EXAMINATION BLUEPRINT
CSP10

Domain 1
Advanced Sciences and Math • 9.95%

Knowledge of:

1. Core concepts in anatomy and physiology
2. Core concepts in chemistry (e.g., organic chemistry, general chemistry, and biochemistry)
3. Core concepts in physics (e.g., forms of energy, weights, forces, and stresses)
4. Mathematics (e.g., geometry, algebra, trigonometry, finance and accounting, engineering, and economics)
5. Statistics for interpreting data (e.g., mean, median, mode, confidence intervals, probabilities, and pareto analysis)
6. Core research methodology
7. Microbiology (e.g., nanotechnology, waterborne pathogens, and bloodborne pathogens)

Skill to:

1. Calculate required containment volumes and hazardous materials storage requirements
2. Calculate statistics from data sources

Domain 2
***Management Systems* • 13.34%**

Knowledge of:

1. Benchmarks and performance standards/metrics
2. How to measure, analyze, and improve organizational culture
3. Incident investigation techniques and analysis (e.g., causal factors)
4. Management of change techniques (prior, during, and after)
5. System safety analysis techniques (e.g., fault tree analysis, failure modes and effect analysis [FMEA], Safety Case approach, and Risk Summation)
6. The elements of business continuity and contingency plans
7. Types of leading and lagging safety, health, environmental, and security performance indicators
8. Safety, health, and environmental management and audit systems (e.g., ISO 14000, 45001, 19011, ANSI Z10)
9. Applicable requirements for plans, systems, and policies (e.g., safety, health, environmental, fire, and emergency action)
10. Document retention or management principles (e.g., incident investigation, training records, exposure records, maintenance records, environmental management system, and audit results)
11. Budgeting, finance, and economic analysis techniques and principles (e.g., timelines, budget development, milestones, resourcing, financing risk management options, return on investment, cost/benefit analysis, and role in procurement process)
12. Management leadership techniques (e.g., management theories, leadership theories, motivation, discipline, and communication styles)
13. Project management concepts and techniques (e.g., RACI charts, project timelines, and budgets)

Skill to:

1. Analyze and/or interpret data (e.g., exposure, release concentrations, and sampling data)
2. Apply management principles of authority, responsibility, and accountability
3. Compare management systems with benchmarks
4. Conduct causal factors analyses
5. Develop, implement, and sustain environmental, safety, and health management systems
6. Evaluate and analyze survey data
7. Perform gap analyses
8. Demonstrate business need via financial calculations (e.g., return on investment, engineering economy, and financial engineering)

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Domain 3

Risk Management • 14.49%

Knowledge of:

1. Hazard identification and analysis methods (e.g., job safety analysis, hazard analysis, human performance analysis, and audit and causal analysis)
2. Risk analysis
3. Risk evaluation (decision making)
4. The risk management process
5. The costs and benefits of risk assessment process
6. Insurance/risk transfer principles

Skill to:

1. Apply risk-based decision-making tools for prioritizing risk management options
2. Calculate metrics for organizational risk
3. Conduct hazard analysis and risk assessment
4. Select risk treatment or controls using the hierarchy of controls
5. Explain risk management options and concepts to decision makers, stakeholders, and the public

Domain 4

Advanced Application of Key Safety Concepts • 14.69%

Knowledge of:

1. Principles of safety through design and inherently safer designs (e.g., designing out hazards during design phase, avoidance, elimination, and substitution)
2. Engineering controls (e.g., ventilation, guarding, isolation, and active vs. passive)
3. Administrative controls (e.g., job rotation, training, procedures, and safety policies and practices)
4. Personal protective equipment
5. Chemical process safety management (e.g., pressure relief systems, chemical compatibility, management of change, materials of construction, and process flow diagrams)
6. Redundancy systems (e.g., energy isolation and ventilation)
7. Common workplace hazards (e.g., electrical, falls, same level falls, confined spaces, lockout/tagout, working around water, caught in, struck by, excavation, welding, hot work, cold and heat stress, combustibles, laser, and others)
8. Facility life safety features (e.g., public space safety, floor loading, and occupancy loads)
9. Fleet safety principles (e.g., driver and equipment safety, maintenance, surveillance equipment, GPS monitoring, telematics, hybrid vehicles, fuel systems, driving under the influence, and fatigue)
10. Transportation safety principles (e.g., air, rail, and marine)
11. Materials handling (e.g., forklifts, cranes, hand trucks, person lifts, hoists, rigging, manual, and drones)
12. Foreign material exclusion (FME) and foreign object damage (FOD)
13. Hazardous materials management (e.g., GHS labels, storage and handling, policy, and security)
14. Multi-employee worksite issues (e.g., contractors and temporary or seasonal employees)
15. Sources of information on hazards and risk management options (e.g., subject matter experts, relevant best practices, published literature, and SDS)
16. The safety design criteria for workplace facilities, machines, and practices (e.g., UL, NFPA, NIOSH, FM, and ISO)
17. Tools, machines, practices, and equipment safety (e.g., hand tools, ladders, grinders, hydraulics, and robotics)
18. Workplace hazards (e.g., nanoparticles, combustible dust, heat systems, high pressure, radiation, silica dust, powder and spray applications, blasting, and molten metals)
19. Human performance

