AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS IX EXAMINATION

APRIL/ MAY 2017

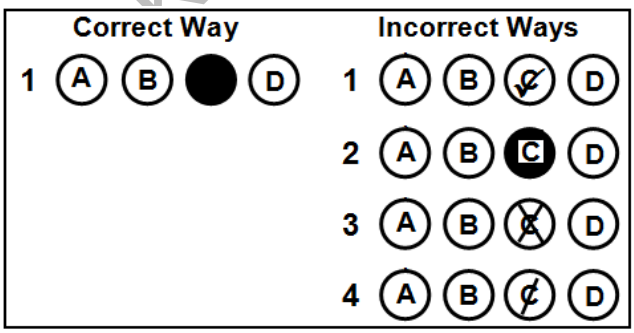
Chemistry Paper I

Time: 35 minutes Marks: 25

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INSTRUCTIONS

1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 25 only.
4. In each question there are four choices A, B, C, D. Choose ONE. On the answer grid black out the circle for your choice with a pencil as shown below.



Candidate's Signature

5. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
6. DO NOT write anything in the answer grid. The computer only records what is in the circles.
7. You may use a simple calculator if you wish.

1. The branch of chemistry which deals with the study of chemical and biochemical phenomena occurring in nature is called

   A. nuclear chemistry.
   B. physical chemistry.
   C. analytical chemistry.
   D. environmental chemistry.

2. A sample of hydrocarbon undergoes complete combustion to produce carbon dioxide (CO_2) and water (H_2O).

   (**Note**: Atomic mass of C = 12 amu, O = 16 amu and H = 1 amu)

   If 8.80 g of carbon dioxide is obtained, then what will be the mass of carbon present in it?

   A. 2.4 g
   B. 3.8 g
   C. 12.0 g
   D. 32.3 g

3 A student has to identify the element, mixture and compound in the given substances.

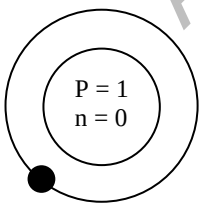
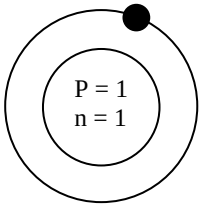
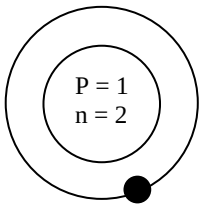
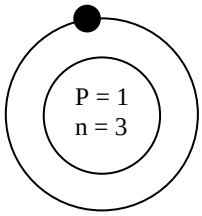
i. Mercury	ii. Glucose	iii. Ammonia	iv. Brass

Which of the following arrangements is CORRECT for the given substances?

	i	**ii**	**iii**	**iv**
A	Element	Compound	Mixture	Element
B	Element	Compound	Compound	Mixture
C	Compound	Element	Mixture	Compound
D	Compound	Mixture	Mixture	Element

4. Tritium is an isotope of hydrogen.

   Which figure shows the atomic structure of tritium?

			
A	B	C	D

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5. How many neutrons are present in an atom with atomic number 9 and mass number 19?

   A. 9
   B. 10
   C. 19
   D. 28

6. Which of the following represents the electronic configuration of potassium $\left({}^{39}_{19}\mathrm{K}\right)$?

   A. $1s^2, 2s^2, 2p^6, 3s^2, 3p^5$
   B. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6$
   C. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^1$
   D. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2$

7. The tendency of an atom to have eight electrons in its valence shell, either by gaining, losing or sharing electrons to attain an electronic configuration of the nearest noble gas, is called

   A. octet rule.
   B. duplet rule.
   C. periodic law.
   D. aufbau principle.

8. Which of the following statements is FALSE about polar covalent compounds?

   A. They dissolve completely in water.
   B. They show electronegativity difference as zero.
   C. They carry partial positive and negative charges.
   D. They have unequal sharing of electrons between bonded atoms.

