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UNIVERSITY OF GHANA

DEPARTMENT OF TEACHER EDUCATION

SCHOOL OF EDUCATION AND LEADERSHIP

END OF SECOND SEMESTER EXAMINATION, 2024/2025

(B. ED) JHS SPECIALISM

TEUP 306: PREPARING TO TEACH UPPER PRIMARY SCIENCE

TIME ALLOWED: 2 Hour DATE:

Section A (25 Marks)

Instruction: This section has 25 multiple choice test questions with four options i.e., A-D. select the most appropriate options. Answer all questions in this section.

1. The mosquito life cycle starts when .....
   A. an adult female mosquito lays her eggs on land.
   B. an adult female mosquito lays her eggs on water.
   C. a caterpillar lays her eggs on land.
   D. a caterpillar lays her eggs on water.
2. What is the fourth stage of the life cycle of mosquito?
   A. adult
   B. egg
   C. larva
   D. pupa
3. Magnetism is caused by the ..... of electric charges.
   A. bar
   B. motion
   C. poles
   D. power
4. An electrical circuit has been connected in series with 2ohms, 4ohms and 6ohms resistors respectively, calculate the total resistors in the circuit
   A. 6 ohms
   B. 12 ohms
   C. 46 ohms
   D. 48 ohms
5. In an electrical circuit, electrons move from the .....
   A. negative pole to negative pole
   B. negative pole to positive pole
   C. positive pole to positive pole
   D. all of the above

6. Which one of the following organs functions as an air conditioner?
   A. Larynx
   B. Nasal chambers
   C. Pharynx
   D. All of the above
7. The normal breathing process is controlled by .....
   A. Dorsal respiratory group
   B. Lungs
   C. Ventral respiratory group
   D. Both A and C
8. Which one of the following statements is TRUE about the entry of air into the lungs?
   A. Air enters the body and travels to the lungs through the mouth and the nose
   B. Air enters the body and travels to the lungs through the oesophagus and gullet
   C. Air enters the body and travels to the lungs through the windpipe and the pores
   D. Air enters the body and travels to the lungs through the nose and the nervous system
9. Which one of the following gases is released out during the process of respiration?
   A. Carbon dioxide
   B. Hydrogen
   C. Oxygen
   D. None of the above
10. The tiny air sacs present in human lungs is called .....
   A. Alveoli
   B. Bronchioles
   C. Bronchus
   D. All of the above
11. Which one of the following functions by filtering and keeping the mucus and dirt away from our lungs?
   A. Bronchioles
   B. Cilia
   C. Hairs in the lungs
   D. All of the above
12. The diagram below shows .....

   A. parallel circuit
   B. series circuit
   C. series-parallel
   D. all of the above

13. What is NOT part of the digestive track?
    A. Colon
    B. Heart
    C. Rectum
    D. Stomach
14. An enzyme that breaks down starch is
    A. Absorption
    B. Amylase
    C. Ascites
    D. Chyle
15. What are the building blocks of carbohydrates?
    A. Amino acids
    B. Glycerol and fatty acids
    C. Nutrients
    D. Simple sugars
16. Which of the following detoxifies harmful chemicals into the bodies?
    A. duodenum
    B. liver
    C. small intestines
    D. stomach

17. What kind of circuit is this?

    A. chris barton
    B. open
    C. parallel
    D. series
18. This is needed in a circuit to start the electrons moving.
    A. battery
    B. power source
    C. switch
    D. wire
19. As resistors are added in series to a circuit, the total resistance will .....
    A. increase
    B. decrease
    C. stay the same
    D. None of the above
20. Which of the following shows the correct pathway of food through the digestive tract?
    A. Mouth, stomach, oesophagus, small intestine, large intestine, rectum
    B. Mouth, oesophagus, stomach, small intestine, large intestine, rectum
    C. Mouth, oesophagus, stomach, large intestine, small intestine, rectum
    D. Mouth, oesophagus, small intestine, stomach, large intestine, rectum

21. Your salivary glands are a mixture of secretions that help break down food.
    A. False
    B. True
22. A long tube that carries food from the mouth to the stomach:
    A. Colon
    B. Oesophagus
    C. Trachea
    D. Urethra
23. This part of the digestive system removes solid wastes such as feaces from the body:
    A. Oesophagus
    B. Large intestines
    C. Liver
    D. Small intestines
24. This is the symbol for a .....?

    A. battery
    B. light
    C. switch
    D. wires
25. What is the correct order of Mosquito Life Cycle?
    A. adult – pupa – larva – egg
    B. egg - larva - pupa – adult
    C. larva - adult - egg - pupa
    D. pupa - larva - egg - adult

Section B (75 Marks)

Instruction: This section has four questions. Answer any three (3) questions from this section

Q1

a. What is complete metamorphosis? **(2 Marks)**
b. Explain the significance of stagnant water in the mosquito life cycle **(6 Marks)**
c. Explain the following terms as used in magnetism: Magnetic field, Neutral point and Magnetic poles **(6 Marks)**
d. Prepare a 30minutes lesson plan for basic 4 pupils on the topic "metals" **(12 Marks)**

Q2. a) Describe briefly how air gets into the lungs **(4 Marks)**

b) What is the heat capacity of a metal which takes 4200J of energy when its temperature moved from 2K to 8k? **(5 Marks)**
c) Draw a bar magnet and identify the necessary parts. **(6 Marks)**

d) If the resistance of an electric iron is 50 Ω and a current of 3.2 A flows through the resistance. Find the voltage between two points. **(5 Marks)**

e) How many joules of heat energy are given out when a piece of copper of mass 8 kg cools from 100 0C to 30 0C? (Specific heat capacity of copper is 385 J kg-1K-1) **(5 Marks)**

Q3. (a) You are provided with three identical looking materials in the form of rods. Given that one of them is a magnet, the other a magnetic material and the third a non-magnetic material, describe an experiment you would perform to identify each of these materials using iron filings. **(5 Marks)**

(b) Two resistors each of resistance 1 Ω are connected in a circuit containing a 2 V battery of negligible internal resistance. Calculate the current flowing in the circuit when the resistors are connected (*1*) in series and (2) in parallel (5 Marks each)

(c) A circuit is having three resistors 2ohms,3ohms, 2ohm connected in parallel with each other having a 6A passing through it. Calculate (1) the total resistors in the circuit., and (2) the voltage in the circuit (5 Marks each)

Q4 a) State five (5) conditions that affect the respiratory system in human. (5 Marks)

b) State five (5) important effects of heat on object. (5 Marks)

c) The control of mosquito can be classified under the sub-headings: biological, chemical genetic and environmental. Use the information to complete the table below.

s/n	Method	Name
i	Use of sterile insect techniques (STI)	
ii	Use of copepods, insects and fish to prey on mosquito larvae	
iii	The use of oil and insecticides	
iv	Use of mosquito nets, screen or mosquito repellents	

(4 Mark)

d) Outline three (3) differences between aerobic and anaerobic respiration. (6 Marks)

f) e. Where in the alimentary canal does the following occur?

i. Secretion of gastric juice
ii. Absorption of digested food substances
iii. Mastication of food
iv. Temporary storage of faeces
v. Absorption of water from undigested food (5 Marks)