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General Science, 2016 EC, Grade 8 model exam, Arada

Grade 8 · General Science · 2016 E.C.

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Time allowed: 120 minutes | **Questions:** 59 | **Total marks:** 59

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1. A device that is used to measure the temperature of an object is (1)

A. Kelvin
B. ✓ **thermometer**
C. meter.
D. balance

> **Answer:** B
> A thermometer is the standard device used to measure temperature, whereas Kelvin is the SI unit of temperature, and a balance is used to measure mass.

2. One of the following is the amount of matter contained in a substance? (1)

A. Length
B. Time
C. ✓ **Mass**
D. Volume

> **Answer:** C
> Mass is defined as the amount of matter contained in an object, whereas volume is the space it occupies.

3. The SI unit of Length is _____ (1)

A. Ruler
B. ✓ **Meter**
C. Kilometer
D. Millimeter

> **Answer:** B
> The SI base unit of length is the meter (m). Kilometer and millimeter are prefixes of the meter, and a ruler is an instrument used to measure length.

4. Which one of the following is fundamental physical quantity? (1)

A. Area
B. volume
C. Density
D. ✓ **Temperature**

> **Answer:** D
> Temperature is one of the seven fundamental physical quantities, whereas area, volume, and density are derived from length, mass, and volume.

5. Which one of the following is derived physical quantity? (1)

A. Length
B. ✓ **Area**
C. Mass
D. Time

> **Answer:** B
> Area is a derived quantity calculated as length times width (both of which are fundamental quantities of length). Length, mass, and time are fundamental physical quantities.

6. The prefix that represents 1 / 1000000 is _____ (1)

A. Million
B. ✓ **Millionth**
C. Thousandth
D. Hundredth

> **Answer:** B
> The prefix micro- represents 1/1,000,000 (one millionth). 'Million' represents 1,000,000, and 'thousandth' represents 1/1,000.

7. How many seconds are in two hours? (1)

A. ✓ **7200**
B. 720
C. 3600
D. 2400

> **Answer:** A
> Since one hour contains 3,600 seconds (60 minutes × 60 seconds), two hours contain 2 × 3,600 = 7,200 seconds.

8. 100000 cm is equal to _____ m. (1)

A. 10000
B. ✓ **1000**
C. 100000
D. 100

> **Answer:** B
> Since 1 meter is equal to 100 centimeters, dividing 100,000 cm by 100 gives 1,000 m.

9. Which one of the following statement is true? (1)

A. ✓ **Derived units are derived from fundamental units.**
B. Fundamental units are derived from derived units.
C. Fundamental units are big in value but derived units are small in value.
D. There is no difference between them.

> **Answer:** A
> Derived units are defined and formed by combining fundamental units according to physical relations.

10. Which one is indigenous method of measuring volume? (1)

A. Cubit
B. digital balance
C. ✓ **Tassa**
D. foot

> **Answer:** C
> A 'Tassa' is a traditional container used as an indigenous unit of volume measurement in Ethiopia, whereas cubit and foot are for length, and a digital balance is a modern mass measurement tool.

11. Which one of the following is not a scientific method? (1)

A. Gathering
B. observation
C. Evaluating
D. ✓ **None**

> **Answer:** D
> Gathering data, making observations, and evaluating hypotheses/data are all key components of the scientific method, meaning none of the listed options is 'not' a scientific method.

12. One o is the measure of the duration for an interval (1)

A. Mass
B. Length
C. ✓ **Time**
D. Volume

> **Answer:** C
> Time is the physical quantity that measures the duration of an interval between events.

13. The measure of the space occupied by an object is (1)

A. Length
B. ✓ **Volume**
C. Mass
D. Time

> **Answer:** B
> Volume is defined as the measure of the three-dimensional space occupied by a solid, liquid, or gas.

14. The process of obtaining the magnitude of a quantity to an agreed standard is. (1)

A. Physical quantity
B. Temperature
C. Fundamental quantity
D. ✓ **Measurement**

> **Answer:** D
> Measurement is the process of comparing an unknown physical quantity with a known, predefined standard unit to obtain its magnitude.

15. Which one of the following is the smallest unit of time? (1)

A. Second
B. Minute
C. Hour
D. ✓ **Microsecond**

> **Answer:** D
> A microsecond is equal to one-millionth of a second (10^-6 s), which is much smaller than a second, minute, or hour.

