

BASIC ENGINEERING COMMON CORE (BECC) 2 PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE**

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. What does "brinelling" indicate in the context of bearing failure?**
 - A. A sudden loss of lubrication in the bearing
 - B. Surface wear from excessive load causing indentations
 - C. A gradual increase in friction within the bearing
 - D. A misalignment of components within the bearing
- 2. What are the three main categories of engineering materials?**
 - A. Metals, composites, and alloys
 - B. Metals, polymers, and ceramics
 - C. Plastics, woods, and metals
 - D. Concrete, metals, and plastics
- 3. Flange safety shields are typically constructed of which material?**
 - A. Polyester fabric
 - B. Aluminized glass cloth
 - C. Steel plating
 - D. Fiberglass
- 4. Which of the following statements best describes gravitational force?**
 - A. It acts only when objects are in direct contact.
 - B. It acts on an object without being in direct contact.
 - C. It is greater than the frictional force.
 - D. It only affects falling objects.
- 5. What does CAD stand for in engineering design?**
 - A. Computer-Aided Development
 - B. Computer-Aided Design
 - C. Computer Automated Design
 - D. Creative Aided Design
- 6. What action is necessary if equipment parameters are exceeded?**
 - A. Ignore it
 - B. Notify the engineering department
 - C. Request the Commanding Officer's approval
 - D. Discontinue equipment use

- 7. Why is it important to follow proper torque specifications when working with flanges?**
- A. To ensure aesthetic uniformity
 - B. To maintain joint integrity
 - C. To speed up the assembly
 - D. To reduce the cost of materials
- 8. When is the engineering log reviewed by the Commanding Officer?**
- A. Every week
 - B. At the end of every month
 - C. At the end of every quarter
 - D. On a random basis
- 9. If pressure is added to a gas, what will happen to the temperature?**
- A. The temperature will decrease
 - B. The temperature will remain the same
 - C. The temperature will increase
 - D. The gas will condense
- 10. What does the term "load factor" refer to in power systems?**
- A. The total power generated by a system
 - B. The ratio of average load to the peak load over a specified period
 - C. The efficiency of power transmission
 - D. The maximum load that can be handled by a system

Answers

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1. B
2. B
3. B
4. B
5. B
6. C
7. B
8. B
9. C
10. B

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Explanations

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1. What does "brinelling" indicate in the context of bearing failure?

- A. A sudden loss of lubrication in the bearing
- B. Surface wear from excessive load causing indentations**
- C. A gradual increase in friction within the bearing
- D. A misalignment of components within the bearing

Brinelling refers to a specific type of damage that occurs in bearings, characterized by the formation of small indentations on the surface of the rolling elements or raceways. This condition typically arises when a bearing is subjected to excessive loads that exceed its design limits. The resultant indentations are often permanent and indicate that the bearing has been overloaded to the point where the material has been permanently deformed. In this context, the correct identification of brinelling highlights its association with surface wear due to excessive loading. The presence of these indentations indicates that the load-bearing capabilities of the bearing have been compromised, leading to potential failure of the bearing system if not addressed. Understanding brinelling is crucial for maintenance and reliability in engineering, as it helps in identifying the necessity for load recalibration or system redesign to prevent future occurrences. Other options, while related to bearing failures, do not accurately describe brinelling. A sudden loss of lubrication typically leads to overheating or galling, but it does not specifically manifest as indentations. An increase in friction is often symptomatic of bearing wear or damage but does not define brinelling itself. Misalignment might cause uneven wear or stress on the bearing but would not specifically result in the indentations characteristic of brinelling.

