

SCIENCE AND TECHNOLOGY NECTA 2023

TIME: 1:30 Hours

SECTION A (40 Marks)

Answer all questions in this section

Choose the correct answer and shade its corresponding letter in the special answer sheet (OMR) provided.

1. Which organ in the body is mostly affected by the excessive drinking of alcohol?  
a. Liver   b. kidney   c. lungs   d. heart   e. brain
2. Which waste products are excreted by the lungs during breathing?  
a. Water and oxygen   b. carbon dioxide and water   c. water and salt   d. urea and water   e. carbon dioxide and oxygen
3. Suppose you have been invited to educate villagers about ulcers, which type of food will you advise them to avoid once they are affected by that disease?  
a. Sugary foods   b. hot foods   c. cold foods   d. salty foods   e. acidic foods
4. What is the importance of white blood cells in the human body?  
a. Protect the body against germs causing diseases  
b. Clot blood on a new wound  
c. Transport oxygen gas from the heart  
d. Regulate body temperature  
e. Prevent germs from entering the body
5. The middle ear consists of three tiny bones connected in series which receive the vibration of sound waves and send it to the inner ear. What is the correct series of those three tiny bones?  
a. Incus, malleus, stapes   b. stapes, incus, malleus   c. stapes, malleus, incus   d. malleus, incus, stapes   e. malleus, stapes, incus
6. In the plant growth, roots grow towards the earth. Why do plants grow in such a manner?  
a. To follow air and water   b. to follow water and light   c. to follow light and minerals   d. to follow water and minerals   e. to follow moderate heat and air
7. You have been asked to help your young sister to identify living and nonliving things. Which group would you choose to represent living things?  
a. Tree, tree log, butterfly and frog   b. water, maize plant, fish and frog  
c. butterfly, frog, water and tree   d. fish, lizard, tree and butterfly   e. water, bee, grass and housefly
8. A teacher taught his pupils that loam soil is better for cultivation than other types of soil. Which characteristic makes that soil better than other types?  
a. It has big particles which prevent water from passing  
b. It consists of sand, clay and human fossils  
c. It allows water to pass easily  
d. It allows water to pass through very slowly  
e. It dries early than sand

9. Our father taught us to cultivate by using crop rotation of leguminous plants and cereals. What could be the benefit of doing this?
- a. It adds carbon   b. it simplifies growth of plants   c. it fertilizes the soil   d. it prevents soil erosion   e. it prevents diseases
10. If you write the word SCHOOL on a white paper and put it in front of a plane mirror, which image will appear in front of that mirror.

