APPENDICES

(A) LIST OF STUDENTS
CONTROL GROUP

Maharastra Junior college Shivaji Peth, Kolhapur (2008 – 2009)

1. Bhise Jyoti Nandkumar
2. Bhosale Rutuja Rohit
3. Davari Sumedha Bhikaji
4. Dorle Prajakta Prafull
5. Farakate Nayana N.
6. Gawas Pranjal Rajendra
7. Gaikwad Rohini R.
8. Hawaldar Sau Ananda
9. Jadhav Bhagyashri Ramkrishna
10. Jadhav Tejaswini Tukaram
11. Jambhale Surekha Rajaram
12. Karande Jyoti Anil
13. Kukade Shamal Sudhakar
14. Mujawar Aayesha Sardar
15. Mohite Shweta Jagadish
16. Narke Vaishali Vilas
17. Parit Pooja Ananda
18. Powar Nita Mohan
19. Patil Aparna Bhaskar
20. Patil Bhagyashri Balasaheb
21. Patil Rekha Anandrao
22. Patil Umakranti Shivaji
23. Shelke Chaitali Nana

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24. Shinde Jayashri Agatrao
25. Shinde Netra Manohar
26. Shinde Priyanka Vilas
27. Shinde Surabhi Anandrao
28. Suryawanshi Dipali Shivaji
29. Sutar kajal Shivaji
30 Sutar Snehal Dilip
31. Vankudre Madhura Birju
32. Zende Devyani Sunil
33. Agam Rahul Dhondiram
34. Asode Sachin Arun
35. Bandekar Gorakh Sanjay
36. Bhurke Girish Gajanan
37. Bhosale Akshay Anandrao
38. Bhosale Kedar Madanrao
39. Bhosale Rahul Bajirao
40. Chavan siddhesh A.
41 Chavan Nikhil R.
42 Desai Rahul Vasantrao
43 Dongale Rahul Laxman
44 Gaikwad Rajesh Arvind
45 Gaikwad Ganpat Sachin
46 Gaikwad Prathmesh Prakash
47 Gaikwad Satyajeet Maruti
48 Jadhav Akash Ashok
49 Jadhav Vinayak Ganpat

50 Jadhav Purushottam v.
51 Karade Sandip Balaso
52 Kadavekar Nilesh Tanaji
53 Kharade Kishor Ananda
54 Kudalkar Milind M.
55 Kurane Vaibhav Sarjerao
56 Magdum Vilas Ramchandra
57 Mandre Vinod N.
58 Mankar Suhas Suresh
59 More Uttam Shivaji
60 Nale Akshay Sunil
61 Padalkar Amol Dilip
62 Shinde Shekhar shrikant
63 Patil Ajinkya Arjun
64 Patil Abhijeet Namdev
65 Patil Ajinkya Rajendra
66 Patil Abhishek Smbhaji
67 Patil Avinash Vilas
68 Patil Bhagwan Baburao
69 Patil Mandar Madhukar
70 Patil Nikhil Ashok
71 Patil Pruthviraj Eknath
72 Patil Pravin Prakash
73 Patil Pravin Rajaram
74 Patil Pankaj Sambhaji
75 Patil Ranjitsinh Devappa

76 Patil Ruturaj Sudhakar

77 Patil Sangramsinh Rajendra

78 Patil Sandip Shivaji

79 Patil Sujit Balaso

80 Patil Suhas Vilas

EXPERIMENTAL GROUP

Rajarshi Chhatrapati Shahu Maharaj Junior college ,kolhapur

1. Havaldar Asif M.
2. Salokhe vishal Balwant
3. Patil Krishnat Vishnu
4. Jadhav Sumit Balu
5. Patil Pritam Sarjerao
6. Patil Pravin Dhondiram
7. Patil Chhanusingh k.
8 Patil Pranav Pratap
9 Patil Nitin Dinkar
10 Todkar Vishal Nivruti
11 Atigre Anil kerba
12 Naik Rahul Dhondiram
13 Chougale Rahul Pandurang
14 Tahasildar Juber M.
15 Yadav Vivek Vishwanath
16 Shinde Abhishek Anil
17 Chougule Abhijeet Prakash
18 Khade Rahul Jaysing
19 Patil Ajinkya Sakhram
20 Patil Rohit Bajirao
21 Jambhale Vijay B.
22 Naik Akash Anil
23 Patil Sushil S.

24 Bagwan Farukh Raju
25 Patil Mayur Dilip
26 Shewale Surendra
27 Salokhe Anil Dhondiram
28 Mane Samrat Balasaheb
29 Sadule Ganesh B.
30 Chougule Raviraj D.
31 Chougule Mahesh T.
32 Patil Kiran Maruti
33 Atigre Yogesh Bajirao
34 Bodke Amol Maruti
35 Patil Ajit Babaso
36 Patil Ajit Rangrao
37 Patil Sangramsinh
38 Ambekar Sagar Chandrakant
39 Patil Rohit Rajaram
40 Kamble Sharad Dhanaji
41 Patil Sangram Pandurang
42 Deshpande Aaditya Anil
43 Kadam Suraj P.
44 Devane Rahul S.
45 Powar Akshay Anil
46 Kadam Akash Kalidas
47 Kandle Varsha Sampat
48 Kavade Supriya Rajendra
49 Patil Manisha popat

50 Fadatare Ujwala Prakash
51 Patil Smita Vijay
52 Jadhav pooja Manohar
53 Ekashinge Manisha Dinkar
54 Rawal Bhagyashri Shivaji
55 Patil Jyoti Jaywant
56 Jathar Nita Kerba
57 Patil Shital Dnyandev
58 Patil Aparna Rajaram
59 Bodake Poonam Bajirao
60 Suryawanshi jyoti D.
61 Patil Priyanka Parashram
62 Patil Diplaxmi L.
63 Wakrekar karishma N.
64 Ghatage komal Anil
65 Bhalkar Tejashri Nandkumar
66 Kamble Swapnali Vikram
67 Sadule Priyanka A.
68 Parkar Nahida Rafiaj
69 Lambe Revati R.
70 Shelar Shilpa Shahaji
71 Jadhav Akkatai Bajirao
72 Khopkar Madhuri Shahaji
73 Sasane Padma Pandit
74 Chougale Pritee Netaji
75 Palase Arati Pandurang

76 Jadhav Pornima Nagesh

77 Kude Vidyarani Bhagwan

78 Yadav Vina Vishwanath

79 Ruikar Tejaswini Anand

80 Patil Pallavi Rajaram

(B) ACHIEVEMENT TEST

EFFECT OF CONCEPT MAPPING IN SCIENCE ON ACHIEVEMENT IN PHYSICS OF XIth Std. STUDENTS

Name: **Roll No.**

College:

Instruction: All questions are compulsory and each carry equal marks.

1 In daily life we require following three fundamental measurements- ( )

a) Length, mass,time b) Length, mass, temperature

c) Length,time,temperature d)Intensity, length, time

2.Measurements that are made directly with the help of tools and other caliberated measuring devices are – ( )

a) Direct measurements b) Indirect measurements

c) Fundamental measurements d) Derived measurements

3. Measurements must be determined by formula or by other computational method they are called – ( )

a) Direct measurements b) Indirect measurements

c) Fundamental measurements d) Derived measurements

4. Derived quantities are derived from - - - - - - quantities. ( )

a) Fundamental b)Measured

c) Computed d) Derived

5.Combination of fundamental units are called ( )

a) Fundamental units b) Fundamental quantities

c) Derived quantities d) Derived units

6.SI system is also known as ( )

a) Standard b) MKS

c) CGS d) FPS

7.SI unit for force is ( )

a) gm cm/s^2 b) Newton

c) Joule d) Watt

8. Fundamental dimensions are represented by - - - - - - letters. ( )

a) Capital b) Small

c) Cursive d) None of these

9.Instrumental error of Vernier caliper is ( )

a) 1 mm b) 0.1 mm

c) 1 cm d) 0.1 cm

10. If a body covers equal distances in equal interval of time then it is called ( )

a) Uniform speed b) Non uniform speed

c) Instateneous speed d) Average speed

11. Which of the following is equation for displacement ( )

a) $V = u + at$ b) $V = u + gt$

c) $S = ut + at^2$ d) $V^2 = u^2 + 2as$

12. Which of the following method is adopted to reduce the error in measurement ( )

a) Magnitude of quantity is taken as negligible

b)Magnitude of quantity is taken as average of all

c)Magnitude of quantity is taken as large as possible

d)Magnitude of quantity is taken as small as possible

13.Which instruments are better to get correct measures ( )

