UNITED STATES NUCLEAR REGULATORY COMMISSION
BOILING WATER REACTOR GENERIC FUNDAMENTALS EXAMINATION
DECEMBER 2009 -- FORM A

Please Print

Name: _____

Docket No.: _____

Facility: _____

Start Time: _____ Stop Time: _____

INSTRUCTIONS TO APPLICANT

Answer all the test items using the answer sheet provided, ensuring a single answer is marked for each test item. Each test item has equal point value. A score of at least 80 percent is required to pass this portion of the NRC operator licensing written examination. All examination materials will be collected 3.0 hours after the examination begins. This examination applies to a typical U.S. boiling water reactor (BWR) nuclear power plant.

SECTION	QUESTIONS	% OF TOTAL	SCORE
COMPONENTS	1 - 22		
REACTOR THEORY	23 - 36		
THERMODYNAMICS	37 - 50		
TOTALS	50		

All work performed on this examination is my own. I have neither given nor received aid.

_____

Applicant's Signature

RULES AND INSTRUCTIONS FOR THE NRC
GENERIC FUNDAMENTALS EXAMINATION

During the administration of this examination the following rules apply:

NOTE: The term "control rod" refers to the length of neutron absorber material that can be positioned by the operator to change core reactivity.

NOTE: Numerical answers are rounded to the nearest whole number unless otherwise indicated.

1. Print your name in the blank provided on the cover sheet of the examination.

2. Fill in your individual docket number.

3. Fill in the name of your facility.

4. Fill in your start and stop times at the appropriate time.

5. Two aids are provided for your use during the examination:

   (1) An equations and conversions sheet contained within the examination copy, and

   (2) Steam tables and Mollier Diagram provided by your proctor.

6. Place your answers on the answer sheet provided. Credit will only be given for answers properly marked on this sheet. Follow the instructions for filling out the answer sheet.

7. Scrap paper will be provided for calculations.

8. Cheating on the examination will result in the automatic forfeiture of this examination. Cheating could also result in severe penalties.

9. Restroom trips are limited. Only **ONE** examinee may leave the room at a time. In order to avoid the appearance or possibility of cheating, avoid all contact with anyone outside of the examination room.

10. After you have completed the examination, sign the statement on the cover sheet indicating that the work is your own and you have neither given nor received any assistance in completing the examination. Either pencil or pen may be used.

11. Turn in your examination materials, answer sheet on top, followed by the examination copy and the examination aids, e.g., steam tables, handouts, and scrap paper.

12. After turning in your examination materials, leave the examination area, as defined by the proctor. If after leaving you are found in the examination area while the examination is in progress, your examination may be forfeited.

GENERIC FUNDAMENTALS EXAMINATION
EQUATIONS AND CONVERSIONS HANDOUT SHEET

EQUATIONS

$\dot{Q} = \dot{m}c_p\Delta T$

$\dot{Q} = \dot{m}\Delta h$

$\dot{Q} = UA\Delta T$

$\dot{Q} \propto \dot{m}^3_{\text{Nat Circ}}$

$\Delta T \propto \dot{m}^2_{\text{Nat Circ}}$

$K_{eff} = 1/(1 - \rho)$

$\rho = (K_{eff} - 1)/K_{eff}$

$SUR = 26.06/\tau$

$$\tau = \frac{\bar{\beta}_{eff} - \rho}{\lambda_{eff}\,\rho}$$

$$\rho = \frac{\ell^*}{\tau} + \frac{\bar{\beta}_{eff}}{1 + \lambda_{eff}\,\tau}$$

$\ell^* = 1 \times 10^{-4}$ sec

$\lambda_{eff} = 0.1\ \text{sec}^{-1}$ (for small positive ρ)

$DRW \propto \varphi^2_{tip}/\varphi^2_{avg}$

$P = P_o 10^{SUR(t)}$

$P = P_o e^{(t/\tau)}$

$A = A_o e^{-\lambda t}$

$CR_{S/D} = S/(1 - K_{eff})$

$CR_1(1 - K_{eff1}) = CR_2(1 - K_{eff2})$

$1/M = CR_1/CR_X$

$A = \pi r^2$

$F = PA$

$\dot{m} = \rho A\vec{v}$

$\dot{W}_{Pump} = \dot{m}\Delta P\upsilon$

$E = IR$

Thermal Efficiency = Net Work Out/Energy In

$$\frac{g(z_2 - z_1)}{g_c} + \frac{(\vec{v}_2^{\,2} - \vec{v}_1^{\,2})}{2g_c} + \upsilon(P_2 - P_1) + (u_2 - u_1) + (q - w) = 0$$

$g_c = 32.2$ lbm-ft/lbf-sec^2

CONVERSIONS

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1 Mw = 3.41×10^6 Btu/hr	1 Curie = 3.7×10^{10} dps
1 hp = 2.54×10^3 Btu/hr	1 kg = 2.21 lbm
1 Btu = 778 ft-lbf	1 gal_{water} = 8.35 lbm
°C = (5/9)(°F - 32)	1 ft^3_{water} = 7.48 gal
°F = (9/5)(°C) + 32	

QUESTION: 1

A main steam system uses a combination of safety and relief valves for overpressure protection. Which one of the following describes a major design consideration for installing both types of valves in the same system?