A. 2CHOO ɿ

B. 700H3S

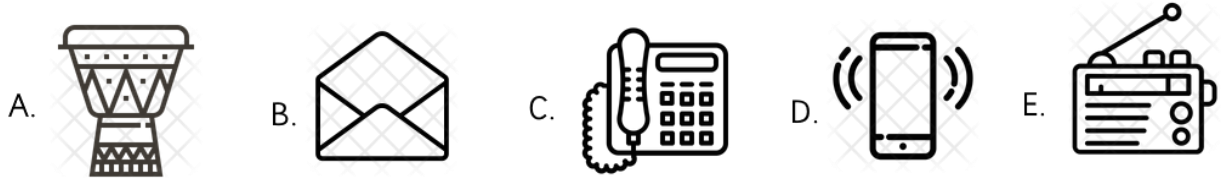
C. LOOHCS

D. J00H32

E. SCHOO ɿ

11. Fire has been used to warm up our bodies during cold weather. In which ways does the heat reach our bodies?
- a. Circulation   b. radiation   c. convection   d. conduction   e. vapourization
12. Suppose you are given the opportunity to advise the government on the kind of energy which will help to conserve the environment, what kind of energy would you advise to be used?
- a. Fuel   b. coal   c. diesel   d. firewood   e. solar energy
13. A telephone technician dropped the phone screws in the sand when blowing out to clean the dirty materials accumulated on the phone. What instrument would you advise the technician to use in order to get back the screws easily?
- a. Telescope   b. needle   c. magnet   d. broom   e. torch
14. What type of change occurs when making 'ugali' using maize flour?
- a. Physical   b. environmental   c. chemical   d. matter   e. solid
15. In which way does the smell travel from inside to outside of the house?
- a. Osmosis   b. photosynthesis   c. respiration   d. photosynthesis   e. diffusion
16. Properties of chemical changes are different from those of physical changes. Which property shows a chemical change?
- a. No new substance is formed after the change
- b. No difference between mass of the substance before and after the change
- c. A lot of energy is used or produced during the change
- d. The properties of the new substance are the same as the properties before the change
- e. The original substance can easily be regenerated
17. Kapira poured water and kerosene in one vessel. Kerosene floated on water. What was the reason for the kerosene to float on the water?
- a. Density of kerosene is less than the density of water
- b. Upthrust of kerosene is greater than the upthrust of water
- c. Gravitational force for kerosene is greater than the gravitational force for water
- d. Mass of water is less than the mass of kerosene
- e. Mass of water is greater than the mass of kerosene

18. Which matter has the strongest force of attraction between the molecules?  
 a. Iron b. wood c. air d. vapour e. milk
19. Communication is important in the society for sharing information. Which device is used as the traditional way of communication?



20. The ICT teacher assigned Standard Seven pupils to type a letter using a computer. Which program would the students use to type the letter?  
 a. Microsoft excel b. application c. typing d. system e. Microsoft word
21. Which icon represents the Safari web browser?



22. Your parents have bought a mobile phone for family communication. Which steps would you follow to inform them about emergency that may occur at home?  
 a. Communicate, write the mobile number, press the dial button  
 b. Write the mobile number, communicate, press the dial button  
 c. Write the mobile number, press the dial button, communicate  
 d. Make a call, write the mobile number, press an off button  
 e. Write the mobile number, press an off button, communicate
23. Why is it important to switch off the computer soon after using it?  
 a. To keep the information for a long time  
 b. To make it operate at the maximum speed  
 c. To make it last long and work properly  
 d. To ensure that no virus can attack it  
 e. To avoid unauthorized user
24. Wheelbarrow is a simple machine used to carry luggage from one place to another. Which one is the correct arrangement of the level parts of a wheelbarrow?  
 a. Effort is between fulcrum and wheel  
 b. Load is between effort and fulcrum  
 c. Effort is between fulcrum and load  
 d. Fulcrum is between effort and load  
 e. Fulcrum is between load and wheel

25. A teacher instructed standard seven pupils to use a measuring cylinder of  $1000\text{ cm}^3$  instead of a cup to measure the volume of water. Why did he instruct them to use that apparatus?
- a. For easy water filling   b. for preventing water loss   c. for giving accurate results   d. for saving time   e. for showing the measured water
26. A pair of scissors has the velocity ratio of 16 and its mechanic advantage is 8. Find the efficiency of that pair of scissors.
- a. 200%   b. 50%   c. 128%   d. 100%   e. 150%
27. A businessman kept fishes in a basket but after five days they all decayed. If you were given a chance to advise on the best way of keeping fish for a long time, where would you advise him to keep them?
- a. In a nylon   b. in water   c. in a bucket   d. in an open space   e. in a refrigerator
28. Which set represents the standard unit used in the measurement of things?
- a. Ruler, tape measure and bucket  
b. Ruler, bucket and jug  
c. Ruler, tape measure and jug  
d. Tape measure, bucket and beam balance  
e. Ruler, tape measure and beam balance
29. Which electric component made of thin wire can melt if too much current flows in the circuit?
- a. Fuse   b. earth wire   c. circuit breaker   d. switch   e. plug
30. A standard seven pupil had a wound. Although the wound was tied with a bandage, the blood continued to flow for some time. Why the blood did not clot?
- a. His blood had an excess plasma  
b. His blood had a shortage of white cells  
c. His blood had a shortage of plasma  
d. His blood had an excess of platelets  
e. His blood had a shortage of platelets
31. Which one of the following is an inheritable disease?
- a. Haemophilia   b. asthma   c. cancer   d. diphtheria   e. tetanus
32. In which group are foods like butter, groundnuts, cashew nuts and sunflower found?
- a. Protein   b. vitamins   c. minerals   d. fats and oils   e. carbohydrates
33. If you are given a task to advise on the proper way that can be used to remove plastic remains that are scattered in the environment, which way would you propose?
- a. Collecting and burning   b. burying in the soil   c. dumping in a pit   d. recycling   e. sell them to those in need

