

IGCSE DESIGN & TECHNOLOGY (DT) JIS PRACTICE TEST (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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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. Shape Memory Alloy (Nitinol) has which property?**
 - A. Remembers its original shape and returns to it when heated
 - B. Hardens permanently when heated
 - C. Becomes more brittle with heat
 - D. Loses shape when cooled
- 2. Which metal is non-ferrous, golden yellow in colour and commonly decorative for items like candle sticks and musical instruments?**
 - A. Copper
 - B. Brass
 - C. Aluminium
 - D. Stainless steel
- 3. Which joint is commonly used for picture frames due to its 45-degree cuts?**
 - A. Dovetail Joint
 - B. Mitre Joint
 - C. Dowel Joint
 - D. Housing Joint
- 4. Which tool is an iron block used for hammering out metals and forging?**
 - A. Anvil
 - B. Jack Plane
 - C. Gents Saw
 - D. Spokeshave
- 5. Which of the following are examples of PPE?**
 - A. Gloves, mask, safety glasses
 - B. Sand, glue, tape
 - C. Paint, brush, roller
 - D. Nails, screws, bolts
- 6. Temporary fixings are fixings that can be removed after use.**
 - A. A fixing that is permanent.
 - B. A fixing which can be removed after use.
 - C. A fixing that cannot be undone.
 - D. A fixing that remains loose.

- 7. Which tool is used for cutting rough shapes out of medium-sized pieces of sheet metal, but cannot do delicate work?**
- A. Bench sheers
 - B. Hacksaw
 - C. Piercing saw
 - D. Angle grinder
- 8. What characterizes a half lap joint?**
- A. A wood joint that has half the wood cut away on one side.
 - B. A joint where half the wood is cut away on both pieces.
 - C. A wedge joint for clamps
 - D. A rabbet joint with a lap
- 9. What is a Rivet Gun used for?**
- A. A Tool Used To Install Blind Rivets, Pop Rivets Or Rivets
 - B. A Tool For Cutting Thick Metal
 - C. A Tool For Bending Pipes
 - D. A Tool For Measuring Metal Thickness
- 10. Which of the following is not a plastic forming process described in the material?**
- A. Blow Moulding
 - B. Injection Moulding
 - C. Vulcanising
 - D. Vacuum Forming

Answers

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

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Explanations

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1. Shape Memory Alloy (Nitinol) has which property?

A. Remembers its original shape and returns to it when heated

B. Hardens permanently when heated

C. Becomes more brittle with heat

D. Loses shape when cooled

Shape memory behavior comes from a reversible phase change that lets the alloy revert to a remembered shape when heated. In Nitinol, at lower temperatures the material is in a martensite phase that can be easily deformed. When you heat it, it transforms to the austenite phase, which has the original, undeformed shape, and the material snaps back to that shape. This is why the statement about remembering its original shape and returning to it when heated is correct. The other options describe properties that don't match how shape memory alloys actually behave (they don't permanently harden with heat, don't become more brittle with heat, and don't lose shape simply by cooling).

2. Which metal is non-ferrous, golden yellow in colour and commonly decorative for items like candle sticks and musical instruments?

A. Copper

B. Brass

C. Aluminium

D. Stainless steel

Brass is the best fit because it's a non-ferrous alloy, meaning it doesn't contain iron. It's made from copper and zinc, and that combination gives a distinctive golden yellow color that's highly prized for decorative items. Its bright finish takes polish well, and it's easy to cast and work into shapes for candle sticks and the components of many musical instruments. Copper itself looks more reddish and isn't typically described as golden; aluminium is naturally silver, and stainless steel is an iron-containing alloy with a silver-grey appearance. So the golden hue and decorative suitability point to brass.

3. Which joint is commonly used for picture frames due to its 45-degree cuts?

A. Dovetail Joint

B. Mitre Joint

C. Dowel Joint

D. Housing Joint

The idea being tested is that picture frames use joints cut at 45-degree angles to create neat, clean corners. A mitre joint is formed by slicing each end of the frame pieces at 45 degrees so they meet to make a 90-degree corner. This gives a seamless outer edge with no visible end grain or fasteners, which is exactly what a frame needs aesthetically. Other joints work well in different situations but don't create that characteristic 45-degree corner. Dovetail joints interlock for strength and are common in drawers and boxes with visible interior details, not the simple framed edge. Dowel joints rely on pegs, offering quick assembly but not the crisp external corner look. Housing joints are used for box-like structures and carcasses, not for framing. So the 45-degree cuts of a mitre joint make it the typical choice for picture frames. If extra strength is needed, frames are sometimes reinforced with splines or backing, since a mitre by itself isn't the strongest joint.