A. The safety valves are installed to prevent chattering of the relief valves during normal power operation.

B. The safety valves are installed to prevent unnecessary opening of the relief valves during a steam pressure transient.

C. The relief valves are installed to prevent chattering of the safety valves during normal power operation.

D. The relief valves are installed to prevent unnecessary opening of the safety valves during a steam pressure transient.

QUESTION: 2

Refer to the drawing of a spring-loaded air-operated valve (see figure below) in which the solenoid is shown energized.

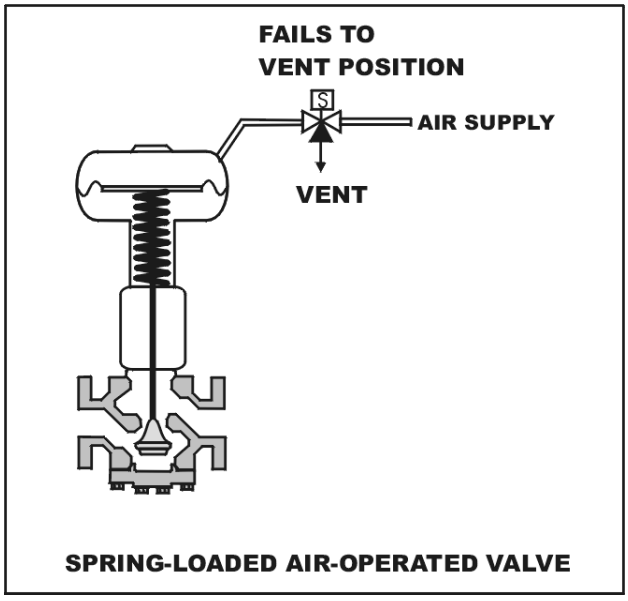
Which one of the following will be the final valve position following a loss of electrical power to the solenoid?

A. Midposition

B. Closed

C. As is

D. Open



QUESTION: 3

To verify a manual valve in an operating system is closed, the operator should observe valve position indication and operate the valve handwheel in the...

A. open direction at least one full rotation, then close the valve using normal force.

B. open direction until system flow is observed, then close the valve using normal force.

C. close direction using normal force and verify there is no substantial handwheel movement.

D. close direction using normal force, then operate the valve handwheel an additional one-quarter turn in the close direction.

QUESTION: 4

Refer to the drawing of a reactor vessel differential pressure (D/P) level detection system (see figure below).

With the reactor containing saturated water at 536°F, reactor vessel level indication is 40 feet. Assume that reference leg level and temperature do not change. Also, ignore the effect of steam density changes on level indication.

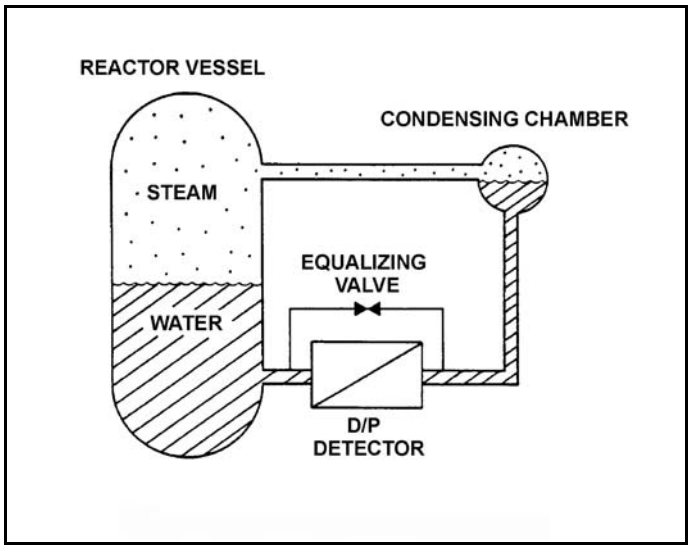
With no change in actual reactor vessel level, what will level indication be at 300°F (saturated)?

A. 32.7 feet

B. 35.8 feet

C. 45.2 feet

D. 48.9 feet



QUESTION: 5

Fission chamber detectors are used to monitor reactor power/neutron level in a shutdown reactor as well as a reactor operating at rated power (and all power levels in between). At what power level(s) is it necessary to compensate the output of the fission chamber detectors for gamma interactions with the detectors and why?

A. At all power levels, because gamma interactions produce larger detector pulses than neutron interactions.

B. At all power levels, because gamma interactions produce smaller detector pulses than neutron interactions.

C. Only when shutdown or at low power levels, because gamma flux is not proportional to reactor power at low power levels.

D. Only when operating at high power levels, because gamma flux is not proportional to reactor power at high power levels.

QUESTION: 6

Which one of the following types of radiation detectors is typically the least accurate in determining the dose rate to a human body from an unspecified source of radiation?

A. Geiger-Mueller

B. Ion chamber

C. Proportional counter

D. Scintillation

QUESTION: 7

Which one of the following describes a characteristic of a self-reading pocket dosimeter?

A. Provides dose rate indication in mR/hr.

B. More sensitive to gamma radiation than beta radiation.

C. Contains crystals that luminesce when exposed to ionizing radiation.

D. Can be stored as an accurate record of lifetime radiation exposure.

QUESTION: 8

An outside water storage tank is equipped with submerged heaters. The heaters energize at minimum power when water temperature decreases to 48°F. If water temperature continues to decrease, heater power will increase directly with the temperature deviation from 48°F until maximum power is reached at 40°F. If water temperature decreases faster than 1°F/min, the heaters will reach maximum power at a higher water temperature.

