

**CHEMISTRY PRACTICAL RECORD**

Name A. K. San Khan

Class & Section II Bsc R'

Reg. No. 26 Batch No. B2

**THE NATIONAL COLLEGE**  
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[P.T.O]

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Dr. B. S. Madhava Rao

No. 4/59, Kanakpura Road,

Basavangudi P.O.,

Bangalore-560 004

21-2-80

My dear Narayana Rao

If the following items of the Proc. I. A. Sc. are available, could you kindly send them to me?

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Vol. 74--Index and Contents.

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-----

Vol. 72--No. 6

Vol. 73--No. 2

Vol. 74--No. 5.

Thanking and with kind regards,

Yours sincerely,

B. S. Madhava Rao

*Narayana Rao was kind enough  
to send these to me*

BSM

134

28

29

29

5

225 = 15<sup>2</sup>

2, 2, 2, 4, 2, 4, 6, 2, 6, 4, 2, 4, 6, 6, 2, 6, 4, 2, 6, 4, 6, 8  
4, 2, 4, 2, 4, 14, 4, 6, 2, 10, 2, 6, 6, 4, 6, 2, 10, 2, 4, 2, 12  
12, 4, 2, 4, 6, 2, 10, 6, 6, 6, 2, 6, 4, 2, 10, 14, 4, 2, 4, 4  
14, 6, 10, 2, 4, 6, 8, 6, 6, 4, 6, 8, 4, 8, 10, 2, 10, 2, 6, 4  
6,

818.80

778

40.80

583 x 2.7

4081

1166

15741

583 x 21.6

3498

583

1166

125928

123.00

94.40

28.60

787.40

28.60

816.00

50

856.00

94.40

6 10 10 6  
 1, 7, 17, 27, 33  
 2, 8, 18, 28, 34  
 3, 5, 11, 21, 31, 37  
 4, 9, 15, 25, 35, 41  
 4, 13, 19, 29, 39, 45

34	25	1	31	19
5	39	8	41	17
15	33	21	13	28
29	2	35	7	37
27	11	45	18	9

maple  
 n cubing

47  
 2. 23.5  
 3. 9.4

~~6 10 10 6  
 1, 7, 17, 27, 33  
 2, 8, 18, 28, 34  
 3, 5, 11, 21, 31, 37  
 4, 9, 15, 25, 35, 41  
 4, 13, 19, 29, 39, 45~~

6 10 10 6  
 1, 7, 17, 27, 33  
 2, 8, 19, 29, 35  
~~3, 9, 19, 29, 35~~  
~~4, 13, 19, 29, 39~~  
~~5, 15, 25, 35, 45~~

65	87	1	19	63	255
77	33	9	57	59	
27	3	47	91	67	a:
35	37	85	61	17	
31	75	93	7	29	

22	18	41		
33	8	35	16	
27	2	25	48	23
34	15	42	17	17
9	32	7	28	

31, 37, 47, 57, 63  
 59, 65, 75, 85, 91  
 61, 67, 77, 87, 93

just as in case normal  
 5th order square in 9.2M

9.2M

75	93	7	29	31
87	1	19	63	65
33	9	57	59	77
3	47	91	67	27
37	85	61	17	35

maple  
 but  
 n/a

For 5th order

semi-rank:

3769

389  
 344  
 329  
 329

6 3 2 5  
 1, 7, 10, 12, 18  
 5, 11, 14, 16, 21

~~15~~  
~~15, 18, 20, 23~~

~~19~~  
~~19, 22, 25, 30~~

13, 19, 22, 24, 29  
~~20, 24, 25, 31, 34~~  
 30, 36, 39, 41, 46

~~38~~  
 33, 37, 40, 42, 47

6	10	10	6		
1	7	17	27	33	85
2	8	18	28	34	90
3	9	19	29	35	105
4	10	20	30	36	120
5	11	21	31	37	135
6	12	22	32	38	150
7	13	23	33	39	165
8	14	24	34	40	180
9	15	25	35	41	195
10	16	26	36	42	210
11	17	27	37	43	225
12	18	28	38	44	240
13	19	29	39	45	255

