.02 001

Given the following conditions on Unit 2:

- Reactor power: 20%
- Reactor pressure: 1060 psig

Which ONE of the following results in an IRM monitor generating a control rod block?

A. None.

B. IRM is inserted to Full in.

C. IRM function switch is placed in STANDBY.

D. IRM is ranged down from range 10 to range 8.

Ref. OPL171.020 Rev. 6 page 20.
Enabling Objective B.5

A. Correct answer.

B. Incorrect since IRM Hi Hi rod block signal is bypassed with the Mode Switch in Run.

C. Incorrect since rod block for function switch taken out of OPERATE is bypassed with Mode Switch in Run.

D. Incorrect since IRM rod block signals are bypassed with Mode Switch in Run.

RO Tier:	T2G1	SRO Tier:	
Keyword:	IRM	Cog Level:	MEM 3.6/3.6
Source:	B	Exam:	BF02301
Test:	R	Misc:	

81. 215003K4.04 001

A Unit 3 IRM channel is set to range 6 and reading 80.

Which ONE of the following is correct if the IRM range selector switch is turned to range 7?

A. The same preamplifier circuit remains in service and the reading should be about 8.

B. The same preamplifier circuit remains in service and the reading should be about 25.

C. A different preamplifier circuit is put into service and the reading should be about 8.

D. A different preamplifier circuit is put into service and the reading should be about 25.

REF: OPL171.020, Rev. 6, Pages 13 thru 16.
Enabling Objective B.4

A. Incorrect since a different pre-amplifier is used when going from range 6 to 7 and the reading should be around 25.

B. Incorrect since a different pre-amplifier is used when going from range 6 to 7.

C. Incorrect since the reading should be around 25.

D. Correct answer.

Readings vary by a factor of the square root of 10 from one channel to the next. The different pre-amplifiers are put into service between channels 6 and 7.

RO Tier:	T2G1	SRO Tier:	
Keyword:	IRM	Cog Level:	C/A 2.9/2.9
Source:	M	Exam:	BF02301
Test:	R	Misc:	TCK

82. 219000A2.02 001

Unit 2 is operating at 100% RTP with the following conditions present:

Drywell Pressure	1.43 psig
Suppression Pool Temperature	94°F

Suppression Pool Cooling RHR Loop II in service with "B" and "D" RHR pumps on.
RHR Loop II Flow 12,500 gpm

Alarm *"RHR SYS II PUMP B TRIPPED"* initiates followed shortly by alarm *"RHR SYS II PUMP D OVERLOAD"*. RHR Pump B amps indicate "0" and RHR Pump D amps indicate "High in the Red Band".

Assuming that RHR Pump B cannot be restarted, per *2-ARP-9-3E #20,"RHR SYS II PUMP D OVERLOAD"*, which ONE of the following describes the actions that should be taken for RHR Pump D?

A. Immediately trip RHR Pump D to prevent damage to the pump motor.

B. Attempt to lower RHR Loop II flow to <10,000 gpm and if unsuccessful then Trip RHR Pump D.

C. Attempt to lower RHR Loop II flow to <7,000 gpm and continue to run RHR Pump B until Suppression Pool temperature is <90°F.

D. Place RHR Loop I in service and then shutdown RHR Pump D per *2-OI-74, Residual Heat Removal System.*

References: 2-ARP-9-3E Rev.17
2-OI-74 Rev.108 pg 55

A. Incorrect since an attempt is directed to be made to lower pump amps and flow per the alarm response procedure.

B. Correct answer.

C. Incorrect since you shouldn't lower pump flow below 7,000 gpm and you don't need to continue to run the pump to lower Suppression Pool Temperature.

D. Incorrect since the procedure doesn't reference starting the other loop of Suppression Pool cooling.

RO Tier:	T2G2	SRO Tier:	
Keyword:	RHR SYSTEM	Cog Level:	C/A 3.3/3.3
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

83. 230000K4.04 001

Unit 3 has scrammed on High Drywell pressure. The following conditions exist in the Drywell:

Drywell Pressure	12.5 psig
Drywell Temperature	305°F
Suppression Pool Level	15 FT
Suppression Pool Temp	170°F

The Unit Supervisor has ordered Drywell Sprays initiated per *EOI-2, Primary Containment Control.*

Which ONE of the following design features of the RHR/LPCI System prevent overpressurization of the containment spray header when drywell sprays are initiated?