Which one of the following types of control is used in the heater control circuit to produce these characteristics?

A. Proportional only

B. Proportional plus integral

C. Proportional plus derivative

D. Proportional plus integral plus derivative

QUESTION: 9

Which one of the following describes a characteristic of pneumatic valve positioners?

A. They provide auto and manual demand signals to valve controllers and valve actuators.

B. They supply air pressure to valve actuators in response to a control signal to regulate valve position.

C. They can either receive or supply air to/from valve controllers, depending on the direction of valve travel.

D. They act independently of the valve controller, in order to prevent pressure transients on the valve actuator diaphragm.

QUESTION: 10

A centrifugal pump is operating with the following parameters:

Pump head: 60 psid
Flow rate: 300 gpm
Power input: 4 KW

Pump speed is increased and flow rate increases to 400 gpm.

Which one of the following is the approximate value of the new power consumption?

A. 5.3 KW

B. 7.1 KW

C. 9.5 KW

D. 11.7 KW

QUESTION: 11

A centrifugal pump is taking suction on a water storage tank and discharging through a flow control valve. The pump will have the highest net positive suction head requirement if the pump is operated at a _____ speed with a _____ discharge flow control valve.

A. high; fully open

B. high; throttled

C. low; fully open

D. low; throttled

QUESTION: 12

Refer to the drawing of a lube oil temperature control system and the associated operating curves (see figure below).

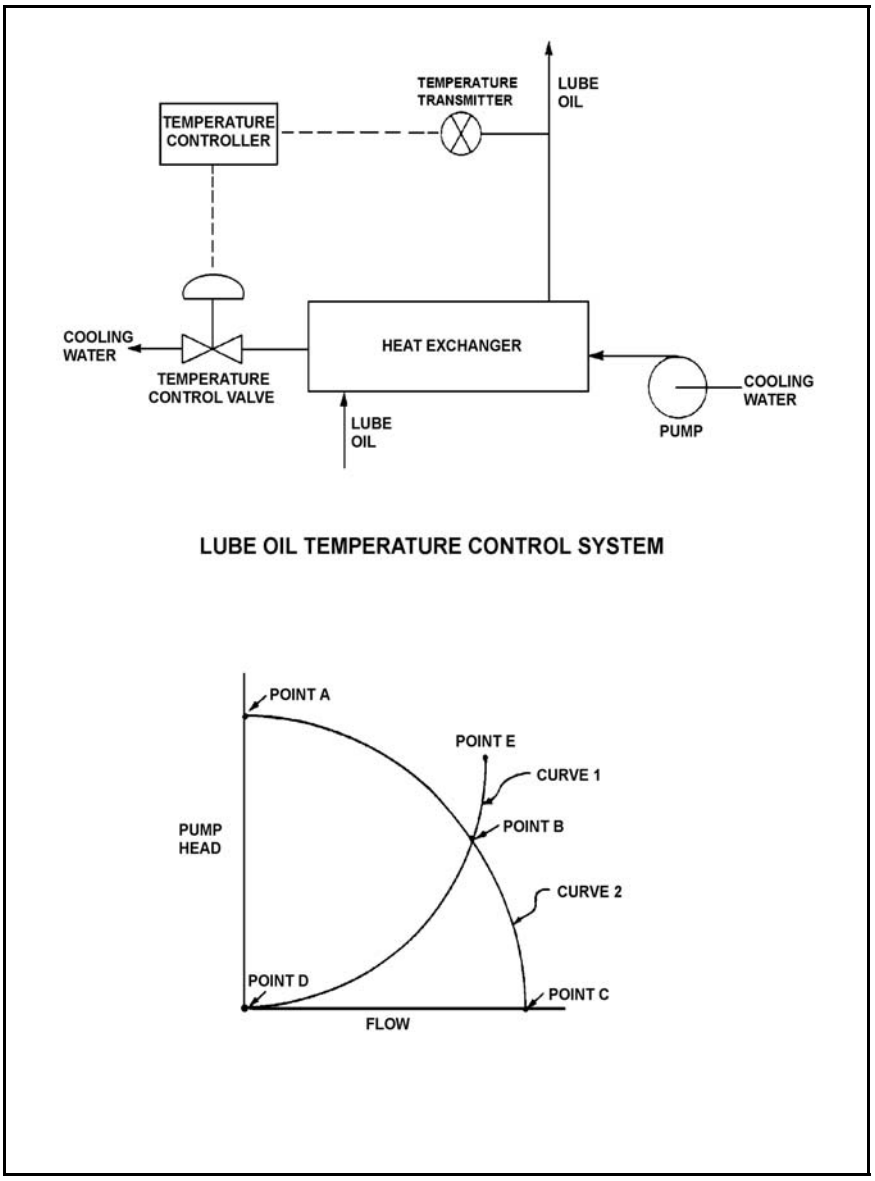
The pump is operating at point B on the operating curve. If the temperature control valve modulates farther open, operating point B will be located on curve _____, closer to point _____. (The options below refer to curves 1 and 2 exactly as shown in the figure.)