Skill to:

1. Calibrate, use, and maintain data logging, monitoring, and measurement equipment
2. Identify relevant labels, signs, and warnings
3. Interpret plans, specifications, technical drawings, and process flow diagrams

Domain 5

Emergency Preparedness, Fire Prevention, and Security • 10.59%

Knowledge of:

1. Emergency/crisis/disaster response planning/business continuity (e.g., nuclear incidents, natural disasters, terrorist attacks, chemical spills, fires, active violent attacks, and public utilities)
2. Fire prevention, protection, and suppression systems
3. The transportation and security of hazardous materials
4. Workplace violence and prevention techniques (violence on employees)

Skill to:

1. Manage active incidents (e.g., emergency, crisis, disaster, and incident command system)

Domain 6

Occupational Health and Ergonomics • 12.05%

Knowledge of:

1. Advanced toxicology principles (e.g., symptoms of an exposure, LD50, mutagens, teratogens, and ototoxins)
2. Carcinogens
3. Ergonomics and human factors principles (e.g., visual acuity, body mechanics, lifting, vibration, anthropometrics, and fatigue management)
4. How to recognize occupational exposures (e.g., hazardous chemicals, radiation, noise, biological agents, heat/cold, infectious diseases, nanoparticles, and indoor air quality)
5. How to evaluate occupational exposures (e.g., hazardous chemicals, radiation, noise, biological agents, heat/cold, infectious diseases, ventilation, nanoparticles, and indoor air quality), including techniques for measurement, sampling, and analysis
6. How to control occupational exposures (e.g., hazardous chemicals, radiation, noise, biological agents, heat/cold, ventilation, nanoparticles, infectious diseases, and indoor air quality)
7. Employee substance abuse
8. The fundamentals of epidemiology
9. Occupational exposure limits (e.g., hazardous chemicals, radiation, noise, biological agents, and heat)

Skill to:

1. Conduct exposure evaluation (e.g., chemicals, SDS, ergonomic, ventilation, and environment [calibrations and calculations])
2. Use sampling equipment
3. Interpret data from exposure evaluations (e.g., adjusted shift calculations, use correct sampling method, and use correct analytical method)

Domain 7

Environmental Management Systems • 7.38%

Knowledge of:

1. Environmental protection and pollution prevention methods (e.g., air, water, soil, containment, soil vapor intrusion, and waste streams)
2. How released hazardous materials migrate/interact through the air, surface water, soil, and water table
3. Sustainability principles
4. Waste water treatment plants, onsite waste water treatment plants, and public water systems
5. Registration, evaluation, authorization and restriction of chemicals (REACH) and restriction of hazardous substances (RoHS)

Skill to:

1. Use waste management practices (e.g., segregation and separation, containment, disposal, chain of custody, and policy)
2. Conduct hazardous waste operations (e.g., spill clean-up and remediation)

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Domain 8

Training/Education • 10.18%

Knowledge of:

1. Education and training methods and techniques (e.g., classroom, online, computer-based, AI, and on-the-job training)
2. Training, qualification, and competency requirements
3. Methods for determining the effectiveness of training programs (e.g., determine if trainees are applying training on the job)
4. Effective presentation techniques

Skill to:

1. Perform training needs assessments
2. Develop training programs (e.g., presentation skills and tools)
3. Develop training materials
4. Conduct training
5. Assess training competency
6. Develop training assessment instruments (e.g., written tests and skill assessments) to assess training competency

Domain 9

Law and Ethics • 7.33%

Knowledge of:

1. Legal issues (e.g., tort, negligence, civil, criminal, contracts, and disability terminology)
2. Protection of confidential information (e.g., privacy, trade secrets, personally identifiable information, and General Data Protection Regulation [GDPR])
3. Standards development processes
4. The ethics related to conducting professional practice (e.g., audits, record keeping, sampling, and standard writing)
5. The relationship between labor and management
6. BCSP Code of Ethics
7. Workers' compensation (e.g., injured worker's compensation)

Skill to:

1. Interpret laws, regulations, and consensus codes and standards
2. Apply concepts of BCSP Code of Ethics

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