

**Indian Statistical Institute
Documentation Research and Training Center**

**M.S. in Library and Information Science
Semester Final Exam (III Semester) 2017**

Paper – 15 Informetrics and Scientometrics

Date : 17.11.2017

Max Marks : 100

Time : 10 AM to 1 PM

Section I :

1. (2 X 5)
- A) What is dychronous study?
 - B) What is mapping of literature?
 - C) What is Webometrics?
 - D) What is Scientometrics portraits?
 - E) What is bibliometrics?
2. A (1 X 5)
- Scientometrics deals with
- (a) Economics
 - (b) History of Science
 - (c) History of Information
 - (d) History of Documentation
2. B Application of Citation Analysis:
- (a) To prepare Bibliography
 - (b) To decide the obscelence rate of documents in different subject
 - (c) To determine the inter-dependence and lineage of the subject
 - (d) All of the above
2. C Which of the following is based on inverse square law
- (a) Zipf's Law
 - (b) Bradford's Law
 - (c) Lotka's Law
 - (d) Price's Law
2. D occurs when two works reference a common third work in their bibliographies.
- (a) Co-citation analysis
 - (b) Bibliographic Coupling
 - (c) Co-word analysis
 - (d) None of the above
- 2.E) In which study, the citations are counted backwards
- (a) Synchronous
 - (b) Diachronous
 - (c) Both (a) & (b)
 - (d) None of the above

3. Match the following

(1 X 5)

(i)	List 1	List 2
(a)	Altmetrics 3	(1) Alan Pritchard
(b)	Citation Indexing 2	(2) Eugene Garfield
(c)	Bibliometrics 1	(3) Jason Priem
(d)	Bibliographic Couplin 4	(4) M.M. Kessler
		(5) S.R. Ranganathan

	a	b	c	d
(A)	4	2	3	5
(B)	3	2	4	1
(C)	1	4	2	5
(D)	3	2	1	4

(ii)	List 1	List 2
(a)	Average citation rate of journal articles	(1) Citation Rate of Journal
(b)	Frequency with which journal cite themselves	(2) Self-cited rate
(c)	The number of times a journal has been cited	(3) Self-citing rate
(d)	Percentage of citation received by a journal originated in articles published by the journal	(4) Impact factor

	a	b	c	d
(A)	4	3	1	2
(B)	1	3	4	2
(C)	1	4	3	2
(D)	3	4	2	1

(iii)	List 1	List 2
(a)	Name and count	(1) Height and weight measurements
(b)	Rank or order	(2) Ordinal scale of measurements
(c)	Score or mark	(3) Interval scale of measurements
(d)	Ratio Scale	(4) Nominal scale of measurements

	a	b	c	d
(A)	4	2	3	1
(B)	1	3	4	2
(C)	3	2	4	1
(D)	3	4	2	1

(iv)	List 1	List 2
(a)	Publish or perish	(1) Citation database
(b)	SCOPUS	(2) software program to retrieve citation
(c)	Activity Index	(3) Research effort of a country devoted to a subject field
(d)	A&HCI	(4) ISI

	a	b	c	d
(A)	2	1	4	3
(B)	2	1	3	4
(C)	1	2	4	3
(D)	1	2	3	4

(v)	List 1	List 2
(a)	Pubmed	(1) Bio-chemistry
(b)	INSPEC	(2) Engineering discipline
(c)	COMPENDEX	(3) Open Access Journal
(d)	DOAJ	(4) Physics

	a	b	c	d
(A)	3	1	4	2
(B)	1	2	4	3
(C)	2	1	4	3
(D)	1	4	2	3

Section II

2. Define the word 'Obsolescence' and calculate (with the help of table 1) the Obsolescence factors with the given formula : **(20 Marks)**

(a) Annual Aging Factor (directly from graph)

(b) Half Life: $h = \log(a)^h = \log 0.5$

(c) Utility factor: $U = 1/1-a$

(d) Mean : $1/m = \log_e 1/a$

(e) Corrected Obsolescence Factor: $\alpha = (0.5)^{1/m}$

or

Discuss how the Obsolescence study will help in collection development and weeding of the library resources. **(20 Marks)**

3. What is Scientific Collaboration? Discuss its different types and measures with the help of Table -2. (20 Marks)

a) Collaborative Index (C1)

$$\frac{\text{Total Authors}}{\text{Total Papers}} = C1$$

b) Degree of collaboration (DC)

$$C = \frac{NM}{NM \cdot NS}$$

c) Collaborative Co-efficient

$$1 - \frac{[f_1(1/2) + f_2(1/3) + f_3(1/4) + f_4 \dots \dots (1/k)]}{N}$$

Table- 2
Distribution of Single and multi-author papers in the field of Psychology

Year	Single Auth	Two Authors	Three Authors	Four and above authors	Total Multi Authors
2011	135	115	76	127	318
2012	160	167	115	191	473
2013	263	275	188	323	786
Total	558	557	379	641	1577

Total Authors = 2135

Total Papers = 2590

4. Explain the strength and weakness of Empirical Bibliometrics Laws (Bradford's, Zipf's and Lotka's). (20 marks)

5. Write short notes on any **TWO** of the following :

10 X 2

- (a) H-index
- (b) Librarmetrics
- (c) Pareto's 80/20 Rule
- (d) Sources to collect bibliometric data

Table-1. Citation Frequency for Psychology

Journals				
Age (t)	Number of Citations	Cumulative Citations	%	Citations in tail T (t)
1	2	3	4	5
0	9	9	3.20	281
1	9	18	6.4	272
2	17	35	12.44	263
3	11	46	16.33	246
4	11	57	20.26	235
5	12	69	24.53	224
6	11	80	28.44	212
7	12	92	32.71	201
8	16	108	38.4	189
9	19	127	45.16	173
10	17	144	51.2	154
11	6	150	53.33	137
12	4	154	54.75	131
13	7	161	57.24	127
14	15	176	62.57	120
15	3	179	63.63	105
16	7	186	66.12	102
17	7	193	68.61	95
18	6	199	70.74	88
19	3	202	71.8	82
20	5	207	73.57	79
21	3	210	74.63	74
22	2	212	75.34	71
23	4	216	76.76	69
24	3	219	77.82	65
25	4	223	79.24	62
26	2	225	79.95	58
27	3	228	81.01	56
28	3	231	82.07	53
29	4	235	83.49	50
30	5	240	85.26	46
31	2	242	85.97	41
32	4	246	87.39	39
33	3	249	88.45	35
34	4	253	89.87	32
35	1	254	90.22	28
36	4	258	91.64	27
37	2	260	92.35	23
38	3	263	93.41	21

