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Pe exam sample questions

Welcome to Slay the PE, your premier platform dedicated to helping mechanical engineers conquer the Principles and Practice of Engineering (PE) Exam. Our mission is simple: to empower engineers like you to excel in your careers, increase earning potential, and achieve professional milestones through expert exam preparation. The PE Exam is a critical step towards becoming a licensed professional engineer, covering disciplines such as Thermal and Fluid Systems, HVAC & Refrigeration, and Machine Design and Materials. At Slay the PE, we understand the challenges you face in preparing for this rigorous exam. That's why we've curated focused content that eliminates unnecessary complexities and delivers essential knowledge directly applicable to exam success. What sets us apart? Our approach combines expertly crafted study materials with personalized guidance tailored to fit your busy professional and personal life. From our comprehensive Study Guides and Practice Exams to our interactive instructional videos and realistic CBT simulations, every resource is designed to maximize your understanding and confidence. With a track record of success stories from engineers who have achieved their PE license with our support, we're committed to your success. Join the Slay the PE community today and embark on a journey towards mastering the PE Exam. Let's elevate your engineering career together. Try our FREE resources today! Explore our FREE resources designed to guide you towards mastering the PE exam. Dive in and discover how Slay the PE can empower your journey to engineering excellence! We also have a free, online, computer-based test (TFS or HVAC&R) with 21 exam-level questions in a realistic, timed environment. Go HERE for more information. The resources below are "legacy" materials from before the era of computer-based testing (CBT), still available here for reference. With the transition to CBT, test takers are no longer permitted to bring supporting materials into the exam room. Explore and download these valuable tables and graphs below: Water-Steam Saturation Properties (by Temperature in US Units Mollier Diagram for Water/Steam - US Customary System Water-Steam Saturation Properties (by Pressure in US Units) The most detailed and comprehensive superheated steam tables we can find freely available online can be downloaded HERE for USCS units. For SI Units, probably the best tables are those from NIST. The saturated water temperature table is HERE. The saturated water pressure table is HERE, and the compressed water/superheated vapor table is HERE. Isentropic, Compressible Flow Factors for Air (k=1.4) Tables Isentropic, Compressible Flow Factors for Air (k=1.4) Graphs Normal Shock Factors for Air (k=1.4) Tables Normal Shock Factors for Air (k=1.4) Graphs Pressure-Enthalpy Diagram for Ammonia - US Customary System Psychrometric Chart. Sea Level. Normal Temperature Range. US Customary System with SHR Protractor Psychrometric Chart. Sea Level. Normal Temperature Range. SI. 1D Transient Heat Conduction Heisler Chart for Centerline Transient Temperature for a Plane Wall Equation for 1D Transient Heat Conduction: Plane Wall Equation for 1D Transient Heat Conduction: Infinite Cylinder Equation for 1D Transient Heat Conduction: Sphere Thermo-physical Properties (Appendices from McGraw-Hill Textbooks) Property Tables & Charts SI Units. Appendix from Cengel and Boles Thermodynamics Textbook Property Tables & Charts English Units. Appendix from Cengel and Boles Thermodynamics Textbook Property Tables & Charts SI Units. Appendix from Cengel and Ghajar Heat Transfer Textbook Property Tables & Charts English Units. Appendix from Cengel and Ghajar Heat Transfer Textbook Shell and Tube Heat Exchangers Effectiveness-NTU Curves LMTD Correction Factors Just wanted to wish each of you taking the PE Exam tomorrow all the best of luck. I've enjoyed putting together these daily questions, the prep guide, and the online prep series and I very much hope that they've been helpful for you! If you ever have any comments or feedback, feel free to shoot them my way at . Thanks for subscribing, commenting, and being a part of the community here. All the best in knocking this exam out tomorrow! Determine the flow (in gpm) through an extended coverage pendant K16.8 sprinkler at 85 psi. a. 52 gpm b. 155 gpm c. 348 gpm d. 1428 gpm Solution | Posted 10/23/19 Which of the following types of pipe would require the most hangers for the same length of 1-1/2" pipe? a. CPVC. Copper Tubec. Steel other than Threaded Lightwall d. Threaded Lightwall Steel Solution | Posted 10/16/19 Which of the following would be considered a typical fire load for a bedroom? a. 0.4 - 0.8 lb/sqft b. 3.2 - 5.5 lb/sqft c. 11 - 14 lb/sqft d. 43 - 48 lb/sqft Solution | Posted 10/11/19 A fire pump's speed is altered from 1760 to 1800 rpm. What is the new head if the original was 120 ft? a. 115 ft b. 123 ft c. 126 ft d. 128 ft. Solution | Posted 10/09/19 What is the greatest allowed spacing