34. A youth had unsafe sex and suffered from diseases which attack male parts. Which disease did he suffer from?
- Gonorrhea, cancer, trichomoniasis
  - Syphilis, trichomoniasis, dysentery
  - Diabetes, chlamydia, schistosomiasis
  - Gonorrhoea, fungal and chlamydia
  - Syphilis, trichomoniasis and schistosomiasis
35. A child had diarrhoea and vomiting after acquiring cholera. Which substance was quickly lost from the body?
- Water
  - food
  - salt
  - blood
  - nutrients
36. People who carry luggage in the market use a lot of energy in doing that work. Which type of food do they deserve to eat more in relation to the work they do?
- Carbohydrates
  - fats and oils
  - minerals
  - vitamins
  - proteins
37. You are given a chance to provide professional advice to youths living with HIV/AIDS to strengthen their health. Which advice would you give them?
- To eat balanced diet and observe health regulations
  - To exercise and use ARV
  - To have enough rest and eat well
  - To observe cleanliness and do exercises
  - To worship and rest
38. Why are mothers advised to breastfeed their babies for at least two years?
- Milk makes the children eat
  - milk makes children sleep
  - milk has all the nutrients
  - children like milk
  - if not breastfed, children cry
39. In our society, there are different groups of people who need special health services categorized according to their conditions. Which group needs special health services?
- Children, pregnant women, old people and the sick
  - Children, youth, soldiers and teachers
  - Children, pregnant women, teachers and doctors
  - Teachers, old people, the sick and youth
  - The sick, youth, pregnant women and old people
40. Asha was asked to prepare a balanced diet. Which group of food would she use to prepare the diet?
- Maize, fish, pawpaw, groundnuts and water
  - Potatoes, eggs, mangoes, groundnuts and beans
  - Bananas, fish, beans, water and rice
  - Rice, meat, pawpaw, orange and water
  - Millet, milk, cucumber, mangoes and oranges

SECTION B (10 Marks)

For questions 41 – 45, write your answer in the space provided in the special form (OMR) by using blue or black ink pen.

