Category Number	Button Number	Point Value	Question	Category	Answer
1	1	600	How could you screen-out 25 one-quart polycarbonate bottles (6.25 gallons) of volatile liquid with HHR of 4?	Order & Guide II	Aggregation of small quantities
2	2	500	This micro-organism type may screen in for technical planning basis. It is ultramicroscopic and cannot survive or reproduce in nature outside of a living host organism.	Hazard Recognition	Virus
3	3	500	What common characteristic do these gases share that is not normally considered in consequence modeling?: Hydrogen, Helium, Hydrogen Cyanide, Hydrogen Fluoride, Methane, Ethylene, Diborane, Illuminating Gases, Carbon Monoxide, Acetylene, Neon, Nitrogen, and Ammonia	Dispersion & Consequence	They are lighter than air.
4	4	400	You're categorizing/classifying an event. You know that no hazardous material will release outside of the structure but a room containing an inert nuclear weapon component is burning and has just gone to flashover. At least two workers were in the room and are almost certainly dead. What is this event's Cat & Class?	Scenario Analysis	151.1C CRD 11.b.(1)(b)2 SAE Criteria - An actual or potential threat to the integrity of a nuclear weapon, component, or test device that may adversely impact the health and safety of workers in the immediate area, but not the public.
5	5	100	This phrase describes two algebraic symbols used to represent a ratio of downwind consequence to source term size. Guide Vol. II references this with regard to 95% meteorology.	Terminology	X/Q or "Chi over Cue"
6	6	200	NFPA 704 Health Hazard Rating System says that a gas with LC-50 of 800 PPM must be rated as: (0, 1, 2, 3, 4 or "it depends")	Hodge Podge	It depends . . . NFPA 704 4.2.3 The system shall be based on relative rather than absolute values, . . .
1	7	300	DOE Order O 151.1 cancels the _____-series, which previously formed the basis for DOE's Emergency Management System (EMS). What was that series?	Order & Guide II	The 5500-series
2	8	600	A likely reason that 100 lb of Health-3 Gas in a container called a dewar might screen out is . . .	Hazard Recognition	Its health rating is 3 only because it's cryogenic
3	9	400	What do the acronyms MAR, DR, ARF, RF and LPF each stand for?	Dispersion & Consequence	Material At Risk, Damage Ratio, Airborne Release Fraction, Respirable Fraction and Leak Path Factor
4	10	300	While a material that ignites in contact with air is called pyrophoric, two materials that ignite when coming in contact with each other are called _____. (e.g. Potassium Permanganate and Glycerin)	Scenario Analysis	Hypergolic

Category Number	Button Number	Point Value	Question	Category	Answer
5	11	300	These published numbers represent the radionuclide-specific concentration in food present throughout the relevant period of time, that without intervention could lead to an individual receiving a radiation dose equivilant to the PAG.	Terminology	Derived Intervention Levels or DILS
6	12	100	This scientist/mathematician contributed to the science of consequence assessment between 1777 and 1855 in what is now Germany. He was once interrupted in the middle of a problem and told that his wife was dying. He is purported to have said, "Tell her to wait a moment till I'm done."	Hodge Podge	Johann Carl Friedrich Gauss (any variation of Gauss is acceptable)
1	13	400	The general term for the level of hazardous material impact that, if observed or predicted, indicates action is needed to prevent or limit exposure of people to the hazard is _____ _____ _____.	Order & Guide II	Protective Action Criteria
2	14	200	These chemically inert materials are likely to be a concern for a radiological criticality but not for an explosive dispersal of radiological materials	Hazard Recognition	Noble Gases
3	15	300	Radiological Exposure Pathways include: _____, inhalation from the plume and whole body exposure from deposited material	Dispersion & Consequence	Whole body exposure to gamma radiation from the plume (exposure us acceptable).
4	16	100	Generally speaking what would the effect be of doubling the fire intensity for a fire-driven release of hazardous material for the same size HAZMAT release?	Scenario Analysis	It would produce less consequence. It would loft the plume higher. It would cause the plume to be more dilute when it reached ground level.
5	17	600	While hydrocarbons that contain a ring-like molecular structure are called "aromatic," those that form essentially a straight line (e.g. ethane, propane, or butane) are called:	Terminology	aliphatic
6	18	300	Which phase (early, intermediate, or late) as described in the 1992 EPA PAG Manual begins when the release has been brought under control?	Hodge Podge	Intermediate
1	19	500	To determine whether a chemical consequence exceeds PAC, the highest time-weighted average (TWA) concentration predicted or measured for what time period?	Order & Guide II	15-minute
2	20	300	A poisonous imiscible volatile organic liquid with a specific gravity of 0.7 spilled into a diked area. Will spraying water onto it reduce the event consequence and why?	Hazard Recognition	No, Immiscible materials won't dilute in water. SG 0.7 would float on top of water.
3	21	200	What might you use this formula for: “QR =(0.284 × U^0.78 × MW^2/3 × A × VP) / (82.05 × T)”	Dispersion & Consequence	Evaporation
4	22	500	A hazardous material release occurred shortly after dawn after a clear, cold, calm night. What is a likely impact of this time and circumstance on this release?	Scenario Analysis	This is a likely time for and atmospheric inversion?

