

STUDENT EDUCATION NUMBER



GOVERNMENT OF SAMOA  
MINISTRY OF EDUCATION, SPORTS AND CULTURE

# Samoa School Certificate

# DESIGN TECHNOLOGY

# 2018

## 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 space, ask the Supervisor for extra paper. Write your SEN on all extra sheets used and clearly number the questions. Attach the extra sheets at the appropriate places in this booklet.

STRANDS		Page	Time (min)	Weighting
<b>STRAND 1:</b>	DRAWING AND DESIGN	2	31	17
<b>STRAND 2:</b>	SAFETY AND TOOLS	5	20	11
<b>STRAND 3:</b>	MATERIALS	7	43	24
<b>STRAND 4:</b>	PROCESSES	12	54	30
<b>STRAND 5:</b>	TECHNOLOGY	17	32	18
<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 is blank.  
**YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION**

Write the letter of your BEST answer in the box provided on the right side of each number.

1. Why is it important for a designer and the end user to communicate with each other?

- A. To modify design ideas.
- B. To improve product marketing.
- C. To improve customer satisfaction.
- D. To increase profit.

SL 1

2. Which type of drawing given below shows how two or more parts of a product are fitted or joined together?

- A. Auxiliary drawing.
- B. Orthographic drawing.
- C. Assembly drawing.
- D. Architectural drawing.

SL 1

3. In the cabinet projection type of oblique projection, the retreating lines are

- A. Inclined at 45° and measured half the actual size.
- B. Inclined at 45° and measured twice the actual size.
- C. inclined at 45° and measured quarter the actual size.
- D. Inclined at 45° and measured the actual size.

SL 1

Write your answers in the spaces provided.

4. As a design technology student, state a problem that you may have faced at home or in the community that needs to be addressed.

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SL 2

5. Complete a design brief for the problem stated in Number 3.

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SL 3

6. You are asked to estimate the cost of a simple project of designing and building four simple coffee tables for a small family gathering and will use up the following materials:

- 2(2400mm×1200mm) plywood panels at \$2.20 per square meter.
- 1(12m) timber at \$18.00

Assuming all other materials such as varnish are available, calculate the total cost of the given materials that you need to buy from the hardware store.

SL 3

Total cost = \_\_\_\_\_

7. Describe the importance of the evaluation stage in the working up of the design process.

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SL 2

8. Discuss the importance of *specification* in the design process of any given project.

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SL 4

Write the letter of your BEST answer in the box provided on the right side of each number.

9. Which hand tool is used for cutting sheet metal?

- A. Pliers
- B. Circular saw.
- C. Hacksaw.
- D. Snip

SL 1

Write your answers in the spaces provided.

The figure below shows a portable power tool used in some construction projects. Study the figure below and answer Number 10.



Figure A

10. Name the portable tool shown above.

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SL 1

11. Discuss the importance of taking precautions when operating the portable tool shown.

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SL 4

12. State the function of a G-clamp.

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SL 1

13. Explain the differences between hand tools and power tools.

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SL 3

Write the letter of your BEST answer in the box provided on the right side of each Number.

14. Wood or timbers are cut from which part of the tree?

- A. Branches.
- B. Main stem.
- C. Roots.
- D. Outer Park.

SL 1

15. What is name given to the most central part of a wood's cross-section?

- A. Sapwood.
- B. Softwood.
- C. Heartwood.
- D. Pith.

SL 1

16. What is the main advantage of seasoning timber?

- A. Reduce moister content.
- B. Smoothen timber.
- C. Better look.
- D. Become durable.

SL 1

17. Which of the following is an example of a light metal?

- A. Silver.
- B. Copper.
- C. Aluminum.
- D. Steel.

SL 1

18. Which property of metal measures the ability of a material to conduct electric current?

- A. Electrical Resistance.
- B. Electrical conductivity.
- C. Thermal conductivity.
- D. Elasticity.

SL 1

19. Which of the following metal is classified as a good conductor of heat and electricity?

- A. Copper.
- B. Bronze.
- C. Silver.
- D. Gold.

SL 1

**Write your answers in the spaces provided.**

20. Name and describe the nature of a local timber you have used.

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SL 2

21. Describe with the help of diagrams the features of a timber *warp*.

SL 2



22. The last stage in the construction process is applying a perfect finish to preserve or enhance the finished product. Explain why this finishing process is important and give ONE example.

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SL 3

23. Explain the main function of the *xylem* and *phloem* in the tree.

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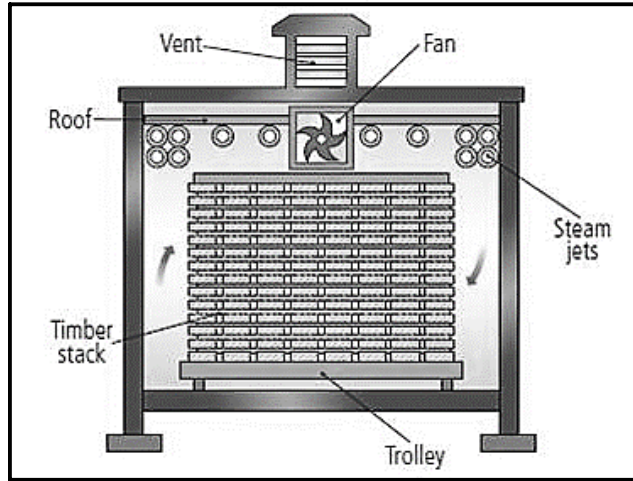
SL 3

24. Draw a cross-section of a tree trunk and label three parts.



SL 4

The diagram below shows one method of seasoning. Study the diagram and answer the questions that follow.