a) Having least count equal to 1

b) Having least count equal to 2

c) Having least count as minimum as possible

d) Least count should be as large as possible

14.The basic unit of time is second which is - - - - - part of a mean solar day. ( )

a) 1/86400 b) 1/85400

c) 1/ 84600 d) 1/ 3600

15.Which of the following is not the fundamental force in nature.( )

a) Gravitational b) Electromagnetic

c) Nuclear d) Pseudo

16. The man who is working in the unification of forces tirelessly is ( )

a) Issac Newton b) Albert Eienstein

c) Stephen Hawkings d) Pascal

17. When force is multiplied by momentum then resulting quantity is ( )

a) Pressure b) Magnetic Induction

c) Torque d) Moment of Inertia

18.What is the unit for moment of couple if it is given by Force in to displacement ( )

a)Nm^2 b) dynes-cm

c) dynes/cm d) N/m^2

19.Velocity of the light is equal to - - - - - - ( )

a) 3×10^8m/s b) 3×10^8cm/s

c) 3×10^{10}m/s d) 3×10^9cm/s

20. Dimension of the physical quantity i.e. Acceleration is ( )

a) $[M^0 L^1 T^{-1}]$ b) $[M^1L^1T^{-1}]$

c) $[M^0L^2T^{-1}]$ d) $[M^0L^1T^{-2}]$

BLUE PRINT FOR ACHIEVEMENT TEST

Objective / Unit	Knowledge	Understanding	Utilization	skill
Measurement	4	4	1	4
Projectile motion	2	1	-	-
Force	3	-	-	1

(C) MARKS OBTAINED IN ACHIEVEMENT TEST AT PRETEST AND POSTTEST

CONTROL GROUP

1.	Bhise Jyoti Nandkumar	09	12		41	Chavan Nikhil R.	09	11
2.	Bhosale Rutuja Rohit	15	18		42	Desai Rahul Vasantrao	10	12
3.	Davari Sumedha Bhikaji	10	11		43	Dongale Rahul Laxman	10	11
4.	Dorle Prajakta Prafull	11	14		44	Gaikwad Rajesh Arvind	08	08
5.	Farakate Nayana N.	12	15		45	Gaikwad Ganpat Sachin	08	09
6.	Gawas Pranjal Rajendra	07	07		46	Gaikwad Prathmesh Prakash	05	07
7.	Gaikwad Rohini R.	07	09		47	Gaikwad Satyajeet Maruti	06	08
8.	Hawaldar Sau Ananda	04	09		48	Jadhav Akash Ashok	10	12
9.	Jadhav Bhagyashri Ramkrishna	07	08		49	Jadhav Vinayak Ganpat	09	11
10.	Jadhav Tejaswini Tukaram	11	08		50	Jadhav Purushottam v.	13	15
11.	Jambhale Surekha Rajaram	06	08		51	Karade Sandip Balaso	07	09
12.	Karande Jyoti Anil	07	09		52	Kadavekar Nilesh Tanaji	09	09
13.	Kukade Shamal Sudhakar	08	07		53	Kharade Kishor Ananda	10	09
14.	Mujawar Aayesha Sardar	09	11		54	Kudalkar Milind M.	06	08
15.	Mohite Shweta Jagadish	13	14		55	Kurane Vaibhav Sarjerao	09	11
16.	Narke Vaishali Vilas	11	13		56	Magdum Vilas Ramchandra	10	11
17.	Parit Pooja Ananda	09	11		57	Mandre Vinod N.	09	12
18.	Powar Nita Mohan	07	08		58	Mankar Suhas Suresh	11	12
19.	Patil Aparna Bhaskar	10	12		59	More Uttam Shivaji	06	08
20.	Patil Bhagyashri Balasaheb	05	08		60	Nale Akshay Sunil	07	09
21.	Patil Rekha Anandrao	08	10		61	Padalkar Amol Dilip	08	08
22.	Patil Umakranti Shivaji	09	10		62	Shinde Shekhar shrikant	11	13
23.	Shelke Chaitali Nana	08	10		63	Patil Ajinkya Arjun	08	09
24.	Shinde Jayashri Agatrao	03	07		64	Patil Abhijeet Namdev	08	09
25.	Shinde Netra Manohar	06	09		65	Patil Ajinkya Rajendra	08	09
26.	Shinde Priyanka Vilas	06	08		66	Patil Abhishek Smbhaji	10	12
27.	Shinde Surabhi Anandrao	09	09		67	Patil Avinash Vilas	08	11
28.	Suryawanshi Dipali Shivaji	07	08		68	Patil Bhagwan Baburao	07	09
29.	Sutar kajal Shivaji	07	10		69	Patil Mandar Madhukar	08	09
30	Sutar Snehal Dilip	06	09		70	Patil Nikhil Ashok	10	11
31.	Vankudre Madhura Birju	09	11		71	Patil Pruthviraj Eknath	07	11
32.	Zende Devyani Sunil	15	17		72	Patil Pravin Prakash	09	11
33.	Agam Rahul Dhondiram	05	07		73	Patil Pravin Rajaram	06	08

34.	Asode Sachin Arun	13	14		74	Patil Pankaj Sambhaji	08	09
35.	Bandekar Gorakh Sanjay	06	08		75	Patil Ranjitsinh Devappa	10	11
36.	Bhurke Girish Gajanan	11	12		76	Patil Ruturaj Sudhakar	12	13
37.	Bhosale Akshay Anandrao	05	07		77	Patil Sangramsinh Rajendra	16	18
38.	Bhosale Kedar Madanrao	11	12		78	Patil Sandip Shivaji	08	10
39.	Bhosale Rahul Bajirao	07	09		79	Patil Sujit Balaso	09	11
40.	Chavan siddhesh A.	10	11		80	Patil Suhas Vilas	12	14

EXPERIMENTAL GROUP

1.	Havaldar Asif M.	09	14		41	Patil Sangram Pandurang	08	13
2.	Salokhe vishal Balwant	10	16		42	Deshpande Aaditya Anil	08	15
3.	Patil Krishnat Vishnu	13	17		43	Kadam Suraj P.	09	14
4.	Jadhav Sumit Balu	09	15		44	Devane Rahul S.	08	13
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6.	Patil Pravin Dhondiram	06	13		46	Kadam Akash Kalidas	11	14
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8	Patil Pranav Pratap	09	15		48	Kavade Supriya Rajendra	06	11
9	Patil Nitin Dinkar	11	13		49	Patil Manisha popat	08	13
10	Todkar Vishal Nivruti	07	18		50	Fadatare Ujwala Prakash	09	14
11	Atigre Anil kerba	11	10		51	Patil Smita Vijay	11	17
12	Naik Rahul Dhondiram	10	12		52	Jadhav pooja Manohar	09	13
13	Chougale Rahul Pandurang	09	14		53	Ekashinge Manisha Dinkar	06	11
14	Tahasildar Juber M.	10	13		54	Rawal Bhagyashri Shivaji	06	10
15	Yadav Vivek Vishwanath	11	16		55	Patil Jyoti Jaywant	06	12
16	Shinde Abhishek Anil	08	13		56	Jathar Nita Kerba	07	13
17	Chougule Abhijeet Prakash	08	12		57	Patil Shital Dnyandev	08	11
18	Khade Rahul Jaysing	11	15		58	Patil Aparna Rajaram	09	13
19	Patil Ajinkya Sakhram	06	09		59	Bodake Poonam Bajirao	09	15
20	Patil Rohit Bajirao	09	12		60	Suryawanshi jyoti D.	08	14
21	Jambhale Vijay B.	08	14		61	Patil Priyanka Parashram	07	11
22	Naik Akash Anil	06	10		62	Patil Diplaxmi L.	10	13
23	Patil Sushil S.	05	08		63	Wakrekar karishma N.	11	14
24	Bagwan Farukh Raju	03	05		64	Ghatage komal Anil	10	15
25	Patil Mayur Dilip	05	04		65	Bhalkar Tejashri Nandkumar	10	12
26	Shewale Surendra	05	08		66	Kamble Swapnali Vikram	05	08

