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Technology Olympiad GRADE 9

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.

Grade Nine Technology Olympiad 2024

SECTION A

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

1. A statement that describes how the designer intends to solve a problem is called.
   A. Design process
   B. Evaluation
   C. Communication
   D. Design brief (1)

2. In Technology, drawing can be produced using enlarging scale, reducing scale or actual scale. Which one the following is an enlarging scale?
   A. 1:1
   B. 1:2
   C. 1:0
   D. 2:1 (1)

3. In 1st angle orthograhic orthographic projection, which of the following represents the top view?
   A. Front view
   B. Right-side view
   C. Left-side view
   D. Plan view (1)

4. What is the purpose of using orthographic projection in engineering drawings?
   A. To represent 3D objects on a 2D plane.
   B. To create artistic rendering objects.
   C. To show only the front-view of an object.
   D. To simplify complex objects. (1)

5. When a load acting on a structure is equally distributed, it is said to be……
   A. Stable
   B. Unstable
   C. Even
   D. Dynamic (1)

6. Which one of the following drawings shows 3-D shape?
   A. Oblique drawing
   B. Orthographic drawing
   C. Isometric
   D. Perspective drawing (1)

7. In this formular: I= V/R, I represents….
   A. Volts
   B. Current
   C. Resistance
   D. Ohm's (1)

8. What instrument is used to measure Current in a circuit?
   A. Voltmeter
   B. Thermistor
   C. Transistor
   D. An ammeter (1)

9. A design brief is an indication of….
   A. The problem the customer has.
   B. Questions the designer must ask from the client.
   C. What the designer is going to do to solve the problem.
   B. The cost of the building. (1)

10. According to Pascal's principle, the pressure exerted on one part of the hydraulic system is transferred….
    A. Equally to all parts of the system.
    B. Without any loss.
    C. To other parts of the system.
    D. All of the above. (1)

11. Which of the Following system is **NOT** an example of a pulley system?
    A. Single wheel fixed pulley.
    B. Single wheel moveable pulley.
    C. Connected pulley.
    D. Compound pulley. (1)

12. Hydraulic system control mechanisms using….
    A. Oil
    B. Grease
    C. Air
    D. Petrol (1)

13. What is a pneumatic system?
    A. A system that transfers energy through hydraulic fluid.
    B. Compression that Tension .
    C. A system that transfers a force through compressed air.
    D. A system that uses electricity to generate power. (1)

14. Technology is a powerful tool. Which of the following statements is MOST likely true?
    A. Technology will always have a negative impact on society.
    B. Technology has no effect no effect on the way
    C. Technology can be used for good or bad purposes, depending how we use on how it.
    D. Technology will eventually make humans obsolete. (1)

15. Plastic that cannot be recycled in manufacturing processes.
    A. Thermoplastic
    B. Transparent
    C. Thermosetting
    D. Translucent (1)

16. Explain the 3Rs of plastic.
    A. Reuse, Reduce, Remanufacture
    B. Reduce, Replace, Reuse
    C. Recycle, Reduce, Replace
    D. Reduce, Reuse, Recycle (1)

17. Heating a product like milk using high degrees of temperature in order to kill bacteria is called….
    A. Pusturising
    B. Ohm's Law
    C. Fleming Law
    D. Pascal (1)

18. What is a source of air pollution from mining activities?
    A. Planting trees for reclamation efforts.
    B. Dust particles from blasting and excavation.
    C. Emission controls on mining equipment.
    D. Water treatment plants near mines. (1)

19. The following are reasons for processing food **EXCEPT**…
    A. Make it stay the same.
    B. Improve its quality.
    C. Make it last longer.
    D. Make it safe to eat. (1)

20. What is a potential health risk associated coal mining?
    A. Exposure to lead dust.
    B. Mercury poisoning from ore processing.
    C. Radiation sickness from uranium mining.
    D. Black lung disease from coal dust inhalation. (1)

21. The process of coating a metal object with a thin layer of another metal by means of electrolysis.
    A. Electroplating
    B. Galvanising
    C. Electrolysis
    D. Painting (1)

22. Open-pit mining is a disruptive method. State the possible reason.
    A. Extracting resources from deep underground tunnels.
    B. Creating Large, Open pits in the Earth's surface.
    C. Using minimal water in the extraction process.
    D. Having a smaller environmental footprint compared to other methods. (1)

23. A type of a rock that contains minerals with important elements including metals.
    A. Atoms
    B. Elements
    C. Ore
    D. Minerals (1)

24. This is the type of resistor whose resistance changes as the light intensity falling on it changes.
    A. Thermistor
    B. Capacitor
    C. Light Emitting Diode (LED)
    D. Light-Dependent Resistor (LDR) (1)

25. If the resistance is 2 ohms and the voltage supplied is 8V. Calculate current.
    A. 16A
    B. 4A
    C. 10A
    D. 0,25A (1)

26. What is the function of a valve in hydraulic system?
    A. Prevent leaks in the system.
    B. Increase the speed of hydraulic fluid.
    C. Control / Stop Load falling back down after lifted.
    D. Change the colour of the hydraulic fluid. (1)

27. Which of the following is a disadvantage of the hydraulic system?
    A. High efficiency.
    B. Low maintenance.
    C. Possibility of leaks.
    D. Quiet operation. (1)

28. Fire wall in computers is used for……..
    A. Security
    B. Data transmission
    C. Authentication
    D. Monitoring (1)

29. What is the potential consequence of spending too much time on electronic devices?
    A. Improve creativity and imagination.
    B. Trouble sleeping and disrupted sleep patterns.
    C. Enhanced critical thinking skills.
    D. Increased physical activity level. (1)

30. What are the features of a product or system that make it user-friendly.
    E. Aesthetic
    F. Artistic
    G. Ergonomics
    H. Specifications (1)

SECTION B

31. What mixture of two or more metals is able to improve its property? (2)
32. What is used to measure the resistance in a circuit? (2)
33. This is a type of a resistor whose resistance changes as the light intenstity falling on it changes. (2)
34. What is the main food eaten by the majority of people in a country is called? (2)
35. The appliances in our homes are connected in _____ to the mains supply. (2)
36. South Africa gets most of its energy from _____ powered generators. (2)
37. What are beams which are supported on one side only are called? (2)
38. The abbreviation “AMD” in mining stands for _____. (2)
39. What is a financial plan and a list of all planned expenses , or a plan for saving, borrowing and spending is called? (2)
40. What is ferric oxide commonly known as ? (2)

TOTAL MARKS = 50