Sample Exam Questions

The following questions are examples of multiple-choice questions across the core competencies, similar to the questions in the BCPE exam. These sample questions are statistically validated.

Answers to the sample questions are on pages following the questions.
Please refer to the exam reference list for sources of these questions.

Number	Question
1	A systems integrator is designing a control panel and asks about the considerations that would go into grouping controls. Which of the following is NOT typically a consideration when grouping? a. Shape and color of controls b. Sequence of use c. Control function d. Frequency of use
2	What is the MOST common rule of thumb measure for setting work height when standing? a. Hip height b. Chest height c. Elbow height d. 100 cm (40 in)
3	In the waning hours of daylight, a person falls after tripping over a decorative pot next to a walkway. The pot is made of a blue-green plastic. The person claims that the blue-green color was very difficult to see in the fading daylight. Disregarding other factors, is there a scientific basis for the claim that the color was difficult to see because of the decreased light? a. Yes, all colors are difficult to see in reduced light. b. No, the human visual system becomes more sensitive to the blue-green part of the spectrum in diminishing light. c. Yes, humans aren't very sensitive to that part of the color spectrum. d. No, as long as the ambient light level is above scotopic levels, all colors are equally easy to see.
4	There is concern that a worker might experience carpal tunnel syndrome. Which strategy will provide the least benefit? a. Provide gloves to reduce the concentration of force b. Redesign the job the reduce wrist deviation c. Decrease the hand forces to move, push, or pull objects. d. Decrease the number of times per day the job is performed

5	A worker has a lifting related injury. Which of the following is LEAST likely to have occurred? a. Damage to the erector spinae muscles b. Compression damage to the intervertebral disc c. Herniated disc d. Damage to the shoulder rotator cuff
6	A manufacturing company uses an indexing conveyor that stops in front of each operator for a specific time (cycle time) for an assembly operation. The management has asked an ergonomist to predict the effects of reducing the time allocated to the task. Which of the following results is NOT likely to occur? a. Increased productivity with reduced quality. b. Increased productivity with increased worker morale. c. Increased productivity with higher occupational safety and health costs. d. Increased productivity at higher payroll costs.
7	An international client is expanding the role of an existing web-based work organization information tool while responding to user difficulties. The client wants a design specification that can also be used by their off-site software quality testing group. Which of the following is an effective and efficient series of steps for an ergonomist to propose to the client? a. Interview subject matter experts, gather user difficulty incidents, conduct a task analysis, and initiate personas development, leading to a use case analysis of users at the mouse click/keystroke level b. Interview current users and their management as to both critical incidents and non-critical incidents of user difficulties, document issues, and provide a training program to address problems c. Have current users perform certain tasks to uncover usability problems d. Interview current users and their management as to critical incidents of user difficulties, redesign accordingly, document issues for the software quality testing group, and have current users perform specific tasks to identify usability issues.
8	What type of information should be used with breadcrumb navigation? a. Hierarchical information b. Heterogeneous information c. Short lists of any information type as long as it doesn't exceed seven items d. Contextual categories of information
9	Which of the following describes how an ergonomist would design cutting shears to comply with the universal design principle of "flexibility in use." a. Provide a variety of sizes to accommodate users' hand sizes. b. Provide handles with long levers to reduce the force required to cut materials. c. Design shears that can be used with either the left or right hand. d. Design shears that are battery or electric powered to minimize repetitive actions and force.

10	How should a warning system be designed to notify workers on an assembly line to evacuate the building? a. Have blinking red text on a white background positioned next to exit doors. b. Have a speech signal using an emotional female voice speaking at a fast rate followed by five second alarm tone and blinking lights. c. Have a speech signal using a monotone male voice speaking at a slow, deliberate rate delivering a concise message followed by a ten second alarm tone and blinking lights. d. Have a minimum ten second alarm tone followed by verbal evacuation message and blinking lights.
11	A recent study of exercise levels involved in golf was undertaken to see if, from a physiological perspective, golf should be considered a sport. Four conditions were tested: carrying one's own golf bag and walking the course, having a caddie carry the bag for the player and walking the course, using a push cart for the golf bag and walking the course, and carrying the golf bag and riding in a golf cart between shots. The study had four groups of the same golfers play on the same course but varied the order of conditions in which they played (caddie, walking, pushing, and riding). What is this technique is known as? a. Counterstressor b. Countermeasure c. Counterindication d. Counterbalancing
12	An ergonomist is invited to be a human factors consultant in a team tasked with a design of an information system for an organization. What should be the ergonomist's FIRST priority in this capacity as the team sets to work? a. Support the other design team members in the conceptual design of the system, acting as a representative of the end user in this process. b. Start designing usability testing procedures so that they can be ready to test the first functional prototypes of the system. c. Identify the intended users of the system, their needs, and their prior knowledge and experiences before any other members of the design team begins their tasks. d. Start designing training and other support materials in parallel with the other aspects of the system design.
13	In a mission-critical human-computer system, which of the following statements BEST describes the difference between the human and the computer when accounting for them in the analysis of the system? a. Humans react to heat and other environmental stressors differently from computers. b. Human performance is typically far more variable than computer performance in any given circumstance. c. Humans are more cognitively complex and can better understand the system goals and objectives. d. Humans take longer than computers to perform most tasks.

