



GOVERNMENT OF SAMOA

STUDENT EDUCATION NUMBER									

## Samoa School Certificate

# DESIGN TECHNOLOGY 2023

## QUESTION and ANSWER BOOKLET

Time allowed: 3 Hours & 10 minutes

### INSTRUCTIONS

1. You have 10 minutes to read **before** you start the exam.
2. Write your **Student Education Number (SEN)** in the space provided on the top right-hand corner of this page.
3. **Answer ALL QUESTIONS.** Write your answers in the spaces provided in this booklet.
4. If you need more paper to write your answers, ask the Supervisor. Write your SEN on all extra sheets used and clearly number the questions. Attach the extra sheets to the appropriate places in this booklet.

STRANDS		Pages	Time (min)	Weighting
<b>STRAND 1</b>	DESIGNING AND DRAWING	2-5	37	20
<b>STRAND 2</b>	TOOLS	6-9	38	21
<b>STRAND 3</b>	MATERIALS – WOOD MATERIALS	10-12	32	18
<b>STRAND 4</b>	PROCESSES – WOOD PROCESSES	13-15	28	16
<b>STRAND 5</b>	TECHNOLOGY	16-17	18	10
<b>STRAND 6</b>	VOCABULARY	18-20	27	15
<b>TOTAL</b>			<b>180</b>	<b>100</b>

Check that this booklet contains pages 2-21 in the correct order and that none of these pages are blank.

**HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.**

**Figure 1: BROKEN TABLE**



Source: Getty images

- 1. Identify the furniture design problem shown in Figure 1.

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SL 1

- 2. A client would like to have a pot rack in the kitchen. It should have 4-5 shelves about 1 meter long with hooks for placing and hanging the pots and pans. The client’s budget is \$250 to \$350.

Write a design brief for the situational problem.

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SL 3

3. Identify a suitable material for the pot rack in Question 2 which should be strong and affordable.

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SL 1

**Figure 2: DAMAGED SOFA CHAIR**



Source: Getty images

4. Identify **ONE** problem in the design of the chair in Figure 2.

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SL 1

5. Describe the importance of the Evaluation Step in the design process.

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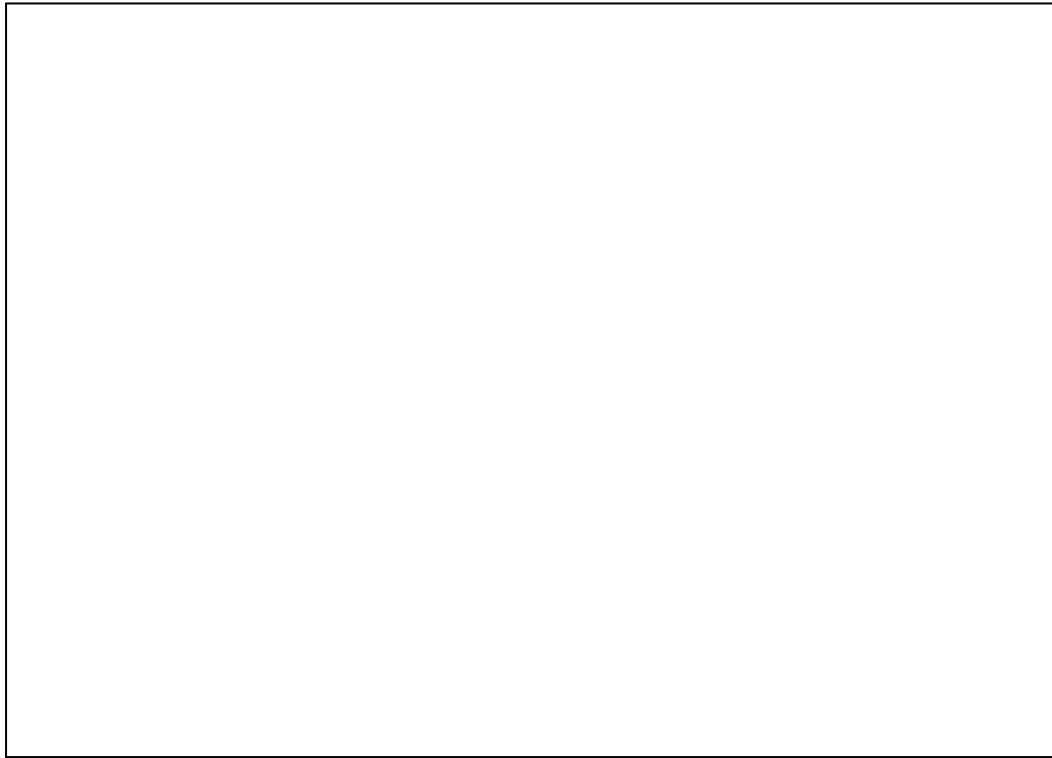
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SL 2

6. Draw a freehand sketch of a traditional Samoan or cultural curving design on a post of a Samoan fale in the space provided.



