

**SMAT's**  
**SHIVANAND COLLEGE, KAGWAD**  
**Experimental Project Work on**  
**"Determination of Sodium Carbonate and**  
**alkali present in Soap"**

  
I/c. PRINCIPAL,  
Shivanand College,  
Kagwad, Dist: Belgaum

ESTD : 20<sup>th</sup> June-1967.

College Code : RCUB-4275  
Phone No : +91 8339200023

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ಶಿವಾನಂದ ಮಹಾವಿದ್ಯಾಲಯ, ಕಾಗವಾಡ.

ಜಿ|| ಬೆಳಗಾವಿ.

(ಕಲಾ, ವಾಣಿಜ್ಯ ಮತ್ತು ವಿಜ್ಞಾನ)

ಕರ್ನಾಟಕ ರಾಜ್ಯ.

SMAT's



**SHIVANAND COLLEGE, KAGWAD - 591223.**

Dist : Belagavi.

(Arts, Commerce, & Science)

Karnataka State.

Website : [www.smatrustshivanandcollegekagwad.co.in](http://www.smatrustshivanandcollegekagwad.co.in) E-mail : [shivanandcollegekagwad@gmail.com](mailto:shivanandcollegekagwad@gmail.com)

Re-Accredited by NAAC at "B+" Grade

Affiliated to Rani Channamma University, Belagavi-591156.

Ref: \_\_\_\_\_

Date: \_\_\_\_\_

**Department of Chemistry**  
**Experimental Project Work**  
**2020-21**

**Attendance List**

| Sl.No. | Student Name               |
|--------|----------------------------|
| 01     | ABDULRAJAK GUDUSAB MULLA   |
| 02     | ABHISHEK ANAND PALLAKKE    |
| 03     | AISHWARYA ANNASAB DAWADE   |
| 04     | AKSHATA ADINATH BAKAJE     |
| 05     | ALISHA RAJU PATEL          |
| 06     | AMBIKA SIDDAPPA DEGGEWADI  |
| 07     | AMRUTA MARUTI GORAV        |
| 08     | ANJALI NIVRUTTI SAVANT     |
| 09     | APOORVA ASHOK PAWAR        |
| 10     | ASHISH SANJAY TARADALE     |
| 11     | BASAVARAJ SADASHIV JAMADAR |
| 12     | CHAITALI VASANT TALAWAR    |
| 13     | CHETAN SAHADEV KAMBLE      |
| 14     | JAGANADE SHUBHAM SURESH    |
| 15     | KABADE ADITYA VIJAYKUMAR   |

  
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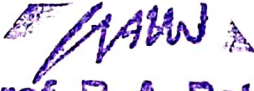
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Date :

**EXPERIMENTAL LEARNING ACTIVITY  
DEPARTMENT OF CHEMISTRY  
TOPIC : ACIDES AND BASES**

**CLASS: B.Sc-III Semester**

**DATE: 12.06.2021**

  
**Prof. B. A. Patil**  
I/c. Principal  
Shivanand College, Kagwad.  
Dist. Belagavi

### 3. CHEMISTRY (Optional)

III SEMESTER  
Paper-III 14BSCCHET31  
Teaching Hours : 50 Hours

#### INORGANIC CHEMISTRY

##### UNIT-I Metallurgy

9 hours

Review of steps involved in metallurgical process, thermodynamic concepts of selection of reducing agents using Ellingham diagrams, relative efficiency of carbon and carbon monoxide as reducing agent.

Reducing agents for Chromic oxide and zinc oxide.

Extraction of nickel by Mond's process, lead by carbon reduction process, aluminum from bauxite.

Powder metallurgy - Production of tungsten powder from wolframite.

##### UNIT-II Solvents

4 hours

Types, properties of good solvents, non-aqueous solvents - Liquid  $\text{NH}_3$  and liquid  $\text{HF}$ , (properties like solvation, acid-base, redox, complex formation and precipitation), water as universal solvent, leveling effect.

##### UNIT-III Acids and Bases

4 hours

Arrhenius, Bronsted-Lowry, Lux-Flood, solvent system and Lewis concepts of acids and bases. Hard and soft acids and bases(HSAB) - classification of acids and bases as hard and soft, Pearson's HSAB concept,