27	Salokhe Anil Dhondiram	05	07		67	Sadule Priyanka A.	11	15
28	Mane Samrat Balasaheb	07	11		68	Parkar Nahida Rafiaj	10	13
29	Sadule Ganesh B.	07	12		69	Lambe Revati R.	09	13
30	Chougule Raviraj D.	07	10		70	Shelar Shilpa Shahaji	09	15
31	Chougule Mahesh T.	04	09		71	Jadhav Akkatai Bajirao	09	14
32	Patil Kiran Maruti	03	05		72	Khopkar Madhuri Shahaji	09	13
33	Atigre Yogesh Bajirao	06	10		73	Sasane Padma Pandit	09	14
34	Bodke Amol Maruti	09	13		74	Chougale Pritee Netaji	08	15
35	Patil Ajit Babaso	06	11		75	Palase Arati Pandurang	04	07
36	Patil Ajit Rangrao	09	14		76	Jadhav Pornima Nagesh	07	09
37	Patil Sangramsinh	06	10		77	Kude Vidyarani Bhagwan	07	08
38	Ambekar Sagar Chandrakant	09	13		78	Yadav Vina Vishwanath	09	13
39	Patil Rohit Rajaram	07	11		79	Ruikar Tejaswini Anand	09	14
40	Kamble Sharad Dhanaji	10	14		80	Patil Pallavi Rajaram	08	15

Fig. No. 4
A Concept map of Concept - Measurement

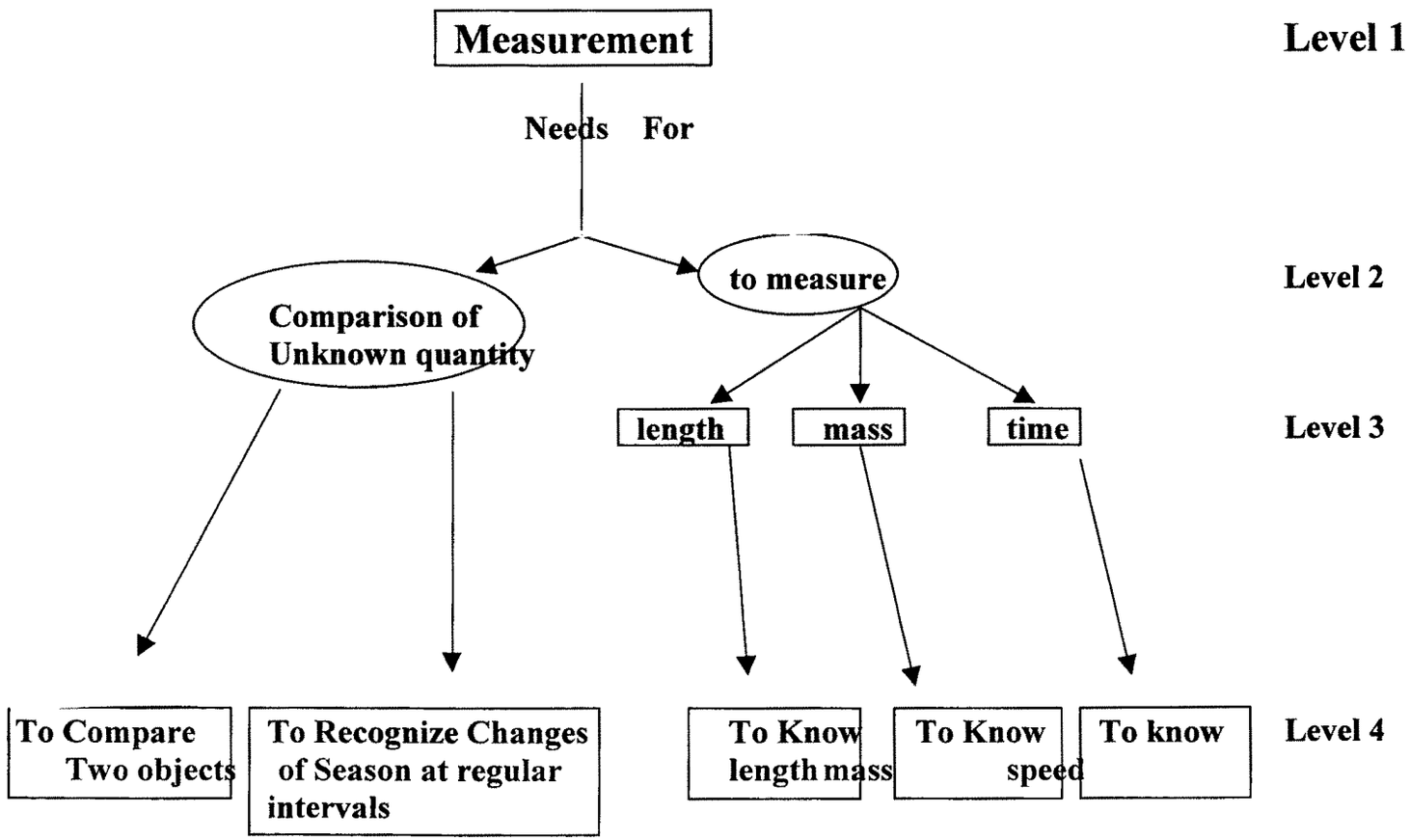
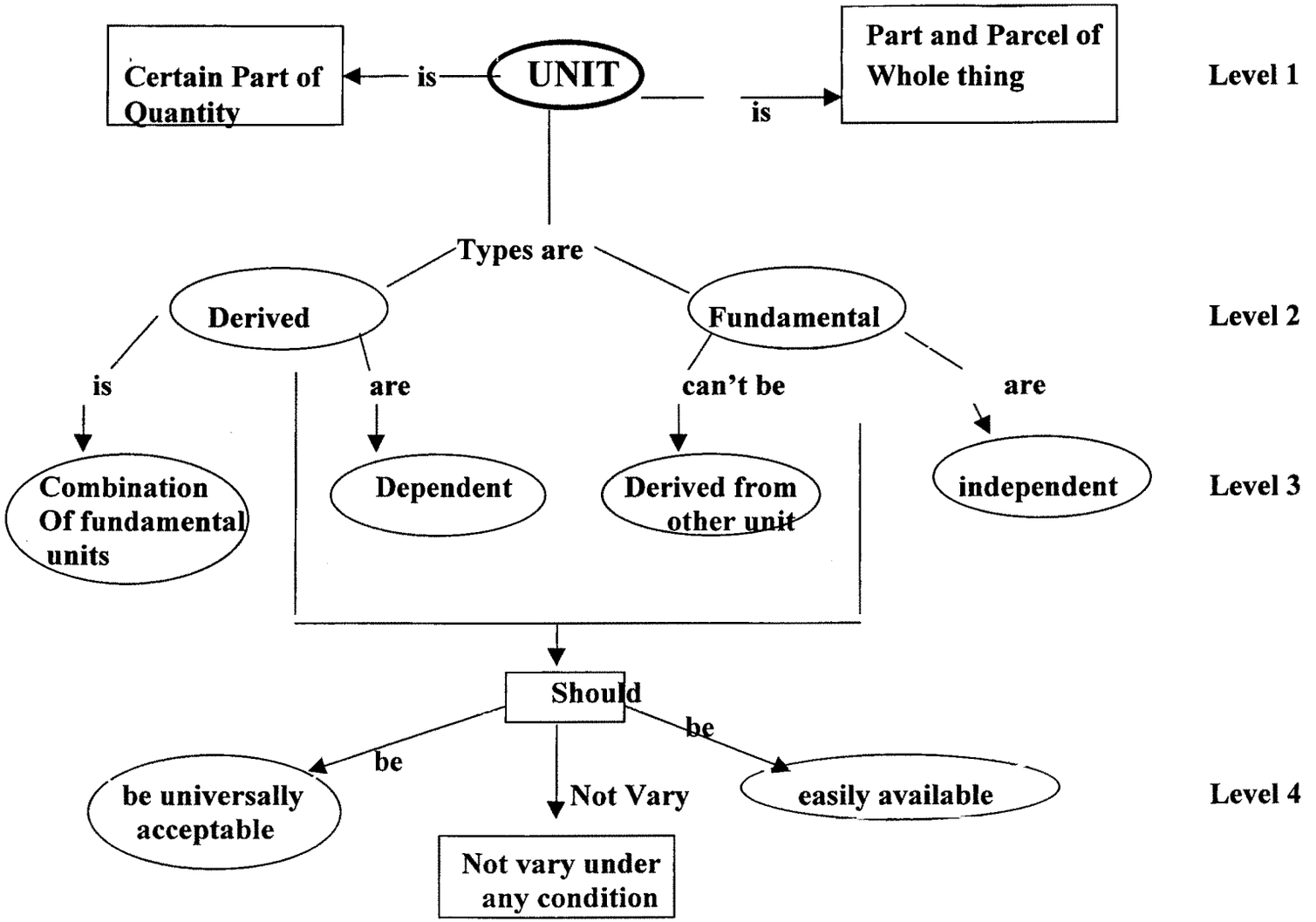
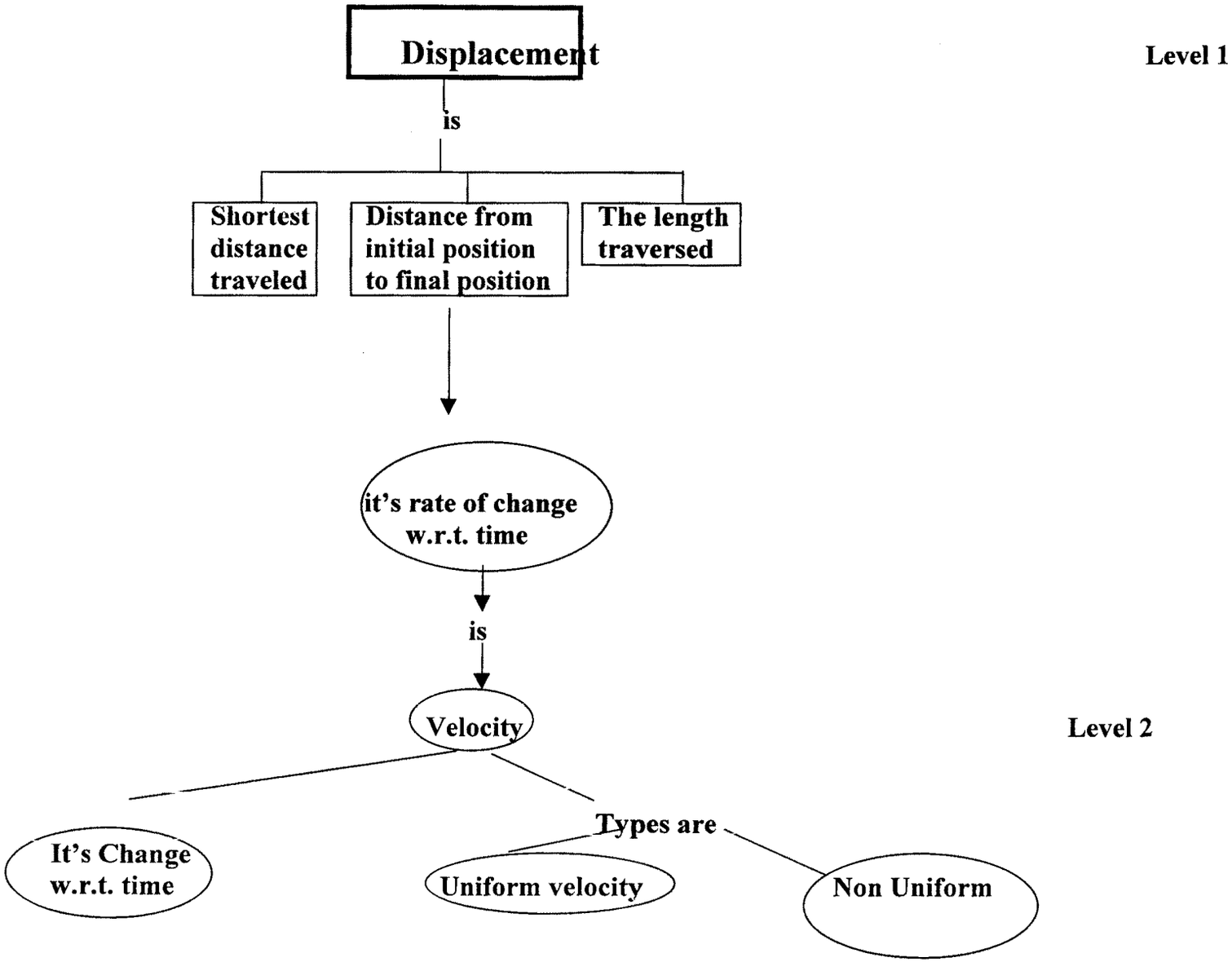