A. 1; D

B. 2; A

C. 1; E

D. 2; C



QUESTION: 13

A pump is needed to supply fuel oil from a day tank to a diesel engine fuel injection system. The pump must maintain a nearly constant flow rate with a minimum of discharge pressure fluctuations as system pressure varies between 200 psig and 1,900 psig.

Which one of the following types of pumps would typically be used in this application?

A. Axial flow centrifugal

B. Radial flow centrifugal

C. Rotary positive displacement

D. Reciprocating positive displacement

QUESTION: 14

A motor-driven centrifugal pump exhibits indications of pump failure while being started in an idle cooling water system. Assuming the pump motor breaker does not trip, which one of the following pairs of indications would be observed if the pump failure is a locked impeller shaft?

A. Lower than normal running current with zero system flow rate.

B. Lower than normal running current with a fraction of normal system flow rate.

C. Excessive duration of peak starting current with zero system flow rate.

D. Excessive duration of peak starting current with a fraction of normal system flow rate.

QUESTION: 15

A 4,160 VAC three-phase induction motor is connected to a radial-flow centrifugal pump in a cooling water system. When the pump is started, the time period required to reach a stable running current will be shorter if the pump discharge valve is fully _____; and the stable running current will be lower if the pump discharge valve is fully _____.

A. open; open

B. open; closed

C. closed; open

D. closed; closed

QUESTION: 16

A liquid-to-liquid heat exchanger containing trapped air on the shell side will be less efficient because the air...

A. causes more turbulent fluid flow.

B. increases the differential temperature across the tubes.

C. reduces the fluid contact with the heat transfer surface.

D. causes pressure oscillations.

QUESTION: 17

Refer to the drawing of an operating water cleanup system. All valves are identical and are initially 50% open (see figure below).

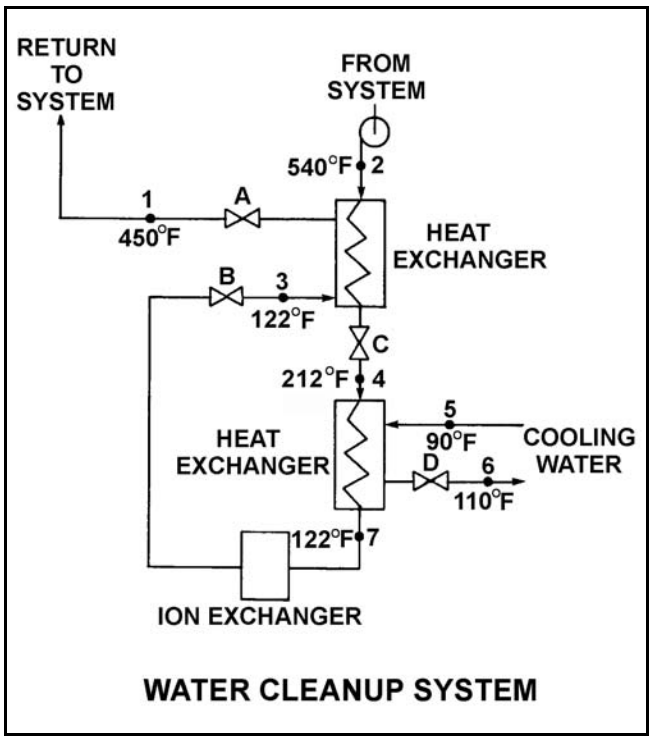
To raise the temperature at point 7, the operator should adjust valve _____ in the close direction.

A. A

B. B

C. C

D. D



WATER CLEANUP SYSTEM

QUESTION: 18

Refer to the drawing of an operating lube oil heat exchanger (see figure below).

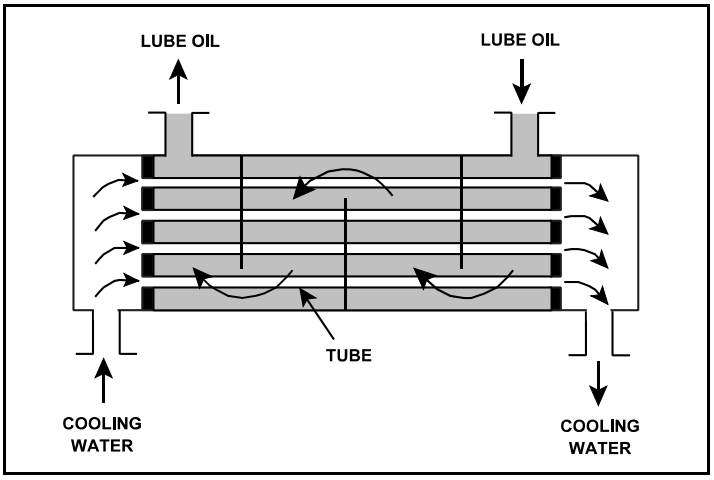
If scaling occurs inside the cooling water tubes, cooling water outlet temperature will _____ and lube oil outlet temperature will _____. (Assume oil and cooling water flow rates remain the same.)

A. decrease; decrease

B. decrease; increase

C. increase; decrease

D. increase; increase



QUESTION: 19

A condensate demineralizer differential pressure (D/P) gauge indicates 4.0 psid at 50% flow rate. Over the next two days plant power changes have caused condensate flow rate to vary between 25% and 100%.