#### Reference books for inorganic chemistry

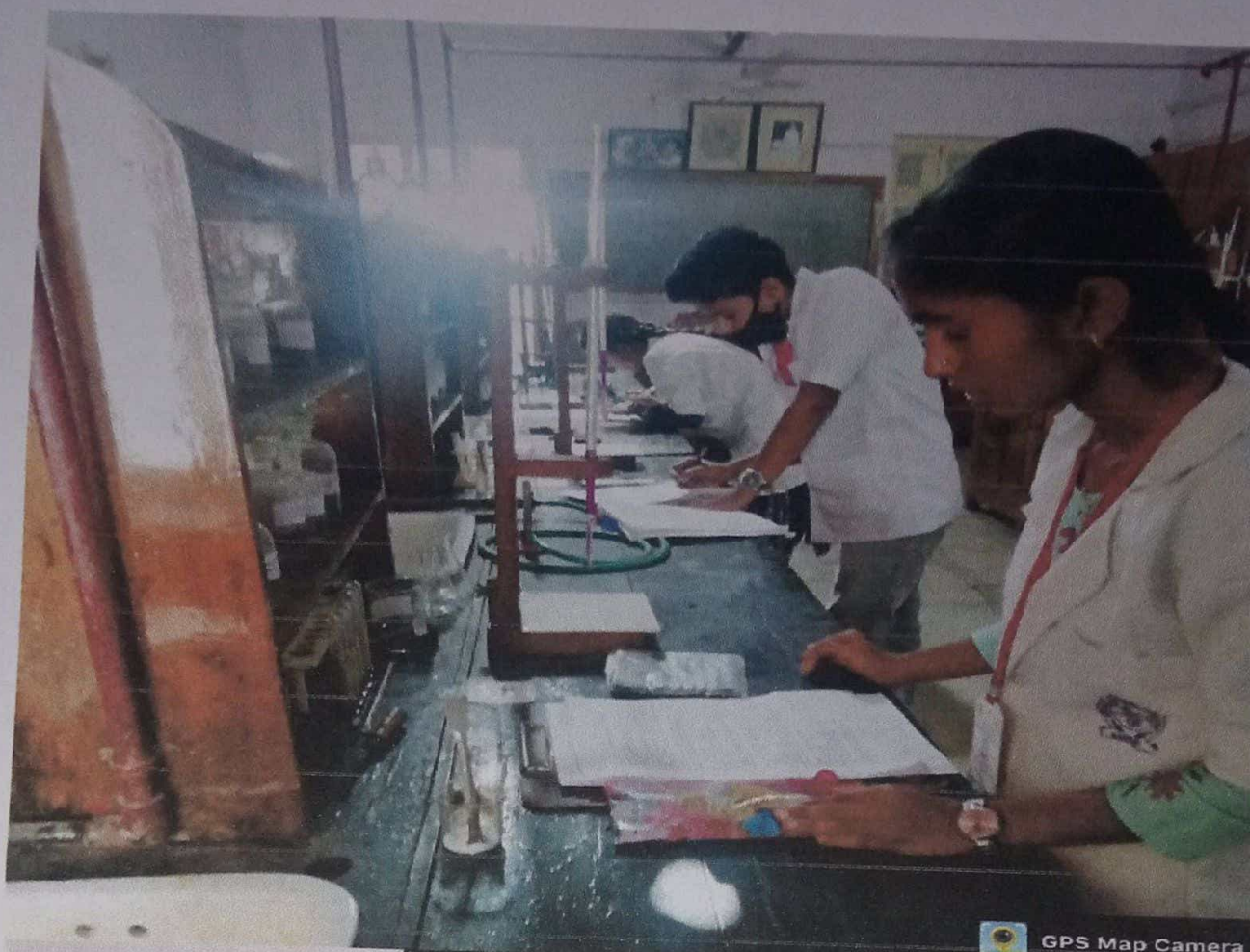
- |                                  |                            |
|----------------------------------|----------------------------|
| 01. Advanced Inorganic Chemistry | Gurdeep Raj                |
| 02. Basic Inorganic Chemistry    | Alber Cotton and Wilkinson |
| 03. Inorganic Chemistry          | James Huheey               |
| 04. Modern Inorganic Chemistry   | R.D. Madan                 |
| 05. Inorganic Chemistry          | J.D. Lee                   |

  
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## SHIVANAND COLLEGE, KAGWAD

Experimental learning – department of Chemistry



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Ref: \_\_\_\_\_

Date: 26.03.2021

## Department of Physics

### Experimental Project Work

Topic : Relativity  
2020-21

### Attendance List

| Sl.No. | Student Name               |
|--------|----------------------------|
| 01     | JINAVANI KUMAR GADAGE      |
| 02     | ABHISHEK ASHOK KUMBAR      |
| 03     | AKSHATA ASHOK SHITOLE      |
| 04     | ANIKET BALIKRISHN PATIL    |
| 05     | ANIRUDDHA ARJUN HONKAMBLE  |
| 06     | ANNAPURNA JYOTAGOUDA PATIL |
| 07     | BABASO SAMBHAJI NIKAM      |
| 08     | CHANDRIKA UTTAM CHAVHAN    |
| 09     | DIVYA RAJU PUJARI          |
| 10     | GANESH PRAKASH NIKAM       |
| 11     | JADHAV MRUNAL ASHOK        |
| 12     | KHUSHBU SULEMAN JAMKHANE   |
| 13     | KHUSHI MANIK CHOUDHARI     |
| 14     | KOMAL VILAS PATIL          |
| 15     | MEENAJ MAHAMAD MHAISALE    |

**RANI CHANNAMMA UNIVERSITY, BELAGAVI**  
**SYLLABUS OF**

**B.Sc. Fifth Semester**

**PHYSICS - I : CLASSICAL MECHANICS, ELECTRONICS & RELATIVITY**

**Total hours allotted : 50**

**UNIT - I : CLASSICAL MECHANICS**

1. Constraints: Types with example, Degrees of Freedom, Configuration Space, Principle of Virtual Work, Generalized Co-ordinates, Virtual displacement, Velocity, Force, Kinetic and Potential Energies(derivations).