16. The idea that matter is continuous was accepted by _____ (1)

A. Democritus
B. Dalton
C. ✓ **Aristotle**
D. Thomas Edison

> **Answer:** C
> Aristotle believed that matter is continuous and infinitely divisible, in contrast to Democritus who proposed that matter is made of indivisible discrete particles called atoms.

17. Which of the following sub particle has the smallest mass? (1)

A. Proton
B. Neutron
C. nucleus
D. ✓ **electron**

> **Answer:** D
> Electrons have an extremely tiny mass (about 9.11 x 10^-31 kg), which is approximately 1/1836th of the mass of a proton or neutron.

18. The sum of the number of protons and neutrons in an atom is____ (1)

A. Atomic number
B. Atomic mass.
C. ✓ **Mass number**
D. electrons

> **Answer:** C
> The mass number (A) represents the total number of protons and neutrons in the nucleus of an atom.

19. 3O 2 contains (1)

A. Three oxygen atoms.
B. two oxygen atoms
C. ✓ **Three oxygen molecules**
D. 5 oxygen molecules

> **Answer:** C
> The formula O2 represents a molecule of diatomic oxygen. The coefficient 3 in 3O2 indicates that there are three molecules of oxygen.

20. Which one of the following sub particle is located in nucleus of an atom? (1)

A. ✓ **Proton and neutron.**
B. Proton and electron
C. electron and neutron
D. proton, neutron and electron

> **Answer:** A
> Protons and neutrons are bound together in the nucleus of an atom, while electrons orbit around the nucleus.

21. The number of neutrons in 19 9 Fare (1)

A. 13
B. ✓ **10**
C. 9
D. 12

> **Answer:** B
> The number of neutrons is found by subtracting the atomic number (Z = 9) from the mass number (A = 19), which yields 19 - 9 = 10 neutrons.

22. The charge of neutron is _____ (1)

A. Positive.
B. Negative
C. ✓ **Charge less**
D. none

> **Answer:** C
> Neutrons are electrically neutral subatomic particles, meaning they have a net charge of zero (chargeless).

23. What is the number of electrons in 23 11 Na + ion (1)

A. ✓ **10**
B. 11
C. 23
D. 22

> **Answer:** A
> A neutral sodium atom (Z = 11) has 11 electrons. The Na+ ion has a 1+ charge because it has lost one electron, leaving it with 10 electrons.

24. Which one of the following is diatomic molecule? (1)

A. Ne
B. O 3
C. ✓ **O 2**
D. O 4

> **Answer:** C
> A diatomic molecule consists of exactly two atoms of the same or different elements chemically bonded together, as in O2.

25. Which one of the following is molecule of an element? (1)

A. HCl
B. CaO
C. CO 2
D. ✓ **O 2**

> **Answer:** D
> O2 is a molecule of an element because it is composed of only one type of atom (oxygen), whereas HCl, CaO, and CO2 are molecules of compounds containing different elements.

26. The Mass of an atom is almost the mass of its _____ (1)

A. Neutron
B. ✓ **Nucleus**
C. Proton
D. Electron

> **Answer:** B
> The mass of an atom is almost entirely concentrated in its nucleus, which contains the protons and neutrons, while the electrons orbiting the nucleus have negligible mass.

27. The Chemical Symbol of an element gold is _____ (1)

A. Hg
B. Al
C. ✓ **Au**
D. Ag

> **Answer:** C
> The chemical symbol for gold is Au, which comes from its Latin name 'aurum'. Hg is for mercury, Al is for aluminum, and Ag is for silver.

28. How many neutrons, protons and electrons are there in 27 13 Al (1)

A. 27,13,14
B. 13,14,14
C. ✓ **14,13,13**
D. 27,14,13

> **Answer:** C
> In 27 13 Al, the atomic number is 13 (meaning 13 protons and 13 electrons in a neutral atom), and the mass number is 27. The number of neutrons is the mass number minus the atomic number: 27 - 13 = 14.

29. The prefix 10 -6 represents the name _____ (1)

A. Kilo
B. milli
C. ✓ **micro**
D. mega

> **Answer:** C
> The SI prefix for 10^-6 is micro (symbol μ). Kilo represents 10^3, milli represents 10^-3, and mega represents 10^6.