A. An interlock prevents the spray valves from opening until Reactor Pressure is below 450 psig.

B. A check valve is installed in the spray line to prevent backpressure from overpressurizing the spray header.

C. The minimum flow valve remains open until flow exceeds 5800 gpm for 10 seconds.

D. A relief valve is installed in the RHR pump discharge line which is set at 450 psig.

References: OPL171.044 Rev.9 figure TP-1A

A. Incorrect since this interlock is associated with the injection valves.

B. Incorrect since the check valve is installed in the injection line and not the spray line.

C. Incorrect since the minimum flow valve protects the pump from damage.

D. Correct answer.

RO Tier:	T2G2	SRO Tier:	
Keyword:	RHR SYSTEM	Cog Level:	C/A 3.0/3.2
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

84. 234000K5.02 001

Unit 3 Mode Switch is in REFUEL and crews are preparing to remove the first fuel assembly from the reactor vessel. All control rods have been verified to be fully inserted.

Which ONE of the following describes why bridge travel over the core is stopped?

A. The selector switch for CONSOLE / MONORAIL / FRAME is not in the "CONS" position.

B. Refueling Platform frame mounted hoist is not in the full up position when approaching the core.

C. Main grapple is not in the full up position with a "slack cable" signal when approaching the core.

D. Control rod 30-07 RPIS probe cable is disconnected in prepration for removal of the associated CRD under the vessel; the main grapple is not in the full up position.

References: 0-GOI-100-3C Rev. 38 pg 11
Enabling Objective #6
OPL171.053 Rev.10 pg 24

A. Incorrect since selector switch in "Cons" position does not affect bridge travel.

B. Incorrect since frame mounted hoist not full up does not prevent bridge travel over the core unless a rod is not full in.

C. Incorrect since all rods are in.

D. Correct since circuitry does not see all rods in and the hoist is not in the full up position.

RO Tier:	T2G3	SRO Tier:	
Keyword:	FUEL HANDLING	Cog Level:	3.1/3.7
Source:	B	Exam:	BF02301
Test:	R	Misc:	TCK

85. 256000K2.01 001

According to 2-OI-2, under which ONE of the following conditions are the normal Condensate Pump Motors amps allowed to be above steady state operations? This limit may be exceeded during certain known plant conditions such as operation . . .

A. with two Condensate Pumps at high power, both pumps winding temperatures may exceed the ICS yellow setpoint but neither pump may exceed the ICS red setpoint.

B. with one Condensate Pump at high power with the winding temperature exceeding the ICS yellow setpoint but not the ICS red setpoint.

C. with two Condensate Pumps at high power one may exceed the ICS red setpoint provided the second pump does not exceed the ICS yellow setpoint.

D. with two Condensate Pumps at high power one may exceed the ICS red setpoint provided the average winding temperatures of the two pumps does not exceed the ICS yellow setpoint.

References: 2-OI-2 Rev. 64 pg 6
Enabling Objective OPL171.011 #9

Recent change in operations - Normal maximum line current to Condensate Pump Motors is 118 amps steadystate operations based on a corresponding winding temperature of 248°F (ICS yellow setpoint). This limit may be exceeded during certain known plant conditions such as operation with two Condensate Pumps at high power or during periods of high river temperature. During this time operators should request assistance from Site Engineering and monitor pump motor parameters more frequently. Pump motor current should not exceed 125 amps and winding temperature should not exceed 293°F (ICS red setpoint).

RO Tier:	T2G2	SRO Tier:	
Keyword:	CONDENSATE SYSTEM	Cog Level:	MEM 2.7/2.8
Source:	B	Exam:	BF02301
Test:	R	Misc:	TCK

86. 259001K1.04 001

Unit 3 is operating at 75% RTP. The Shift Manager has ordered Extraction Steam to be isolated to the 2A Feedwater Heater for some upcoming maintenance.

Assuming throttle steam flow remains the same, which ONE of the following describes the effect on the Feedwater temperature to the vessel and Main Generator output?