among all pipe sizes between hangers for CPVC pipe in fire sprinkler systems? a. 6'-0" b. 9'-0" c. 10'-0" d. 12'-0" Solution | Posted 10/04/19 Which of the following agents are not used for metal fires containing magnesium? a. Boron Trifluoride b. Boron Trichloride c. Argond. Nitrogen Solution | Posted 09/30/19 A cotton production facility has areas of the production where fibers are considered easily ignitable. Which of the following trucks is not permitted in these areas? a. Diesel Type D5b. Diesel Type D7b. Electric Type EEC. Diesel Type D5d. Electric Type EX Solution | Posted 09/26/19 A 2 inch main drain (considered smooth opening) is opened to full drain capacity for a system with a pressure of 95 PSI. Approximately how much water (in gpm) will the drain flow assuming no friction loss? a. 420 gpm b. 925 gpm c. 1165 gpm d. 1460 gpm Solution | Posted 09/24/19 Inergen (IG-541) is being used for protection of several rooms which contain highly valuable historic documents. If the fire type is considered Class A and the design concentration of Inergen is provided, determine the clean agent-air mixture density. a. 1.15 kg/cu. m b. 1.25 kg/cu. m c. 1.28 kg/cu. m d. 1.44 kg/cu. m Solution | Posted 09/19/19 For a performance-based design, a fire protection consultant makes an assumption that the production rate of carbon monoxide for a model fire package is equal to the highest production rate of each of the component fuels. This assumption would be considered: a. explicit safety factor b. implied safety factor. total safety factor. no safety factor Solution | Posted 09/17/19 The worst expected symptoms for humans when concentration of carbon monoxide reaches 1600 parts per million is which of the following: a. no adverse effects for up to 8 hours of exposure b. dizziness after 45 minutes of exposure c. nausea, headache, and dizziness after 20 minutes of exposure d. unconsciousness and danger of death after 10-15 minutes of exposure Solution | Posted 09/16/19 A theater has aisles serving its main seating area. One of the aisles has a stair 49 inches wide, with a wall and handrail on one side and fixed seating on the other. If the handrail has a center-line of 4 inches from the wall, what is the effective width of the stair? a. 35.5 in. b. 41.5 in. c. 43 in. d. 45 in. Solution | Posted 09/11/19 A new building is to have a wet pipe fire sprinkler system connected to an existing city main. Which of the following tests is not required by NFPA 13 for the fire sprinkler system or underground service? a. flushing test b. hydrostatic test. main drain test. water delivery test Solution | Posted 09/10/19 A continuous membrane with a fire protection rating constructed to limit the spread of fire is which of the following? a. smoke partition b. fire compartment c. fire barrier. proscenium wall Solution | Posted 09/09/19 A new-construction high-rise is being installed. Where a vertical trash chute has openings into a room on each floor, which of the following is not required? a. The room must not be greater than 400 square feet (37 square meters) b. The chute can be no greater than 24 square feet (2.2 square meters) c. The room may only be used for storage d. The room must have automatic sprinklers Solution | Posted 09/05/19 A four-story low-rise senior retirement living facility is being designed without the need for health support services. Which of the following areas, which each serve the entire floor level, does not require a minimum of one-hour fire resistance rating? a. A 300 sqft laundry room. A 50 sqft trash room. A 100 sqft storage room. All of the above Solution | Posted 09/03/19 Annual inspection of wet barrel hydrants must include all of the following except: a. verify marking of hydrant b. verify outlet thread condition c. verify access to hydrant d. verify cracks in hydrant barrel Solution | Posted 08/30/19 Consider the following fire hydrant flow tests conducted at the same elevation: Test A: 75 psi Static, 60 psi Residual at 1,200 gpm Test B: 65 psi Static, 60 psi Residual at 1,800 gpm Test C: 70 psi Static, 45 psi Residual at 1,200 gpm Which of the following is true? a. Test A would provide better pressure than Test B for a 1,500 sqft Light Hazard sprinkler system. b. Test A would provide better pressure than Test B for a 3,000 sqft ESFR sprinkler system. c. Test B would always provide better pressure than Test C for any type fire sprinkler system. d. Both a and c. Solution | Posted 08/28/19 In which of the following scenarios is neither explosion protection nor suppression system required? a. Flammable paint warehouse mixing rooms where open transfer of paint occurs b. Dust ventilator equipment where the dust density can be above its lower flammability limit. c. Mechanical room where service equipment is subject to explosion. All of the above require either explosion protection or suppression systems Solution | Posted 08/27/19 An warehouse facility is seeking to store cartoned Level 3 aerosol products on pallets. If the storage height is 10 feet in height with a 23 foot ceiling, what