Problems

(4+1Hrs.)

2. D'Alembert's Principle Lagrange's equation of motion from D'Alembert's Principle Applications of Lagrange's equation of Motion.

a. Motion of a Single Particle in Cartesian Co-ordinates.

b. Harmonic Oscillator.

Problems

(4+1 Hrs.)

**UNIT - II : CLASSICAL MECHANICS**

- Reduction of two body problem to equivalent one body problem. Expression for the total energy, equation of orbit ( equivalent of single body) and Classification of Orbits. Kepler's Laws of Planetary motion and their derivation from Lagranges equation of motion.

Problems

(5+1= 6 hours)

- Nano Physics** : Size effect: surface volume ratio, quantization , Dangling bonds, Island formation and self assembly. Quantum computing , single electron transistor. Examples: Graphene and fullerene.

(4 Hours)

**UNIT - III : RELATIVITY**

- Michelson -Morley Experiment. Postulates of Special Theory of Relativity. Lorentz Transformations equations(Derivation). Relativity of Length and Time. Law of Addition of Velocities. Variation of Mass with Velocity. Mass Energy Relation.

Problems

(8+2=10 Hours)

**UNIT - IV : ANALOG ELECTRONICS**

1. **Network Theorems** : Current and voltage sources. Superposition theorem. And Thevenin's and Norton's Theorem. Maximum power transfer Theorem (Derivation for all theorems).

Problems :

(4+1 Hours)

2. **Power Supply** : Unregulated bridge rectifier(efficiency, ripple factor, PIV, TUF & voltage regulation-qualitative.)

**Filters** : Capacitor filter, LC filter,  $\pi$  section filter(study of wave forms- qualitative).

**Zener Diode** : Characteristics parameter, Explanation of Zener Breakdown. Zener diode used as voltage regulator using unregulated DC voltage bridge rectifier.

Problems

(4+1 Hours)

## UNIT - V : TRANSISTOR

- h-parameters of a transistor and their determination using CE configuration transistor as CE amplifier with frequency response. Types of feedback, transfer gain with feedback (derivation). Oscillators. Transistor as an oscillator, comparison between amplifier and oscillator, classification of oscillators-damped and undamped oscillators, the oscillatory circuit, frequency of oscillatory current, essentials of a feedback LC oscillator. Hartley and Phase shift oscillators.
  - FET Types, characteristics and parameters. FET as a common source amplifier (Qualitative). Problems:
- (8+2 hours)

### PHYSICS 5.3 ( LAB - V) LIST OF EXPERIMENTS

1. Thevenin's & Norton's Theorem (Ladder Network).
2. h-parameters of a transistor using DC source.
3. Power supply using bridge rectifier (internal resistance and voltage regulation)
4. Power supply using bridge rectifier with  $\pi$ - section filters (internal resistance and voltage regulation)
5. Zener diode as voltage regulator using bridge rectifier power supply.
6. Transistor as CE amplifier.
7. Phase -shift oscillator using transistor.
8. Hartley oscillator using transistor.
9. FET-static characteristics and parameters.
10. FET-as common sources amplifier.

