MONTHLY (AUGUST) TEST 2016-17
XII CHEMISTRY

TIME: 3:00 HOURS M.M.-70

INSTRUCTIONS:

General Instructions :

(i) ***All*** *questions are compulsory.*

(ii) *Questions number* ***1*** *to* ***5*** *are very short answer questions and carry* ***1*** *mark each.*

(iii) *Questions number* ***6*** *to* ***10*** *are short answer questions and carry* ***2*** *marks each.*

(iv) *Questions number* ***11*** *to* ***22*** *are also short answer questions and carry* ***3*** *marks each.*

(v) *Question number* ***23*** *is a value based question and carry* ***4*** *marks.*

(vi) *Questions number* ***24*** *to* ***26*** *are long answer questions and carry* ***5*** *marks each.*

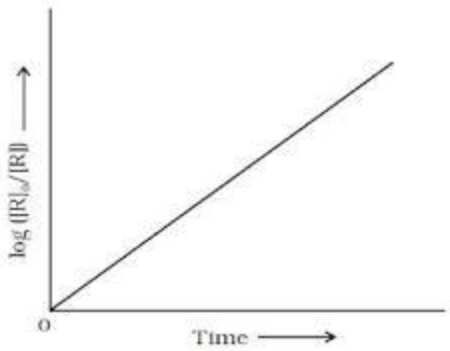
(vii) *Use log tables, if necessary. Use of calculators is* ***not*** *allowed.*

1. Identify the reaction order for from each of the following rate constant –
   a) $k = 2.3 \times 10^{-5}$ L mol-1 s^{-1} [1]
2. Consider the equation

   $2\ NO\ (g) + 2H_2\ (g) \text{ --------} \rightarrow N_2\ (g) + 2H_2O\ (g)$

   The rate law for this equation is first order with respect to H_2 and second order with respect to NO. write the rate law for this reaction. [1]

3. Why do finely divided solids act as good adsorbents ? [1]
4. What do you understand by benefaction of ore? [1]
5. What is added as flux in extraction of iron?
6. The rate Law for the reaction A+B -------→ C is rate = K $[A]^2$ [B] . What would the reaction rate be when concentration of both A and B are doubled? [2]
7. What are elementary and complex reactions? [2]
8. What is meant by activity and selectivity of a catalyst? [2]
9. Differentiate between order and molecularity of a reaction. [2]
10. Differentiate between sol and gel with suitable example. [2]
11. From the graph below :



(a) Identify the order of reaction.
(b) What will be the unit of rate constant.
(c) Write relationship between half life period and K for such reaction. [1+1+1=3]

12. What is meant by Pseudo first order reaction ? Give an example of Pseudo first order reaction and Write the rate equation for the same. [1+1+1=3]

13. On , The decomposition of N_2O_5 at constant volume , the following data were obtained:

$2N_2O_5$--------- $2N_2O_4 + O_2$

T(sec)	p(mm of Hg)
0	0.5
100	0.512

Calculate the rate constant. [3]

14. Show that the time required for 99% completion of a reaction is twice the time required For the completion of 90%. [3]

15. Explain what is observed when-
(a) An emulsion is subjected to centrifugation.
(b) Direct current is passed through a colloidal solution.
(c)Write a chemical equation showing the preparation of positive sol? [3]

16. Define the terms – (a) coagulation (b) Electro osmosis (c) peptization. [3]

17. Name an important ore of iron . how is cast iron different from pig iron? [3]

18. Give two examples of metals refined by- Electrolytic refining
a) Distillation
b) Liquation

c) Electrolytic refining [1+1+1=3]

19. What is the basis of hydraulic washing? For which type of ores is it used and how is it done? [1+1+1=3]

20. What is the principle behind –
A) chromatography?
B) Vapour Phase refining
C) Pyrometallurgy [1+1+1=3]

21 Name an important ore of Al. What is the role of cryolite in the metallurgy of Al. Write reactions taking place in the hall heroult process? [1+1+1=3]

22. Write the reactions taking place in blast furnace related to metallurgy of iron in various zone. [1+1+1=3]

23. Wasim observed that the barber applied alum on the face of his customer. He also observed her mother dissolving alum to purify muddy water.
a) How do these two observation relate to the concept of colloidal solution.
b) Name the properties associated to these observations .
c) can we use sodium chloride instead of Alum?
d) Write the value associated with. [4]

24. (A) What is the effect of temperature on rate of reaction?

(B) The rate constant K of a reaction increases four fold when the temperature changes from 300K to 320K. Calculate the activation energy for the reaction . ($R= 8.314\ J\ mol^{-1}\ K^{-1}$) [2+3=5]

25. (A) how does catalyst affect rate of reaction?
(B) A first order reaction takes 40 minutes for 30% decomposition. Calculate its half life period. [2+3=5]

26. What are lyophilic and lyophobic sols? Give one example of each type. Why is hydrophobic sol easily coaugulated?

[2+2+1=5]