Fig No. 5
A Concept map of Concept - Unit




Displacement
Level 1
is
Shortest distance traveled
Distance from initial position to final position
The length traversed
it's rate of change w.r.t. time
is
Velocity
Level 2
Types are
It's Change w.r.t. time
Uniform velocity
Non Uniform

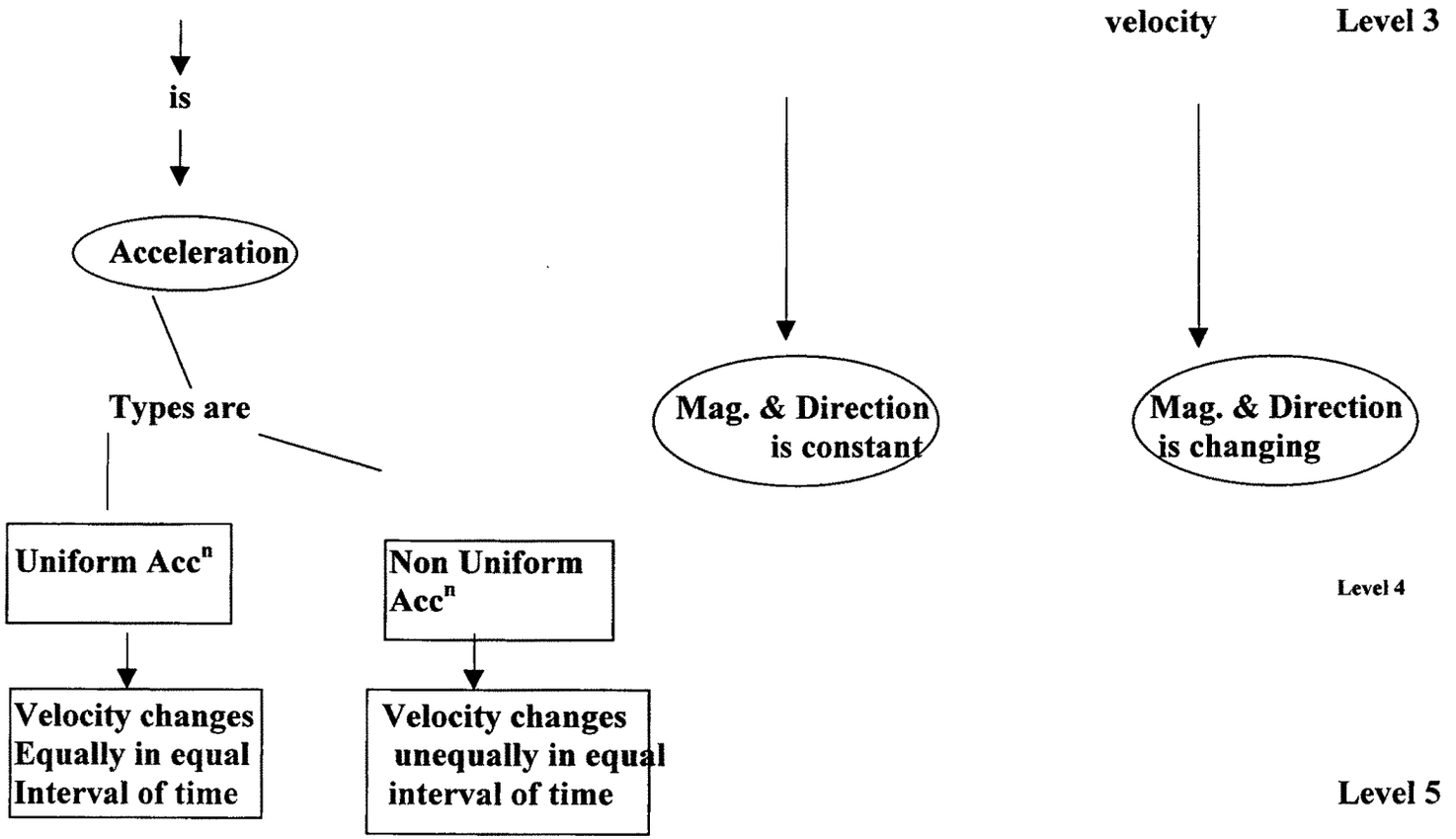

velocity
Level 3
is
Acceleration
Types are
Mag. & Direction is constant
Mag. & Direction is changing
Uniform Acc^n
Non Uniform Acc^n
Level 4
Velocity changes Equally in equal Interval of time
Velocity changes unequally in equal interval of time
Level 5