1, 5, 7, 10, 11 34  
 7 8, 12, 14, 17, 18 69  
 7 15, 19, 21, 24, 25 104  
 7 22, 26, 28, 31, 32 139  
 7 29, 33, 35, 38, 39 174  
 35, a+a+1+a+4+a+6+a+9+a+10 520

(118)

104  
 (104)  
 $5a+29$   
 $5a=204$   
 $a=40.8$   
 $a=35$

26	44	9	14	25
41	11	12	24	22
10	8	21	32	39
18	19	31	35	7
15	28	45	5	17

15	39	1	18	37
29	33	8	36	9
27	2	20	41	19
34	16	35	13	17
5	25	45	7	28

109  
 mn  
 mejo

10	1	30	28
27	8	36	
34	20	7	9
2	35	18	
15	2	30	17

$a=1, b=-2$   
 $a'=-1, b'=-3$   
 $(1-a-a')^2=2$   
 $(1-b-b')^2=4$   
 not mark

29	10	1	41	28
27	25	8	13	36
34	39	20	7	9
4	33	35	18	19
15	2	45	30	17

sem-n  
 but mra

34	25	1	30	19
4	39	8	41	17
15	33	20	13	28
29	2	35	7	36
27	10	45	18	9

mark

$a=1, b=2$   
 $a'=-1, b'=-3$   
 $(1-a-a')^2=2$   
 $(1-b-b')^2=4$

but  
 semi-mark

x	z	v	y	u
v	y	u	x	z
u	x	z	v	y
<del>z</del>	v	y	u	x
y	u	x	z	v

(3,2)

<del>89-x</del>	<del>137-z</del>	<del>157-v</del>	<del>257-y</del>	<del>7-u</del>
<del>157-v</del>	<del>257-y</del>	<del>7-u</del>	<del>89-x</del>	<del>137-z</del>
<del>7-u</del>	<del>89-x</del>	<del>137-z</del>	<del>157-v</del>	<del>257-y</del>
<del>157-v</del>	<del>257-y</del>		<del>7-u</del>	
				157-v

89-x	157-v	7-u	137-z	257-y
137-z	257-y	89-x	157-v	7-u
157-v	7-u	137-z	257-y	89-x
257-y	89-x	157-v	7-u	137-z
7-u	137-z	257-y	89-x	157-v

x	z	v	y	u
x	y	u	x	z
u	x	z	v	y
z	v	y	u	x
y	u	x	z	v

1013-x	389-v	101-u	701-z	1301-y
701-z	1301-y	1013-x	389-v	101-u
389-v	101-u	701-z	1301-y	1013-x
1301-y	1013-x	389-v	101-u	701-z
101-u	701-z	1301-y	1013-x	389-v

1013-x+y	1301-y+x	701-z+x	101-u+x	389-v+x
1013-x+z	1301-y+z	701-z+y	101-u+y	389-v+y
1013-x+u	1301-y+u	701-z+u	101-u+z	389-v+z
1013-x+v	1301-y+v	701-z+v	101-u+v	389-v+u

u = 1, 100+x  
100+y  
100+z  
100+v  
390

v = 1, 7, 31, 37, 73, 79, 97, 127, 133, 139, 151, 157, 163, 193, 211,  
217, 253, 259, 283, 289, 301, 319, 331, 343, 349, 361, 367,  
379, 387,

~~v = 7~~

v = 7, 100+z, 702-z, 708-z, 382+z

~~z = 49~~

1062-x  
1014-x  
1020-x

652+x  
100+x  
382+x

~~100~~ (with 2249)