#### NOTE:

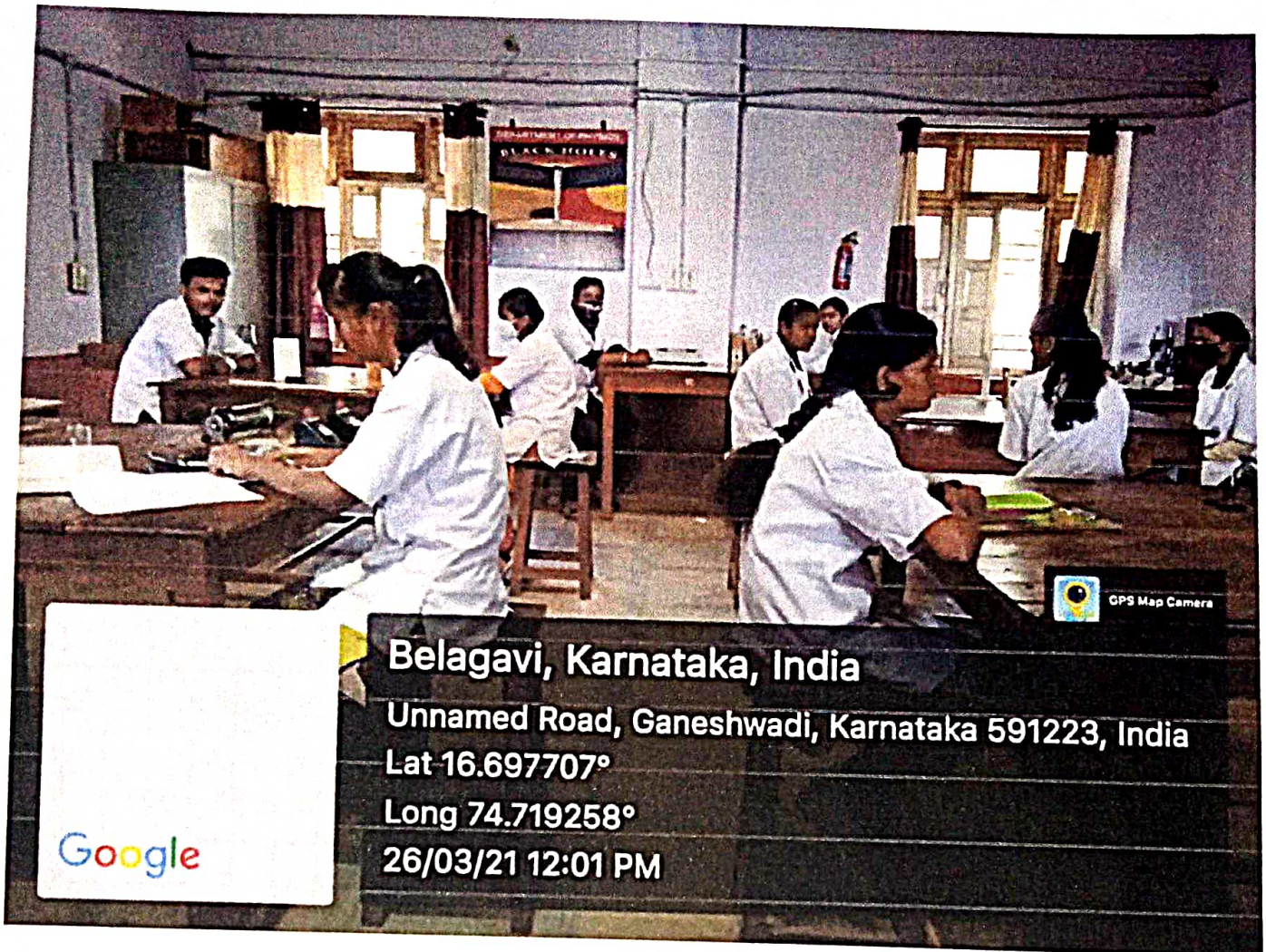
1. Experiments are of Four hours duration.
2. Minimum of Eight experiments to be performed.

  
**Prof. B. A. Patil**  
I/c. Principal,  
Shivanand College, Kagwad.  
Dist. Solapur

SMAT's

## SHIVANAND COLLEGE, KAGWAD

Experimental learning – department of Physics



**References:**

1. Ulyses Black, Computer Networks: Protocols, standard and interfaces, PHI.
2. James Martin, Local Area Networks: Architecture and implementation, PHI.
3. Behrouz Foruzan, Data Communication and Networking. TMH.
4. W. Stallings, Data and Computer Communications, Pearson Education.
5. Prakash Gupta, Data Communications, PHI.
6. James F. Kurose & Keith W. Ross, Computer Networking A TOP DOWN Approach Featuring the Internet, 2<sup>nd</sup> Edition, Pearson Education.

**14BSCCSCP62 : Computer Networks Lab – B.Sc. Semester - VI**

- 1) Programs using TCP Sockets (like date and time server & client, echo server & Client, etc...)
- 2) Programs using UDP Sockets (like simple DNS)
- 3) Programs using raw sockets (like packet capturing and filtering)
- 4) Programs using RPC
- 5) Simulation of sliding window protocols
- 6) Experiments using simulators (like OPNET)
- 7) Performance comparison of MAC protocols
- 8) Performance comparison of Routing protocols
- 9) Study of TCP/UDP performance

  
Prof. V. S. Tugashetti  
I/c Principal  
SMAT's Shivanand College, Kagwad  
Tq.: Kagwad, Dist.: Belagavi