Which one of the following combinations of condensate flow and demineralizer D/P, observed during the power changes, indicates an increased accumulation of corrosion products in the demineralizer?

	Condensate Flow Rate	Demineralizer D/P (psid)
A.	100%	15.0
B.	75%	9.0
C.	40%	3.0
D.	25%	1.0

QUESTION: 20

The anion exchange resin in a mixed-bed demineralizer releases desirable _____ ions into solution while removing undesirable _____ charged ions from solution.

A. hydroxide; negatively

B. hydroxide; positively

C. hydrogen; negatively

D. hydrogen; positively

QUESTION: 21

Refer to the drawing of a valve motor control circuit (see figure below) for a valve that is currently fully open and has a 10-second stroke time.

Note: Limit switch (LS) contacts are shown open regardless of valve position, but relay contacts are shown open/closed according to the standard convention for control circuit drawings.

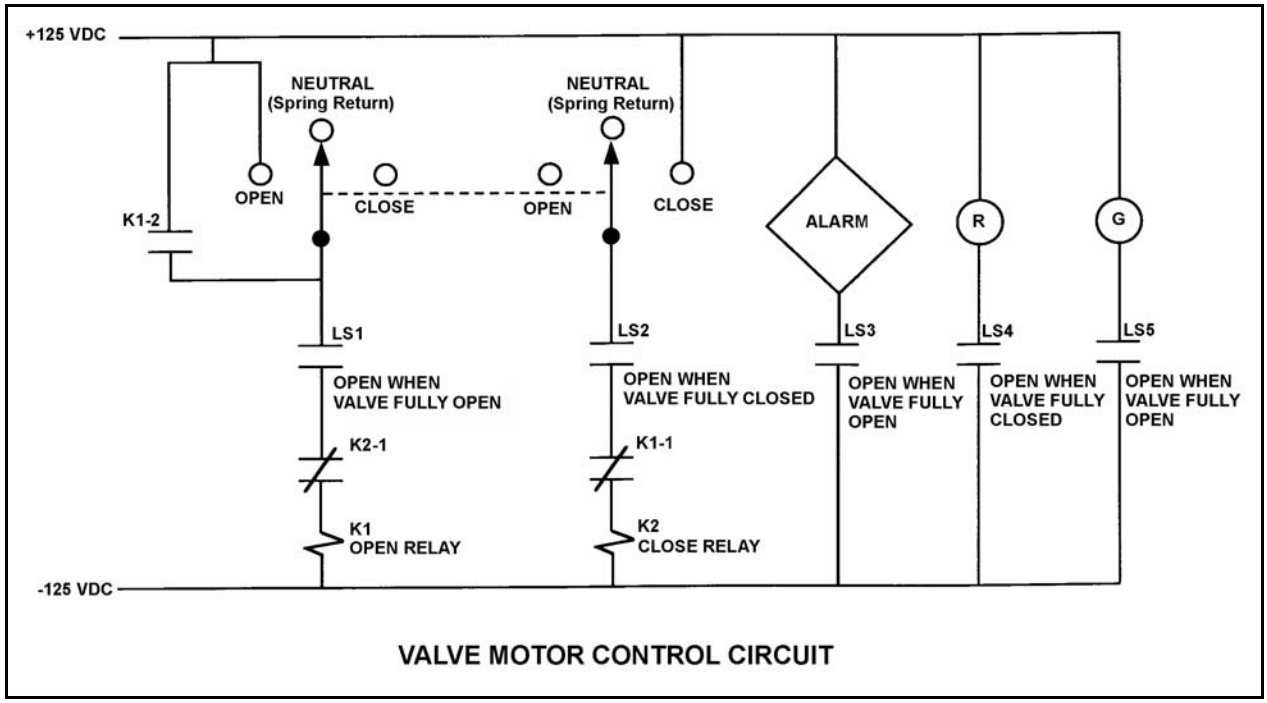
Which one of the following describes the valve response if the control switch is taken to the "Close" position for two seconds and then released?

A. The valve will not move.

B. The valve will close fully.

C. The valve will begin to close and then stop moving.

D. The valve will begin to close and then open fully.



VALVE MOTOR CONTROL CIRCUIT

QUESTION: 22

A main generator is about to be connected to an infinite power grid. Generator voltage equals grid voltage and the synchroscope is rotating slowly in the clockwise direction. The generator breaker is closed just as the synchroscope pointer reaches the 12 o'clock position.

Which one of the following will occur after the breaker is closed?

A. The breaker will remain closed and the generator will supply only MW to the grid.

B. The breaker will remain closed and the generator will supply both MW and MVAR to the grid.

C. The breaker will trip open due to overcurrent.

D. The breaker will trip open due to reverse power.

QUESTION: 23

The ideal neutron moderator has a _____ microscopic scattering cross section for thermal neutrons and a _____ density.

A. small; low

B. small; high

C. large; low

D. large; high

QUESTION: 24

Nuclear reactors A and B are identical except that reactor A is operating near the beginning of a fuel cycle (BOC) and reactor B is operating near the end of a fuel cycle (EOC). Both reactors are operating at 100 percent power.

Which reactor will have the greater core K_{eff} five minutes after a reactor scram?