390  
283  
119  
390  
127  
263

390  
97  
293

702  
19  
690  
708  
49  
659

202  
31  
671  
1013  
49  
1062

541  
652  
1193

382  
541  
923

991  
52  
313  
623

202  
57  
651  
382  
57  
439

702  
81  
621  
708  
139  
569

702  
139  
563

1020  
181  
839

1014  
181  
833

620  
21  
809

983  
21  
1073

601  
22  
1253

852  
52  
463

382  
57  
439

702  
29  
623

382  
29  
511

382  
139  
521

1013  
139  
1152

$$\begin{array}{ccccccc}
 \text{Primes:} & 157-v+z, & 7-u+v, & 137-z+y, & 257-y+u & & \\
 & & & & & ~~89-x+u~~ & 89-x+u \\
 & 157-v+x, & 7-u+z & 137-z+v, & & & 89-x+y \\
 & 157-v+u, & 7-u+x, & & 257-y+v & & 89-x+v \\
 & & & & 257-y+z & & \\
 & 157-v+y, & & 137-z+x & & & 89-x+z \\
 & & 7-u+y, & 137-z+u, & 257-y+x, & & \\
 & & & & & & 
 \end{array}$$

(20)

Choose convenient values for  $u, x, z, v, y$

$$u=1, v=7, z=661.$$

$$\begin{array}{r|l} 1674-x & 40+x \\ 1020-x & 100+x \\ 1014-x & 382+x \end{array}$$

$$\begin{array}{r} 382 \\ 781 \\ \hline 1139 \end{array} \quad \begin{array}{r} 382 \\ 781 \\ \hline 1163 \end{array}$$

$$x = 887$$

$$\begin{array}{r} 1013 \\ 887 \\ \hline 126 \end{array}$$

$$\begin{array}{r} 1674 \\ 781 \\ \hline 893 \end{array}$$

$$\begin{array}{r} 382 \\ 837 \\ \hline 1219 \end{array} \quad \begin{array}{r} 382 \\ 847 \\ \hline 1229 \end{array}$$

$$\begin{array}{r|l} 126+y & 40+y \\ 2188-y & 100+y \\ 1962-y & 382+y \\ 1308-y & \\ 1302-y & \end{array}$$

$$\begin{array}{r} 1301 \\ 887 \\ \hline 2188 \end{array}$$

$$\begin{array}{r} 1674 \\ 901 \\ \hline 1833 \end{array}$$

$$\begin{array}{r} 1674 \\ 847 \\ \hline 827 \end{array}$$

$$\begin{array}{r} 1020 \\ 847 \\ \hline 173 \end{array}$$

$$\begin{array}{r} 1014 \\ 847 \\ \hline 167 \end{array}$$

$$\begin{array}{r} 1301 \\ 661 \\ \hline 1962 \end{array}$$

$$\begin{array}{r} 701 \\ 66 \\ \hline 40 \end{array}$$

$$\begin{array}{r|l} 40+y & 1302-y \\ 100+y & 1308-y \\ 126+y & 1962-y \\ 382+y & 2188-y \end{array}$$

$$\begin{array}{r} 126 \\ 91 \\ \hline 217 \end{array} \quad \begin{array}{r} 7x \\ 3x \\ 9x \end{array}$$

$$\begin{array}{r} 126 \\ 157 \\ \hline 593 \end{array}$$

$$\begin{array}{r} 231 \\ 126 \\ \hline 357 \end{array}$$

367.

$$\begin{array}{r} 126 \\ 361 \\ \hline 487 \end{array}$$

$$\begin{array}{r} 126 \\ 391 \\ \hline 517 \end{array}$$

$$\begin{array}{r} 421 \\ 126 \\ \hline 547 \end{array}$$

$$\begin{array}{r} 382 \\ 421 \\ \hline 803 \end{array}$$

$$\begin{array}{r} 1302 \\ 211 \\ \hline 1091 \end{array}$$

$$\begin{array}{r} 126 \\ 211 \\ \hline 337 \end{array} \quad \begin{array}{r} 382 \\ 211 \\ \hline 593 \end{array}$$