A. Feedwater temperature to the vessel will decrease slightly and Main Generator output will decrease slightly.

B. Feedwater temperature to the vessel will increase slightly and Main Generator output will decrease slightly.

C. Feedwater temperature to the vessel will decrease slightly and Main Generator output will increase slightly.

D. Feedwater temperature to the vessel will increase slightly and Main Generator output will increase slightly.

References: 3-OI-6 Rev.39 pg 6, 7 and 76

A. Correct answer. Since the throttle steam flow remains the same the extraction steam to the next higher heater is higher and causes generator output to decrease slightly.

B, C and D. Incorrect for the above listed reason.

RO Tier:	T2G1	SRO Tier:	
Keyword:	FEEDWATER HEATERS	Cog Level:	C/A 2.8/2.9
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

87. 259002K2.02 001

Unit 2 is operating at 90% RTP when Relay Logic Bus B (Div II) de-energizes.

Which ONE of the following describes the effect this will have on the HPCI System if Drywell pressure were to reach 3.0 psig?

A. The HPCI system will initiate when required and but will isolate on high steam flow ONLY.

B. The HPCI system will initiate when required but will not isolate on any isolation signal.

C. The HPCI system will not initiate as required but it will isolate on high steam flow or high area temperature ONLY if it is started manually.

D. The HPCI system will not initiate as required but it will isolate on any isolation signal if it is started manually.

References: OPL171.042 Rev. 16 pg 46
Enabling Objective OPL171.042 #B5 and B6

A,B and D. Incorrect since HPCI will not automatically Initiate and will isolate on high steam flow and high area temperature ONLY.

C. Correct answer.

RO Tier:	T2G1	SRO Tier:	
Keyword:	HPCI LOGIC	Cog Level:	MEM 3.5/3.5
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

88. *261000K4.01 001*

The Standby Gas Treatment (SBGT) consists of three (3) redundant trains. Each SBGT train ...

A. will auto start on 1.96 psig sensed in the drywell.

B. has two HEPA filters designed to remove particulate radioactivity and noble gases.

C. will auto start on 72 mrem/hr in the reactor zone ventilation system on any unit and run until manually secured.

D. has a decay heat damper which automatically opens on high charcoal bed temperature caused by fission product decay.

REF: OPL171.018, Rev. 6

RO Tier:	T2G1	SRO Tier:	
Keyword:	SBGT	Cog Level:	MEM 3.7/3.8
Source:	B	Exam:	BF02301
Test:	R	Misc:	

89. 290003G2.3.11 001

Unit 3 is in a Refueling Outage with fuel moves in progress. The communicator on the phones notifies the Control Room that a fuel bundle was dropped and gas bubbles are visible in the pool. The following indications are received in the Control Room:

FUEL POOL FLOOR AREA RADIATION HIGH	in Alarm
REFUELING ZONE EXHAUST RADIATION HIGH	in Alarm
RX BLDG, TURB BLDG, RF ZONE EXH RAD HIGH	in Alarm
SGTS	Running
Control Room Ventilation	Normal lineup
PCIS Group 6	Refueling Zone isolated

Which ONE of the following describes the actions that should be taken for these conditions?

A. Stop all fuel moves; Isolate Reactor Zone Ventilation.

B. Evacuate non-essential personnel from the Refuel floor; Isolate the Control Room Ventilation system.

C. Stop all fuel moves; Secure SGTS.

D. Evacuate non-essential personnel from the Reactor Bldg; Obtain Operations Manager permission to resume fuel moves.

References: 3-AOI-79-1 Rev.6
3-ARP-9-3A Rev.17 Pg 35

A. Incorrect since isolation of Reactor Zone ventilation is not required since alarm REACTOR ZONE EXHAUST RADIATION HIGH is not in alarm.

B. Correct answer since Control Room ventilation should have isolated due to REFUELING ZONE EXHAUST RADIATION HIGH in alarm.

C. Incorrect since SGT System should remain running due to an automatic start signal from REFUELING ZONE EXHAUST RADIATION HIGH.

D. Incorrect since do not need to evacuate entire Rx Bldg and the Plant Managers approval must be obtained to restart fuel moves instead of the Operations Manager.

