CHRIST HIGH SCHOOL

CHRIST HIGH SCHOOL PLOT 5, CHS STREET, KM 32, ABUJA-KEFFI ROAD UKE, NASARAWA STATE

END OF SECOND TERM EXAMINATION 2024/2025 ACADEMIC SESSION

SUBJECT: PHYSICS
CLASS: SS 1
TIME: 2 Hours 15 minutes

NAME……

CANDIDATE'S ADMISSION NO.

INSTRUCTION

Write your name and number in the space provided on your answer booklet. Write your name on any extra sheet used.

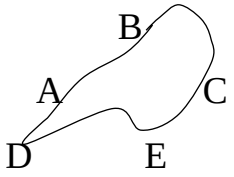
Answer all questions.

At the end of the examination, staple all your work securely together.

FOR EXAMINER'S USE	
Total Score:	+

OBJETIVES:

1. If the leaves of a positively charged electroscope collapse completely as an object is brought near the cap of the electroscope, the object possesses
   A. An equal amount of positive charge
   B. Less amount negative charge
   C. No charge
   D. A positive charge
   E. Equal amount of negative charge.
2. Which of the following can be used to compare the relative magnitudes of charge on two given bodies?
   A. The electrophorus
   B. Ebonite rod
   C. Proof planes
   D. Gold leaf electroscope
   E. Capacitor
3. Charges on a conductor are
   A. Evenly distributed over a surface of any shape
   B. Concentrated on the inner surface of the conductor
   C. Concentrated at the outer flat surface of the conductor
   D. Generally concentrated at sharply curved surface
   E. Evenly distributed over a surface of any shape
4. In which of the following points labeled A, B, C, D and E on the conductor shown would electric charge tend to concentrate most?



5. Which of the following explains why a thick glass cup cracks when boiling water is poured into it?
   A. Large increase in the heat capacity of the cup
   B. High density of water
   C. Unequal expansion of interior and exterior walls of the cup
   D. Anomalous expansion of water
   E. Greater specific latent heat capacity of water compared with that of glass.
6. In which of the following is the expansion of solids a disadvantage?
   A. The fitting of wheels in rims
   B. Fire alarms
   C. The thermostat
   D. The bimetallic thermometer
   E. The balance wheel of a watch
7. On a cold morning, the metal blade of a cutlass feels colder to touch than the wooden handle because
   A. The blade is at a lower temperature than the handle
   B. The hand is at a lower temperature than the both blade and handle
   C. The blade is a better conductor of heat than the handle
   D. The handle is a better conductor of heat than the blade
   E. The handle contains some heat which is absent in the blade
8. Two block of the same dimension, one steel and the other wooden, are dropped simultaneously from the same height. If they fall freely neglecting air resistance the
   A. Two blocks hit the ground simultaneously because they have the same acceleration
   B. Two blocks reach the ground at the same time because their dimensions are the same
   C. Wooden block being lighter than the steel block, reaches the ground first

D. Steel block reaches the ground first because it is denser than the wooden block

E. Steel block takes half as much time as the wooden block to reach the ground because it is more massive than the wooden block.

9. The acceleration due to gravity may be defined as the force

A. Of attraction of the sun on the earth

B. With which the earth revolves around the sun

C. With which the earth attracts one – kilogram mass

D. Of the moon on the earth

E. Which make contact with another body

10. The earth is not a perfect square because its equatorial axis is longer than the polar axis. Where on earth would the earth have its greatest weight?

A. Half way between the equator and the north pole

B. Near the equator

C. Half way between the equator and the south pole

D. At either pole

E. At the equator

11. A device that converts mechanical energy into electrical energy is

A. a dynamo

B. An electric motor

C. An induction coil

D. A transformer

E. A cell

12. The energy stored in a simple cell is

A. Electrical

B. Nuclear

C. Thermal

D. Chemical

E. Mechanical

13. A stone of mass 10kg was released from height 50m. Calculate its potential energy after falling through a distance of 20m. [g = 10m/s^2]

A. 200J

B. 500J

C. 2000J

D. 3000J

E. 5000J

14. Which of the following sets of energy resources are renewable?

A. Biomass, natural gas and solar

B. Biomass, nuclear and petroleum

C. Biomass, solar and wind

D. Petroleum, natural gas and nuclear

E. Wind, nuclear and water.

15. The region around a magnet in which magnetic force can be experienced is known as

A. Declination

B. Flux density

C. Field

D. Flux

16. Electric lines of force have the following characteristics except that the lines

A. Start from negative charges

B. Do not intercept

C. Are uniformly spaced in uniform field

D. Are continuous

E. Are closer together in strong fields

17. Gravitational field

I. Is a region where gravitational force is experienced

II. Influences the motion of object in it

III. Strength varies with altitude

A. III only

B. II only

C. I, II and III

D. I only

E. I and II only

18. Attractive force is experienced in the following fields

I. Electric

II. Gravitational

III. Magnetic

Which of the statements above is/ are correct?

