Answer any 10 complete questions. Answer should be in detail.   **10X10=100 Marks**

1. Explain the relationship between doubling time and relative growth rate of publications in the context of scientometric analysis. Provide examples and illustrations to support your explanation.

2. Discuss the different Growth Models involved in modeling the growth of a literature. How can these modeling techniques be applied to forecast the growth of literature or any domain effectively? Discuss any two models in detail.

3. Explain Bradford's Law, which establishes the relationship between journals and their contributing articles within a specific domain. Support your explanation with appropriate plots and example to demonstrate the validity of Bradford's Law.

4. Describe Lotka's Law regarding author productivity. Provided below is author productivity data represented by the function g(x) and corresponding values of x, where g(x) represents the number of authors contributing x articles:

   g(x): 80 30 18 6 4 1

   x: 1 2 3 4 5 6

   Determine the parameter 'n' for the model equation $g(x) = k / x^n$.

5. Explain the concepts of polynomial law, power law, and logistic function in the context of modeling growth of any literature. Discuss the characteristics and applications of each model.

6. Illustrate the phenomenon of half-life of a subject or a domain by taking few examples. Explore its importance in determining the obsolescence of a domain.

7. Define diachronous studies and explain its significance in scientometrics research. Compare and contrast diachronous studies with synchronous studies, highlighting their respective strengths and weaknesses.

8. Explain the concept of the annual ageing factor of a journal and its significance in scientometrics. Discuss how the annual ageing factor is calculated and interpreted in evaluating the impact and longevity of a journal's publications. Define the Utility Factor in the context of scientometrics. How is it calculated and what does it indicate about a publication?

9. Discuss the factors considered in calculating Scimago JR (SJR) and how it measures the prestige and influence of scientific journals. Provide examples of journals with high and low SJR scores and discuss the potential reasons behind their rankings.

10. Define Source Normalized Impact per Paper (SNIP) and its significance in assessing the impact of scientific journals. Explain how SNIP differs from other citation-based metrics such as Impact Factor and SJR.

11. What is Eigenfactor and how does it measure the influence of scientific journals within the academic community? Discuss the components involved in calculating Eigenfactor and how they contribute to its assessment of journal importance.

33
67

12. Explain the concept of Cite Score and its role in evaluating the citation impact of scholarly journals. Define Journal Impact Factor (JIF) and its significance in academic publishing and evaluation.

13. Discuss the factors that contribute to the calculation of the h-index and how it measures both productivity and citation impact. Compare and contrast the g-index with the h-index and discuss scenarios where one metric might be more appropriate than the other for assessing research impact.

14. What are the Collaboration Coefficient, Collaborative Index and Degree of Collaboration? Explore how do these indexes reflect the extent of collaboration among authors in scholarly publications? Write a note on International collaboration of authors

15. Define the Science Citation Index (SCI) and explain its role in academic research. Define the Arts and Humanities Citation Index (AHCI) and its significance in the academic community.