

FUSED DEPOSITION MODELLING PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

<https://fuseddepositionmodelling.examzify.com>



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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

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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 is a typical use case for a dual-extrusion FDM printer?**
 - A. Printing single material parts at high speed
 - B. Creating multi-material or multi-color objects
 - C. Producing large-scale architectural models
 - D. Fabricating complex internal structures
- 2. What is a benefit of using an enclosure during FDM printing?**
 - A. It increases the size of the printed object
 - B. It helps control temperature for better adhesion
 - C. It minimizes material waste
 - D. It allows for multiple colors to be printed at once
- 3. What are the configuration types of supports in FDM?**
 - A. Only grid supports
 - B. Tree, grid, or line supports
 - C. Any shape that fits the 3D model
 - D. Supports are not configurable
- 4. What is the main advantage of PLA over ABS in FDM printing?**
 - A. PLA is cheaper to produce
 - B. PLA is easier to print, has less warping, and is biodegradable
 - C. PLA requires less maintenance
 - D. PLA has a higher melting point
- 5. What are common methods for enhancing bed adhesion in FDM?**
 - A. Using a heated bed or applying adhesives like glue sticks
 - B. Cooling the print bed with water
 - C. Reducing print speed significantly
 - D. Increasing the color depth of the filament
- 6. How does Fused Deposition Modeling create objects?**
 - A. By layering powder and binding agents
 - B. By extruding molten material through a nozzle layer by layer
 - C. By cutting material from a solid block
 - D. By using UV light to cure resin

- 7. What is the primary material used in Fused Deposition Modeling (FDM)?**
- A. Thermoplastic elastomers
 - B. Ceramics
 - C. Thermoplastic polymers
 - D. Metals
- 8. What are some common thermoplastics used in FDM?**
- A. PLA, TPE, PVC, and Polycarbonate
 - B. PLA, ABS, PETG, and Nylon
 - C. Polystyrene, Acetal, Polypropylene, and Acrylic
 - D. Silicone, Glass, Carbon Fiber, and Metals
- 9. What is the purpose of implementing fillets in Fused Deposition Modeling (FDM)?**
- A. To create sharper edges in designs
 - B. To reinforce features to improve structural integrity
 - C. To decrease the material usage
 - D. To reduce the printing time
- 10. How important is Z-axis calibration in FDM printing?**
- A. It is crucial for accurate layer placement
 - B. It has little effect on print quality
 - C. It is only important for complex models
 - D. It can be ignored for most prints

Answers

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

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Explanations

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1. What is a typical use case for a dual-extrusion FDM printer?

- A. Printing single material parts at high speed
- B. Creating multi-material or multi-color objects**
- C. Producing large-scale architectural models
- D. Fabricating complex internal structures

A typical use case for a dual-extrusion FDM printer is the creation of multi-material or multi-color objects. This capability allows manufacturers and designers to produce parts that incorporate different materials or colors within a single print. For example, combining a flexible material with a rigid one enables the production of functional prototypes that benefit from varied mechanical properties in different sections of the model. Additionally, dual-extrusion can be used to print support structures from a material that is easily removed or soluble, simplifying post-processing and enabling the fabrication of complex geometries that would be challenging to create with a single material. While other options highlight scenarios relevant to FDM printing, they do not specifically leverage the unique advantage of dual-extrusion technology. For instance, printing single material parts or producing large-scale architectural models typically relies on single-extrusion printers, and while complex internal structures can be produced using advanced FDM techniques, dual-extrusion primarily enhances the diversity of materials and colors in a single print, thereby defining its main use case.

2. What is a benefit of using an enclosure during FDM printing?

- A. It increases the size of the printed object
- B. It helps control temperature for better adhesion**
- C. It minimizes material waste
- D. It allows for multiple colors to be printed at once

The use of an enclosure during Fused Deposition Modelling (FDM) printing primarily aids in controlling the temperature around the print area, which is crucial for several aspects of the printing process. When the temperature is regulated, it helps maintain a consistent thermal environment, reducing the risk of warping and ensuring better adhesion of the printed layers to each other and the build platform. Proper adhesion is vital to prevent issues such as delamination and to achieve smoother, more accurate prints. In addition to thermal control, an enclosure can also protect the print from drafts or other environmental factors that might disrupt the printing process, further enhancing print quality. While other options relate to aspects of the printing methodology, they do not directly connect to the purpose of an enclosure. Thus, controlling the temperature for better adhesion stands out as the primary benefit of using an enclosure in FDM printing.

