

Name

centre/index No.....

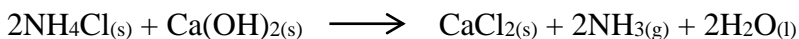
Signature

RESOURCEFUL MOCK EXAMINATIONS 2016**CHEMISTRY****PAPER 1****TIME: 1 ½ hours****Instructions to candidates***This paper consists of 50 objective questions**Answer the questions by writing the correct alternative in the box on the right hand side*

1. Which one of the following nitrates when heated, does not produce oxygen?
A: $\text{Pb}(\text{NO}_3)_2$ B: KNO_3 C: NH_4NO_3 D: AgNO_3
2. Which one of the following statements is true about the reaction between hydrochloric acid and marble chips?
A: It proceeds at a constant rate
B: The rate increases with time
C: It does not start unless a catalyst is used
D: The rate slows down with time.
3. Which one of the following would be added to aqueous sodium bromide to release bromine?
A: Dilute sulphuric acid B: chlorine water
C: sodium hydroxide solution D: hydrochloric acid
4. On adding acidified barium nitrate solutions to a certain solution, a white precipitate forms showing the presence of a
A: chloride ion B: sulphate ion
C: sulphite ion D: Sulphide ion
5. Barium chloride reacts with potassium chromate according to the following equation
 $\text{BaCl}_2(\text{aq}) + \text{K}_2\text{CrO}_4(\text{aq}) \longrightarrow \text{BaCrO}_4(\text{s}) + 2\text{KCl}(\text{aq})$
When 10.4g of barium chloride are dissolved in water and excess potassium chromate solution added, the mass of barium chromate solid formed is; (O = 16, Cr = 52, Ba = 137)
A: 25.4g B: 12.7g C: 10.4g D: 9.7g

6. Which one of the following polymers is a natural polymer?
A: polyethene B: polyester C: Nylon D: silk
7. The gas which burns in oxygen with a greenish yellow flame is
A: Ethene B: hydrogen C: Ammonia D: Carbon monoxide
8. Which one of the following substances contains an equal number of moles to 1.2g of carbon – 12 isotope?
(O=16, S = 32, Ca = 40, 1 mole of a gas occupies 24dm³ at room temperature)
A: 0.64g of SO₂ B: 2.80g of CaO
C: 240cm³ of He at room temperature D: 100cm³ of a 1M Na OH solution.
9. The process which increases the concentration of oxygen in the atmosphere is
A: rusting B: photosynthesis
C: respiration D: combustion of fuels
10. Which one of the following is NOT true about acid rains? Acid rain damages;
A: tarmaced roads B: trees C: crops D: roofs
11. Concentrated sulphuric acid turns copper (II) sulphate – 5 – water crystals to a white powder because concentrated sulphuric acid is
A: a dehydrating agent B: a strong acid
C: a dibasic acid D: an oxidizing agent
12. The process leading to separation of soap flakes from solution is called
A: synthesis B: distillation C: precipitation D: saponification
13. Which one of the following is NOT an industrial method of preventing rusting?
A: Alloying B: Greasing C: galvanizing D: Electroplating
14. The salt that can be prepared by precipitation method is
A: K₂CO₃ B: MgCl₂ C: Cu(NO₃)₂ D: PbSO₄
15. Which one of the following compounds will conduct electricity only when it is melted?
A: PbBr₂ B: NaI C: CuSO₄ D: ZnCl₂
16. Which one of the following salts would have a pH > 7?
A: NH₄Cl B: (NH₄)₂SO₄ C: NH₄NO₃ D: (NH₄)₂CO₃
17. Which one of the following substances is used as a catalyst as well as oxidizing agent?