Fig No. 6
A Concept map of Concept – Units for Measurements

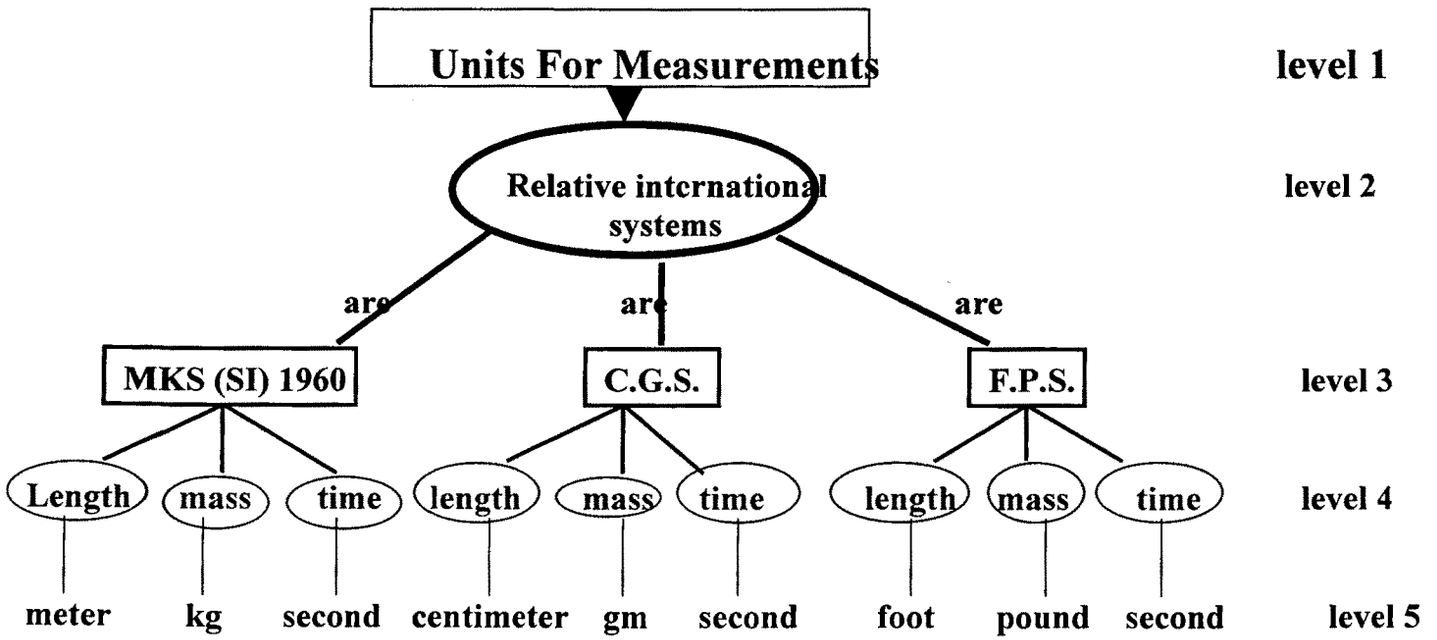


Fig. No 7
A Concept map of Concept - Dimension

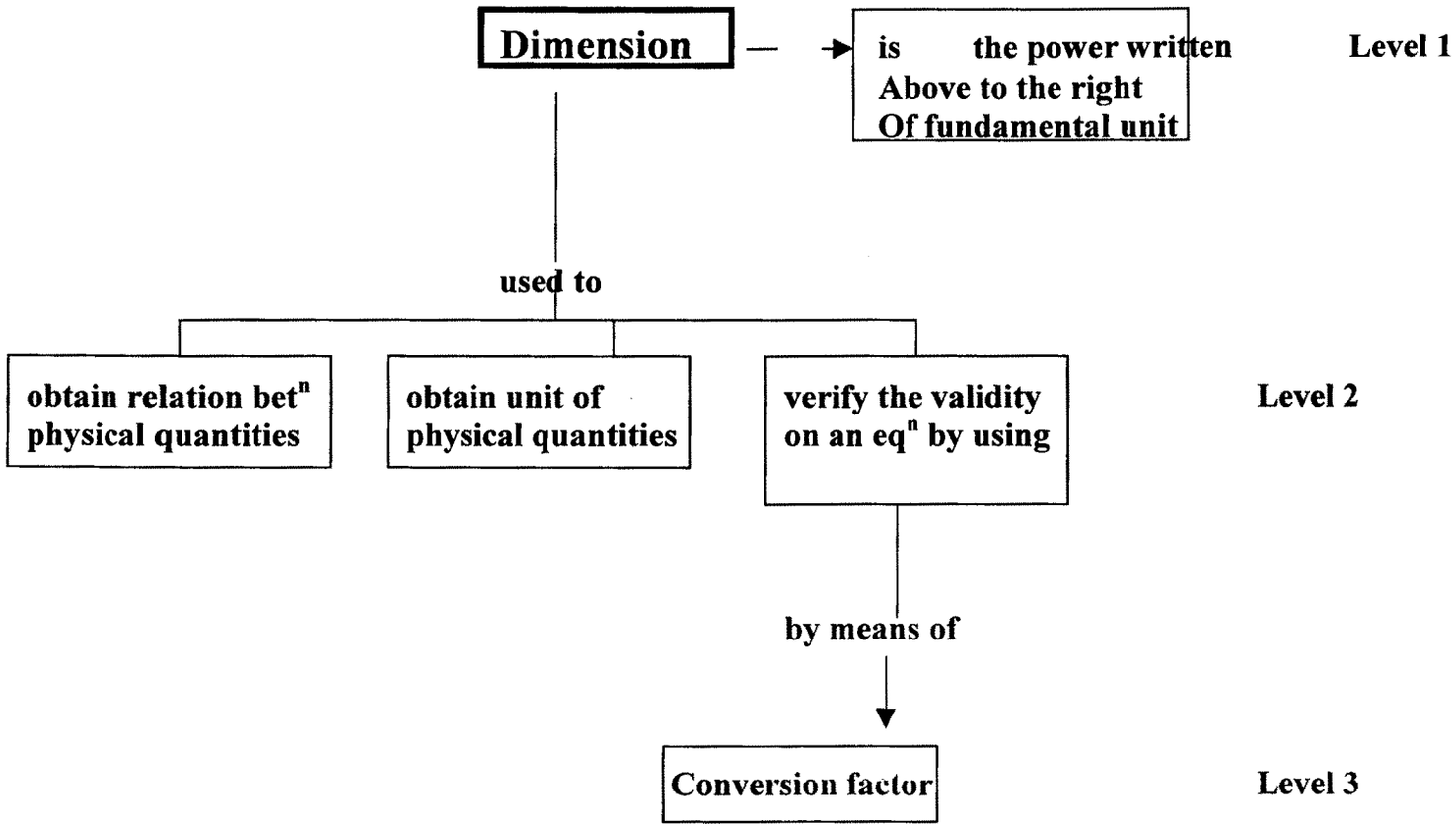


Fig No. 8