30. Which one of the following is not a noble gas element? (1)

A. Ar
B. ✓ **Li**
C. He
D. Ne

> **Answer:** B
> Lithium (Li) is an alkali metal belonging to Group 1, whereas Helium (He), Neon (Ne), and Argon (Ar) are all Group 18 noble gases.

31. The first idea of atom was proposed by the Greek philosopher _____ (1)

A. Aristotle
B. Plato
C. ✓ **Democritus**
D. Dalton

> **Answer:** C
> Democritus was an ancient Greek philosopher who first proposed the concept of 'atomos', meaning indivisible units of matter, around 400 BCE.

32. Which one of the following compounds obtained from living organisms? (1)

A. Oxides
B. compounds
C. inorganic compounds
D. ✓ **Organic compound**

> **Answer:** D
> Historically, organic compounds were defined as chemical compounds that are obtained directly or indirectly from living organisms.

33. One of the following is hydrocarbons that have the general formula C n H 2n (1)

A. ✓ **Alkenes**
B. methane
C. Alkynes
D. All

> **Answer:** A
> Alkenes are unsaturated hydrocarbons containing one carbon-carbon double bond and have the general molecular formula CnH2n.

34. Oxides that react with water to form bases or basic solution is called _____ (1)

A. ✓ **Basic oxides**
B. Acidic oxides
C. Oxides
D. Salt and water

> **Answer:** A
> Basic oxides are oxides of metals that react with water to form bases (hydroxides) or basic solutions.

35. One of the following can change blue litmus to red? (1)

A. Milk
B. ✓ **Lemon juice**
C. Soda ashes
D. All

> **Answer:** B
> Acids turn blue litmus paper red. Lemon juice contains citric acid and is highly acidic, whereas milk is nearly neutral and soda ash is basic.

36. The name of alkane that contains 5 carbon atom is? (1)

A. Pentene
B. ✓ **Pentane**
C. Pentyne
D. Methane

> **Answer:** B
> Alkanes with five carbon atoms use the prefix 'pent-' followed by the suffix '-ane', giving the name pentane.

37. One is not hydrocarbon? (1)

A. Alkene
B. Alkyne
C. Alkane
D. ✓ **Ethanol**

> **Answer:** D
> Hydrocarbons contain only carbon and hydrogen atoms. Ethanol (C2H5OH) contains an oxygen atom as part of its hydroxyl functional group, making it an alcohol, not a hydrocarbon.

38. Which of the following alcohol is found in alcoholic beverage? (1)

A. Propanol
B. Butanol
C. ✓ **Ethanol**
D. Butane

> **Answer:** C
> Ethanol (ethyl alcohol) is the specific type of alcohol that is found in alcoholic beverages and is safe for human consumption in moderate amounts.

39. A bottle gas used as a fuel? (1)

A. Hexane
B. ✓ **butane**
C. Pentene
D. All

> **Answer:** B
> Butane (often mixed with propane) is easily liquefied under moderate pressure and is commonly stored in cylinders as bottled gas (LPG) for use as fuel.

40. If an atom containing 19 protons, 19 electron and 20 neutrons, then what is its mass? (1)

A. ✓ **39**
B. 49
C. 29
D. 59

Answer: A
The mass number of an atom is the total number of protons and neutrons in its nucleus: 19 protons + 20 neutrons = 39.

41. Which of the following is used for production of plastics? (1)

A. ✓ **Propene**
B. Propane
C. Butane
D. methane

Answer: A
Propene (propylene) is an alkene that can undergo polymerization to produce polypropylene, which is a major type of plastic.

42. Which one is the properties of acids (1)

A. PH value > 7
B. ✓ **Sour taste**
C. Change red to blue
D. releasing OH ion

Answer: B
Acids typically have a sour taste, a pH value less than 7, change blue litmus paper to red, and release hydrogen ions (H+) in aqueous solutions.

43. Elements are formed from the smallest particles called _____ (1)

A. Protons
B. Molecules
C. ✓ **Atoms**
D. neutrons

Answer: C
An element is a pure substance that is composed of only one kind of extremely small particles called atoms.