A. Reactor A, because complete control rod insertion will add less negative reactivity near the BOC.

B. Reactor A, because the power coefficient is less negative near the BOC.

C. Reactor B, because complete control rod insertion will add less negative reactivity near the EOC.

D. Reactor B, because the power coefficient is less negative near the EOC.

QUESTION: 25

Two identical reactors, A and B, are critical at 1.0×10^{-8} percent power near the beginning of a fuel cycle. Simultaneously, positive 0.001 $\Delta K/K$ is added to reactor A, and negative 0.001 $\Delta K/K$ is added to reactor B. One minute later, which reactor, if any, will have the shorter period and why?

A. Reactor A, because delayed neutrons are less effective at slowing down power changes when the fission rate is increasing.

B. Reactor B, because delayed neutrons are less effective at slowing down power changes when the fission rate is decreasing.

C. The periods in both reactors will be the same because their effective delayed neutron fractions are the same.

D. The periods in both reactors will be the same because the absolute values of the reactivity additions are the same.

QUESTION: 26

During a reactor vessel cooldown, positive reactivity is added to the core if the moderator temperature coefficient is negative. This is partially due to...

A. a decrease in the thermal utilization factor.

B. an increase in the thermal utilization factor.

C. a decrease in the resonance escape probability.

D. an increase in the resonance escape probability.

QUESTION: 27

Which one of the following describes how and why the void coefficient of reactivity changes as void fraction increases during a control rod withdrawal at 80 percent power?

A. Becomes less negative due to the increased absorption of neutrons by U-238.

B. Becomes less negative due to a greater fraction of neutrons lost to leakage from the core.

C. Becomes more negative due to the reduction in the fast fission contribution to the neutron population.

D. Becomes more negative due to a greater fractional loss of moderator for a 1% void increase at higher void fractions.

QUESTION: 28

Rod position indications indicate that a control rod is at position 16. When the control rod is moved to position 22, it is being...

A. inserted 18 inches.

B. withdrawn 18 inches.

C. inserted 36 inches.

D. withdrawn 36 inches.

QUESTION: 29

A nuclear reactor is initially critical below the point of adding heat with constant reactor vessel temperature and pressure. If control rods are manually inserted for 5 seconds, reactor power will decrease...

A. to a shutdown power level determined by subcritical multiplication.

B. temporarily, then return to the original value due to the resulting decrease in moderator temperature.

C. until inherent positive reactivity feedback causes the reactor to become critical at a lower neutron level.

D. temporarily, then return to the original value due to subcritical multiplication.

QUESTION: 30

A nuclear reactor has been operating at 70 percent power for 20 hours following a one-hour power reduction from steady-state 100 percent power. Which one of the following describes the current core xenon-135 concentration?

A. Increasing toward a peak.

B. Decreasing toward an upturn.

C. Decreasing toward equilibrium.

D. At equilibrium.

QUESTION: 31

A reactor scram occurred from steady state 100 percent power and a reactor startup is currently in progress. Which one of the following sets of initial startup conditions will require the smallest amount of control rod withdrawal to achieve criticality? (BOC = beginning of fuel cycle; EOC = end of fuel cycle.)

	Core Age	Time Since Reactor Scram
A.	BOC	12 hours
B.	BOC	40 hours
C.	EOC	12 hours
D.	EOC	40 hours

QUESTION: 32

Gadolinium (Gd-155 and -157) is used instead of boron (B-10) as the _____ material; when compared to gadolinium, boron has a much _____ cross section for absorbing thermal neutrons.

A. control rod; larger

B. burnable poison; larger

C. control rod; smaller

D. burnable poison; smaller

QUESTION: 33

During an initial fuel load, the subcritical multiplication factor increases from 1.0 to 4.0 as the first 100 fuel assemblies are loaded. What is the core K_{eff} after the first 100 fuel assemblies are loaded?

A. 0.25

B. 0.5

C. 0.75

D. 1.0

QUESTION: 34

A nuclear reactor has just achieved criticality during a xenon-free reactor startup. Instead of stabilizing reactor power at 1.0×10^3 cps per the startup procedure, the operator inadvertently allows power to increase to 1.0×10^4 cps.

Assuming reactor vessel coolant temperature and pressure do not change, the critical rod height at 1.0×10^4 cps will be _____ the critical rod height at 1.0×10^3 cps. (Neglect any effects of changes in fission product poisons.)

A. different but unpredictable compared to

B. less than

C. greater than

D. equal to

QUESTION: 35

A nuclear reactor is at 1.0×10^{-3} percent power with a stable period of positive 60 seconds at the beginning of a fuel cycle. Assuming no operator action, no reactor scram, and no steam release, what will reactor power be after 10 minutes?

A. Below the point of adding heat (POAH).

B. At the POAH.

C. Approximately 22 percent.

D. Greater than 100 percent.

QUESTION: 36

Ignoring the effects of changes in fission product poisons, which one of the following power changes requires the greatest amount of positive reactivity addition?

A. 3 percent to 10 percent

B. 10 percent to 25 percent

C. 25 percent to 60 percent

D. 60 percent to 100 percent

QUESTION: 37

Refer to the drawing of four tank differential pressure level detectors (see figure below).

The tanks are identical and are being maintained at 30 psia and a water level of 20 feet. They are surrounded by standard atmospheric pressure. The water in the tanks and reference legs is at 70°F.