SL 3

7. Define the term **3<sup>rd</sup> angle projection**.

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SL 1

8. Sketch a hidden line in the space provided.



SL 1

9. Define the term **close design brief**.

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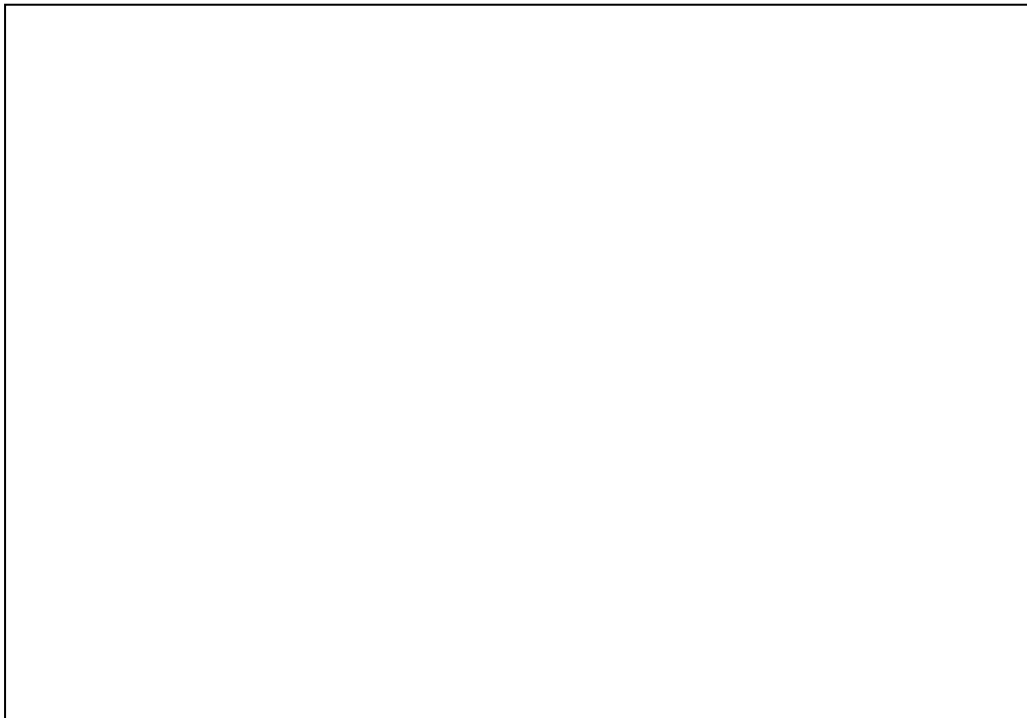
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SL 1

10. Draw a line AB 100 mm long and divide it in the proportion of 3:4:2.

SL 3

11. Draw, label and link the three key parts of the design process.



SL 3

12. Name the hand tool used to cut across the grain of timber.

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SL 1

13. Identify the **tool** shown in Figure 3 below. Is it a power or battery-operated tool?

**Figure 3: DRILL**



Source: Getty images

SL 1

14. Name the **hand tool** shown in Figure 4 below.

**Figure 4: HAND TOOL**



Source: Getty images

SL 1

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15. Describe the use of the tenon saw shown in Figure 5 below.

**Figure 5: TENON SAW**



Source: Getty images

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SL 2

16. List **TWO** safety precautions when using the power tool shown.

**Figure 6: POWER TOOL**



Source: Getty images

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SL 2

17. Differentiate between a **hand-rip saw** and a **power cross-cut saw**.

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<b>SL 3</b>

18. Explain what a spirit level is used for.

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<b>SL 3</b>

19. Name a chemical that is used to lubricate tools.

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<b>SL 1</b>



20. Discuss the advantages of using power tools.

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SL 4

21. Define **tool storage**.

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SL 1

22. State the function of a G Clamp.

**Figure 7: G CLAMP**



Source: Getty images

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SL 2

23. Define the term **moisture content** in timber.

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SL 1

24. Give **ONE** advantage of seasoned timber.

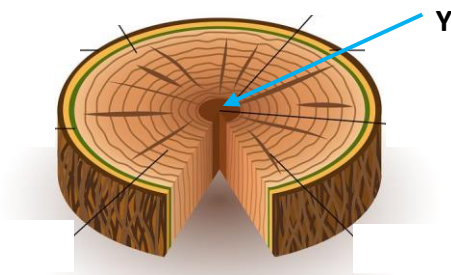
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SL 1

25. The cross-section of a tree trunk is shown.

**Figure 8: CROSS SECTION OF A TREE**



Source: Getty images

Name the part labelled Y.

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SL 1

26. Describe the function of the phloem tissue in trees.

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SL 2



29. State **ONE** disadvantage of seasoned timber.

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SL 1

30. Describe features of “knots” on timber.

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SL 2

31. Describe the steps of applying clear varnish on a finished project.

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SL 3

For Questions 32 to 34, choose and write the LETTER of the correct answer in the box provided.

32. What do we check for before assembling work?

- A. Check for accuracy and fit.
- B. Check marking for correct size.
- C. Check for smoothness and balance.
- D. Check for accuracy in measurement.