44. A dye extracted from plant that show the presence of an acid or bases (1)

A. Product
B. ✓ **indicators**
C. Bases
D. properties of acid

Answer: B
Indicators are substances, often natural dyes extracted from plants like lichens (litmus), that change color to show whether a solution is acidic or basic.

45. Binary compound containing oxygen and any other elements are called _____ (1)

A. Oxygen
B. salt
C. ✓ **oxides**
D. Base

Answer: C
Oxides are binary compounds formed by the chemical combination of oxygen with another element.

46. Acidic oxide reacts with basic oxides to form _____ (1)

A. Base
B. ✓ **Salt**
C. Acids
D. oxide

Answer: B
The reaction between an acidic oxide (non-metal oxide) and a basic oxide (metal oxide) is a combination reaction that produces a salt.

47. Which one of the following is compounds that contain carbon and hydrogen atom? (1)

A. Element
B. oxides
C. ✓ **Hydrocarbon**
D. Acids

> **Answer:** C
> Hydrocarbons are organic chemical compounds composed solely of the elements carbon and hydrogen.

48. Bases are compounds that neutralized acid to form _____ (1)

A. Acid
B. bases and water
C. Salt
D. ✓ **Salt and water**

> **Answer:** D
> The neutralization reaction between an acid and a base always produces a salt and water as the products.

49. Naming of hydrocarbon is called _____. (1)

A. Formula
B. Symbol
C. ✓ **Nomenclature**
D. Name

> **Answer:** C
> Nomenclature is the standardized system of naming chemical substances, including hydrocarbons, as governed by IUPAC rules.

50. One is group of substance that release hydrogen ions (H +) (1)

A. ✓ **Acids**
B. Bases
C. Salt
D. water

> **Answer:** A
> According to the Arrhenius definition, an acid is a substance that dissociates in water to release hydrogen ions (H+).

51. which one of the following is not parts of integumentary system. (1)

A. Skin
B. Hair
C. Nail
D. ✓ **Skeleton**

> **Answer:** D
> The integumentary system consists of the skin and its accessory structures (hair, nails, and glands), whereas the skeleton is part of the skeletal system.

52. The hard covering at the end of the finger or toe is? (1)

A. Skin
B. Gland
C. ✓ **Nail**
D. muscle

> **Answer:** C
> Nails are hard, keratinized plates that form a protective covering at the ends of fingers and toes.

53. The middle layer of the hair is called _____ (1)

A. Cuticle
B. ✓ **cortex**
C. medulla
D. part of hair

> **Answer:** B
> The hair shaft is composed of three layers: the outermost cuticle, the middle cortex, and the innermost medulla.

54. one of the following Is an organ that makes substances such as hormones is? (1)

A. ✓ **Gland**
B. Epidermis
C. Skeleton
D. Hair

> **Answer:** A
> A gland is an organ or group of cells that synthesizes and secretes substances such as hormones, sweat, or enzymes.

55. One of the following is skin disease except? (1)

A. Hives
B. ✓ **Osteopenia**
C. Acne
D. warts

> **Answer:** B
> Osteopenia is a condition characterized by low bone density, affecting the skeletal system, whereas hives, acne, and warts are skin conditions.

56. The general formula of Alkyne is? (1)

A. C n H n
B. ✓ **C n H 2n-2**
C. C n H 2n+1
D. C n H 2n+2

> **Answer:** B
> Alkynes are unsaturated hydrocarbons containing at least one carbon-carbon triple bond, represented by the general formula CnH2n-2.

57. One of the following is voluntary muscle. (1)

A. smooth muscle
B. ✓ **skeletal muscle**
C. cardiac muscle
D. muscle

> **Answer:** B
> Skeletal muscle is voluntary muscle because its contraction is under conscious control, whereas cardiac and smooth muscles are involuntary.

58. Hared bone filled with yellow bone marrow is called (1)

A. bone
B. short bone
C. ✓ **long bone**
D. tendon

> **Answer:** C
> Long bones contain a central medullary cavity that is filled with yellow bone marrow, which is primarily made of fat cells.

59. One of the following is muscle disease that is a group of inherited disease. (1)

A. Acne
B. warts
C. ✓ **muscular dystrophy**
D. muscle strains

> **Answer:** C
> Muscular dystrophy refers to a group of genetic, inherited diseases that cause progressive weakness and degeneration of skeletal muscles.

END OF THE MARKING KEY

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