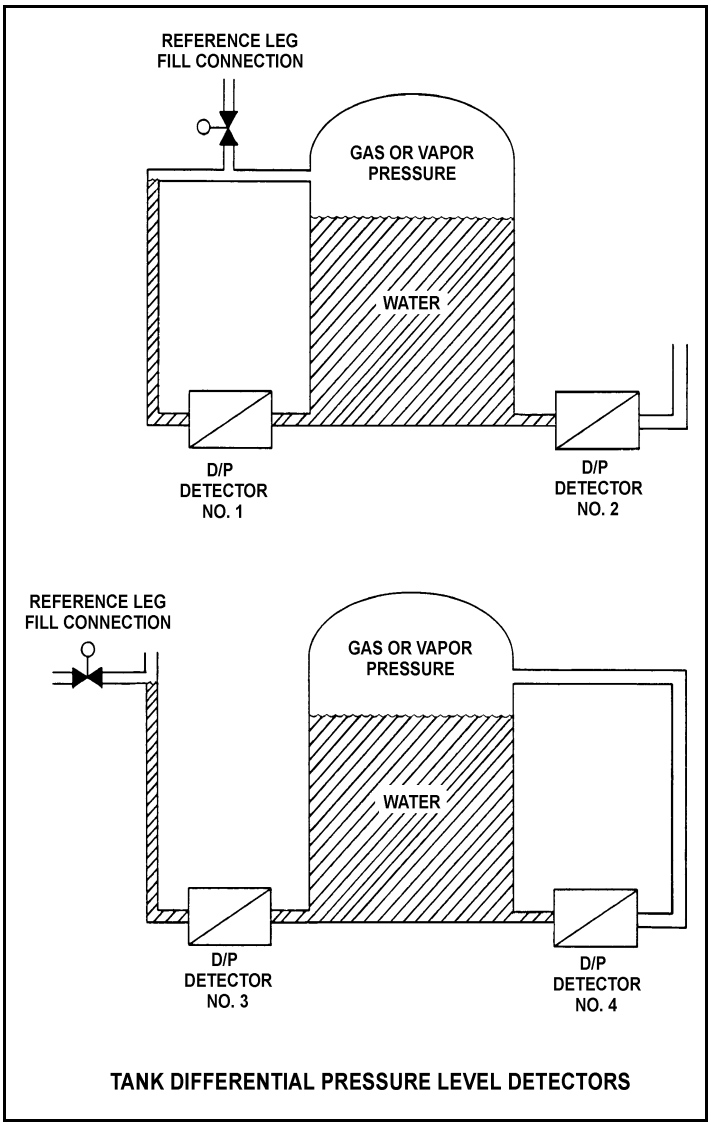
If each detector experiences a ruptured diaphragm, which detector(s) will cause indicated tank level to increase? (Assume actual tank water level remains constant.)

A. No. 1 only

B. No. 2 only

C. No. 1 and 3

D. No. 2 and 4



TANK DIFFERENTIAL PRESSURE LEVEL DETECTORS

QUESTION: 38

Saturated steam undergoes an ideal expansion process in an ideal turbine from 1,000 psia to 28 inches Hg vacuum. Approximately how much specific work is being performed by the turbine?

A. 1,193 Btu/lbm

B. 775 Btu/lbm

C. 418 Btu/lbm

D. 357 Btu/lbm

QUESTION: 39

A nuclear power plant is operating at 100 percent power. Which one of the following describes how and why main condenser pressure changes when condenser cooling water flow rate increases significantly?

A. Decreases because main condenser saturation (shell) temperature decreases.

B. Decreases because main condenser condensate subcooling increases.

C. Increases because main condenser saturation (shell) temperature decreases.

D. Increases because main condenser condensate subcooling increases.

QUESTION: 40

A nuclear power plant is initially operating at 85 percent reactor power when extraction steam to a high-pressure feedwater heater is isolated. Main generator load is returned to its initial value. When the plant stabilizes, reactor power will be _____ than 85 percent, and overall plant thermal efficiency will be _____.

A. greater; lower

B. greater; higher

C. less; lower

D. less; higher

QUESTION: 41

Refer to the drawing of two lengths of 16-inch diameter pipe, each containing an identical automatic isolation valve. The actual pipe lengths are proportional to their symbols in the drawing.

Water is flowing at 10,000 gpm through each pipe when both isolation valves instantly close. Consider two cases:

Case 1: The water temperature upstream of both valves is 65°F.
Case 2: The water temperature is 65°F upstream of valve A, and 85°F upstream of valve B.

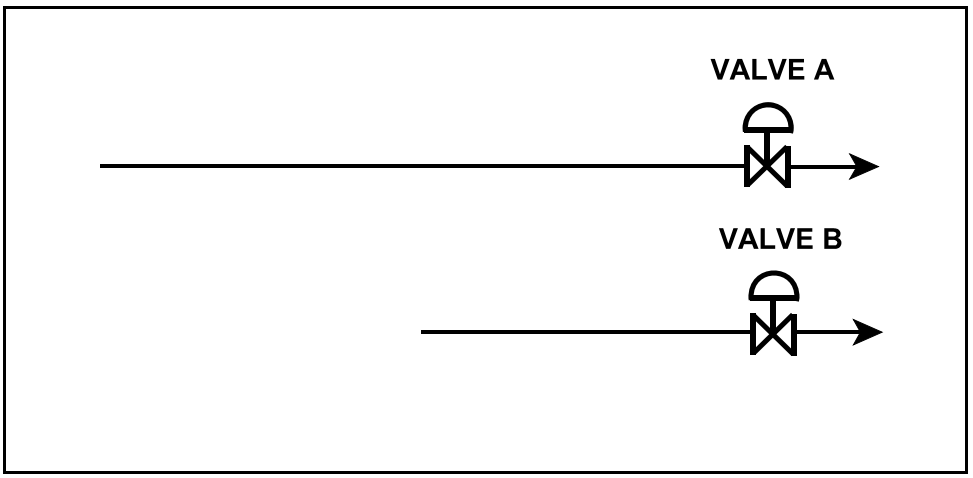
For which case(s), if any, will valve A experience a pressure spike that is greater than the pressure spike at valve B?