RO Tier:	T2G2	SRO Tier:	
Keyword:	REFUELING	Cog Level:	C/A 2.7/3.2
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

90. 295005G2.1.20 001

Unit 2 is coasting down prior to a scheduled Refuel outage with reactor power at 75% RTP. Chemistry has been monitoring the Stator Cooling Water conductivity and believe that the deionizer is almost depleted. Alarm *STATOR CLG WATER HIGH COND* actuates and Chemistry reports conductivity at 9.9 microsiemens/cm.

Which ONE of the following describes the required Operator actions?

A. Reduce load and instruct Chemistry to re-check conductivity. If conductivity does not decrease then Trip the Turbine Generator immediately.

B. ✓ Reduce load and Trip the Turbine Generator immediately.

C. Reduce load until reactor power is <30% RTP then Trip the Turbine Generator immediately.

D. Since the Turbine Generator is at a reduced load due to coastdown then continue to have Chemistry monitor conductivity and initiate a work order to replace resins.

References: 2-ARP-25-114A Rev.10

A. Incorrect since Chemistry has already reported conductivity. Alarm is valid.

B. Correct answer.

C. Incorrect since procedure does not allow waiting until reactor power is <30% RTP.

D. Incorrect since you don't continue to monitor conductivity but you trip the turbine generator immediately.

RO Tier:	T1G1	SRO Tier:	
Keyword:	TURBINE TRIP	Cog Level:	C/A 4.3/4.2
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

91. 295006AA2.01 001

Unit 3 is operating at 12% RTP with the Mode Switch in START/HOT STBY. The following conditions are present at this time:

Reactor Pressure	1000 psig
Turbine Bypass Valves	2 open maintaining pressure
Reactor Water Level	27 inches
3A EHC Pump	Out of Service

A spurious signal causes the MSIV's to close. The plant reacts in the following way:

Reactor Power	Increases to 17% and drops immediately to 0%
Reactor Pressure	Increases to 1060 psig and then drops to 1000 psig
Reactor Water Level	Drops to +4" and then increases to +33"
IRM's	All read High at 125/125 and then drop to low level

Which ONE of the following is the cause of the Reactor Scram?

A. Reactor High power.

B. Low reactor water level.

C. High Reactor pressure.

D. MSIV closure, ≤ 90% full open.

References: OPL171.028 Rev.13 pg 14 - 22
Enabling Objective OPL171.028 #B6

A. Correct answer. Scram signal from either APRM's or IRM's.

B. Incorrect since reactor water level didn't drop to +2".

C. Incorrect since reactor pressure didn't reach 1073 psig.

D. Incorrect since MSIV closure scram is bypassed with Mode Switch in START/HOT STBY.

RO Tier:	T2G1	SRO Tier:	
Keyword:	RPIS SYSTEM	Cog Level:	C/A 4.5/4.6
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

92. 295017G2.3.11 001

Unit 2 has received a valid Refueling Zone high radiation signal and while verifying the isolation actuations the Operator notes that the Drywell Control Air Compressor INBD and OTBD Suction Isolation Valves did not close.

Which ONE of the following describes the appropriate action for this situation?

A. Immediately close both suction isolation valves and notify the Unit Supervisor.

B. Immediately close either the INBD or OTBD suction isolation valve and notify the Unit Supervisor.

C. Notify the Unit Supervisor that the valves are open and the verification of isolation actuations cannot be completed.

D. No action is required since both valves should be open under these conditions.

References: 2-AOI-64-2d Rev.23 pg 2-5

A. Incorrect since these valves should not close on Refuel Zone Hi Rad.

B. Incorrect since these valves should not close on Refuel Zone Hi Rad.

C. Incorrect since nothing is wrong with the valves.

D. Correct answer.

RO Tier:	T1G2	SRO Tier:	
Keyword:	CONTAINMENT	Cog Level:	C/A 2.7/3.2
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

93. 295021AK1.02 001

Unit 3 is in MODE 4. Shutdown Cooling has been isolated for 3 hours due to a failure of the Shutdown Cooling OTBD Suction Valve (3-FCV-74-47). Both Recirc pumps are out of service. The Unit Operator suspects stratification has occurred.