**Figure B**

25. Discuss below the differences between a *progressive* type of seasoning and a *compartment* type of seasoning timber.

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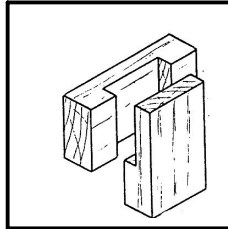
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SL 4

Write the letter of your BEST answer in the box provided on the right side of each question.

26. What type of joint is shown in the figure below?

- A. Angle Butt.
- B. Lapped Dovetail.
- C. Angle Halving.
- D. Cross Halving.




SL 1

27. Which of the following is a simple and effective method of securing light sheet metal components?

- A. Glue.
- B. Pop Riveting.
- C. Welding.
- D. Pin.

SL 1

28. What is the most appropriate finish when you wish to change the natural look of wood?

- A. Glue.
- B. Paint.
- C. Vanish.
- D. Stain

SL 1

29. Identify which of the following describes the use of a chisel.

- A. A hand tool used to hollow out an area.
- B. A narrow blade used for cutting curves in wood.
- C. A tool used for carving or cutting wood.
- D. Single edge tool used to scrape metal.

SL 1

Write your answer in the spaces provided.

30. Identify the appropriate use of the tool given in Figure C below.

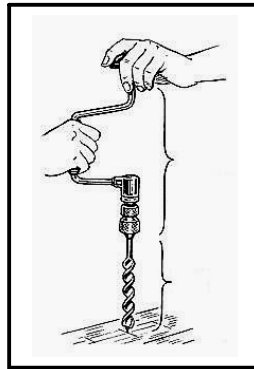


Figure C

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SL 1

31. In the box provided below, sketch a drawing of the *Dovetail Joint*.

SL 1

32. List down TWO alternative finishes or coatings apart from stain and varnish.

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SL 2

33. Describe in your own words what is meant by 'good trade practice.'

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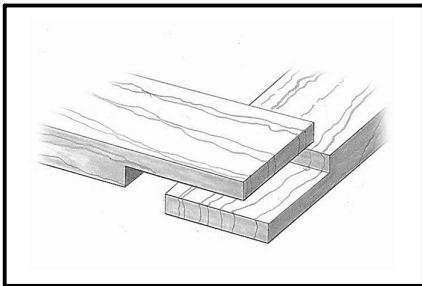
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SL 2

34. Name the type of cut joint given below.



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SL 1

35. Discuss with examples the difference between materials and tools used in construction projects.

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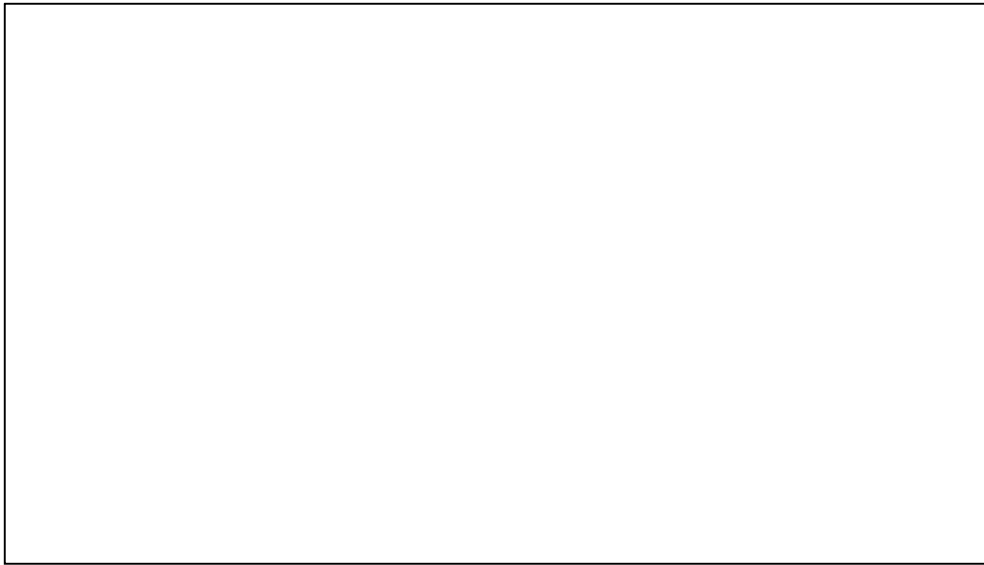
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SL 4

36. Sketch a Cavalier Drawing of a *four legged coffee table* in the box provided below.



SL 2

37. For carpenters and woodworkers, squareness means the difference between success and failure. Explain with examples methods used for squaring a project.