minimum k-factor must be provided for the ceiling-level sprinklers protecting this area? a. K-8.0b. K-11.2c. K-14.0d. K-16.8 Solution | Posted 08/23/19 Hydrogen gas will combust at which of the following percent volumetric concentrations in air? i. 2.5% ii. 35% iii. 65% iv. 85% a. ii and iii b. ii and iv c. i, ii, iii, and iv d. i, ii, iii, and iv Solution | Posted 08/22/19 An open, unobstructed space connects an entry level lobby with a balcony on the level above in a fully sprinklered residential building while separated from the remainder of the building with a smoke barrier. If the space only has low hazard contents and meets egress requirements, what type of space does it qualify as? a. Atrium b. Communicating Space. c. Convenience Opening d. Two-Story Opening with Partial Enclosure Solution | Posted 08/21/19 Which of the following arrangements is not permitted for a new prison, under NFPA standards? a. Sprinkler Protected, Type II (222) Construction, High-Rise Building. b. Sprinkler Protected, Type II (000) Construction, 3-Story Building. c. Sprinkler Protected, Type IV (ZHH) Construction, 2-Story Building. d. Sprinkler Protected, Type V (000) Construction, 1-Story Building Solution | Posted 08/16/19 Determine the required thrust block volume (in cubic feet) for a 45-degree elbow serving a wet 6-inch schedule 10 pipe in sandy silt with a what type safety factor added. The water within the pipe has a maximum pressure of 140 psi and the block material has a density of 150 pounds per cubic foot. a. 28 cubic feet. b. 31 cubic feet. c. 44 cubic feet. d. 63 cubic feet Solution | Posted 08/14/19 "A huge thank you to Slay the PE for helping make my dream come true!! I studied so hard!! I wish I found this course the first time!..." - Comment by Reddit user bhbero21 on May 7, 2025. [link to their post] "The study guide was great-it explains all topics in a very practical way-I used it a lot for my job as well. Its very well researched and written. " - Comment by Reddit user sio_cat5000 on April 30, 2025. [link to their comment] "the study guide and practice material still managed to exceed my expectations. The study guide explained topics in a concise and clear manner, without delving too far into the weeds on theory not relevant to the PE exam... focused on exactly the curriculum that was most prevalent throughout the exam." - Comment by Reddit user Runaway_Engineer on October 6, 2024. [link to their comment] "Big shoutout to SlaythePE for pushing me along these weeks and keeping me on track to pass on my first attempt... This is the only resource I used to study besides the NCEES practice exam... I followed this plan pretty much to a tee, and by the end of it I scored an 80% on the NCEES practice exam..." - Comment by Reddit user Savings_Union_7109 on January 17, 2024. [link to their comment] "Slay the PE is the only way to go. They just over-prepare you in the best ways possible. They walk you through how to do the toughest problems you could realistically anticipate showing up on the test, in a cohesive and coherent way. They provide forums to ask others if you don't understand something. They CONSTANTLY check in on your progress - through email, diagnostic exams, you name it. If I designed my own TFS course, it would look almost exactly like Slay the PE's." - Comment by Reddit user Economy_Towers5321 on September 21, 2023. [link to their comment] "SlaythePE helped me out tremendously. Wouldn't have passed without them." - Comment by Reddit user Agencyimportant9729 on February 14, 2023. [link to their comment] "I passed the TFS PE first attempt. I graduated back in 2019. My primary study resource was Slay the PE. I can't recommend them enough. The text / practice problems were excellent in learning the core material... The customer support was also very helpful whenever I had a question and the responses were always very thoughtful and I always received a response in a reasonable amount of time." - Comment by Reddit user Human_Spinach2344 on April 23, 2025. [link to their comment] "I passed, I can hardly believe it. Graduated in 2013. Slay the PE is phenomenal. My sole source of studying." - Comment by Reddit user mclyss1311 on April 30, 2025. [link to their post] "The course being on demand makes studying very convenient for someone like me that works and has a family... the information was presented in a way that was easy to understand." "Slay the PE adequately equipped me with the information to solve those problems and that is what ultimate led to me being successful. " - Post by Reddit user buccfan001 on September 25, 2024. [link to their full post] "SlayThePE is really all you need to pass... I didn't encounter many questions on the exam I didn't know how to solve thanks to Slay's course... [The exam] wasn't easy but was doable, and a lot of that came down to the perfect preparation SlayThePE does. " - Comment by Reddit user JonBonesJonesGOAT on December 6, 2023. [link to their post] "Got my results this morning, passed Mechanical: TFS 1st try! ...huge shout out to SlaythePE for being my