2. What are the three main categories of engineering materials?

- A. Metals, composites, and alloys
- B. Metals, polymers, and ceramics**
- C. Plastics, woods, and metals
- D. Concrete, metals, and plastics

The three main categories of engineering materials are metals, polymers, and ceramics. This classification is crucial for understanding material properties and their applications in engineering. Metals are known for their strength, ductility, conductivity, and ability to undergo significant deformation without failure, making them suitable for many structural applications. Common examples include steel and aluminum, which are utilized in construction, automotive, and aerospace industries. Polymers, which include plastics and rubbers, are characterized by their lightweight, resistance to corrosion, and versatility in processing. Their properties can be altered significantly through various techniques, allowing them to serve in diverse applications from packaging to medical devices. Ceramics are valued for their hardness, high thermal resistance, and electrical insulation properties. They are commonly used in applications that require durability, such as in pottery, tiles, and electronics. The other options listed include some valid materials but do not encompass the three broad and fundamental categories recognized in the study of materials science.

3. Flange safety shields are typically constructed of which material?

- A. Polyester fabric
- B. Aluminized glass cloth**
- C. Steel plating
- D. Fiberglass

Flange safety shields are typically constructed of aluminized glass cloth due to its exceptional heat resistance and durability. This material is designed to withstand high temperatures and provide effective protection against thermal hazards associated with flanges and piping systems. Aluminized glass cloth combines the heat resistance of glass fibers with the reflective properties of an aluminum coating, which helps to dissipate heat and prevent damage to surrounding equipment and personnel. While polyester fabric, steel plating, and fiberglass have their uses in various applications, they do not offer the same level of thermal protection or structural integrity needed for safety shields around flanges. Polyester fabric may not withstand high temperatures as effectively, steel plating is heavier and may not provide the necessary flexibility, and while fiberglass may offer good heat resistance, it lacks the added reflective capability of the aluminized coating, making aluminized glass cloth a more suitable choice in this context.

4. Which of the following statements best describes gravitational force?

- A. It acts only when objects are in direct contact.
- B. It acts on an object without being in direct contact.**
- C. It is greater than the frictional force.
- D. It only affects falling objects.

Gravitational force is a fundamental interaction that arises from the mass of objects, and it operates through the force of attraction between them without necessitating direct contact. This force acts on any object with mass, regardless of the distance separating them, following the principle that any two masses will exert an attractive force on each other. The notion that gravitational force acts without direct contact highlights its nature as a long-range force, which contrasts other forces like friction. While friction requires two surfaces to be in contact to exert a force, gravitational force can still influence objects even from a distance, such as when it keeps planets in orbit around stars or affects the trajectory of a projectile. The other options fall short in capturing the essence of gravitational force. For instance, statements about gravitational force only impacting direct contact, being greater than frictional force, or being limited to falling objects do not accurately portray its universal application. Gravitational force permeates various scenarios, impacting everything from the position of celestial bodies to everyday objects on Earth, cementing its importance in both fundamental physics and practical engineering contexts.

5. What does CAD stand for in engineering design?

- A. Computer-Aided Development
- B. Computer-Aided Design**
- C. Computer Automated Design
- D. Creative Aided Design

In the context of engineering design, CAD stands for Computer-Aided Design. This technology encompasses a wide range of software applications that enable engineers and designers to create precise drawings, models, and simulations of physical components and systems. By utilizing CAD, professionals can efficiently visualize their ideas, make modifications, and analyze the functionality of designs before moving forward with prototyping or production. The term specifically highlights the role of computers in supporting the design process, allowing for greater accuracy, ease of editing, and improved collaboration among team members. CAD tools facilitate complex geometries and enable detailed documentation, which are critical in engineering disciplines such as mechanical, civil, and electrical engineering. Other choices presented, such as Computer-Aided Development and Creative Aided Design, do not reflect the established terminology used in engineering practice, and while they may imply a design process, they do not accurately capture the essence and function associated with CAD technology. Computer Automated Design is similarly not recognized as a formal term within the engineering community, further emphasizing that Computer-Aided Design is the widely accepted definition.