Category Number	Button Number	Point Value	Question	Category	Answer
5	23	200	When using the SCAPA Chemical Mixture Method, the toxicologic classification of specific chemicals can be done using the _____ _____ _____ established for each chemical. They are used in the CMM to identify the target-organ effects of each chemical in the mixture	Terminology	Health Code Numbers (HCNs)
6	24	400	Routes of toxicological exposure include: Inhalation, Ingestion, _____ and Absorption	Hodge Podge	Injection
1	25	100	These values may be used for chemical Protective Action Criteria if PACs using TEEL Methodology are not available and are published by the National Academy of Sciences	Order & Guide II	Short Term Public Emergency Guidance Level (SPEGL)
2	26	400	Phenol is a pink viscous liquid. It carries a DOT Placard reading POISON. It has a vapor pressure of 0.1 mm Hg at 77° F (NIOSH, 2003). If stored in a fixed, double-walled, diked, 1000-gallon, double-walled, atmospheric pressure, room temperature, above ground tank, would this material screen out when stored in and why?	Hazard Recognition	Non-dispersible material. Vapor pressure less than 1mmHg.
3	27	600	If a long narrow canyon runs east and west, and the sun is shining on the northern wall of the canyon, the air on the south wall of the canyon will tend to move ____(How)_____.	Dispersion & Consequence	downward
4	28	600	Ethyl Chloride is listed in the NIOSH Pocket Guide as having an RGasD value of 2.23. What does ths tell you about its properties as this gas disperses?	Scenario Analysis	Relative Gas Density about two and a quarter times heavier than air. It's a dense gas.
5	29	500	Which represents the horizontal, cross-wind component of the Gaussian dispersion model, Sigma-X, Sigma-Y or Sigma-Z?	Terminology	Sigma Y
6	30	500	This German physicist's first name is Wilhelm. Hazard and Consequence Analysts use his last name in an acronym when they describe radiological dose.	Hodge Podge	Wilhelm Conrad Röntgen (27 March 1845 – 10 February 1923)
1	31	200	DOE G 151.1-2 recommends consulting this type of organization as a minimum means to identify nearby facilities (out side of the DOE facility and site) that could impact the health and safety of on-site personnel or other DOE interests	Order & Guide II	Local Emergency Planning Committee (LEPC)
2	32	100	If a full, one-ton chlorine container releases through a sheared valve and ice forms from the condensate on the shell then the release slows, why is it not safe to assume that the release is ending?	Hazard Recognition	The liquefied gaseous chlorine has auto-refrigerated and frozen. It will thaw and release again.
3	33	100	This English meteorologist's last name is part of a commonly used classification system for atmospheric stability. (Hint: He teamed with Frank Gifford)	Dispersion & Consequence	Frank Pasquill

Category Number	Button Number	Point Value	Question	Category	Answer
4	34	200	This simplified calculational model is a graphical calculating device, a two-dimensional diagram designed to allow the approximate graphical computation of a function: it uses a coordinate system other than Cartesian coordinates	Scenario Analysis	Nomogram
5	35	400	This represents the amount of or rate at which hazardous material is released to the environment	Terminology	Source Term
6	36	600	This toxicologist is known for the quotation: "All things are poison and nothing is without poison, only the dose permits something not to be poisonous."	Hodge Podge	Paracelsus
Final Jeopardy	37	1000	Since their first publication in 1992, how many times have the EPA PAG manual(s) been updated?	Final Jeopardy	None. Draft revisions were approved by the EPA's Deputy Administrator shortly before the inauguration. The new team at EPA wishes to review the PAGs revisions before proceeding with a notice of availability and public comment.

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