14	The majority of users using a multi-line office telephone with call waiting, hold, and forwarding functions and a voice-mail system cannot properly operate most of these features. Ignoring the cost of redesign, where would human factors make the MOST significant contribution to the ultimate usability of the system? a. In the initial stages of the system's design, investigate the users' expectations and experiences to provide natural mappings between the telephone system's functions and users' control actions. b. In the redesign of the telephone interface, provide the users with labels for each of the telephone's buttons and functions to aid their memory. c. In the creation of an instruction manual with clearly tabbed sections for each of the telephone's functions and step-by-step instructions for users, provide instructions for the most commonly used functions on a separate "quick reference" card. d. In the creation of a short, online training module, explain the telephone system's features and their operation.
15	When accidents occur, the human operator is often a contributing factor. However, more often than not, this person may be only the final trigger at the end of a series of earlier events. Factors such as poor interface design, inappropriate sleep schedules and fatigue, management attitudes that overemphasize productivity, and concerns about consequences of self-reporting of incidents represent accidents waiting to happen. These are prevalent in healthcare. These factors could be considered characteristics of which of the following? a. Safety culture b. Employee characteristics c. Written warning and warning labels d. Hazard identification
16	Critical data on nuclear power plant operation is read from printouts using six-point font. The IES Lighting Handbook recommends 1,500 lux of illumination. A light meter indicates the overhead lights provide 500 lux of illumination on the paper. What change would reduce the risk of error? a. Move the worker's desk near a window to increase the amount of light. b. Change the color of the printing from black to red to maintain the worker's attention. c. Use a higher watt light bulb to increase the illuminance to 2,500 lux to provide a safety factor. d. Lower the overhead light fixtures to increase the amount of light.
17	How should an ergonomist design an automated system for a car that will automatically follow the car in front of it? a. The automation should always be engaged so as to prevent human error. b. A warning light should be provided that will tell the driver when to take control in cases where the automation does not know what to do. c. Provide the operator with alternative tasks so that they will not get bored during the drive. d. Provide a manual override and clear presentation of the state of the tasks the automation is performing compared to the goal state.

18	Which of the following is exclusively an interface design process? a. Waterfall model b. Agile process c. User centered process d. Participatory design
19	In which of the following situations would an ergonomist NOT expect “contact stress”? a. Rowing in a lake b. Competitive swimming c. Jogging in a city d. Watching high school basketball
20	A version of a shareware computer application is designed to ask the user to purchase it before the application runs but allows the user to use the application without paying. The possible options on this start-up message are “Yes” and “No;” however, the location of these two buttons is reversed each time the application is opened. Which of the following BEST describes the probability of selecting an incorrect option (i.e., selecting “Yes” when “No” was the intended response)? a. The probability would remain the same over time. b. The probability would increase over time. c. The probability would decrease over time as the users gain experience and learn the pattern of the button locations. d. The probability would vary depending on the level of attention afforded at each use of the product.
21	What type of analysis can be described as the evaluation of software completed by looking at the interface and trying to arrive at opinions of what is good and bad? a. Heuristic evaluation b. Retrospective testing c. Focus groups d. Thinking aloud
22	Which of the following would LEAST likely be encountered on a long airplane ride? a. Static load b. Metabolic load c. Inadequate clearance d. Pressure points
23	For which industry did Occupational Safety and Health Administration (OSHA) develop its first written ergonomics guidelines? a. Meatpacking b. Automotive c. Aeronautics (for cockpit design) d. Service industry (for computer work)

24	Which of the following components does the National Institute for Occupational Safety and Health (NIOSH) lifting equation NOT take into account? a. Twisting b. Acceleration c. Coupling d. Load lifted
25	Which of the following is a good example of knowledge based behavior? a. Grabbing a falling football b. Diagnosing an engine malfunction c. Responding to an engine light failure with the execution of a checklist d. Manually flying a plane down the glide slope to land

ANSWER KEY

Number	Answer
1	a. Shape and color of controls
2	c. Elbow height
3	b. No, the human visual system becomes more sensitive to the blue-green part of the spectrum in diminishing light.
4	a. Provide gloves to reduce the concentration of force
5	d. Damage to the shoulder rotator cuff
6	b. Increased productivity with increased worker morale.
7	d. Interview current users and their management as to critical incidents of user difficulties, redesign accordingly, document issues for the software quality testing group, and have current users perform specific tasks to identify usability issues.
8	a. Hierarchical information
9	c. Design shears that can be used with either the left or right hand.
10	d. Have a minimum ten second alarm tone followed by verbal evacuation message and blinking lights.
11	d. Counterbalancing

12	c. Identify the intended users of the system, their needs, and their prior knowledge and experiences before any other members of the design team begins their tasks.
13	b. Human performance is typically far more variable than computer performance in any given circumstance.
14	a. In the initial stages of the system's design, investigate the users' expectations and experiences to provide natural mappings between the telephone system's functions and users' control actions.
15	a. Safety culture
16	d. Lower the overhead light fixtures to increase the amount of light.
17	d. Provide a manual override and clear presentation of the state of the tasks the automation is performing compared to the goal state.
18	c. User centered process
19	b. Competitive swimming
20	d. The probability would vary depending on the level of attention afforded at each use of the product.
21	a. Heuristic evaluation
22	b. Metabolic load
23	a. Meatpacking
24	b. Acceleration
25	b. Diagnosing an engine malfunction