SMAT's  
Shivanand College, Kagwad  
Attendance List  
Class:- B.Sc-VI Sem

| Sl.No. | Name of the Student         | 3/8/21              | 9/8/21              | 16/8/21             | 21/8/21             |
|--------|-----------------------------|---------------------|---------------------|---------------------|---------------------|
| 1      | Karver. Raju. Patil         | <del>RRR</del>      | <del>RRR</del>      | <del>RRR</del>      | <del>RRR</del>      |
| 2      | KAVITA. RAJENDRA. KHURPE    | <del>K</del>        | <del>K</del>        | <del>K</del>        | <del>K</del>        |
| 3      | Samruddhi. Neminath. Hosure | <del>SHosure</del>  | <del>SHosure</del>  | <del>SHosure</del>  | <del>SHosure</del>  |
| 4      | Sakshata Laxman Man.        | <del>slmax</del>    | <del>slmax</del>    | <del>slmax</del>    | <del>slmax</del>    |
| 5      | Alisha. R. Patel            | <del>A.Patel</del>  | <del>A.Patel</del>  | <del>A.Patel</del>  | <del>A.Patel</del>  |
| 6      | Neha B. Bhatage             | <del>NBhatage</del> | <del>NBhatage</del> | <del>NBhatage</del> | <del>NBhatage</del> |
| 7      | Ashish. S. Taradale         | <del>Ashish</del>   | <del>Ashish</del>   | <del>Ashish</del>   | <del>Ashish</del>   |
| 8      | Prakash. A. Malaganvi       | <del>Pm</del>       | <del>Pm</del>       | <del>Pm</del>       | <del>Pm</del>       |
| 9      | Pratwal. P. Badage          | <del>PB</del>       | <del>PB</del>       | <del>PB</del>       | <del>PB</del>       |
| 10     | shubham Tagarade            | <del>ST</del>       | <del>ST</del>       | <del>ST</del>       | <del>ST</del>       |
| 11     | Abdul Mulla                 | <del>AM</del>       | <del>AM</del>       | <del>AM</del>       | <del>AM</del>       |
| 12     | Suraj. S. Sherwade          | <del>SS</del>       | <del>SS</del>       | <del>SS</del>       | <del>SS</del>       |
| 13     | Aditya. Kabado              | <del>AK</del>       | <del>AK</del>       | <del>AK</del>       | <del>AK</del>       |
| 14     | Laxmi Koli                  | <del>LK</del>       | <del>LK</del>       | <del>LK</del>       | <del>LK</del>       |

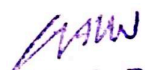
  
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 Tq.: Kagwad, Dist.: Belagavi

**SMAT's Shivanand College, Kagwad**

**1.3.2 Average percentage of courses that include experiential learning through project work/field work/internship during last five years (10)**

**Criterion -01  
Metric:1.3.2**

| Program name | Program code | Name of the Course that include experiential learning through project work/field work/internship | Course code | Year of offering | Name of the student studied course on experiential learning through project work/field work/internship | Link to the relevant document |
|--------------|--------------|--------------------------------------------------------------------------------------------------|-------------|------------------|--------------------------------------------------------------------------------------------------------|-------------------------------|
| B.Sc         | S            | Relativity                                                                                       | S           | 2020-21          | 15 Students                                                                                            |                               |
| B.Sc         | S            | Acid and Bases                                                                                   | S           | 2020-21          | 15 Students                                                                                            |                               |
|              |              |                                                                                                  |             |                  |                                                                                                        |                               |
|              |              |                                                                                                  |             |                  |                                                                                                        |                               |
|              |              |                                                                                                  |             |                  |                                                                                                        |                               |
|              |              |                                                                                                  |             |                  |                                                                                                        |                               |
|              |              |                                                                                                  |             |                  |                                                                                                        |                               |
|              |              |                                                                                                  |             |                  |                                                                                                        |                               |

  
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**2020-21**

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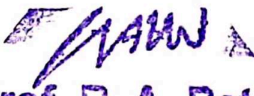
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**EXPERIMENTAL LEARNING ACTIVITY  
DEPARTMENT OF CHEMISTRY  
TOPIC : ACIDES AND BASES**

**CLASS: B.Sc-III Semester**

**DATE: 12.06.2021**

  
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III SEMESTER  
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Teaching Hours : 50 Hours