A. Case 1 only

B. Case 2 only

C. Both cases

D. Neither case



QUESTION: 42

A single stage centrifugal pump is operating in an open system. Which one of the following is the force caused by subjecting the pump impeller to the unequal pressures that exist at the suction and the discharge of the pump?

A. Axial thrust

B. Radial thrust

C. Kingsbury thrust

D. Journal thrust

QUESTION: 43

The order of reactor coolant heat transfer modes, from the least efficient to the most efficient, is...

A. transition boiling, stable film boiling, nucleate boiling.

B. transition boiling, nucleate boiling, stable film boiling.

C. stable film boiling, nucleate boiling, transition boiling.

D. stable film boiling, transition boiling, nucleate boiling.

QUESTION: 44

A nuclear reactor is operating at 100 percent power. Which one of the following will be the initial type of fuel damage if a fuel rod exceeds the critical heat flux?

A. Loss of clad integrity

B. Loss of pellet integrity

C. Pellet-clad interaction

D. Clad creep

QUESTION: 45

Which one of the following will initially reduce core inlet subcooling?

A. Increase the mass flow rate of saturated water returning to the downcomer.

B. Increase the mass flow rate of saturated steam returning to the downcomer.

C. Increase core recirculation mass flow rate.

D. Isolate steam to one feedwater heater.

QUESTION: 46

Given the following conditions:

10 lbm mixture of vapor and liquid
Steam quality = 40%
Pressure = 1,000 psia

Which one of the following is the void fraction?

A. 93.2%

B. 89.9%

C. 10.1%

D. 6.8%

QUESTION: 47

A nuclear reactor is operating at steady state conditions in the power range with the following average temperatures in a core plane:

$T_{coolant}$ = 550°F
$T_{fuel\ centerline}$ = 1,680°F

Assume that the fuel rod heat transfer coefficients and reactor coolant temperatures are equal throughout the core plane. If the maximum total peaking factor in the core plane is 2.1, what is the maximum fuel centerline temperature in the core plane?

A. 2,923°F

B. 3,528°F

C. 4,078°F

D. 4,683°F

QUESTION: 48

A nuclear power plant is operating at 90 percent power near the end of a fuel cycle when a signal error causes the turbine control system to throttle the turbine control valves an additional 5 percent in the closed direction. Assuming the turbine control valves stabilize in their new position and the reactor does not scram, the critical power ratio will initially...

A. increase because reactor power initially increases.

B. decrease because reactor power initially decreases.

C. increase because the reactor coolant latent heat of vaporization initially increases.

D. decrease because the reactor coolant latent heat of vaporization initially decreases.

QUESTION: 49

Select the purpose of the gap between the fuel pellet and the clad.

A. Prevent contact between the fuel pellets and the clad.

B. Increase heat transfer from the fuel pellet to the clad.

C. Accommodate differential expansion between the fuel pellets and the clad.

D. Reduce diffusion of fission product gases through the clad and into the reactor coolant system.

QUESTION: 50

Two identical nuclear reactors are currently shut down for refueling. Reactor A has an average lifetime power capacity of 90 percent and has been operating for 10 years. Reactor B has an average lifetime power capacity of 80 percent and has been operating for 15 years.

Which reactor will have the higher reactor vessel nil ductility transition temperature and why?

A. Reactor A because it has the higher average lifetime power capacity.

B. Reactor B because it has the lower average lifetime power capacity.

C. Reactor A because it has produced significantly less fissions.

D. Reactor B because it has produced significantly more fissions.

*****FINAL ANSWER KEY *****

DECEMBER 2009 NRC GENERIC FUNDAMENTALS EXAMINATION
BOILING WATER REACTOR - ANSWER KEY

FORM A	FORM B	ANS.	FORM A	FORM B	ANS.
1	15	D	26	40	D
2	16	B	27	41	D
3	17	C	28	42	B
4	18	D	29	43	A
5	19	C	30	44	C
6	20	A	31	45	B
7	21	B	32	46	D
8	22	C	33	47	C
9	23	B	34	48	D
10	24	C	35	49	B
11	25	A	36	50	D
12	26	D	37	1	A
13	27	C	38	2	C
14	28	C	39	3	A
15	29	D	40	4	A
16	30	C	41	5	B
17	31	D	42	6	A
18	32	B	43	7	D
19	33	C	44	8	A
20	34	A	45	9	B
21	35	C	46	10	A
22	36	A	47	11	A
23	37	D	48	12	D
24	38	A	49	13	C
25	39	A	50	14	D