

C.U.SHAH UNIVERSITY

Wadhwan City

Subject Code : 5SC02CHC4

Summer Examination-2014

Date: 16/06/2014

Subject Name:-Analytical Chemistry

Branch/Semester:- M.Sc(Chemistry)/II

Time:02:00 To 5:00

Examination: Regular

Instructions:-

- (1) Attempt all Questions of both sections in same answer book / Supplementary
- (2) Use of Programmable calculator & any other electronic instrument is prohibited.
- (3) Instructions written on main answer Book are strictly to be obeyed.
- (4) Draw neat diagrams & figures (If necessary) at right places
- (5) Assume suitable & Perfect data if needed

SECTION I**Q-1 Attempt the of followings 7**

- a) Define Validation
- b) Define Biosphere
- c) Enumerate the different types of Precision.
- d) What is the significance of t test?
- e) Enumerate different types of errors
- f) Justify – LOQ is always 3 times higher than that of LOD
- g) Define heat transfer by Conduction

Q-2 Attempt the followings 14

- a) Enumerate various validation parameters. Explain accuracy and precision.
- b) What is green chemistry? Explain twelve principles of green chemistry in detail.

OR**Q-2 Attempt the followings 14**

- a) Define control charts. Explain various types of control charts .
- b) Give different types of errors. Explain types of particulates in atmosphere with particulate collection technique .

Q-3 Attempt the followings 14

- a) Enumerate various parameters for water analysis, Explain any four .
- b) An experiment was conducted to check whether the newly developed fertilizer is having any effect on the growth of the plants. For the experiment two group of plants were taken, each group having 10 members in it. The data of their growth after 4 weeks are given in the below table, check whether the effect is there or not. $t_{\text{tabulated}} = 1.833$

Group having fertilizer	20	25	23	16	30	18	24	26	28	29
Group not having fertilizer	30	16	15	14	21	18	26	28	16	20

OR

Q-3 Attempt the followings 14

- a) Explain data processing in detail for a set of data.
- b) Explain sampling and preservation techniques of samples for water analysis.

SECTION II

Q-4 Attempt the followings

- a) Define – troposphere 1
- b) Define – lithosphere 1
- c) Define – BOD 1
- d) Define – Pollutant 1
- e) Explain limit of significance. 3

Q-5 Attempt the followings 14

- a) Explain energy balance between earth and atmosphere
- b) Explain current trends of synthesis and techniques of green approach .

OR

Q-5 Attempt the followings 14

- a) For the following Spectrophotometric experiment find the linear line equation and sum of square of errors.

Conc	10	20	30	40	50
ABS	0.113	0.224	0.364	0.448	0.568

- b) For the following data find whether the addition of reagent affected the rate of reaction. $F_{\text{tabulated}} = 4.11$

Rate of reaction without reagent A	0.24	0.26	0.20	0.30	0.26
Rate of reaction with reagent A	0.30	0.32	0.20	0.24	0.26

Q-6 Attempt the followings 14

- a) What is Relative Standard deviation? Find whether the following data is precise for the repeatability study as per Validation requirement. (limit is NMT 2% RSD)
0.210, 0.222, 0.216, 0.219, 0.220, 0.217
- b) Find the best fitted line equation for the following set of data. Also find the sum of square of errors.

Time	10	20	30	40
Readings	7130	4590	2420	810

OR

Q-6 Attempt the followings 14

- a) Explain different parts of atmosphere in detail with effect of cloud on atmosphere.
- b) Explain photolytic cycle in detail.

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