Which ONE of the following would provide the operator with a positive indication of stratification?

A. Rx Vessel FW Sparger temperature reaches 190°F.

B. Reactor vessel water level increases from 42 to 48".

C. Rx Vessel Bottom Head - Rx Vessel FW Nozzle differential temperature of 75°F.

D. Reactor vessel pressure is 2 psig and lowest coolant temperature indication reads 215°F.

References: 3-AOI-74-1 Rev. 8 pg 4

A. Incorrect since indications of stratification are when the spargers reach 200°F.

B. Incorrect since Rx Vessel leve increasing is not an indication of stratification.

C. Correct answer since a delta T of 50°F is an indication of stratification.

D. Incorrect since a pressure rise with any temperature less than or equal to 212°F is an indication of stratification.

Note: Changed stem to give clearer initial conditions and changed answer so that C is the correct answer.

RO Tier:	T1G3	SRO Tier:	
Keyword:	SHUTDOWN COOLING	Cog Level:	C/A 3.9/3.9
Source:	M	Exam:	BF02301
Test:	R	Misc:	TCK

94. 295024AA2.03 001

Which ONE of the following conditions would cause Suppression Pool indicated level to increase?

A. Drywell to Torus Dp decreases.

B. Drywell pressure increases by .5 psig.

C. Vent the Drywell thru the SGT System.

D. Suppression Pool Cooling in progress with RHR Loop I.

References: OPL171.016 Rev.12 pg 27

A. Incorrect since Drywell pressure gets closer to Torus pressure so the level in the downcomers increase and indicated Torus level decreases.

B. Correct answer since the Higher Drywell pressure causes more water to be moved out of downcomers and indicated Torus level increases.

C. Incorrect since venting the Drywell causes Drywell pressure to get closer to Torus pressure so the level in the downcomers increase and indicated Torus level decreases.

D. Incorrect since Torus cooling will cause Torus level to decrease since the water gets denser.

RO Tier:	T1G1	SRO Tier:	
Keyword:	SUPPRESSION CHAMBER	Cog Level:	C/A 3.8/3.8
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

95. 295026EA2.03 002

Reactor pressure is 850 psig.

Which ONE of the following sets of plant conditions listed below would require entry into C2, Emergency Depressurization, from EOI-2, *Primary Containment Control*? (curves attached for use)

A. Suppression pool level 17 feet.

B. Drywell temperature 260°F, drywell pressure 4.1 psig.

C. Suppression chamber pressure 20 psig, suppression pool level 15 feet.

D. Suppression pool level 12 feet, suppression pool temperature 195°F.

References: 3-EO1-2 Rev. 6

A. Incorrect since Emergency Depressurization isn't required unless Suppression Pool level cannot be maintained above 11.5 feet.

B. Incorrect since Emergency Depressurization isn't required unless Drywell Temperature can't be maintained below 280°F.

C. Incorrect since Emergency Depressurization isn't required unless Curve 6 limits are violated. These conditions are within the SAFE Region.

D. Correct answer. Heat Capacity Temperature Limit (Curve 3) has been exceeded.

NOTE: Revised the correct answer from the bank since there were no correct answers.

RO Tier:	T1G2	SRO Tier:	
Keyword:	SUPPRESSION CHAMBER	Cog Level:	C/A 3.9/4.0
Source:	B	Exam:	BF02301
Test:	R	Misc:	TCK

96. 600000AA2.13 002

Unit 2 is operating at 100% RTP. A fire has been reported near the Unit 2 EHC pumps and is continuing to grow. The Fire alarm has been sounded and the Fire Brigade has been dispatched. The initial assessment from the Fire Brigade Leader is that the fire is not under control and is starting to engulf the EHC pumps.

Which ONE of the following describes the actions that should be taken for Unit 2?

A. Commence an accelerated shutdown and when below 30% power then trip the turbine.

B. Trip the turbine immediately and verify the reactor scrams.

C. Scram the reactor and then trip the turbine immediately.

D. Commence an accelerated shutdown to below 30% power and monitor the plant.

References: OPDP-1 Rev.1 pg 10

A. Incorrect since the plant is threatened immediatly by the fire engulfing both EHC pumps.

B. Incorrect since at this power level a turbine trip will cause a reactor scram. The operator should scram the reactor first and then trip the turbine.