primary studying resource." - Comment by Reddit user iclou on August 2, 2023. [link to their comment] "Used Slay The PE for my third attempt. Anyone looking for a prep course for TFS, I would only recommend Slay... They really helped me understand subjects instead of me trying to search for an equation in the mechanical reference handbook. They were able to break down subjects that seemed so complex..." - Post by Reddit user Barrowm87 on June 10, 2023. [link to their full post] "I used Slay The PE On-Demand Course. If you would like to pass this exam, you're doing yourself a disservice not taking this course. " - Post by Reddit user zHaterade on June 28, 2023. [link to their full post] PracticeQuiz.com Path presents our premier exam prep app for Civil Engineering, designed to help you ace the NCEES Principles of Engineering exam. Our PE Civil Engineering module contains 250+ study questions written to cover all the topics appearing on the AM breadth section. Each question has a detailed explanation of the correct answer to reinforce and expand your civil engineering knowledge. Our rigorous questions cover all aspects of civil engineering, including: Earthwork Construction and Layout Estimating Quantities and Costs Construction Scheduling Material Quality Control and Production Temporary Structures Subsurface Exploration and Sampling Engineering Properties of Soils and Materials Soil Mechanics Analysis Earth Structures Shallow Foundations Earth Retaining Structures Structural Loadings Structural Analysis Mechanics of Materials Structural Materials Member Design Transportation Hydraulics - Closed Conduit Hydraulics - Open Channel Hydrology Wastewater Treatment Water Treatment Why should you take the Civil Engineering PE Exam? The Civil Engineering PE exam is a professional engineering licensing exam that is required by many states in the United States to become a licensed Professional Engineer (PE) in civil engineering. Becoming a licensed Professional Engineer can open up new career opportunities and increase earning potential. As a licensed PE, you will be recognized as an expert in your field, which can lead to greater job responsibilities and leadership positions within your company. In addition, many companies prefer to hire licensed engineers for certain positions or projects, so obtaining your PE license can make you a more attractive job candidate. In many states, passing the Civil Engineering PE exam is a legal requirement for practicing engineering and offering engineering services to the public. The exam tests your knowledge and competency in various areas of civil engineering, including structural design, transportation engineering, water resources engineering, and construction management. The exam also covers professional ethics and responsibilities, which are essential for protecting the public health, safety, and welfare through your work. By passing the PE exam and obtaining your license, you will be able to legally offer engineering services to the public and take on projects that require a licensed engineer. Holding a PE license is a recognized mark of professionalism and expertise in the field of civil engineering. By passing the PE exam, you will join a community of licensed engineers who are committed to upholding high standards of professionalism and ethics. This can increase your credibility with clients and employers, and demonstrate your commitment to your profession. As a licensed Professional Engineer, you will have a responsibility to protect the public health, safety, and welfare through your work. This means that you will need to take into account the potential impacts of your projects on the environment and surrounding communities, and design solutions that minimize these impacts. By passing the PE exam and obtaining your license, you will have demonstrated your ability to meet these responsibilities and protect the public. PracticeQuiz.com is neither affiliated with nor endorsed by the NCEES or any other organization. How many questions are on the Civil Engineering PE exam, and what is the breakdown? There are 80 questions on the Civil Engineering PE exam with the breakdown varying between the different Civil Engineering PE exams (Construction, Geotechnical, Structural, Transportation, and Water Resources and Environmental). How long is the Civil Engineering PE exam? The Civil Engineering PE exam is 9 hours long. What is the passing score on the Civil Engineering PE exam? The passing score of the Civil Engineering PE exam is about 70%. Why should I take the Civil Engineering PE exam? Passing the Civil Engineering PE exam grants the test taker a Civil Engineering License. Explore our range of essential resources designed to guide you towards mastering the PE exam. From comprehensive practice exams and diagnostic tests to detailed study guides packed with theory, problems, and test-taking strategies, our tools are indispensable for self-study and exam success. Dive into our offerings and discover how Slay the PE can empower your journey to engineering excellence!