A. I only

B. II only

C. I and II only

D. III only

E. I, II and III only

19. The parts of a bar magnet at which the magnetic effect is strongest are called

A. Poles

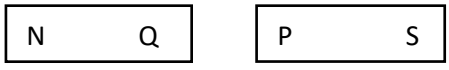
B. Neutral points

C. Magnetic declination

D. Magnetic meridians

E. End point

20. If a bar magnet is accidentally broken into pieces as shown in the diagram below,



The polarities of P and Q respectively are

A. S and S

B. N and S

C. N and N

D. S and N

E. S and neutral

21. Which of the following states of matter do the molecules vibrate about their means positions?

A. Solids only

B. Liquids and gases only

C. Liquids only

D. Solids, liquids and gases

E. Solids and liquids only

22. When some ice cubes are added to a glass of warm water, the glass is cooled by a process of

A. conduction only

B. convection only

C. conduction and convection

D. conduction and radiation

E. Radiation only

23. The inside of a vacuum flask is usually coated with silver to reduce heat lost by

A. Convection

B. Conduction

C. Radiation

D. Absorption

E. Evaporation

24. The evidence that matter consists of particle is illustrated by

I. Brownian motion

II. Diffusion

III. Law of definite proportions.

Which of the statements above is / are correct?

A. I only

B. II only

C. III only

D. II and III only

E. I, II and III only

25. A room is heated by means of a charcoal fire. A man standing away from the fire is warmed by

A. Conduction

B. Reflection

C. Radiation

D. Convection

E. Refraction

26. Which of the following statements distinguishes thermal conduction from convection? I. conduction requires a material medium while convection does not. II. In convection there is actual motion of heated fluid, while conduction, molecules vibrate faster about their mean positions. III. Conduction takes place in solids while convection takes place in fluids.

A. I and II only

B. II and III only

C. I and III only

D. I, II and III only.

E. I only.

27. Which of the following surfaces will absorb radiant heat energy best?

A. White

B. Red

C. Yellow

D. Black

E. Blue

28.The thermopile is a device for detecting

A. Radioactive radiation

B. Radiant energy

C. X- rays

D. The presence of electrons

E. chemical Energy.

29.In the formation of sea breeze, wind blows from

A. Land to land

B. Sea to sky

C. Land to sea

D. Sea to land

E. Sea to sea

30.A brass rod is 2m long at a certain temperature. What is its length for a temperature rise of 100K, if the expansivity of brass is $18 \times 10^{-6}\ K^{-1}$

A. 2.0036m

B. 2.0018m

C. 2.1800m

D. 2.0360m

E. 2.00036m

31.A metal rod 3.0m long at 35^0C was heated to a temperature of 95^0C. Calculate the new length of the rod. (linear expansivity = $1.7 \times 10^{-5}K^{-1}$)

A. 3.00179m

B. 3.00306m

C. 3.00485m

D. 3.03060m

E. 3.04850m

32.Building can be adequately protected from lightning by

A. Using asbestos for the roof of the house

B. Planting trees around the house

C. Fixing a long copper strip from the ground along the outside wall to a sharp vertical spike

D. Fixing a long wooden pole with sharp spikes to the outside wall.

E. Fixing a long ebonite rod with sharp spikes to the outside wall.

33. A current of 10A passes through a conductor for 10s, calculate the charge flowing through the conductor

A. 100.0C

B. 10.0C

C. 1.0C

D. 0.1C

E. 0.5C

34. A current of 4.5A flows through a car headlight. How many coulombs of charge flow through it in 1.0hr?

A. 16200C

B. 16100C

C. 1650

D. 1600

E. 15200

35. Calculate the current in a given circuit having 180v potential difference across a resistance of 30Ω.

A. 3A

B. 6A

C. 9A

D. 12A

E. 15A

36. Which of the following is a unit of the time rate of flow of electric charges?

A. Coulomb

B. Ampere

C. Volt

D. Watt

E. Ohms

37.The path provided through which electric current flows is

A. Capacitor pipe

B. Conductor channel

C. Electric circuit

D. Electric plate

E. Solenoid valve

38.The following are good conductors of heat except.

