C 1773 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2016

(UG–CCSS)

Elective Course—Chemistry

CH 6B 20(E1)—ANALYTICAL CHEMISTRY

Time : Three Hours Maximum : 30 Weightage

I. Answer all the *twelve* questions. Each question carries a weightage of ¼. This section contains multiple choice, fill in the blanks and one word answer type questions :—

1 The number of significant figures in 6.626×10^{-34} JS is :

(a) 3 ; (b) 4 ; (c) 2 ; (d) 1.

2 The molarity of a solution containing 1.06 g. of Na_2CO_3 per 100 mL of a solution is ———— .

3 Chromatography was discovered by ————.

4 Zeolites are examples of ———— exchangers.

5 What is the radiation source for AAS ?

6 In turbidimetry the intensity of ———— radiation is measured.

7 Among the following the maximum temperature is obtained for :

(a) Propane—O_2. (b) Butane—O_2.

(c) H_2—O_2. (d) Acetylene—O_2.

8 In Ilkovic equation the product $m^{2/3}\ t^{1/6}$ is called ————.

9 Which of the following will give an exothermic peak in DTA :

(a) Dehydration. (b) Reduction.

(c) Decomposition. (d) Oxidation.

10 Physical processes like vapourisation, sublimation etc. are ———— (exo/endothermic).

11 A BOD value of < 5 ppm indicates :

(a) Clean water. (b) Moderately polluted water.

(c) Turbid water. (d) Highly polluted water.

12 CO reduces the oxygen carrying capacity of ————.

(12 × ¼ = 3 weightage)

II. Answer all the *nine* questions. Each carries a weightage of 1 :

13 What do you mean by significant figures ?

14 Calculate the median for the following data :

19.4, 19.5, 19.6, 19.8, 20.1 and 20.3 ppm of Fe.

Turn over

15 What is a primary standard ? Give an example for a primary standard.

16 Give a brief description of the principle of crystallisation taking an example.

17 Write two factors that are influential in determining whether a substance will fluoresce or not.

18 Write the principle behind electrogravimetry.

19 Write any two applications of amperometry.

20 Explain the thermogram of $CaC_2O_4\ H_2O$.

21 Name five primary pollutants that contribute to about 90 % of global air-pollution.

(9 × 1 = 9 weightage)

III. Answer any *five* questions. Each carries a weightage of 2 :

22 Illustrate additive error.

23 Explain student *t*-test.

24 Explain the method of least squares for obtaining accurate analytical data.

25 Explain the principle of steam distillation.

26 Write the principle and applications of Nephelometry.

27 Why does the glass transition for a polymer yield no exothermic or endothermic peak ?

28 Describe the principle of analysis of fat.

(5 × 2 = 10 weightage)

IV. Answer any *two* questions. Each carries a weightage of 4 :

29 What are determinate and indeterminate errors ? Discuss the methods used for minimising determinate errors.

30 Describe the principle, technique and applications of HPLC.

31 Describe the principle of estimation of Blood Sugar.

(2 × 4 = 8 weightage)