6. What action is necessary if equipment parameters are exceeded?

- A. Ignore it
- B. Notify the engineering department
- C. Request the Commanding Officer's approval**
- D. Discontinue equipment use

When equipment parameters are exceeded, notifying the engineering department is a critical action to ensure safety and maintain operational integrity. The engineering department has the expertise to evaluate the situation and determine the necessary steps to address potential issues that could arise from continued operation under abnormal conditions. Engaging with the engineering team allows for a thorough assessment of the risks involved and helps in making informed decisions about whether to continue using the equipment, modify operational protocols, or halt operations altogether. Additionally, they may recommend inspections or repairs to prevent future occurrences. In the context of the other choices, ignoring the situation could lead to equipment failure or safety hazards, and requesting approval from a commanding officer would delay addressing the immediate risk. While discontinuing equipment use can be necessary, it's important to first assess the situation with the help of qualified personnel before taking such drastic measures.

7. Why is it important to follow proper torque specifications when working with flanges?

- A. To ensure aesthetic uniformity
- B. To maintain joint integrity**
- C. To speed up the assembly
- D. To reduce the cost of materials

Maintaining joint integrity is crucial when working with flanges because proper torque specifications help ensure even distribution of pressure across the joint. When flanges are bolted together, they form a seal that prevents leaks of fluids or gases. If the bolts are not tightened to the specified torque, it can lead to an uneven seal, which may result in leaks, equipment failures, or even safety hazards. Following torque specifications also helps in preventing over-tightening or under-tightening, both of which can compromise the joint's structural stability. Over-tightening might deform the flange, while under-tightening can cause joints to come loose over time due to vibration or thermal expansion. This adherence to the specified torque ensures the longevity and reliability of the assembly, thereby protecting the system as a whole.

8. When is the engineering log reviewed by the Commanding Officer?

- A. Every week
- B. At the end of every month**
- C. At the end of every quarter
- D. On a random basis

The engineering log is an important document that provides a comprehensive record of the engineering operations and maintenance activities of a vessel or facility. The Commanding Officer reviews the log at the end of every month to ensure that all operations are compliant with regulations and standards, assess the performance of engineering systems, and address any issues that may have arisen during that period. This monthly review allows for timely identification of trends or recurring problems, enabling proactive measures to improve operational efficiency and safety. Regularly scheduled reviews, rather than arbitrary or random assessments, ensure accountability and help maintain a consistent standard of performance in the engineering department. Additionally, a monthly review aligns well with operational cycles and allows for thorough documentation of significant events and maintenance activity.

9. If pressure is added to a gas, what will happen to the temperature?

- A. The temperature will decrease
- B. The temperature will remain the same
- C. The temperature will increase**
- D. The gas will condense

When pressure is added to a gas while keeping the volume constant, the temperature of the gas tends to increase. This relationship is explained by Gay-Lussac's Law, which states that the pressure of a gas is directly proportional to its absolute temperature (in Kelvin) when the volume is held constant. As pressure increases, the molecules of the gas are forced closer together, which leads to more frequent and energetic collisions among them. This increased molecular activity raises the average kinetic energy of the gas particles, resulting in a higher temperature. Therefore, when additional pressure is applied, you can expect the temperature of the gas to rise as long as no phase changes occur, confirming that the correct answer is indeed that the temperature will increase. In contrast, as a gas condenses, it typically transforms into a liquid state, which usually occurs at lower temperatures under increased pressure, making it more complex than simply stating that temperature rises.

10. What does the term "load factor" refer to in power systems?

- A. The total power generated by a system
- B. The ratio of average load to the peak load over a specified period**
- C. The efficiency of power transmission
- D. The maximum load that can be handled by a system

The term "load factor" refers to the ratio of the average load to the peak load over a specified period. This metric is essential for understanding how efficiently a power system operates relative to its maximum capacity. In a power system, peak load represents the highest demand for electricity that occurs in a given timeframe, while the average load is calculated by taking the total energy produced over that same period and dividing it by the number of hours in that period. A higher load factor indicates a more efficient use of power resources, meaning that the system is consistently supplying a load that is closer to its peak capacity without significant fluctuations. This improves overall efficiency and reduces the need for additional infrastructure to handle peak demand periods. Understanding load factor is crucial for engineers and planners in the energy sector, as it influences decisions on capacity planning, resource allocation, and actual operational efficiency of power generation and distribution systems.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://becc2.examzify.com>

We wish you the very best on your exam journey. You've got this!

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