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4 hours

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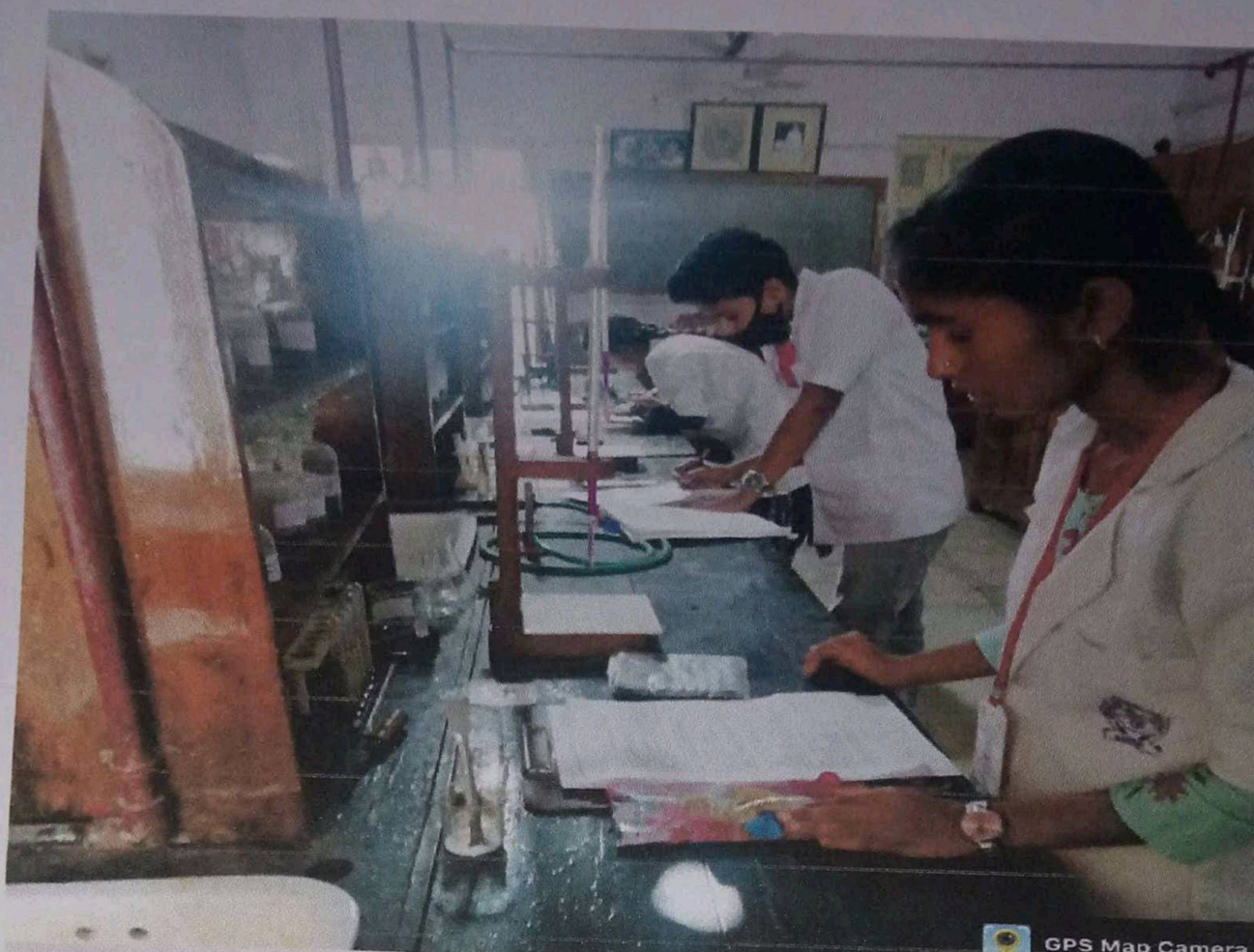
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Experimental learning – department of Chemistry



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## Department of Physics

### Experimental Project Work

Topic : Relativity  
2020-21

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| 03     | AKSHATA ASHOK SHITOLE      |
| 04     | ANIKET BALIKRISHN PATIL    |
| 05     | ANIRUDDHA ARJUN HONKAMBLE  |
| 06     | ANNAPURNA JYOTAGOUDA PATIL |
| 07     | BABASO SAMBHAJI NIKAM      |
| 08     | CHANDRIKA UTTAM CHAVHAN    |
| 09     | DIVYA RAJU PUJARI          |
| 10     | GANESH PRAKASH NIKAM       |
| 11     | JADHAV MRUNAL ASHOK        |
| 12     | KHUSHBU SULEMAN JAMKHANE   |
| 13     | KHUSHI MANIK CHOUDHARI     |
| 14     | KOMAL VILAS PATIL          |
| 15     | MEENAJ MAHAMAD MHAISALE    |

**RANI CHANNAMMA UNIVERSITY, BELAGAVI**  
**SYLLABUS OF**

**B.Sc. Fifth Semester**

**PHYSICS - I : CLASSICAL MECHANICS, ELECTRONICS & RELATIVITY**

**Total hours allotted : 50**

**UNIT - I : CLASSICAL MECHANICS**

1. Constraints: Types with example, Degrees of Freedom, Configuration Space, Principle of Virtual Work, Generalized Co-ordinates, Virtual displacement, Velocity, Force, Kinetic and Potential Energies (derivations).

Problems

(4+1 Hrs.)

2. D'Alembert's Principle Lagrange's equation of motion from D'Alembert's Principle Applications of Lagrange's equation of Motion.

a. Motion of a Single Particle in Cartesian Co-ordinates.

b. Harmonic Oscillator.

Problems

(4+1 Hrs.)

**UNIT - II : CLASSICAL MECHANICS**

- Reduction of two body problem to equivalent one body problem. Expression for the total energy, equation of orbit (equivalent of single body) and Classification of Orbits. Kepler's Laws of Planetary motion and their derivation from Lagrange's equation of motion.

Problems

(5+1 = 6 hours)

- Nano Physics** : Size effect: surface volume ratio, quantization, Dangling bonds, Island formation and self assembly. Quantum computing, single electron transistor. Examples: Graphene and fullerene.

(4 Hours)

**UNIT - III : RELATIVITY**

- Michelson - Morley Experiment. Postulates of Special Theory of Relativity. Lorentz Transformations equations (Derivation). Relativity of Length and Time. Law of Addition of Velocities. Variation of Mass with Velocity. Mass Energy Relation.