A Concept map of Concept - Dynamics

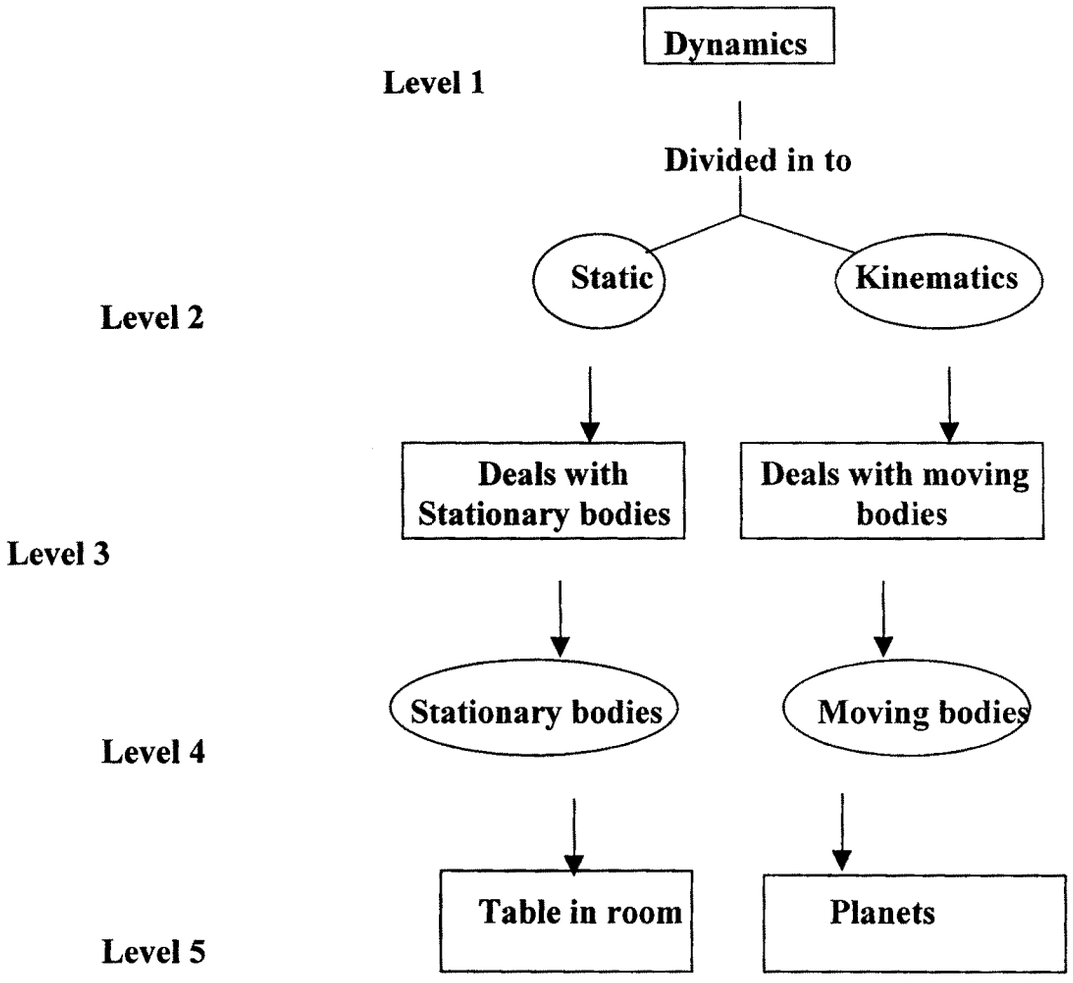


Fig. No. 9
A Concept map of Concept – Errors in Measurements

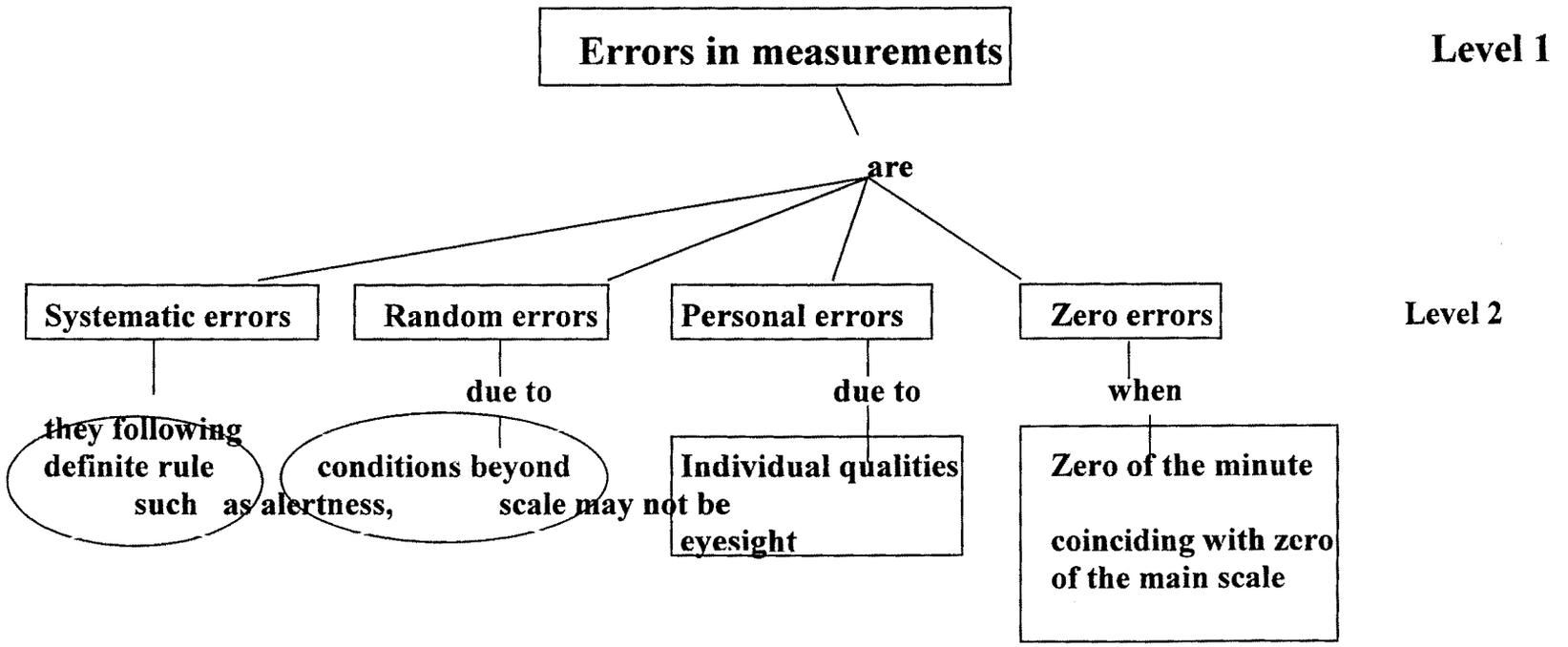


Fig No. 10