C. Correct answer.

D. Incorrect since the plant is threatened immediatly by the fire engulfing both EHC pumps.

RO Tier:	T1G2	SRO Tier:	
Keyword:	FIRE PROTECTION	Cog Level:	C/A 3.2/3.8
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

97. G2.1.27 001

Which ONE of the following systems limits the uncontrolled release of radioactive material by terminating excessive fuel cladding temperature and by limiting nuclear system process barrier pressure?

A. Control Rod Drive System.

B. Automatic Depressurization System.

C. Primary Containment Isolation System.

D. Reactor Protection System.

References: OPL171.028 Rev.13 Pg 9
FSAR Section 7.2.1, Reactor Protection System

A. Incorrect since this system is to incrementally control reactivity in conjunction with the Reactor Manual Control System.

B. Incorrect since this system is designed to depressurize the Reactor Pressure Boundary to allow low pressure systems to inject into the Rx Vessel.

C. Incorrect since this system is designed to limit release of radioactivity to the environment in case of an accident.

D. Correct answer. Shutting down the reactor by the RPS system decreases fuel cladding temperature and pressure boundary pressure.

RO Tier:	T3	SRO Tier:	
Keyword:	RPS	Cog Level:	MEM 2.8/2.9
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

98. G2.2.11 001

Which ONE of the following is an example of a temporary alteration?

A. A temporary instrument setting.

B. A temporary air supply for an MOV that is out of service.

C. A temporary maintenance structure in the turbine building.

D. A temporary scaffold errected for work on a seismic restraint on non-CSSC equipment.

References: SPP 9.5 Rev 4 pg 5 and 20

A. Correct answer.

B. Incorrect since the equipment is out of service.

C. Incorrect since this is controlled by another procedure.

D. Incorrect since this is controlled by another procedure.

Note: Reworded the stem slightly and changed distractor B to be more plausible.

RO Tier:	T3	SRO Tier:	
Keyword:	TEMP ALT	Cog Level:	MEM 2.5/3.4
Source:	B	Exam:	BF02301
Test:	R	Misc:	TCK

99. G2.3.2 001

Which ONE of the following describes Operating Department individual responsibilities associated with meeting ALARA goals?

A. Assigns work assignments in radiologically controlled areas to keep the dose distributed evenly among individuals within work crews, where practicable.

B. Ensures that older workers on crews are assigned the higher dose jobs due to the effects of radiation on younger individuals.

C. Makes suggestions to the RADCON Department regarding procedure changes to Operating Procedures that might save dose.

D. Ensure Supervisors follow appropriate work practices to minimize occupational radiation exposure.

References: RCI-15.1 Rev.27 Pg 5

A. Correct answer.

B. Incorrect since exposure should be divided evenly among crew members.

C. Incorrect since Operations individuals are responsible for their own procedures and should make the appropriate changes to save dose.

D. Incorrect since personnel are not responsible for their supervisors but the supervisors are responsible for their workers.

RO Tier:	T3	SRO Tier:	
Keyword:	ALARA	Cog Level:	MEM 2.5/2.9
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK

100. G2.3.5 001

You are leaving a C-zone after performing equipment checks in the area.

Which ONE of the following describes the process for performing self frisking?

A. Move the probe slowly while maintaining it approximately 2 inches above the surface being monitored.

B. Move the probe quickly while maintaining it approximately 1 inch above the surface being monitored.

C. Move the probe quickly while maintaining contact with the surface being monitored.

D. Move the probe slowly while maintaining it approximately 1/2 inch above the surface being monitored.

References: RCI-1 Rev.52 Pg 21

A. Incorrect since the probe should be 1/2 above the surface being monitored.

B. Incorrect since the probe should be moved slowly and maintained 1/2 inch above the surface being monitored.

C. Incorrect since the probe should be moved slowly and maintained 1/2 inch above the surface being monitored.

D. Correct answer.

RO Tier:	T3	SRO Tier:	
Keyword:	RADIATION MONITORING	Cog Level:	MEM 2.5/3.1
Source:	N	Exam:	BF02301
Test:	R	Misc:	TCK