- A: Copper (II) sulphate
C: Iron wool
- B: Manganese (IV) oxide
D: Vanadium (V) oxide.
18. The elements R and T react to form a compound R_3T_2 . The ion formed by T is
A: T^{3+} B: T^{2+} C: T^{3-} D: T^{2-}
19. Which one of the following carbon compounds will most likely burn to give a thick soot?
A: CH_4 B: C_2H_2 C: C_2H_6 D: CH_3OH
20. Which one of the following anhydrous carbonates would not decompose when heated?
A: zinc carbonate B: sodium carbonate
C: calcium carbonate D: ammonium carbonate
21. Ammonium salts are used as nitrogen fertilizers. The ammonium salt that would provide the biggest amount of nitrogen to plants is
A: $(NH_4)_3PO_4$ B: $(NH_4)_2SO_4$ C: NH_4Cl D: NH_4NO_3
- (H = 1, N = 14, O = 16, P = 31, S = 32, Cl = 35.5)
22. The sodium salt that will form a precipitate with acidified barium chloride solution is
A: Na_2CO_3 B: Na_2SO_3 C: Na_2SO_4 D: Na_2S
23. Which one of the following is NOT an alloy of copper?
A: brass B: solder C: Bronze D: duralumin
24. The solution of this compound in water will stop ready lathering of soap unless the water is boiled first. The compound is
A: $MgSO_4$ B: $Mg(HCO_3)_2$ C: $CaCl_2$ D: $Na_2CO_3 \cdot 10H_2O$
25. Which one of the following gases highly pollutes the environment, but does not cause acid rain?
A: CO_2 B: SO_2 C: CO D: NH_3
26. Which one of the following processes depletes the volume of nitrogen in the atmosphere?
A: Harber's process B: plant decay
C: Thunderstorm D: denitrification
27. The reaction of dilute nitric acid with most metals does not produce hydrogen gas because nitric acid is
A: a weak acid B: a volatile acid
C: a monobasic acid D: a strong oxidizing agent.
28. The main by-product of the fermentation of sugar to ethanol is
A: Ethanoic acid B: carbon dioxide
C: water D: methanol
29. Ammonium chloride reacts with calcium hydroxide according to the following equation



The volume of ammonia formed at room temperature when 2.14g of ammonium chloride is reacted with calcium hydroxide is

- A: 0.48dm³ B: 0.96dm³ C: 1.92dm³ D: 4.80dm³

(N = 14 Cl = 35.5, H = 1, 1 mole of a gas occupies 24dm³ at room temperature)

30. Which one of the following hydrates is efflorescent?

- A: MgSO₄.7H₂O B: Na₂CO₃.10H₂O
 C: CaSO₄. 2H₂O D: CoCl₂.6H₂O

31. Which one of the following hydroxides when heated strongly produces a yellow solid on cooling?

- A: Pb(OH)₂ B: Zn(OH)₂ C: Fe(OH)₃ D: Cu(OH)₂

32. The volume of 0.2M hydrochloric acid required to exactly react with 20cm³ of 0.1M sodium carbonate is

- A: $\left(\frac{20 \times 0.1}{2 \times 0.2}\right) \text{cm}^3$ B: $\left(\frac{20 \times 0.2}{2 \times 0.1}\right) \text{cm}^3$ C: $\left(\frac{2 \times 20 \times 0.2}{0.1}\right) \text{cm}^3$ D: $\left(\frac{2 \times 20 \times 0.1}{0.2}\right) \text{cm}^3$

33. Which one of the following gases does not reduce copper (II) oxide?

- A: hydrogen B: carbon monoxide
 C: Ammonia D: carbon dioxide

34. Graphite burns in oxygen according to the following equation



When 48.0g of graphite is burnt, in excess oxygen the heat produced is (C = 12)

- A: 97.5Kj B: 195Kj C: 780Kj D: 1560Kj

35. Which one of the following cations will NOT form a carbonate when reacted with sodium carbonate?

- A: Al³⁺ B: Fe²⁺ C: Ca²⁺ D: Mg²⁺

36. Which one of the following is not a property of ethene?

- A: it decolourises potassium manganate (VII) solution
 B: it is an unsaturated hydrocarbon
 C: it is a saturated hydrocarbon
 D: it decolourises bromine water.

