E-mail: Info@saolympiads.co.za website: www.saolympiads.co.za

Technology Olympiad GRADE 8

DATE: 8 AUGUST 2025

TIME: 90 MINUTES

INSTRUCTIONS:

1. This booklet has 30 multiple choice questions and 10 open ended questions.
2. Use the answer sheet provided.
3. Circle the letter corresponding to your answer.
4. All working details must be done in the space provided.
5. Calculators are permitted.
6. Diagrams are not necessarily drawn to scale.
7. The first 30 questions (Section A) carry 1 mark each and the last 10 questions (Section B) carry 2 marks each.
8. You have 90 minutes for the paper which works out to an average of 2.25 minutes per question.
9. Read the questions carefully before answering.
10. Visit the website: www.saolympiads.co.za.

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Grade Eight Technology Olympiad 2025

SECTION A

Indicate the most correct answer by writing the correct letter on the answer sheet provided.

1. After the investigation, designing, making and evaluation of the model of a circuit, what will the next step be?

   A Test the model
   B Draw the model
   C Communicate the model
   D Make the model (1)

2. Design and make a container using recyclable plastic to safely store and carry your school stationary" What does the statement refer to?
   A Constrain
   B Design brief
   C Specification
   D Evaluation (1)

3. What are the sketches drawn before the final design called?
   A Working drawings
   B Exploded drawings
   C Orthographic drawings
   D Initial drawings (1)

4. The following ratio 1:3 shows that:
   A The dimensions of the real object is one times bigger than the drawing.
   B The drawing is three times bigger than the real object.
   C The drawing is half times smaller than the real object.
   D The object is three times the drawing. (1)

5. A pictorial represention or view of an object is called a/an ……

   A Orthographic drawing
   B Perspective drawing
   C Isometric drawing
   D An oblique drawing (1)

6. At what angle do you draw isometric drawings?
   A 45°
   B 30°
   C 180°
   D 90° (1)

7. In conventions, which lines show all hidden information?
   A Outlines
   B Dashed lines
   C Faint lines
   D Chain lines (1)

8. Which structural member uses one central supporting post?
   A King post
   B Tie
   C Column beam
   D Queen post (1)

9. ____ are rods or bars that form part of a framework and design to resist compression.
   A Ties
   B Stay
   C Struts
   D Buttresses (1)

10. Slopped structural members that extend from the ridge or hip to the wall plane is called…
    A Rafter
    B Trusses
    C Ties
    D Struts. (1)

11. Boards which are nailed diagonally across studs or other boards to give rigidity to a framework.
    A Triangulation
    B Pylons
    C Cross bracing
    D Beams (1)

12. Give an example of a structure that span a space and are supported on one end only.
    A Archs
    B Cantilevers
    C King posts
    D Queen posts (1)

13. The **THREE** most likely reasons why structures fail are:
    A fracturing, bending, buckling
    B fracturing, bending, fatigue
    C toppling over, bending, fatigue
    D fracturing, toppling over, bending (1)

14. How do artists enhance a drawing to make it more real? By …
    A texture, shading, colour, shadows
    B painting, vanishing, colour, shading
    C shadows, texture, colour, vanishing
    D painting, shadow, colour, shading (1)

15. Dimensions should be in…
    A Centimeters
    B Meters
    C Millimeters
    D Kilometers (1)

16. Name the kind of force that does the following: “Twists a structure”.
    A Compression
    B Torsion
    C Tension
    D Bending (1)

17. The task is done more easily if the mechanical advantage is…
    A Equal to 1 (=)
    B Less than 1 (<1)
    C Greater than 1 (>1)
    D Not equal to 1 (≠1) (1)

18. Which gear changes the direction of the driven gear’s rotation?
    A Gear train
    B Driver gear
    C Driven gear
    D Idler gear (1)

19. The following are examples of cams **EXCEPT** :
    A spherical
    B eccentric
    C snail
    D pear (1)

20. Which word has the following meaning "be able to be broken down by natural process without harming the environment"?
    A Environmentally friendly
    B Sustainable
    C Renewable
    D Biodegradable (1)

21. Packaging can provide the following **EXCEPT** :
    A Nutritional information
    B Colour
    C Mass
    D Ingredients (1)

22. Calculate the velocity ratio when the driver gear has 45 teeth and driven gear has 15 teeth.
    A 1:3
    B 3:1
    C 15:45
    D 3 (1)

23. Which gear has this explanation? "The gear with teeth cut at an angle of 45° in a cone shape and used to change the rotational movement through the angle of 90°"
    A Spur gear
    B Rack and pinion gear
    C Bevel gear
    D Idler gear (1)

24. In a gear system, the input force on a driver shaft is 20N. The output force on the driven shaft is 120N. What is the mechanical advantage of the gear train?
    A 6
    B 140
    C 100
    D 1420 (1)

25. Which one of the following is **NOT** a positive impact of mining?
    A Foreign exchange
    B Social fulfillment
    C Land degradation
    D Job creation (1)

26. Which type of cell generates electricity when they are exposed to sunlight?
    A Electrochemical cells
    B Photovoltaic cells
    C Generators
    D Batteries (1)

27. The **TWO** types of electrical current are ____ and ____.
    A direct and indirect
    B natural and artificial
    C direct and alternating
    D direct and hyrdo-electrical (1)

28. Which of the following is a technology related career?
    A Law
    B Civil engineering
    C Accountancy
    D Political science (1)

29. What type of application would be best used for typing a letter?
    A Database
    B Word processing
    C Spread sheet
    D Microsoft outlook (1)

30. A property of glass to be able to stand – up to any strain before it cracks or breaks is ……

    A Brittleness
    B Flexibility
    C Hardness
    D Elasticity (1)

SECTION B

31. Unscramble the word in brackets to find the different type of shading, (lonta) (2)

32. What are the limitations on a design called in a Design Process? (2)

33. Which mammals have the ability to fly? (2)

34. In what country would you find Mount Kilimanjaro? (2)

35. The sun is located in a Galaxy called ____. (2)

36. What country launched the world's first artificial satellite, the sputnik. (2)

37. An instrument for measuring electric current in amperes. (2)

38. What is the orange part of an egg called? (2)

39. Which is the largest desert in the world? (2)

40. Which fruit can be used as an electromagnetic cell? (2)

TOTAL MARKS: 50