A. steel

B. aluminum

C. copper

D. wool

E. none of the above

39.Like charges

A. attract

B. repel

C. disappear

D. evaporate

E. freezes

40. …… is a device uses to detect charges

A. Electrophorus

B. Capacitor

C. Electroscope

D. Inductor

E. magnet

41. Which of the following is not an effect of heat?

A. Expansion

B. Contraction

C. change of state

D. increase in weight

E. none of the above

42.Temperature can be measured in the following units except

A. degree Celsius

B. Kelvin

C. degree Fahrenheit

D. centigrade-meter

E. joules

43.The clinical thermometer is characterized by having a

A. wide range of temperature

B. wide bore

C. long stem

D. constriction

E. a very high upper fixed point

44.The following are properties of electric field. Except ---

A. Electric lines of force originate from a positive charge and terminate in a negative charge.

B. Electric lines of force do cross each other.

C. They repel each other side ways.

D. They are in a state of tension which tends to shorten them.

45.Which of the following statements best describe a neutral point?

A. A region around a field where there is a greater influence due to the field.

B. A region around a field where there is no effect.

C. A region outside the field concern.

D. A region experiencing less amount of the field’s effect.

E. None of the above

46. The following are examples of vector field. Except ---

A. Magnetic field

B. Electric field

C. Friction field

D. Gravitational field

E. None of the above

47.. Which of the following statement(s) is/are correct?

i. Like poles attract.

ii. Like poles repel.

iii. Unlike charges repel.

iv. Unlike charges attract.

A. i & ii

B. i & iv

C. ii & iv

D. ii & iii

E. iii & iv

48.The following are properties of electric field. Except ---

A. Electric lines of force originate from a positive charge and terminate in a negative charge.

B. Electric lines of force do cross each other.

C. They repel each other side ways.

D. They are in a state of tension which tends to shorten them

E. None of the above

49.The following are elementary particle, except ---

A. Electron

B. Nucleus

C. Neutron

D. Proton

E. charges

50. In a neutral atom of an element,

A. The quantity of electron at the orbit outnumber that of the proton in the nucleus.

B. The electron has no charge but has a relative mass of $\frac{1}{1840}$.

C. The number of proton in the nucleus equals that of the electron in the outermost shell.

D. The charge on the proton equals that of the neutron in the nucleus.

E. None of the above

THEORY: ATTEMPT FOUR QUESTIONS ONLY

1a. Define heat energy and state is S.I unit 2mark

b. State two effects of heat on a substance 2marks

c. Mention four types of thermometer, their thermometric substance and physical property 6marks

2a. With the aid of a diagram explain land breeze 3marks

b. Explain why it is desirable to install an air conditioner near the ceiling of a room and not close to the floor.

3marks

c. Sketch the pattern of the lines of force around

(i) An isolated positive charge 1mark

(ii) An isolated negative charge 1mark

(iii) A positive and a negative charge 2marks

3a. List and explain any one method of heat transfer

3mark

b. A brass rod is 10m long at 41^0C. What will be its length at 300^0C?

(Linear expansivity of brass $2.0 \times 10^{-5}K^{-1}$) 3marks

c. Define cubic expansivity and find the cubic expansivity of no. 3b. above.

4 marks

4a. State one difference between electric field and gravitational field. 2marks

b. State the fundamental law of electrostatic. 2marks

c. Explain why in the absent of air resistance two solid bodies of different masses released from rest at the same point simultaneously fall to the ground at the same time. 3marks

d. Draw a well label diagram of a gold leaf electroscope 3marks

5. a. State Newton's law of gravitation 2marks

b. State coulomb's law 2marks

c. Draw a well labelled diagram of the vacuum ask 3marks

d. Sketch the temperature scale for degree Celsius, Kelvin and Fahrenheit scale showing the upper and lower fixed point 3marks

6. a. Define electric circuit.

2marks

b. Differentiate between electromotive force (e.m.f) and potential difference (V).

4marks

c. State four sources of electric current

4marks