9. Which of the following bonds is present between copper atoms that allows copper to conduct electricity?

   A. Ionic bond
   B. Metallic bond
   C. Covalent bond
   D. Co-ordinate covalent bond

10. Neon and argon are classified as noble gases because they have

    A. coloured vapours.
    B. same atomic number.
    C. non-metallic character.
    D. full outer electron shell.

11. Which periodic trend is observed in moving down group VIIA of the periodic table?

    A. Decreasing reactivity
    B. Decreasing boiling point
    C. Increasing electronegativity
    D. Increasing ionisation energy

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12. In the periodic table, the group number of an element shows its

    A. valency.
    B. atomic number.
    C. number of shells.
    D. number of valence electrons.

13. When few drops of ink are added in water, they slowly start to disperse. This spreading of molecules can be enhanced by increasing temperature.

    What will be the impact on the molecules when the temperature is increased?

    A. Velocity of the molecules will increase.
    B. Pressure on the molecules will decrease.
    C. Intermolecular forces of attraction will increase.
    D. Volume occupied by the molecules will decrease.

14. Plastics are amorphous solids because they

    A. have a sharp melting point.
    B. can be broken along definite planes.
    C. maintain a 3-dimensional geometrical shape.
    D. possess an irregular arrangement of particles.

15. The gas law which shows the relationship between volume and pressure at constant temperature was presented by

    A. Robert Boyle.
    B. Henry Moseley.
    C. Jacques Charles.
    D. Thomas Graham.

16. Which of the following is NOT an example of aqueous solution?

    A. Black tea
    B. Sea water
    C. Orange juice
    D. Whipped cream

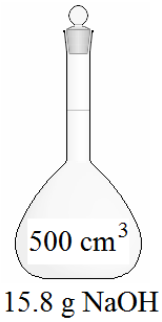
17. If 16 cm^3 of acetone is dissolved in water to prepare 200 cm^3 of aqueous solution, the volume/volume (v/v) percentage of this solution will be

    A. 0.07%
    B. 0.08%
    C. 7.41%
    D. 8.00%

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18. The molarity of the given sodium hydroxide solution will be

(**Note**: Atomic mass of Na = 23 amu, O = 16 amu, H = 1 amu)



A. 0.03 M
B. 0.19 M
C. 0.79 M
D. 1.26 M

19. Glucose is a non-electrolyte because it

A. is a polar molecule.
B. is a covalent compound.
C. breaks up into ions in water.
D. dissolves completely in water.

20. All of the following can prevent corrosion of metals EXCEPT

A. applying lubricants on the metals.
B. alloying the metals with other metals.
C. dipping the metals in aqueous salt solution.
D. covering the metals with more reactive metals.

21. A voltaic (galvanic) cell is an electrochemical cell which

A. converts electrical energy into chemical energy.
B. generates electricity through spontaneous redox reaction.
C. comprises of two electrodes made up of the same inert metal.
D. consists of a positively charged anode and a negatively charged cathode.

22. The shape of non-metals cannot be changed by hammering because they are

A. brittle.
B. ductile.
C. malleable.
D. electronegative.

23. Alkali metals are highly reactive because they have

A. high ionisation energy values.
B. low melting and boiling points.
C. one electron in their valence shell.
D. two electrons in their valence shell.

24. Which statement is FALSE about sodium metal?

A. It is silvery white and soft in appearance.
B. It reacts with oxygen to form an acidic oxide.
C. It forms salt with halogen having NaX formula.
D. It liberates hydrogen gas on reaction with water.

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25. Which of the following is TRUE when ionisation energies of sodium (Na) metal are compared with magnesium (Mg) metal?

	1st Ionisation Energy	**2nd Ionisation Energy**
A	Na < Mg	Na > Mg
B	Na > Mg	Na = Mg
C	Na = Mg	Na > Mg
D	Na > Mg	Na < Mg

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