41. Study figure No. 1 which shows gas exchange in the lungs. Which gas is represented by letters A and B?

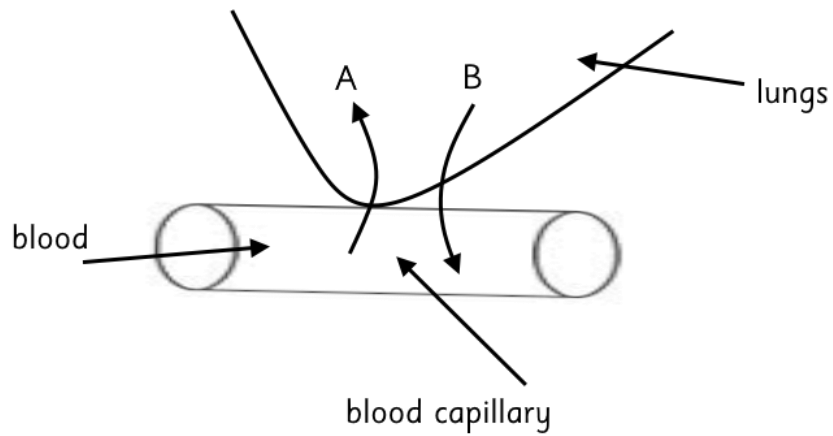
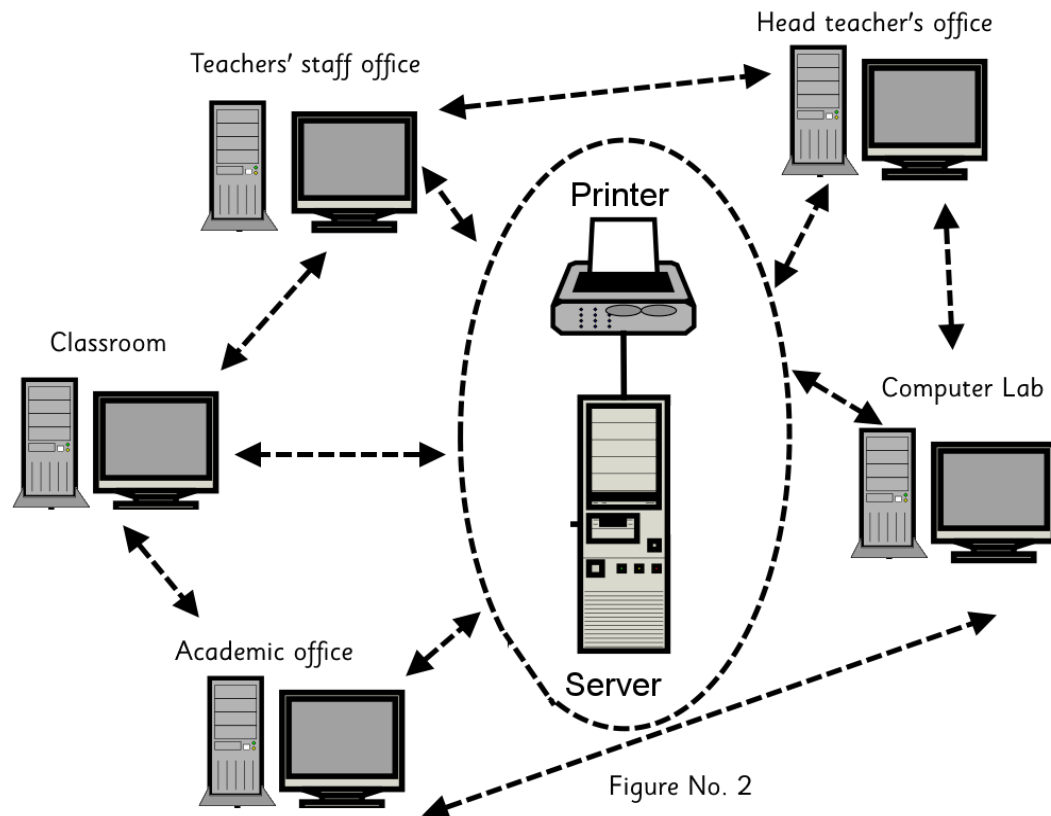


Figure No. 1

42. The teacher did an experiment by tying a rod magnet at the middle using a thread and suspended it in the air until it settled. Which two things can be demonstrated from the experiment?
43. Azimio Primary School decided to connect its computers as show in figure 2. Study the figure and answer the questions that follows:



- Which type of network was used to connect the computers shown in figure 2?
  - Give an advantage of the type of network you mentioned in(a).
44. Calculate the density of a sphere with the volume of  $4000 \text{ cm}^3$  and a mass of 400 g.
45. A teacher led the pupils to investigate the size of the image formed by a plain mirror and later on, he used a convex mirror from his motorcycle. What was the difference between the images formed by the two mirrors?