A Concept map of Concept - Force

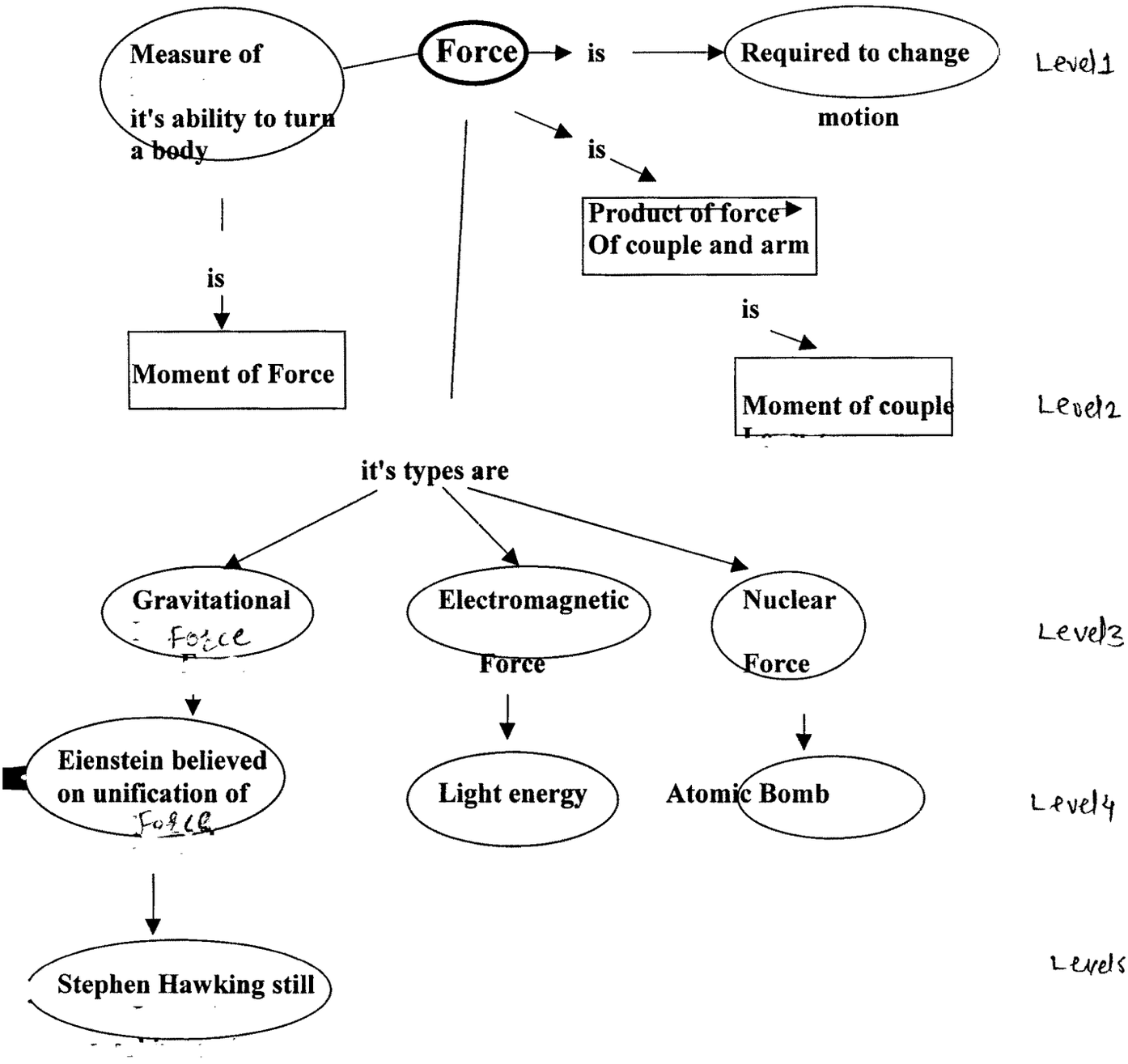


Fig No. 11
A Concept map of Concept – Types of Measurements

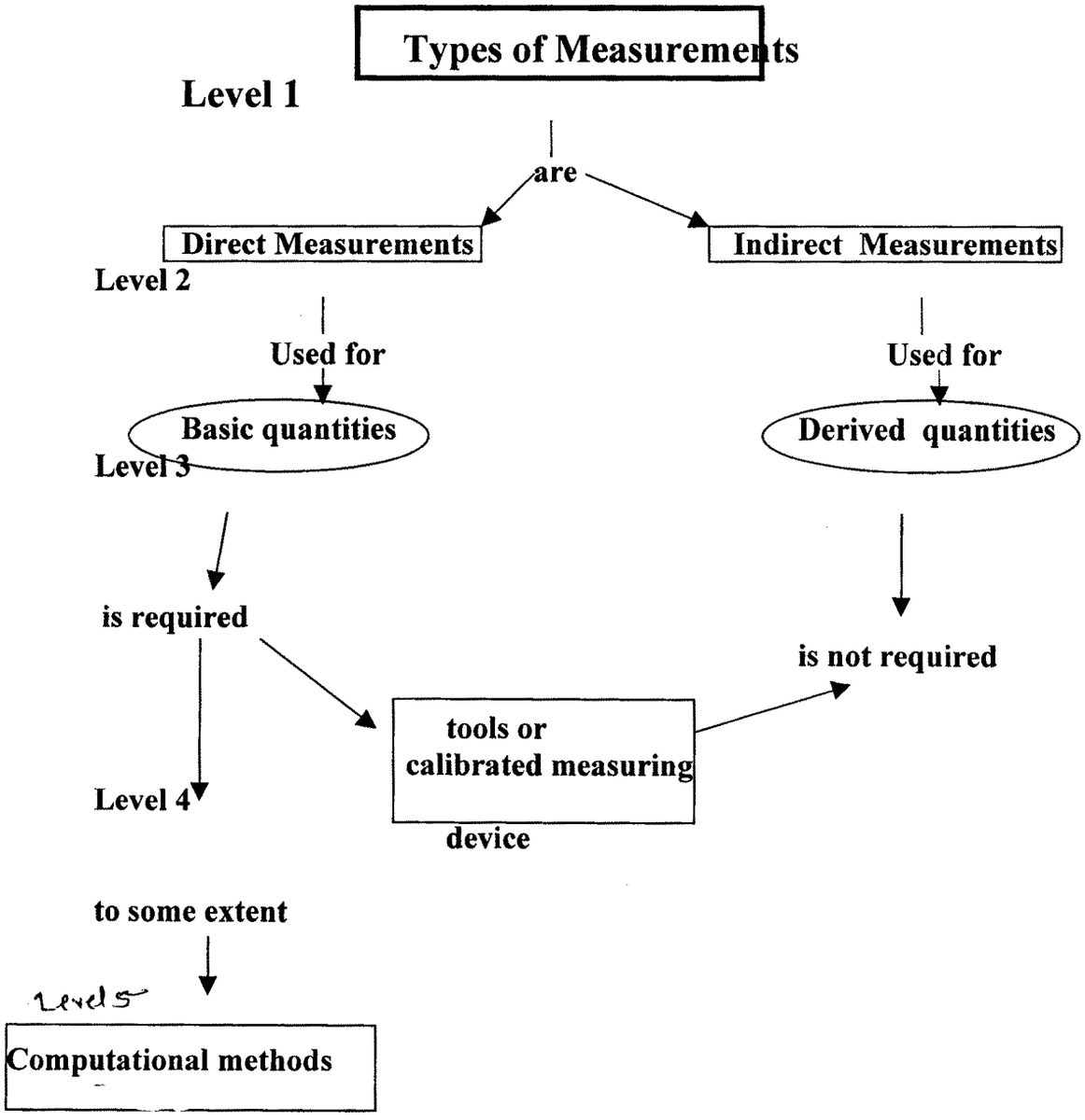
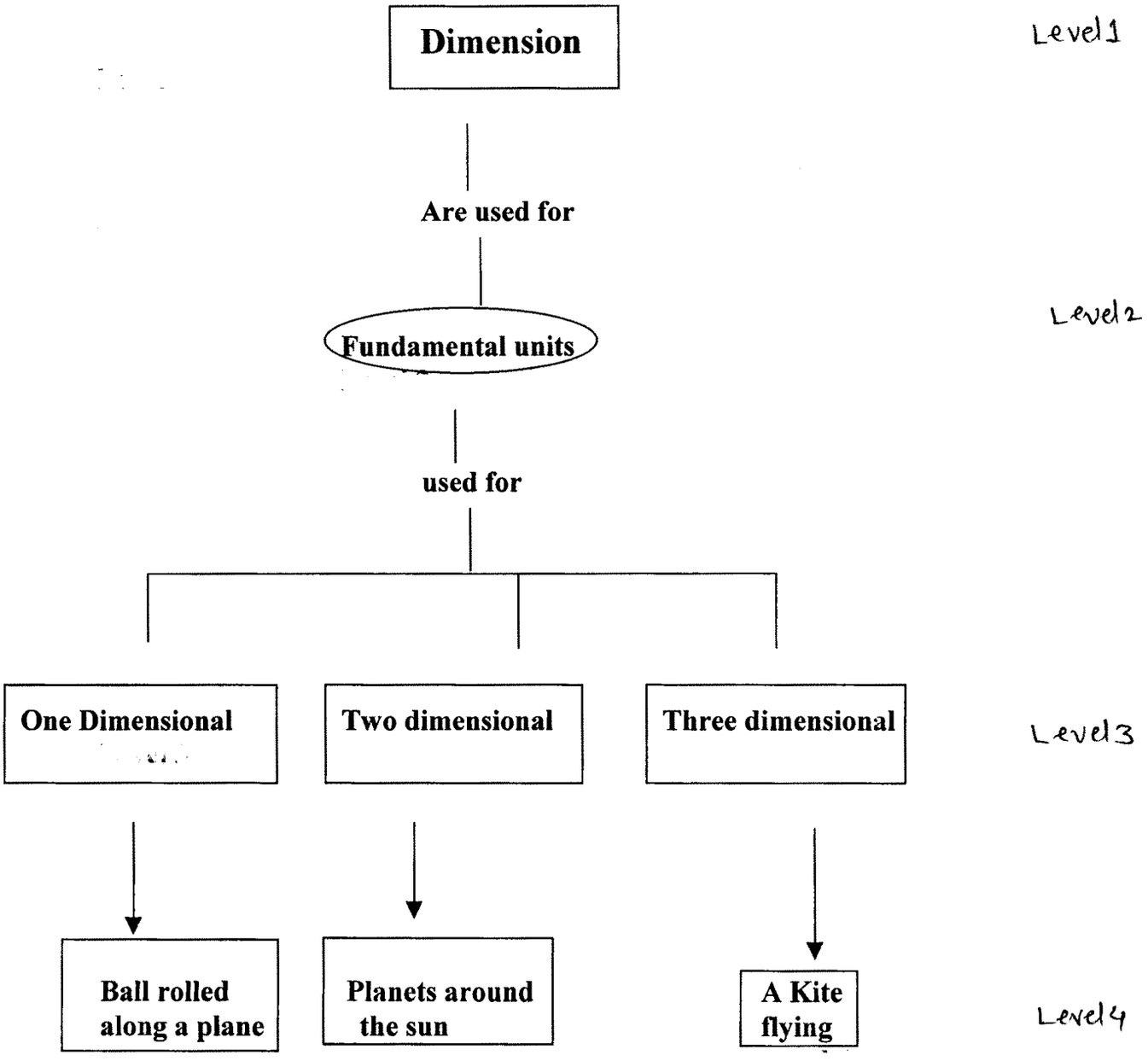