3. What are the configuration types of supports in FDM?

- A. Only grid supports
- B. Tree, grid, or line supports**
- C. Any shape that fits the 3D model
- D. Supports are not configurable

In Fused Deposition Modelling (FDM), understanding support structures is essential for successful 3D printing, particularly for complex geometries. The correct configuration types of supports in FDM include tree, grid, and line supports. Tree supports are designed to minimize the amount of material used while providing strong support for overhangs, allowing for a more efficient use of support material and easier removal after the print is complete. They resemble the branching structure of a tree, which helps to distribute the load while maintaining stability during printing. Grid supports feature a lattice-like grid structure that provides uniform support across larger areas of the print. This type offers a good balance between material usage and support effectiveness, being especially useful for prints that have extensive overhangs or intricate detail requiring support. Line supports, as the name suggests, consist of linear structures that are printed in lines to support specific areas of a model. This configuration is less material-intensive and is effective for prints with minimal overhangs that still require some support. Overall, having the option to choose among tree, grid, or line supports allows users to optimize their prints based on the model's specific requirements, leading to better print quality and efficiency. Other choices suggest limitations that do not align with the

4. What is the main advantage of PLA over ABS in FDM printing?

- A. PLA is cheaper to produce
- B. PLA is easier to print, has less warping, and is biodegradable**
- C. PLA requires less maintenance
- D. PLA has a higher melting point

The main advantage of PLA (Polylactic Acid) over ABS (Acrylonitrile Butadiene Styrene) in FDM (Fused Deposition Modeling) printing lies in its ease of use and environmental benefits. PLA is known for its lower tendency to warp during the printing process compared to ABS, which often requires a heated bed to minimize warping and is more susceptible to temperature fluctuations. This characteristic makes PLA particularly suitable for those new to 3D printing or for projects where reliability and ease are paramount. Additionally, PLA is derived from renewable resources such as cornstarch, making it biodegradable under certain conditions, which appeals to environmentally conscious users. This aspect is a significant advantage over ABS, which is a petroleum-based plastic and is not biodegradable, raising concerns about environmental impact post-use. The other options do not accurately reflect the primary advantages of PLA over ABS. While PLA may sometimes be less expensive, its cost-effectiveness is not the defining characteristic that makes it preferable in many scenarios. The maintenance of the printer is generally related to printer type rather than the filament itself. Lastly, PLA actually has a lower melting point than ABS, which further supports its ease of use since it can print at lower temperatures.

5. What are common methods for enhancing bed adhesion in FDM?

A. Using a heated bed or applying adhesives like glue sticks

B. Cooling the print bed with water

C. Reducing print speed significantly

D. Increasing the color depth of the filament

Bed adhesion is crucial in Fused Deposition Modeling (FDM) to ensure that the first layer of the print adheres properly to the build surface, minimizing warping and print failures. Common methods for enhancing bed adhesion include using a heated bed and applying adhesives like glue sticks. A heated bed raises the temperature of the build surface, which helps the filament adhere better during the printing process. This is especially important for materials that are prone to warping, such as ABS. The heat helps to keep the filament in a softer, more pliable state as it deposits, allowing for better bonding to the surface. Additionally, applying adhesives like glue sticks can further enhance adhesion by providing a sticky layer for the filament to grip onto. These methods are widely used because they are effective and easy to implement, contributing significantly to the success of the 3D printing process in producing high-quality prints with good first-layer adhesion. The other methods listed, such as cooling the print bed and reducing print speed significantly, typically do not contribute positively to bed adhesion and can even have the opposite effect. Increasing the color depth of the filament is unrelated to adhesion and focuses instead on the aesthetic properties of the printed object. Thus, option A clearly represents effective techniques for improving

6. How does Fused Deposition Modeling create objects?

A. By layering powder and binding agents

B. By extruding molten material through a nozzle layer by layer

C. By cutting material from a solid block

D. By using UV light to cure resin

Fused Deposition Modeling (FDM) creates objects by extruding molten material through a nozzle layer by layer. This process begins with a thermoplastic filament which is heated until it becomes malleable, allowing it to be pushed through a nozzle. The printer moves the nozzle in a precise pattern based on the digital model, depositing the molten material onto a build platform. As each layer is applied, it cools and solidifies, bonding with the previously laid layers. This layering approach continues until the entire object is formed. The reason this method is effective for creating detailed and complex geometries is due to its precise control over material deposition and the ability to construct shapes that are often difficult or impossible to achieve with traditional manufacturing methods. This technique is widely used in various applications from prototyping to production of functional parts.

