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Reg. No. | | | | | | | |

11th Quarterly Examination - 2018

Time : 2.30 hrs. **CHEMISTRY** Max. Marks : 70

Instruction : 1) Check the question paper for fairness of printing if there is any lack of fairness inform the hall supervisor immediately.

2) Use Blue or Black ink to write and underlined and pencil to draw diagram.

SECTION – I

Note : (i) Answer all the questions **15 x 1 = 15**

(ii) Choose the most suitable answer from the given four alternatives and write the option code and corresponding answer.

1. Water gas is a) H_2O b) $CO + H_2O$ c) $CO + H_2$ d) $CO + N_2$
2. Match the List I and List II correctly by using the code given below

List - I (no. of moles)	List-II (Amount)
A) 0.1 mole	1. 4480 mL of CO_2
B) 0.2 mole	2. 200 mg of hydrogen gas
C) 0.25 mole	3. 9 mL of water
D) 0.5 mole	4. 1.51×10^{23} molecules of oxygen

Codes

	(A)	(B)	(C)	(D)		(A)	(B)	(C)	(D)		(A)	(B)	(C)	(D)		(A)	(B)	(C)	(D)
a)	1	2	3	4	b)	2	1	4	3	c)	4	3	1	2	d)	3	1	2	4

3. The molar heat of sublimation is equal to
   a) sum of molar heats of fusion and vaporization b) molar heat of vaporization
   c) molar heat of fusion d) molar heat of neutralization
4. 56g of nitrogen and 96g of oxygen are mixed isothermally and the mixture exerts a total pressure of 10atm. The partial pressure of nitrogen and oxygen are respectively. a) 4, 6 b) 8, 2 c) 6, 4 d) 2, 8
5. Maximum deviation from ideal gas is a) $CH_{4(g)}$ b) $NH_{3(g)}$ c) $H_{2(g)}$ d) $N_{2(g)}$
6. The Oxidation number of chromiuim in dichromate iion is a) +4 b) +6 c) +5 d) 0
7. The energy of an electron in the third orbit of hydrogen is –E. The energy of an electron in the first orbit will be a) –3E b) –E/3 c) –E/9 d) –9E
8. Change in the internal energy, when 4 KJ of work is done on the system and 1 KJ of heat is given out by the system is a) +1 KJ b) –5 KJ c) +3 KJ d) –3 KJ
9. The electrons identified by quantum numbers n and l (i) n = 4, l = 1 (ii) n = 4, l = 0 iii) n = 3, l = 2 iv) n = 3, l = 1 can be placed in the order of increasing energy as
   a) (iv) < (ii) < (iii) < (i) b) (ii) < (iv) < (i) < (iii) c) (i) < (iii) < (ii) < (iv) d) (iii) < (i) < (iv) < (ii)
10. Assertion : The first ionization energy value of aluminium is lower than Magnesium.
    Reason : Atomic radius of aluminium is smaller than magnesium.
    a) Both Assertion and Reason are correct, but Reason is the correct explanation of the Assertion
    b) Both Assertion and Reason are correct, but Reason is not the correct explanation of the Assertion
    c) Assertion is correct but Reason is false d) Both Assertion and Reason are false
11. Zeolite used to soften hardness of water is hydrated
    a) sodium aluminium silicate b) calcium aluminium silicate c) zinc aluminium borate
    d) lithium aluminium hydride
12. The element with positive electron gain enthalpy is
    a) hydrogen b) sodium c) Argon d) fluorine
13. Which of the following pairs of elements exhibit diagonal relationship?

a) Be and Mg b) Li and Mg c) Be and B d) Be and Al

14. Heat of combustion is always
    a) positive b) negative c) zero d) either positive or negative
15. Sodium is stored in a) Alcohol b) Water c) Kerosene d) None of these

SECTION - II

Answer any six questions and question number 18 is compulsory. **6 x 2 = 12**

16. Define Equivalent mass.
17. Calculate the total number of angular and radial nodes present in 3d and 4f Orbitals.
18. Calcium Hydroxide cannot be used to remove permanent hardness of water. why?
19. Calculate the Effective nuclear charge of helium.
20. What is meant by Ortho and Para Hydrogen?
21. Write the chemical name of baking soda. Write any one of it uses. *CTEN*
22. How is Plaster of Paris prepared?
23. Why is liquid ammonia bottle cooled before opening the seal?
24. State the Third Law of Thermodynamics.

SECTION - III

Answer any six question and question number 27 is compulsory. **6 x 3 = 18**

25. State the trends in the variation of electronegativity in groups and periods.
26. Give the Electronic configuration of Mn^{+2} and Cr^{3+}.
27. Calculate the amount of water produced by the combustion of 32 g of methane.
28. Explain the types of hydrogen bonding wityh an example.
29. What are 's' block elements?
30. State Boyle's law and Charles law.
31. State Hess's law.
32. What is the Empirical Formulae of the following?
    i) Fructorse ($C_6H_{12}O_6$) ii) Caffeine ($C_8H_{10}N_4O_2$)
33. Give the IUPAC names of the elements having the following atomic numbers.
    a) 102 b) 108 c) 111

SECTION - IV

Answer all the questions. **5 x 5 = 25**

34. a) What is limiting reagent? 2
    b) Write the electronic concept of oxidation and reduction reactions 3
    (OR) Derive de-Broglie equation 5
35. i) Defiine orbital 2
    ii) Which has the stable electronic configutation : Ni^{+2} or Fe^{+3} Why? 3
    (OR) i) State Modern periodic law. 2
    ii) Successive ionization energy values increase. Why? 3
36. i) Why do Beryllium and nitrogen have zero electron affinity? 2
    ii) Write the equations for the amphoteric nature of Beryllium hydroxide. 3
    (OR) Write a note on covalent (molecular) hydrides. 5
37. i) Write the exchange reactions of deuterium 2
    ii) Write the uses of heavy water 3
    (OR) i) Write the relationship between ΔH and ΔU 2
    ii) What is Lattice energy? 3
38. Discuss the similarities between Beryllium and Aluminium 5
    (OR) i) What is compressibility factor. 2
    ii) State Joule Thomson effect.