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

Technology Olympiad GRADE 8

DATE: AUGUST 2024

TIME: 90 MINUTES

INSTRUCTIONS:

1. This booklet has 30 multiple choice questions and 10 open ended questions.
2. Use the answer sheet provided.

   Circle the letter corresponding to your answer.
3. All working details must be done in the space provided.
4. Calculators are permitted.
5. Diagrams are not necessarily drawn to scale.
6. The first 30 questions (Section A) carry 1 mark each and the last 10 questions (Section B)

   carry 2 marks each.
7. You have 90 minutes for the paper which works out to an average of 2.25 minutes per question.
8. Read the questions carefully before answering.
9. Visit the website: www.saolympiads.co.za.

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Grade Eight Technology Olympiad 2024

SECTION A

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

1. Which source of ernegy is a non-renewable source of ernegy?
   A Wind-powered generators
   B Water-powered generators
   C Thermal-powered generators
   D Solar-powered generators (1)

2. What is the first step of a design process?
   A Test and evaluate
   B Develop a design
   C Investigate a solution
   D Identify the need or problem (1)

3. _____ are two-dimensional drawings that show three different views of an object.
   A Isometric projection
   B Oblique drawings
   C Orthographic drawings
   D Hidden details (1)

4. The following ratio 2:1 shows that:
   A The dimensions of the real object is one times bigger than the drawing.
   B The drawing is two times bigger than the real object.
   C The drawing is half times smaller than the real object.
   D The object is two times the drawing. (1)

5. The following is **NOT** part of enhancing drawings, making them look more like reality.
   A Size
   B Texture
   C Colour
   D Shading/shadow (1)

6. Which roof truss is commonly used in construction of structures?
   A Queen of structures
   B Struts
   C Rafters
   D King post (1)

7. A force that turns a member into two different directions is called…
   A Torsion
   B Shear
   C Tension
   D Compression (1)

8. One of the following is **NOT** an example of a structural failure.
   A Fracture
   B Bending
   C Toppling over
   D Folding (1)

9. Which lines show hidden features in graphic designing?
   A Outlines
   B Dashed lines
   C Feint lines
   D Chain-dash-dot (1)

10. When spur gears mesh, which direction do they move?
   A Clockwise rotation
   B Anti-clockwise rotation
   C Counter rotation
   D They do not rotate (1)

11. Which gear synchronise rotation?
   A drive gear
   B driven gear
   C gear train
   D idler gear (1)

12. The speed of the driven gear/output divided by the speed of the driver/input gear.
   A force ratio
   B velocity ratio
   C revolution per minute (r.p.m)
   D ratio (1)

13. Cams convert _____ to _____ motion.
    A reciprocating to rotary
    B rotary to reciprocating
    C rotary to linear
    D clockwise to anti-clockwise (1)

14. Which one of the following is **NOT** an example of bridge?
    A I.Beam
    B suspension
    C cantilever
    D cable-stayed (1)

15. The following are example are examples of inclined plane **EXCEPT**:
    A an axe
    B a knife
    C a ramp
    D a rod (1)

16. Which word/phrase describes a material that can be broken down by air, water and bacteria and be absorbed by the Earth?
    A environmentally-friendly
    B renewable sources
    C biodegradable
    D non-renewable source (1)

17. South Africa produces paper from the following **EXCEPT:**
    A trees
    B bagasse from sugarcane
    C wood chips
    D petroleum (1)

18. A type of card that has three layers, is cheap, strong and is often used for packaging.
    A paperboard
    B corrugated
    C paperpulp
    D recycled pulp (1)

19. The process used to separate ink particles from waste paper is called…
    A de-barking
    B chipping
    C bleaching
    D froth flotation (1)

20. The greenhouse effect is the build-up of which gas in atmosphere?
    A carbon monoxide
    B sulphar dioxide
    C carbon dioxide
    D nitrogen (1)

21. A liquid substance which can conduct electricity is called…
    A cathode & anode
    B electrolyte
    C electrolysis
    D electrode (1)

22. Bending is party of the structural failure, usually caused by lack of…
    A stiffness
    B strength
    C stability
    D hardness (1)

23. To increase the speed in a gear system, the driver gear should be…
    A smaller than the driven gear.
    B bigger than the driven gear.
    C same size as the driven gear.
    D faster than the driven gear. (1)

24. The following are examples of cams **EXCEPT:**
    A eccentric
    B pear-shaped
    C egg-shaped
    D snail-shaped (1)

25. The following is **NOT** an example of advantage of solar energy.
    A there is a lot of it.
    B it is clean energy.
    C impact negatively on the environment.
    D renewable energy source (1)

26. Technology has made communication easier. Which of following is **NOT** a way technology allows us to communicate?
    A video calls with friends and family
    B sending instant messages
    C exchanging letters throughout the email
    D sharing information on social media (1)

27. Which of the following is **NOT** a negative impact of social media?
    A cyberbullying and misinformation and online harassment.
    B spread of misinformation and fake news.
    C increased feeling of isolation and loneliness.
    D improved problem-solving skills (1)

28. The melting of glaciers and polar ice caps due to global warming can lead to:
    A A decrease in global temperatures.
    B A rise in sea levels, threatening costal communities.
    C An increase in fresh water supplies.
    D More predictable weather patterns. (1)

29. South Africa gets most of its electricity from:
    A water-powered generators
    B steam/coal-powered generators
    C nuclear-powered generators
    D wind-powered generators (1)

30. What is the main goal of addressing gender bias in technology?
    A To eliminate all technology use by men.
    B To create technology that only benefits women.
    C To slow down the new technologies.
    D To ensure everyone has equal access to opportunities and benefits from the technology offered. (1)

SECTION B

31. A wheel where an axle is off the centre is called a/an ---------wheel. (2)
32. Where does our government gets most of its money from? (2)
33. What does the abbreviation "**GNU"** stands for? (2)
34. What is the most appropriate food that would last longer in a refugee camp. (2)
35. New bioplastic are now being produced from …… (2)
36. Which farmers harvest their crops, and the grains are placed into small containers for future use? (2)
37. People were immunised against **Corona/Covid 19 virus** to lessen the risk of getting it. What was the name of the second dose of the vaccine which people received afterwards? (2)
38. In a Design Process, what do we call a short and clear statement that gives the general outline of the problem or needs to be solved as well as the proposed solution? (2)
39. A man with force, lifts a load of 1 000N. He used 200N to lift the load. Calculate (MA) Mechanical Advantage he will get. (2)
40. A _____ food is one that makes up the main diet of a group of people. (2)

TOTAL MARKS: 50