SL 1

33. Which of the following finishes is most suitable for interior furniture?

- A. Paint
- B. Sandpaper
- C. Water coloured
- D. Stain finished with varnish

SL 1

34. The type of woodwork joint shown in Figure 9 is called:

**Figure 9: JOINT**



Source: Getty images

- A. butt.
- B. dovetail.
- C. lapped butt.
- D. lapped dovetail.

SL 1

35. Define **stain**.

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SL 1

36. List **TWO** types of exterior finishes for concrete buildings apart from normal paint.

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SL 2

37. Explain good craft skills.

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SL 3

38. Explain the steps of squaring a 10cm x 30cm cutting board.

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SL 3

39. Discuss the difference between materials and tools used in construction work.

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SL 4

Use Figures 10 and 11 to answer Questions 40 to 43.

**Figure 10: CLAW HAMMER**



Source: Getty images

**Figure 11: NAIL GUN**



Source: Getty images

40. Identify the technology improvement shown in Figures 10 and 11.

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SL 1

41. Describe **TWO** safety measures when using a nail gun.

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SL 2





Use the narrative given below to answer Questions 44 to 49.

The diagram given below shows a damaged chair. Only parts of the chair are broken and may be caused by poor design.

**Figure 12: CHAIR**



Source: Getty images

44. Identify the situation of the design problem.

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SL 1

45. Explain the design process that will be carried out to solve the design problem.

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SL 3

46. State the design brief of solving the design problem.

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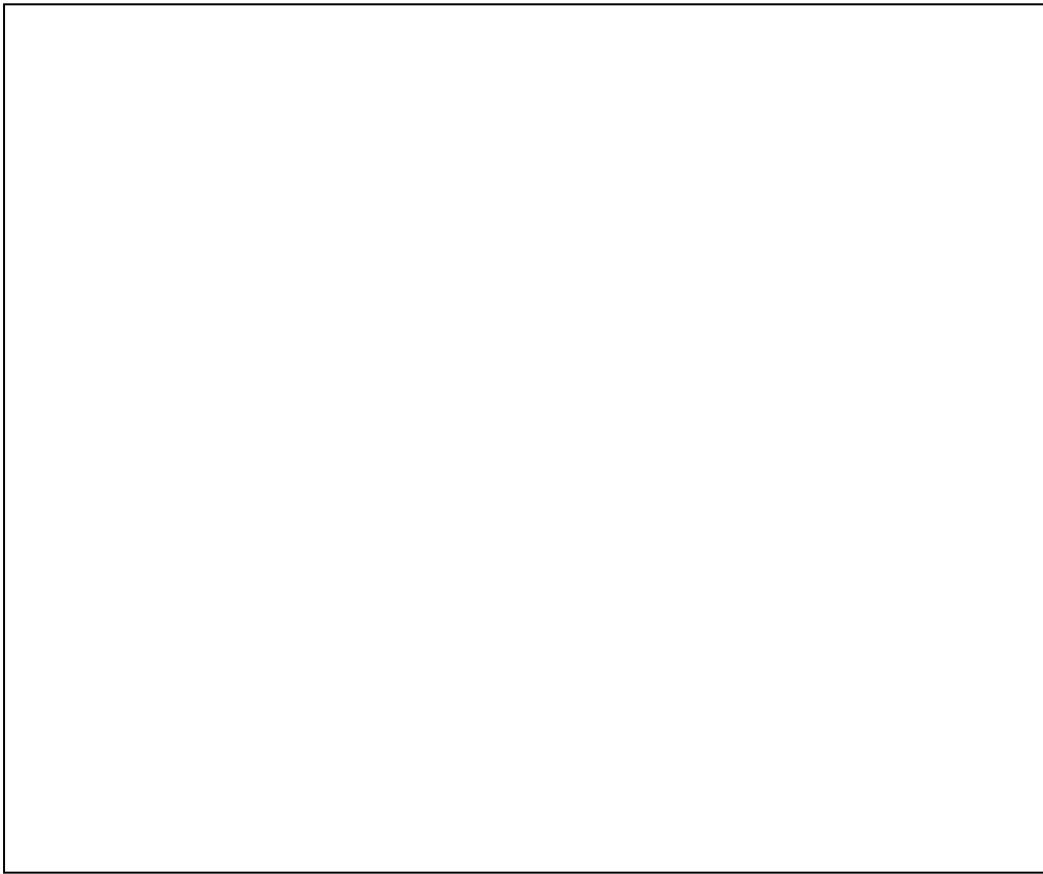
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SL 1

47. Construct and label a pictorial pencil or colour-rendered pictorial sketch of the final solution to the design problem in the space provided.



SL 4

48. List any **TWO** suitable materials selected for the final solution.

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SL 2

49. Evaluate the completed product in terms of its design, making and finishing.

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SL 4

STUDENT EDUCATION NUMBER									

## SSC DESIGN TECHNOLOGY

2023

*(For Scorers only)*

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