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SL 3

38. Explain what is meant by a person with good *craft skills*.

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SL 3

Study the diagram below to answer the following questions.

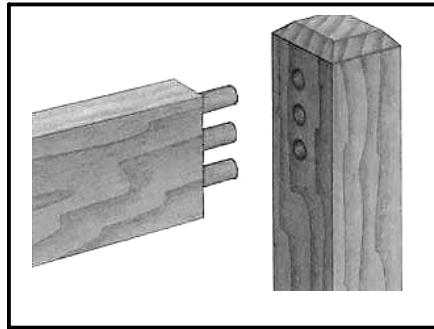


Figure D

39. Figure D shows a type of joint called Dowel Joint used in carpentry for fastening woodwork to create furniture. Explain how the joint is made.

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SL 3

40. Discuss with examples ways to fix surfaces with claw hammer marks.

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SL 4



Write the letter of your BEST answer in the box provided on the right side of each question.

41. Which of the following statement defines the term *craft*?

- A. Skills in the making.
- B. Application of scientific knowledge for practical purposes.
- C. A worker skilled in a particular craft.
- D. A person engaged in trading.

SL 1

Write your answers in the spaces provided.

42. Define the term technology.

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SL 1

43. Describe the importance of technology to our everyday life.

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SL 2

44. Define the term *industry*.

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SL 1

45. Explain with appropriate examples how technology is related to the development of our local industry.

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SL 3

46. Explain how technology relates to 'design and technology.'

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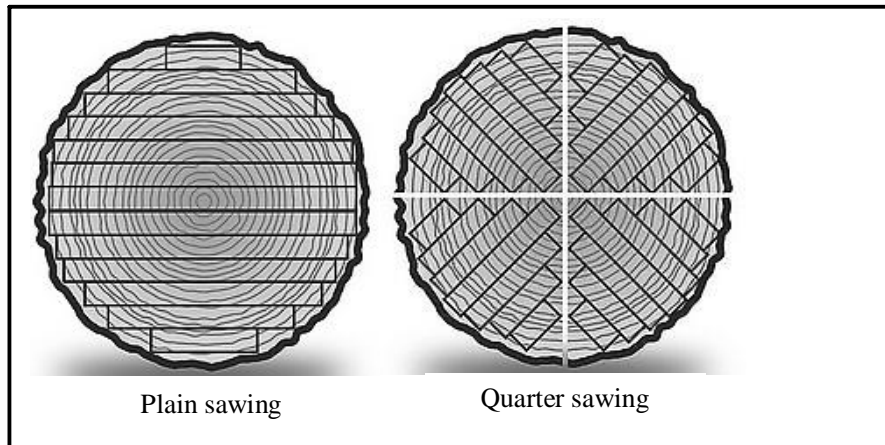
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SL 3

Shown in the diagram below are the two common methods for timber conversion.



**Figure E**

47. Explain the process of 'conversion of timber.'

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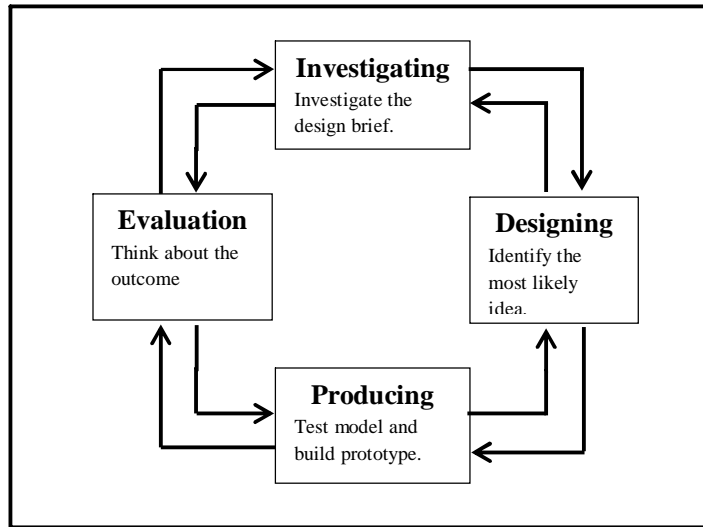
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SL 3

The diagram below shows the design process model. Use this model to answer the question that follows.



**Figure F**

48. Explain the importance of evaluating feedback in relation to expectations of the design brief.

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SL 4

STUDENT EDUCATION NUMBER									

## DESIGN TECHNOLOGY

2018

(For Scorers only)

STRANDS	Weighting	Scores
<b>STRAND 1: DESIGNING AND DRAWING</b>	17	
<b>STRAND 2: TOOLS AND SAFETY</b>	11	
<b>STRAND 3: MATERIALS</b>	24	
<b>STRAND 4: PROCESSES</b>	30	
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<b>TOTAL</b>	<b>100</b>	