Problems

(8+2=10 Hours)

**UNIT - IV : ANALOG ELECTRONICS**

1. **Network Theorems** : Current and voltage sources. Superposition theorem. And Thevenin's and Norton's Theorem. Maximum power transfer Theorem (Derivation for all theorems).

Problems :

(4+1 Hours)

2. **Power Supply** : Unregulated bridge rectifier (efficiency, ripple factor, PIV, TUF & voltage regulation-qualitative.)

**Filters** : Capacitor filter, LC filter,  $\pi$  section filter (study of wave forms- qualitative).

**Zener Diode** : Characteristics parameter, Explanation of Zener Breakdown. Zener diode used as voltage regulator using unregulated DC voltage bridge rectifier.

Problems

(4+1 Hours)

## UNIT - V : TRANSISTOR

- h-parameters of a transistor and their determination using CE configuration transistor as CE amplifier with frequency response. Types of feedback, transfer gain with feedback (derivation). Oscillators. Transistor as an oscillator, comparison between amplifier and oscillator, classification of oscillators-damped and undamped oscillators, the oscillatory circuit, frequency of oscillatory current, essentials of a feedback LC oscillator. Hartley and Phase shift oscillators.
- FET-Types, characteristics and parameters. FET as a common source amplifier (Qualitative). Problems:

(8+2 hours)

### PHYSICS 5.3 ( LAB - V) LIST OF EXPERIMENTS

1. Thevenin's & Norton's Theorem (Ladder Network).
2. h-parameters of a transistor using DC source.
3. Power supply using bridge rectifier (internal resistance and voltage regulation)
4. Power supply using bridge rectifier with  $\pi$ - section filters (internal resistance and voltage regulation)
5. Zener diode as voltage regulator using bridge rectifier power supply.
6. Transistor as CE amplifier.
7. Phase -shift oscillator using transistor.
8. Hartley oscillator using transistor.
9. FET-static characteristics and parameters.
10. FET-as common sources amplifier.

#### NOTE:

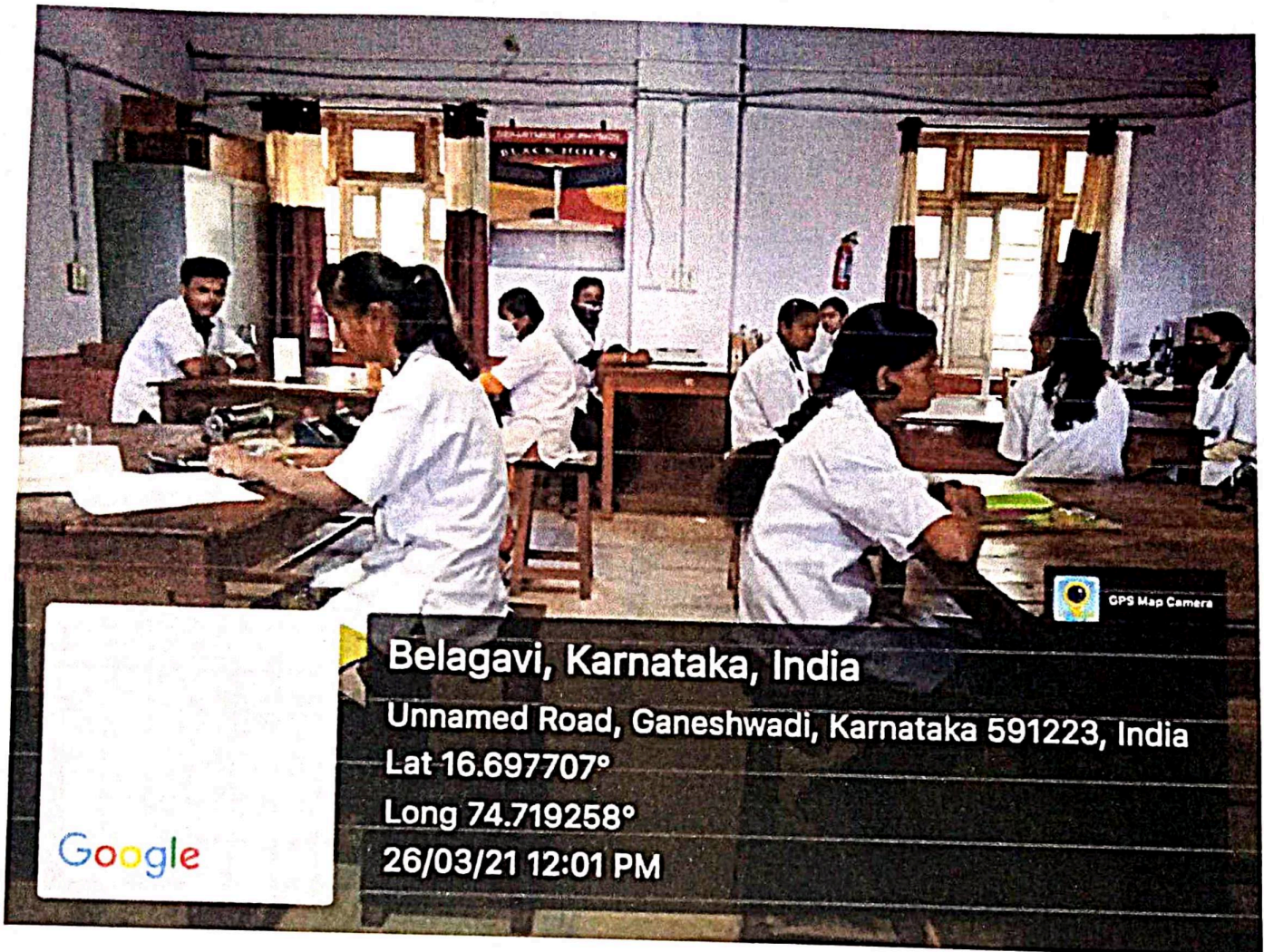
1. Experiments are of Four hours duration.
2. Minimum of Eight experiments to be performed.