$$\begin{array}{r} 501 \\ 126 \\ \hline 627 \end{array}$$

$$\begin{array}{r} 531 \\ 126 \\ \hline 657 \end{array}$$

$$\begin{array}{r} 561 \\ 126 \\ \hline 687 \end{array}$$

$$\begin{array}{r} 591 \\ 126 \\ \hline 717 \end{array}$$

$$\begin{array}{r} 657 \\ 126 \\ \hline 777 \end{array}$$

$$\begin{array}{r} 1302 \\ 781 \\ \hline 521 \end{array}$$

$$\begin{array}{r} 1308 \\ 781 \\ \hline 527 \end{array}$$

$$\begin{array}{r} 711 \\ 126 \\ \hline 837 \end{array}$$

$$\begin{array}{r} 921 \\ 126 \\ \hline 1047 \end{array}$$

$$\begin{array}{r} 781 \\ 126 \\ \hline 907 \end{array}$$

$$\begin{array}{r} 382 \\ 781 \\ \hline 1163 \end{array}$$

$$\begin{array}{r} 841 \\ 126 \\ \hline 967 \end{array}$$

$$\begin{array}{r} 382 \\ 841 \\ \hline 1223 \end{array}$$

$$\begin{array}{r} 1302 \\ 991 \\ \hline 311 \end{array}$$

$$\begin{array}{r} 1302 \\ 841 \\ \hline 461 \end{array}$$

467

$$\begin{array}{r} 1962 \\ 126 \\ \hline 2088 \end{array}$$

$$\begin{array}{r} 2188 \\ 126 \\ \hline 2314 \end{array}$$

$$\begin{array}{r} 1021 \\ 90 \\ \hline 1111 \end{array}$$

$$\begin{array}{r} 991 \\ 126 \\ \hline 1117 \end{array}$$

$$\begin{array}{r} 991 \\ 382 \\ \hline 1373 \end{array}$$

$$\begin{array}{r} 2188 \\ 991 \\ \hline 1197 \end{array}$$

$$\begin{array}{r} 871 \\ 126 \\ \hline 997 \end{array}$$

$$\begin{array}{r} 382 \\ 871 \\ \hline 1253 \end{array}$$

$$\begin{array}{r} 901 \\ 126 \\ \hline 1027 \end{array}$$

$$\begin{array}{r} 931 \\ 126 \\ \hline 1057 \end{array}$$

$$\begin{array}{r} 951 \\ 126 \\ \hline 1077 \end{array}$$

$$\begin{array}{r} 1962 \\ 991 \\ \hline 971 \end{array}$$

$$\begin{array}{r} 1201 \\ 40 \\ \hline 1161 \end{array}$$

$$\begin{array}{r} 1191 \\ 126 \\ \hline 1317 \end{array}$$

1321

no y

200

1111

1257

$$\begin{array}{r} 1311 \\ 126 \\ \hline 1437 \end{array}$$

$$\begin{array}{r} 1301 \\ 126 \\ \hline 1427 \end{array}$$

$$\begin{array}{r} 1261 \\ 126 \\ \hline 1387 \end{array}$$

$$\begin{array}{r} 1281 \\ 126 \\ \hline 1407 \end{array}$$

$u=1, v=7, z=139.$

$$\begin{cases} 1152-x \\ 1020-x \\ 1014-x \end{cases} \left| \begin{array}{l} 562+x \\ 100+x \\ 382+x \end{array} \right.$$

$\frac{562}{181}$	$\frac{382}{181}$	$\frac{1152}{181}$	$\frac{1020}{181}$	$\frac{1014}{181}$	$\frac{562}{541}$	$\frac{382}{541}$
$\frac{743}{563}$	$\frac{563}{563}$	$\frac{971}{563}$	$\frac{839}{563}$	$\frac{833}{563}$	$\frac{1103}{923}$	$\frac{923}{923}$
$\frac{562}{211}$	$\frac{382}{211}$	$\frac{1152}{211}$	$\frac{1020}{211}$	$\frac{1014}{211}$	$\frac{562}{601}$	$\frac{382}{601}$
$\frac{773}{593}$	$\frac{593}{593}$	$\frac{941}{593}$	$\frac{809}{593}$	$\frac{803}{593}$	$\frac{1163}{983}$	$\frac{983}{983}$
$\frac{562}{331}$	$\frac{562}{421}$	$\frac{382}{421}$	$\frac{1152}{601}$	$\frac{661}{502}$	$\frac{382}{661}$	$\frac{382}{661}$
$\frac{893}{893}$	$\frac{983}{983}$	$\frac{803}{803}$	$\frac{551}{551}$	$\frac{1223}{1223}$	$\frac{1043}{1043}$	$\frac{1043}{1043}$