37. Which one of the following equations represents a redox reaction?

- A: $\text{CO}_{2(g)} + \text{C}_{(s)} \longrightarrow 2\text{CO}_{(g)}$
 B: $4\text{HNO}_{3(l)} \longrightarrow 4\text{NO}_{2(g)} + \text{O}_{2(g)} + 2\text{H}_2\text{O}_{(l)}$
 C: $2\text{CO}_{(g)} + \text{O}_{2(g)} \longrightarrow 2\text{CO}_{2(g)}$
 D: $\text{SiO}_{2(s)} + \text{CaO}_{(s)} \longrightarrow \text{CaSiO}_{3(s)}$

38. The concentration of chloride ions in a litre of a solution which contains 22.2g of calcium chloride is (Ca = 40, Cl = 35.5)

A: 0.20 mol dm^{-3}

B: 0.29 mol dm^{-3}

C: 0.40 mol dm^{-3}

D: 0.60 mol dm^{-3}

39. Which one of the following equations represents the laboratory preparation of nitric acid?

A: $\text{HCl}_{(\text{aq})} + \text{KNO}_{3(\text{s})} \longrightarrow \text{HNO}_{3(\text{l})} + \text{KCl}_{(\text{s})}$

B: $4\text{NO}_{2(\text{g})} + \text{O}_{2(\text{g})} + 2\text{H}_2\text{O}_{(\text{l})} \longrightarrow 4\text{HNO}_{3(\text{aq})}$

C: $\text{H}_2\text{SO}_{4(\text{l})} + 2\text{KNO}_{3(\text{s})} \longrightarrow \text{K}_2\text{SO}_{4(\text{s})} + 2\text{HNO}_{3(\text{l})}$

D: $\text{H}_2\text{SO}_{4(\text{l})} + \text{KNO}_{3(\text{s})} \longrightarrow \text{KHSO}_{4(\text{s})} + \text{HNO}_{3(\text{l})}$

40. Which one of the following is a waste product of the Solvay process for the manufacture of sodium carbonate?

A: NaHCO_3

B: CaO

C: CaCl_2

D: NH_4Cl

In answering questions 41 to 45, choose

A: if 1,2 and 3 only are correct; or

B: if 1 and 3 only are correct ; or

C: if 2 and 4 only are correct; or

D: if 4 only is correct

41. The atomic number of an element X is 15. The formula(e) of the compound(s) formed when X reacts with chlorine is/are

1. XCl_2

2. XCl_3

3. XCl_4

4. XCl_5

42. Which of the following substances would sublime when heated?

1. Iodine

2. Iron (III) chloride

3. Ammonium chloride

4. Glucose

43. Which of the following compounds, when dissolved in the solvent indicated will form (a) solution (s) which is/are (an) electrolyte(s)?

1. Hydrogen chloride in aqueous ammonia

2. Ethanol in water

3. Nitrogen dioxide in water

4. Hydrogen chloride in methyl benzene

44. During the manufacture of sodium from sodium chloride, the following substance(s) is/are also produced

1. Sodium hydroxide
2. Oxygen gas
3. Hydrogen gas
4. Chlorine gas

45. Steel- bars are preferred to pure iron bars for construction purposes because steel bars

1. Have more attractive appearance
2. Do not rust easily
3. Are stronger
4. Are cheaper

In answering questions 46 – 50, choose

A, if Assertion is TRUE , reason is also TRUE and give the correct explanation of the Assertion; or

B: if Assertion is TRUE, reason is also TRUE but is NOT the correct explanation of the Assertion or

C: if Assertion is TRUE but reason is NOT TRUE or

D: if Assertion is NOT TRUE but reason is a TRUE statement.

ASSERTION		REASON	
46. Carbon does not conduct electric current	because	carbon is a non metallic element	<input type="checkbox"/>
47. Expectant mothers need not boil hard water for drinking	because	boiling hard water takes away calcium ions, which an expectant mother requires so badly for formation of healthy bones in her body	<input type="checkbox"/>
48. The yield of carbon dioxide prepared from calcium carbonate reacting with dilute sulphuric acid is generally low	because	Dilute sulphuric acid does not dissociate completely	<input type="checkbox"/>
49. Sulphur dioxide turns the colour of an acidified potassium dichromate solution from orange to green	because	sulphur dioxide reduces chromium (VI) to chromium (III) ion.	<input type="checkbox"/>

50. Polyethene bags should not worry our environmentalists	because	polyethene is a thermo softening plastic after all	
--	---------	--	--

END