  
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SMAT's

## SHIVANAND COLLEGE, KAGWAD

Experimental learning – department of Physics



**References:**

1. Ulyses Black, Computer Networks: Protocols, standard and interfaces, PHI.
2. James Martin, Local Area Networks: Architecture and implementation, PHI.
3. Behrouz Foruzan, Data Communication and Networking. TMH.
4. W. Stallings, Data and Computer Communications, Pearson Education.
5. Prakash Gupta, Data Communications, PHI.
6. James F. Kurose & Keith W. Ross, Computer Networking A TOP DOWN Approach Featuring the Internet, 2<sup>nd</sup> Edition, Pearson Education.

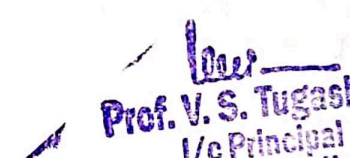
**14BSCCSCP62 : Computer Networks Lab – B.Sc. Semester - VI**

- 1) Programs using TCP Sockets (like date and time server & client, echo server & Client, etc...)
- 2) Programs using UDP Sockets (like simple DNS)
- 3) Programs using raw sockets (like packet capturing and filtering)
- 4) Programs using RPC
- 5) Simulation of sliding window protocols
- 6) Experiments using simulators (like OPNET)
- 7) Performance comparison of MAC protocols
- 8) Performance comparison of Routing protocols
- 9) Study of TCP/UDP performance

  
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SMAT's  
Shivanand College, Kagwad  
Attendance List  
Class:- B.Sc-VI Sem

| Sl.No. | Name of the Student               | 3/8/21               | 9/8/21               | 16/8/21              | 21/8/21              |
|--------|-----------------------------------|----------------------|----------------------|----------------------|----------------------|
| 1      | Karver <sup>o</sup> . Raju. Patil | <del>RRB</del>       | <del>RRB</del>       | <del>RRB</del>       | <del>RRB</del>       |
| 2      | KAVITA. RAJENDRA. KHURPE          | <del>Kur</del>       | <del>Kur</del>       | <del>Kur</del>       | <del>Kur</del>       |
| 3      | Samruddhi. Neminath. Hosure       | <del>SHosure</del>   | <del>SHosure</del>   | <del>SHosure</del>   | <del>SHosure</del>   |
| 4      | <del>Sakshata Laxman Man.</del>   | <del>slmax</del>     | <del>slmax</del>     | <del>slmax</del>     | <del>slmax</del>     |
| 5      | Alisha. R. Patel                  | A.Patel              | A.Patel              | A.Patel              | A.Patel              |
| 6      | Neha B. Bhatage                   | <del>NBhatage</del>  | <del>NBhatage</del>  | <del>NBhatage</del>  | <del>NBhatage</del>  |
| 7      | Ashish. S. Tanadale               | <del>ATanadale</del> | <del>ATanadale</del> | <del>ATanadale</del> | <del>ATanadale</del> |
| 8      | Prakash. A. Malaganvi             | <del>PM</del>        | <del>PM</del>        | <del>PM</del>        | <del>PM</del>        |
| 9      | Pratwal. P. Badage                | <del>PB</del>        | <del>PB</del>        | <del>PB</del>        | <del>PB</del>        |
| 10     | shubham Tagarade                  | <del>ST</del>        | <del>ST</del>        | <del>ST</del>        | <del>ST</del>        |
| 11     | Abdul Mulla                       | <del>AM</del>        | <del>AM</del>        | <del>AM</del>        | <del>AM</del>        |
| 12     | suraj. s. shirwade                | <del>SS</del>        | <del>SS</del>        | <del>SS</del>        | <del>SS</del>        |
| 13     | Aditya. Kabado                    | <del>AK</del>        | <del>AK</del>        | <del>AK</del>        | <del>AK</del>        |
| 14     | Laxmi Koli                        | <del>LK</del>        | <del>LK</del>        | <del>LK</del>        | <del>LK</del>        |

  
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