$\frac{991}{562}$	$\frac{382}{811}$	$\frac{811}{562}$	$\frac{661}{502}$	$\frac{382}{661}$
$\frac{1553}{1193}$	$\frac{1193}{1193}$	$\frac{1373}{1373}$	$\frac{1152}{341}$	$\frac{991}{1373}$

$100+z, 382+z, 708-z, 702-z.$

(1)

$\frac{382}{157}$	$\frac{382}{181}$	$\frac{708}{81}$	$\frac{382}{349}$	$\frac{708}{319}$	$\frac{382}{761}$	$\frac{708}{329}$
$\frac{533}{527}$	$\frac{563}{527}$	$\frac{527}{527}$	$\frac{331}{382}$	$\frac{382}{713}$	$\frac{421}{382}$	$\frac{708}{209}$
$\frac{211}{382}$	$\frac{708}{211}$	$\frac{499}{382}$	$\frac{382}{803}$	$\frac{541}{382}$	$\frac{569}{382}$	$\frac{951}{951}$
$\frac{593}{497}$	$\frac{497}{497}$	$\frac{881}{881}$	$\frac{1674}{721}$	$\frac{1674}{721}$	$\frac{953}{953}$	$\frac{953}{953}$

$z = 661$  works.

$$1674-x \left| \begin{array}{l} 40+x \\ 1014-x \\ 1020-x \end{array} \right. \begin{array}{l} 382+x \\ 1014-x \\ 1020-x \end{array}$$

(1)

$\frac{1013}{661}$	$\frac{1674}{701}$	$\frac{701}{661}$	$\frac{40}{40}$	$\frac{382}{238}$	$\frac{1674}{231}$	$\frac{1674}{1533}$	$\frac{382}{127}$	$\frac{382}{157}$	$\frac{529}{539}$
$\frac{1674}{1674}$	$\frac{1674}{1463}$	$\frac{1674}{1437}$	$\frac{1674}{1437}$	$\frac{382}{619}$	$\frac{1674}{1443}$	$\frac{1674}{1547}$	$\frac{382}{127}$	$\frac{382}{157}$	$\frac{529}{539}$
$\frac{382}{357}$	$\frac{382}{381}$	$\frac{1674}{361}$	$\frac{382}{237}$	$\frac{1674}{1437}$	$\frac{382}{267}$	$\frac{1674}{1457}$	$\frac{382}{141}$	$\frac{382}{157}$	$\frac{529}{539}$
$\frac{317}{317}$	$\frac{7163}{7163}$	$\frac{1674}{313}$	$\frac{382}{679}$	$\frac{382}{619}$	$\frac{382}{649}$	$\frac{1674}{1457}$	$\frac{227}{40}$	$\frac{382}{157}$	$\frac{529}{539}$
$\frac{382}{391}$	$\frac{1674}{391}$	$\frac{1014}{391}$	$\frac{382}{623}$	$\frac{1674}{1437}$	$\frac{382}{649}$	$\frac{1674}{1457}$	$\frac{1674}{501}$	$\frac{382}{157}$	$\frac{529}{539}$
$\frac{773}{773}$	$\frac{1283}{1283}$	$\frac{1674}{427}$	$\frac{382}{447}$	$\frac{1674}{1437}$	$\frac{382}{649}$	$\frac{1674}{1457}$	$\frac{1674}{501}$	$\frac{382}{157}$	$\frac{529}{539}$
$\frac{382}{427}$	$\frac{809}{809}$	$\frac{1247}{1247}$	$\frac{829}{829}$	$\frac{1674}{447}$	$\frac{382}{649}$	$\frac{1674}{1457}$	$\frac{1674}{501}$	$\frac{382}{157}$	$\frac{529}{539}$
$\frac{382}{779}$	$\frac{1099}{1099}$	$\frac{1674}{963}$	$\frac{382}{721}$	$\frac{1674}{447}$	$\frac{382}{649}$	$\frac{1674}{1457}$	$\frac{1674}{501}$	$\frac{382}{157}$	$\frac{529}{539}$
$\frac{1099}{1099}$	$\frac{1103}{1103}$	$\frac{949}{949}$	$\frac{959}{959}$	$\frac{1674}{447}$	$\frac{382}{649}$	$\frac{1674}{1457}$	$\frac{1674}{501}$	$\frac{382}{157}$	$\frac{529}{539}$