7. What is the primary material used in Fused Deposition Modeling (FDM)?

- A. Thermoplastic elastomers
- B. Ceramics
- C. Thermoplastic polymers**
- D. Metals

The primary material used in Fused Deposition Modeling (FDM) is thermoplastic polymers. This category of materials is crucial for FDM because thermoplastic polymers can be easily melted and solidified multiple times without significant degradation. They possess excellent flow properties when heated, allowing them to be extruded through a nozzle during the printing process. As the polymer cools, it solidifies, forming a solid structure layer by layer, which is fundamental to the FDM technique. Common examples of thermoplastic polymers used in FDM include polylactic acid (PLA), acrylonitrile butadiene styrene (ABS), and nylon, which are known for their ease of use, good mechanical properties, and versatility across a variety of applications. In contrast, while thermoplastic elastomers can also be used in some FDM applications due to their flexibility, they are not the primary material, as they are less common than the standard thermoplastic polymers. Ceramics and metals are generally not used in traditional FDM processes because they do not have the necessary flow characteristics or properties that are compatible with the extrusion technique employed in FDM. Therefore, thermoplastic polymers remain the primary material for this additive manufacturing method.

8. What are some common thermoplastics used in FDM?

- A. PLA, TPE, PVC, and Polycarbonate
- B. PLA, ABS, PETG, and Nylon**
- C. Polystyrene, Acetal, Polypropylene, and Acrylic
- D. Silicone, Glass, Carbon Fiber, and Metals

The answer identifies a selection of thermoplastics widely recognized for their suitability in Fused Deposition Modelling (FDM), which relies on materials that can repeatedly melt and solidify without significant degradation. PLA (Polylactic Acid) is favored in FDM for its ease of use and biodegradable properties, making it ideal for beginners and environmentally conscious projects. ABS (Acrylonitrile Butadiene Styrene) is another common choice, known for its toughness, impact resistance, and ability to withstand higher temperatures than PLA, which makes it suitable for functional parts. PETG (Polyethylene Terephthalate Glycol-modified) combines the best features of both PLA and ABS, offering good strength, flexibility, and chemical resistance while remaining easy to print. Nylon is also popular in FDM for its exceptional strength and durability, although it can be more challenging to print due to its tendency to absorb moisture. The other options introduce materials that do not align as closely with common FDM practice. Some materials listed may require specialized printing techniques or are not thermoplastics suitable for typical FDM processes. For instance, silicone is a thermoset and does not melt and reflow, while metals are generally processed using different printing technologies. Understanding

9. What is the purpose of implementing fillets in Fused Deposition Modeling (FDM)?

- A. To create sharper edges in designs
- B. To reinforce features to improve structural integrity**
- C. To decrease the material usage
- D. To reduce the printing time

Implementing fillets in Fused Deposition Modeling serves a vital role in reinforcing features to improve structural integrity. Fillets are rounded transitions between two surfaces or edges in a design. By creating these smooth curves rather than sharp angles, fillets help to distribute stresses more evenly across the part, which minimizes stress concentrations that could lead to failure. This is particularly important in 3D-printed parts, as they can be more susceptible to mechanical failure at sharp corners due to weak points in the material. In contrast, making edges sharper can increase the likelihood of stress points that can compromise the durability of the print. While reducing material usage and decreasing printing time might seem advantageous, these factors are secondary to the primary goal of enhancing the overall strength and usability of the printed component. Using fillets fosters a design that is not only functional but also better suited for its intended load and operating conditions.

10. How important is Z-axis calibration in FDM printing?

- A. It is crucial for accurate layer placement**
- B. It has little effect on print quality
- C. It is only important for complex models
- D. It can be ignored for most prints

Z-axis calibration in Fused Deposition Modelling (FDM) printing is essential because it ensures that the print head is positioned at the correct height relative to the build plate during the printing process. Accurate layer placement plays a significant role in determining the overall quality and dimensional accuracy of the printed object. If the Z-axis is not calibrated properly, it can lead to issues such as uneven extrusion, layer misalignment, or even failed prints if the nozzle is too far away or too close to the build surface. When the Z-axis is correctly calibrated, each layer adheres properly to the previous one, helping to achieve the desired thickness and surface finish. This precision enhances not only aesthetic qualities but also the structural integrity of the final print. For any 3D printing task, regardless of the complexity of the model, maintaining accurate Z-axis calibration helps prevent common print failures and variabilities, ultimately leading to better results. In contrast, underestimating its importance can result in print defects, wasted material, and frustration during the printing process. Thus, proper Z-axis calibration is a fundamental practice that should never be overlooked in FDM printing.

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://fuseddepositionmodelling.examzify.com>

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

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