**CITY COLLEGE**
**B.SC Semester 5 Internal Assessment (online), under CU 20-21**

**CHEMISTRY- HONOURS**
**Paper: DSE-A-2**
**(Applications of Computers in Chemistry)**
**Full Marks – 10**

**Attempt all the questions.**

1. Residuals stand for–
    a) $(y_i - \bar{y})$
    b) $(y_i - \hat{y})$
    c) $(\bar{y} - \hat{y})$
    d) none
2. Under what conditions $R^2 \rightarrow 1$, when
    a) SSR (sum of the square of the residuals)
    b) Mean value is zero
    c) bb* ~ 1 (slopes of the lines w.r.t. x and y independent axes respectively)
    d) both a and c
3. Trendline must pass through at least one point (not for weighted data points)
    a) Origin
    b) $(\hat{x}, \hat{y})$
    c) $(x_i, y_i)$
    d) $(\bar{x}, \bar{y})$
4. Non-linear regression is done by using –
    a) SSR (sum of the square of the residuals)
    b) $SS_{reg}$ (sum of the square of the regression)
    c) Goal Seek function
    d) SSR and Solver function
5. If fitting an equation to data forces the line through origin then 'F' (statistics used in excel) is equal to :
    a) SSreg/(n-υ-1)/ SSR/υ
    b) SSreg/υ
    c) SSreg/(n-υ) / SSR/υ
    d) None of the above
    Where 'υ' stands for degrees of freedom and 'n' for data points

6. The value of x (real variable) from the following Fortran expression: x = 1+ (1/4) is
    a) 1.25
    b) 1.00
    c) 2.00
    d) None of the above
7. Which of the following Fortran variable name is invalid
    a) 3_days
    b) I_DO_NOT_KNOW
    c) z123456789
    d) both a and b
8. Calculate the value of ires at the end of the two loops (assume that all variables are integers).

```
ires = 0
DO m = 1, 3
DO n = 1, 2

ires = ires + 1

END DO
END DO
```

    a) 6
    b) 3
    c) 5
    d) 7
9. What Z-value is associated with a 95% confidence interval?
    a) 2.58
    b) 1.96
    c) 1.65
    d) 1.00
10. Type I error occurs when?
    a) We reject the null hypothesis if it is false
    b) We reject the null hypothesis if it is true
    c) We accept the null hypothesis if it is true
    d) We accept the null hypothesis if it is false