B.Sc. CHEMISTRY
SIXTH SEMESTER
RESEARCH METHODOLOGY FOR CHEMISTRY
BSC – 605A
(Use Separate Answer Scripts for Objective & Descriptive)

Duration: 3 hrs.   **Full Marks: 70**

(PART-A: Objective)

Time: 20 min.   **Marks: 20**

Choose the correct answer from the following: *1X20=20*

1. "Journal of American Chemical Society" can be abbreviated as
   a. J. Am. Chem. Soc.
   b. J. Am. Ch. Soc.
   c. Jo. Am. Chem. Soc.
   d. J. Ame. Chem. Soc

2. Preprint is a
   a. peer-reviewed article
   b. not peer-reviewed article
   c. review article
   d. All of these

3. Scholarly journal articles are which type of sources for literature review
   a. Primary
   b. Secondary
   c. Tertiary
   d. Quaternary

4. Full form of 'http' is
   a. High transfer protocol
   b. Hyper technical transfer protocol
   c. Highly transverse transfer protocol
   d. Hypertext transfer protocol

5. The h index was proposed by
   a. J E Hirsch
   b. Clarivate Analytics
   c. Thomson Reuters
   d. None of these

6. Which of the following is not a correct SI unit for the given quantity?
   a. Temperature – kelvin
   b. Current – ampere
   c. Energy – calorie
   d. Luminous intensity – candela

7. The goal of _____ is to focus on summarizing and explaining a specific set of data.
   a. Inferential statistics
   b. Descriptive statistics
   c. Both A & B
   d. None of the above

8. Which of the following is not a attribute of normal distribution?
   a. Symmetrical
   b. Bellshaped
   c. Centered
   d. Bimodal

9. With respect to different operational amplification gain which of the following input output signal is wrong?
   a. Transconductance – current in voltage out
   b. Transresistance – voltage in current out
   c. Both a & b
   d. None of them

[1]   USTM/COE/R-01

10. Following is the symbol of which logic gate?

    a. XNOR   b. NAND
    c. AND   d. NOR

11. The correct way of presenting the numbers 2.035 & 2.065 with three significant figures will be
    a. 2.04 & 2.07   b. 2.03 & 2.07
    c. 2.03 & 2.06   d. 2.04 & 2.06.

12. Which one of the followings is the correct way of writing the measurements?
    a. 5 mol% catalyst resulted 75% product   b. 5 mol% catalyst resulted 75 % product
    c. 5mol% catalyst resulted 75% product   d. 5mol % catalyst yielded 75 % product

13. Generally, a scientific research paper includes measurement in numbers with significant figures of
    a. more than 4   b. 3 or 4
    c. 2 or 3   d. 1 or 2

14. The total number of significant figures in 0.00500 will be
    a. 1   b. 3
    c. 5   d. 6

15. Which of the scientific way of research discussion is generally found in a conference
    a. Writing a review article   b. Writing a research article
    c. Writing a research communication   d. Poster presentation

16. The sign below indicates what type of safety hazard?

    a. Toxic chemical   b. Safe chemical
    c. Green chemical   d. All of these

17. Which one of the following chemicals is shock sensitive?
    a. alcohols   b. organic azides
    c. hydrocarbons   d. organic halides

18. The following GHS is for

    a. Toxic chemical   b. Flammable chemical

    c. Oxidizer chemical   d. Explosive chemical

19. The flammable rating of the substances having flash point > 100 °F but < 200 °F (>38 °C but <93°C) is

    a. 1   b. 2

    c. 3   d. 4

20. Pyrophoric chemicals are the chemicals which
    a. ignite spontaneously in the presence of oxygen and moisture at room temperature.
    b. reacts with nitrogen gas.
    c. ignite spontaneously in the presence of oxygen and moisture at 77 K.
    d. ignite spontaneously in the presence of oxygen only at room temperature

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Time : 2 hrs. 40 min.   Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. a. What do you mean by 'abstract' of research paper? How many   3+2 =5
       types of 'abstract' are there? Name all of them and discuss.

    b. What are the four assumptions multiple linear regression is based
       upon?

    c. Discuss five important points of technical writing of scientific   5
       research paper of chemistry.

2. a. What do you mean by impact factor? How will one can calculate   6+4=10
       the impact factor? Give an example.

    b. What is 'h' index? Mention some resources to Find the h index

3. a. What is title of an article? What are the criteria for an effective title   5+5=10
       for an article?

    b. Write short note on Monograph. Write the definition text book.

4. a. What is Google Scholar? Define TOC and describe TOC alert.   5+5 = 10

    b. While mentioning the basis of comparison differentiate between
       correlation and regression.

5. a. What are the four different types of measurement scales? Describe   4+3+3
       briefly with examples.   =10

    b. Calculate range, interqurtile range and standard deviation of the
       following data
          2, 4, 5, 5, 8, 7, 6, 9, 9, 13, 15,12

    c. What are the three assumptions considered for applying statistical
       test on a data?

6. a. Write down the steps for transforming data to achieve linearity.   5+2+3
                                                                           = 10
    b. What is an integrated circuit?

    c. With help of diagram describe briefly a standard Trans Impedance
       Amplifier (TIA)

[4]

7. a. What is an oral presentation in regards to scientific work?

2+3+5
=10

   b. Discuss about the suitable format of scientific oral presentation.

   c. Discuss about the effective slides for the oral presentation and also about the delivery tips.

8. a. What do you mean by GHS and why it is important? Explain with example.

5+ 5=10

   b. Discuss on the salient features of the flammable and potentially explosive chemicals

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