4. Which tool is an iron block used for hammering out metals and forging?

- A. Anvil
- B. Jack Plane
- C. Gents Saw
- D. Spokeshave

An anvil is the iron block used as a hard, stable surface for hammering and forging metal. It provides a flat face to support the work, a horn for shaping curves, and holes for tool attachments, helping metalworkers form shapes without the metal deforming unpredictably. The other tools are for woodwork: a jack plane smooths wood, a gent's saw cuts wood, and a spokeshave shapes wood. They aren't meant to serve as a forging anvil.

5. Which of the following are examples of PPE?

- A. Gloves, mask, safety glasses
- B. Sand, glue, tape
- C. Paint, brush, roller
- D. Nails, screws, bolts

Personal protective equipment is worn to protect the user from hazards in the workshop, such as sharp edges, dust, fumes or splashes. The items listed are gloves, a mask and safety glasses, which cover hands, the respiratory tract, and eyes respectively, making them PPE. The other groups are not worn for protection: sand, glue, and tape are materials used in building; paint, brush and roller are tools for applying coatings; nails, screws and bolts are fasteners used to join parts. PPE is a safety measure that reduces exposure to risk and is often required by safety regulations.

6. Temporary fixings are fixings that can be removed after use.

- A. A fixing that is permanent.
- B. A fixing which can be removed after use.
- C. A fixing that cannot be undone.
- D. A fixing that remains loose.

Temporary fixings are fixings that can be removed after use. This means they are designed to hold parts together temporarily, so you can take them apart later without damaging the components. This is especially useful during prototyping, testing, or when you need to adjust or reuse parts. A fixing that can be removed after use fits this idea exactly. In contrast, permanent fixings are intended to stay in place and are hard or impossible to undo without damage, and fixings that cannot be undone or remain loose don't provide a temporary, reusable hold.

7. Which tool is used for cutting rough shapes out of medium-sized pieces of sheet metal, but cannot do delicate work?

A. Bench sheers

B. Hacksaw

C. Piercing saw

D. Angle grinder

Bench shears are built to cut sheet metal, so they're the tool that can quickly remove rough shapes from medium-sized pieces. They're strong and provide straight or simple curved cuts with clean edges, which is exactly what you need for shaping metal pieces without getting into fine detail. But they aren't designed for delicate, intricate work—their leverage and blade design make precise, tiny cuts difficult. A piercing saw, by contrast, is used for delicate internal cuts and fine shapes, while a hacksaw is slower and less suited to sheet-metal pieces, and an angle grinder is fast but lacks the control for neat, small details.

8. What characterizes a half lap joint?

A. A wood joint that has half the wood cut away on one side.

B. A joint where half the wood is cut away on both pieces.

C. A wedge joint for clamps

D. A rabbet joint with a lap

The main idea here is that a half-lap joint is built by removing material at the joint so the two pieces can overlap and sit flush, keeping the overall thickness the same as a single piece. The description that half the wood is cut away at the joint captures this concept: you remove material from the mating surfaces so when the pieces are joined they lie level with each other. This is what gives a strong, flat interlock without a thick step along the edge. Other options refer to different joints or methods (a wedge for clamps, a rabbet, or a different way of removing material), whereas the defining feature of a half-lap is creating those half-thickness notches so the pieces fit together flush.

9. What is a Rivet Gun used for?

A. A Tool Used To Install Blind Rivets, Pop Rivets Or Rivets

B. A Tool For Cutting Thick Metal

C. A Tool For Bending Pipes

D. A Tool For Measuring Metal Thickness

A rivet gun is used to install rivets, especially blind (pop) rivets. It works by pulling the rivet's mandrel through the rivet body, causing the tail to flare and the rivet to expand and clamp the pieces together. The mandrel breaks off as the rivet is set, leaving a secure joint. This makes it ideal for joining materials when you can't access the back side. It isn't a cutting tool, a pipe-bending tool, or a measuring instrument, which is why the other options don't fit.

10. Which of the following is not a plastic forming process described in the material?

- A. Blow Moulding
- B. Injection Moulding
- C. Vulcanising
- D. Vacuum Forming

Vulcanising is not a plastic forming process. Plastic forming methods shape a material to create parts, such as blow moulding (inflating heated plastic inside a mold to make hollow shapes), injection moulding (injecting molten plastic into a mold), and vacuum forming (softened plastic sheet drawn into a mold by vacuum). Vulcanising, by contrast, is a chemical curing process used on rubber to cross-link polymer chains and improve properties like elasticity and strength; it doesn't create a new shape through forming. So vulcanising isn't a plastic forming process.

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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://igcsedtjis.examzify.com>

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

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