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Natural Science & Technology Olympiad
GRADE 4

DATE: 20-21 AUGUST 2024

TIME: 90 MINUTES

INSTRUCTIONS:

1. This booklet has 50 multiple-choice questions.
2. Use the answer sheet provided.

   Circle the letter corresponding to your answer.
3. Each question carries 1 mark.
4. You have 90 minutes for the paper which works out to an average of 1.8 minutes per question.
5. Read each question carefully.

ENJOY THE OLYMPIAD.

Grade Four Natural Science and Technology Olympiad 2024

Indicate the correct answer by circling the correct letter on the answer sheet provided.

1. What is the main purpose of the roots in a plant? (1)
   A) To absorb sunlight
   B) To anchor the plant and absorb water and nutrients from the soil
   C) To produce flowers
   D) To store food for the plant

2. Why are the leaves important? (1)
   A) Leaves help the plant move
   B) Leaves make the plant look pretty
   C) Leaves help the plant make food and breathe
   D) Leaves are for protection only

3. How would you use your stem to reach sunlight if you were a plant? (1)
   A) By absorbing water from the soil
   B) By releasing oxygen into the air
   C) By growing towards the sunlight
   D) By spreading roots wider

4. Compare and contrast **(i.e. similarities and differences)** the functions of a plant's roots and the stem. (1)
   A) Both roots and stems help the plant breathe
   B) Roots take in water and nutrients from the soil, while stems support the plant and transport water and nutrients
   C) Roots support the plant above the ground, while stems anchor the plant below the ground
   D) Roots produce flowers, while stems produce leaves

5. Which of the following statements best describes what the moon looks like? (1)
   A) It changes its shape every night
   B) It is always round like a ball
   C) It looks like a crescent sometimes
   D) It is a big square in the sky

6. What is the main function of a fish's gills? (1)
   A) To smell food in the water
   B) To hear underwater sounds
   C) To help the fish breathe underwater
   D) To store food for later

7. Why do birds have feathers? (1)
   A) To help them swim
   B) To make them look pretty
   C) To protect them from predators
   D) To help them fly

8. What does a frog use its sticky tongue? (1)
   A) To scare away predators
   B) To make sounds
   C) To hold onto tree branches
   D) To catch insects for food

9. Compare and contrast **(i.e. similarities/differences)** the function of a dog's nose with a human's nose. (1)
   A) A dog's nose helps it smell better than a human's nose. A human's nose helps with breathing and smelling, but not as well as a dog's.
   B) A human's nose helps it smell better than a dog's nose. A dog's nose is only for breathing.
   C) A dog's nose helps it see better than a human's nose. A human's nose helps with tasting food.
   D) A human's nose and a dog's nose serve the same purpose and function in the same way.

10. These animals have a backbone are known as … (1)
    A) Invertebrates
    B) Vertebrates
    C) Worms
    D) Flies

11. What do plants need to grow? (1)
    A) Soil, water, and sunlight
    B) Rocks, air, and rain
    C) Sand, darkness, and heat
    D) Cement, fertiliser, and shade

12. What material would be best for making a pot not affected by heat? (1)
    A) Wood
    B) Plastic
    C) Glass
    D) metal

13. If a plant is not growing well, what could be the problem? (1)
    A) It has too much water
    B) It is getting too much sunlight
    C) It does not have enough water or sunlight
    D) It has too much soil

14. Which of the following is an example of a man-made material? (1)
    A) Cotton
    B) Nylon
    C) Wool
    D) Sand

15. Which of the following situations would most likely result in healthy plant growth? (1)
    A) Planting a seed in a dark room with no water
    B) Planting a seed in well-drained soil with regular watering and sunlight
    C) Planting a seed in the sand with occasional watering and no sunlight
    D) Planting a seed in a pot filled with rocks and fertiliser without watering

16. What is the state of matter of water at room temperature? (1)
    A) Solid
    B) Liquid
    C) Gas
    D) Plasma

17. Which statement best describes how the particles in a solid are arranged? (1)
    A) They are tightly packed and can move freely.
    B) They are spread out and move around quickly.
    C) They are tightly packed and vibrate in place.
    D) They have no definite shape or volume.

18. If you leave a glass of water outside on a hot day and forget about it, what is most likely to happen to the water? (1)
    A) It will freeze into ice.
    B) It will turn into plasma.
    C) It will stay as a liquid.
    D) It may disappear completely.