196  
49

*Handwritten scribble*

959  
(1371)

611  
961

*Handwritten scribble*

*Handwritten scribble*

258  
246  
123

163

73 | 94903  
    73  
    219

*Handwritten scribble*

89 x 89  
    801  
    712  
    1421

34  
51  
91

664  
~~672~~  
= 83 x 83  
219  
664  
6899

$$128^2 = 16384$$

$$129^2 = 16641$$

$$130^2 = 16900$$

$$131^2 = 17161$$

$$132^2 = 17424$$

$$133^2 = 17689$$

$$134^2 = 17956$$

$$135^2 = 18225$$

$$136^2 = 18496$$

$$137^2 = 18769$$

$$138^2 = 19044$$

$$139^2 = 19321$$

$$140^2 = 19600$$

$$141^2 = 19881$$

$$142^2 = 20164$$

$$143^2 = 20449$$

$$144^2 = 20736$$

$$145^2 = 21025$$

$$146^2 = 21316$$

$$147^2 = 21609$$

$$148^2 = 21904$$

$$149^2 = 22201$$

$$150^2 = 22500$$

$$151^2 = 22801$$

$$152^2 = 23104$$

$$153^2 = 23409$$

$$154^2 = 23716$$

$$155^2 = 24025$$

$$156^2 = 24336$$

$$157^2 = 24649$$

$$158^2 = 24964$$

$$159^2 = 25281$$

$$160^2 = 25600$$

$$161^2 = 25921$$

$$162^2 = 26244$$

$$163^2 = 26569$$

$$164^2 = 26896$$

$$165^2 = 27225$$

$$166^2 = 27556$$

$$167^2 = 27889$$

$$168^2 = 28224$$

$$169^2 = 28561$$

$$170^2 = 28900$$

$$171^2 = 29241$$

$$172^2 = 29584$$

$$173^2 = 29929$$

$$174^2 = 30276$$

$$175^2 = 30625$$

$$176^2 = 30976$$

$$177^2 = 31329$$

$$178^2 = 31684$$

$$179^2 = 32041$$

$$180^2 = 32400$$

$$181^2 = 32761$$

$$182^2 = 33124$$

$$183^2 = 33489$$

$184^2 = 33856$	$212^2 = 44944$
$185^2 = 34225$	$213^2 = 45369$
$186^2 = 34596$	$214^2 = 45796$
$187^2 = 34969$	$215^2 = 46225$
$188^2 = 35344$	$216^2 = 46656$
$189^2 = 35721$	$217^2 = 47089$
$190^2 = 36100$	$218^2 = 47524$
$191^2 = 36481$	$219^2 = 47961$
$192^2 = 36864$	$220^2 = 48400$
$193^2 = 37249$	$221^2 = 48841$
$194^2 = 37636$	$222^2 = 49284$
$195^2 = 38025$	$223^2 = 49729$
$196^2 = 38416$	$224^2 = 50176$
$197^2 = 38809$	$225^2 = 50625$
$198^2 = 39204$	$226^2 = 51076$
$199^2 = 39601$	$227^2 = 51529$
$200^2 = 40000$	$228^2 = 51984$
$201^2 = 40401$	$229^2 = 52441$
$202^2 = 40804$	$230^2 = 52900$
$203^2 = 41209$	$231^2 = 53361$
$204^2 = 41616$	$232^2 = 53824$
$205^2 = 42025$	$234^2 = 54756$
$206^2 = 42436$	$235^2 = 55225$
$207^2 = 42849$	$236^2 = 55696$
$208^2 = 43264$	$237^2 = 56169$
$209^2 = 43681$	$238^2 = 56644$
$210^2 = 44100$	$239^2 = 57121$
$211^2 = 44521$	$240^2 = 57600$