Fig. No. 12
A Concept map of Concept - Dimension



SHIVAJI UNIVERSITY, KOLHAPUR-416 004, MAHARASHTRA
PHONE : EPABX-2609000 ☐ GRAM : UNISHIVAJI
शिवाजी विद्यापीठ, कोल्हापूर-४१६ ००४, महाराष्ट्र
दूरध्वनी : (ईपीएबीएक्स) 2609000
☐ तार : युनिशिवाजी ☐ फॅक्स : 0091-231-2691533 व 0091-231-2692333
Registrar's Office Fax - 0091-231-2692333
C. O. E. Office Fax - 0091-231-2690655

B+
(★★★★★)
Accredited by NAAC

Ref. No.
संदर्भ क्र.

Date :
दिनांक :

Date : 5-08-2008

To,

_____

_____

_____

Respected / Sir / Madam,

Shri Ambaji Shivaji Patil is a M. Phil , student of the Department of Education ,Shivaji University ,Kolhapur. Working under my guidance for his research work during the year 2007-08. As a part of M. Phil course, he has to submit a dissertation to the university. Hence, as his guide I request you to kindly permit him to collect the required data from your institution. I assure that the data collected will be kept strictly confidential and used for research purpose only.

Kindly do co- operate and oblige.

Thanking You,

Psp atankar
5.08.08

Yours faithfully,

Head
Department of Education,
Shivaji University, Kolhapur.

।। बहुजन हिताय । बहुजन सुखाय ।।

Shri Prince Shivaji Maratha Boarding House. Kolhapur's

Maharashtra High School & Junior College, Kolhapur

'A' Ward, Shivaji Peth, Pin Code 416012 ☎ (0231) 2626982

Reg. No. TG. / 35 / 60 / 6076 dated 22-8-1960. School Index No. 23.09.026 Jr. College Index No. J. 23.09.012

Ref. No..... Date : 23/ 8 /2008

दाखला

दाखला देण्यात येतो की, श्री अनाजी शिवाजी पाटील हे शिवाजी विद्यापीठाच्या शिक्षणशास्त्र विभागामध्ये एम. फील पदवीचे शिक्षण घेत असून त्यांच्या संशोधनासाठी (इ. ११ वी विज्ञान शाखेच्या विद्यार्थ्यांवर संकल्पना आरेखन पद्धतीचा भौतिकशास्त्रातील संकल्पना आकलनावर होणारा परिणाम) आवश्यक माहितीसाठीच्या प्रश्नावल्या (पूर्वीवर चाचणीच्या) आमच्या कनिष्ठ महाविद्यालयातील विद्यार्थ्यांकडून भरून घेतल्या आहेत.

Head Master,
MAHARASHTRA HIGH-SCHOOL, KOLHAPUR

स्थापना - १९५५ फोन नं २५४२५५०

"ज्ञान, विज्ञान आणि सुसंस्कार यासाठी शिक्षणप्रसार" - शिक्षणमहर्षी डॉ. बापूजी साळुंखे.

श्री स्वामी विवेकानंद शिक्षण संस्था, कोल्हापूर.

राजर्षी छत्रपती शाहू महाराज हायस्कूल व ज्युनियर कॉलेज

जुना बुधवार पेठ, कोल्हापूर ४१६००२

शाळा सांकेतिक नं. २३.०९.०२० ज्युनियर कॉलेज सांकेतिक नं. ७३.०९.

संकल्पक, संस्थापक
शिक्षणमहर्षि
प.पू. डॉ. बापूजी साळुंखे,
D.Litt.

अध्यक्ष
मा. ना. आर. आर. पाटील
उपमुख्यमंत्री व गृहमंत्री
महाराष्ट्र राज्य

[illegible]
M.A

सेक्रेटरी
[illegible]

[illegible]

जावक क्र. [illegible]/२००८-२००९ [illegible]

CERTIFICATE

[illegible]

Shri Shahu Shikshan Prasarak Mandal's
Late Shri Hanmantrao alias Balasaheb Kharade
COLLEGE OF EDUCATION
B+ Accredited by NAAC
1363, A Ward, Shivaji Peth, Kolhapur. ☎ 2628813, Fax No. 0231-2628813
Principal : ***Smt. Khandke C. G.*** M.Sc., M.Ed.,M.Phil.

Ref No. :

Date : 16-9-08

प्र मा ण प त्र

प्रमाणित करण्यात येते की, श्री. अंबाजी शिवाजी पाटील हे शिवाजी विद्यापीठाच्या शिक्षणशास्त्र विभागात एम. फील करीत असून त्यांच्या संशोधनासाठी ते संकल्पना आरेखन पध्दतीचा वापर करीत आहेत. त्यांनी तयार केलेले संकल्पना आरेखन मी [श्रीमती आशा शिंदे ,अधिव्याख्याती,के.बी.जी. खाराडे शिक्षणशास्त्र महाविद्यालय] तपासले असून त्यामध्ये करावयाच्या सुधारणां विषयी आवश्यक सूचना केल्यानंतर त्यांनी सदरच्या आरेखन सुरूते केलेल्या आहेत.

कोल्हापूर.
दि. 16-9-08

[शिंदे आशा बाबुराव]
Late Shri.H.alias B.G.Kharade
College of Educaiion,Kolhapur.

CERTIFICATE

This is to certify that shri. Ambaji Shivaji Patil is a M.Phil Student of the Department of Education, Shivaji University , Kolhapur working under guidance of Dr. Patankar P.S. for his research work during the year 2007 – 2008. For data collection he prepared a questionnaire having 20 multiple questions. As per my knowledge all the questions are correct and related to previous knowledge as well as related to few units of XIth Science physics syllabus.

Yours Faithfully

Maharashtra Junior College
Shivaji Peth, Kolhapur

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Yours Faithfully

श्री. बी. बी. चौगुले
स. शिक्षक
श्री. भैरवनाथ हायस्कूल वरणगे
ता. करवीर, जि. कोल्हापूर

RTIFICATE

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Yours Faithfully

(सहाय्यक शिक्षक)
कुमी कासारी विद्यानिकेतन
कुडित्रे, ता-करवीर, जि-कोल्हापूर

CERTIFICATE

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Yours Faithfully

Shri. R.C.S.M.J.C. Senior Col
Juna Budhwar, Kolhapur

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Yours Faithfully

Talekar Yashwant Dinkar
Assit Teacher
Kumbhi Kasari Vidy. Kuditre
Tal Karveer. Kop.

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Yours Faithfully

Mr. R.J. Deokate
Dept. of. physics
Shivaji University,
Kolhapur.

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RRSalunkhe

Yours Faithfully

(Mr. R. R. Salunkhe)

Ph.D. Student

Department of Physics

Shivaji University,

Kolhapur.

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Yours Faithfully

Jambotkar D. S.

Lecturer

Rajarshi chh. shahu maharaj

Junior college Kop.

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Head,
Department of Physics,
Shivaji University,
KOLHAPUR.

Yours Faithfully