19. The order of the steps in the design process are….. (1)
    A. Investigate, design, make, evaluate, communicate
    B. Design, make, show, problem solve, communicate
    C. Design, make, communicate, investigate, critique
    D. Evaluate, make, communicate, design

20. Which state of matter would a helium balloon represent? (1)
    A) Solid
    B) Liquid
    C) Gas
    D) Plasma

21. What is the phase change called when water changes from a liquid to a gas? (1)
    A) Melting
    B) Freezing
    C) Condensation
    D) Evaporation

22. Why do water droplets form outside a cold glass? (1)
    A) Because the glass is sweating
    B) Because water is being added to the glass
    C) Because the water vapour in the air cools and condenses on the cold glass
    D) Because the glass is melting

23. If you put an ice cube in a warm room and leave it for a while, what will happen to the ice cube? (1)
    A) It will turn into a gas
    B) It will melt and turn into water
    C) It will freeze and turn into ice
    D) It will evaporate completely

24. An environment in which an animal or human lives is called… (1)
    A) Hut
    B) Habitat
    C) Environment
    D) Ecosystem

25. What are the effects of pollution on the environment? (1)
    A) Damage to the environment
    B) Animals lose their homes
    C) Oil leaks sometimes get to the animals' stomachs and poison them
    D) All of the above.

26. What is the chemical formula for carbon dioxide? (1)
    A) H2O2
    B) H2O
    C) CO2O
    D) CO2

27. Magnets are usually made from… (1)
A) Water
B) Oil
C) Non-metals
D) Metals

28. Planet…is often called the 'Morning Star' (1)
A) Saturn
B) Earth
C) Jupiter
D) Venus

29. You are asked to design a raincoat. What properties of the material would you consider in your design… (1)
A. Flexibility
B. Strength
C. Texture
D. Waterproof

30. Which of the following is an example of a natural water source? (1)
A) A water bottle
B) A swimming pool
C) A river
D) A bathtub

31. Which energy comes from the sun? (1)
A) Wind energy
B) Solar energy
C) Fossil fuel energy
D) Nuclear energy

32. What is energy? (1)
A) Something that makes things heavy
B) The ability to do work or cause change
C) Something that only plants have
D) The temperature of an object

33. When you run, what type of energy do you use? (1)
A) Light energy
B) Sound energy
C) Electrical energy
D) Kinetic energy

34. What type of energy do you have when sitting at the top of a slide? (1)
A) Potential energy
B) Kinetic energy
C) Solar energy
D) Mechanical energy

35. Which of the following shows energy being used to make something move? (1)
A) A fan spinning
B) A balloon
C) A book sitting on a shelf
D) A tree

36. Which of the following best describes sound? (1)
A) Something we see
B) Something we taste
C) Something we hear
D) Something we smell

37. How does sound travel? (1)
A) Through light
B) Through vibrations
C) Through heat
D) Through water

38. Which of these actions makes sound? (1)
A) Holding a feather
B) Jumping on a trampoline
C) Sleeping
D) Looking through a window

39. What happens to the air molecules when a bell rings? (1)
A) They stop moving
B) They slow down
C) They vibrate and bump into each other
D) They disappear

40. Which of these objects makes the loudest sound? (1)
A) A feather falling
B) A rubber ball bouncing
C) A drum being hit with a stick
D) A flower blooming

41. What is the Sun? (1)
A) A planet
B) A star
C) A moon
D) A comet

42. Why is the Sun important for Earth? (1)
A) It provides food for plants
B) It keeps us warm and gives us light
C) It controls the tides in the oceans
D) It helps us see at night

43. Which of the following activities is most affected by the Sun's energy? (1)
A) Swimming in a lake
B) Riding a bicycle
C) Playing soccer
D) Growing plants in a garden

44. …is the unit of power (1)
A) Power
B) Strength
C) Watt
D) Energy

45. Which of the following statements best describes what happens when it is daytime? (1)
A) The Sun is visible in the sky, and it is light outside.
B) The Moon is visible in the sky, and it is dark outside.
C) The stars are visible in the sky, and it is light outside.
D) The clouds cover the sky, and it is dark outside.

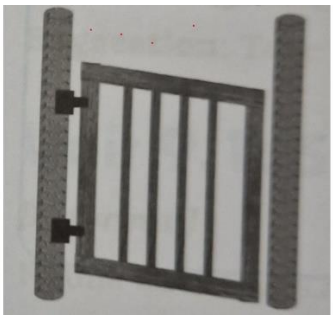
46. What are predators? (1)
A) Animals that drink milk
B) Animals that hunt and eat other animals
C) Animals that eat insects only
D) Animals that eat flies only

47. What is a supernova? (1)
A) It makes it rain
B) It creates clouds
C) It is an explosion of a star
D) It makes it snow and causes natural disasters

48. Which of the following is NOT a characteristic of the Sun? (1)
A) It is a star
B) It is made of gas
C) It has its own light
D) It is solid like a planet

49. What is chlorophyll? (1)
A) A green pigment that gives leaves its colour
B) A green nectar
C) Green plants
D) Green living organism

50. Study the diagram below and then answer the question that follows:



How can you reinforce a sagging gate? (1)
A) Use a strut diagonally across it
B) Use a tie diagonally across it
C) Use a triangular gusset
D) ll of the above

TOTAL MARKS = 50