

**Navyug Vidyabhavan Trust's**  
**C.K.Pithawalla Institute of Pharmaceutical Science & Research**

Nr. Malvan Mandir, Via-Magdalla Port, Gaviyar Village, Dumas road, Dist. Surat- 395007

CKPIPSR E-BULLETINE

Volume: 12

Year: 2020 & 2021



# ***GUNADHYA***

**The Quality of Being Excellent**



SCAN FOR COLLEGE OFFICIAL WEBSITE

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## *Pharmacist Oath*

I swear by the Code of Ethics of Pharmacy Council of India in relation to the community and shall act as an integral part of the health care team.

I shall uphold the laws and standards governing my profession.

I shall strive to perfect and enlarge my knowledge to contribute to the advancement of pharmacy and public health.

I shall follow the system, which I consider best for pharmaceutical care and counseling of patients. I shall endeavour to discover and manufacture drugs of quality to alleviate sufferings of humanity.

I shall hold in confidence the knowledge gained about the patients in connection with professional practice and never divulge unless compelled to do so by law.

I shall associate with organizations having their objectives for betterment of the profession of Pharmacy and make contribution to carry out the work of those organizations.

While I continue to keep this Oath inviolated, may it be granted to me to enjoy life and the practice of pharmacy respected by all, at all times!

Should I trespass and violate this oath, may the reverse be my lot!

## **ABOUT THE INSTITUTE**

C.K Pithawalla Institute of Pharmaceutical Science & Research was founded in 2005 and is being managed by the Navyug Vidyabhavan Trust which was founded in February, 1965.

Within a short span of its operation, the college has provided all the necessary facilities to help the students which includes a well-established library containing a large number of books, reference books, technical & general magazines.

Honorable late Shri C.K. Pithawalla has been the driving force for the setting up of this college named after him and is continually drawing inspiration from him. This institute of learning in particular, like many others, owes a great deal to his vision, understanding and missionary zeal right from its inception to its blossoming.

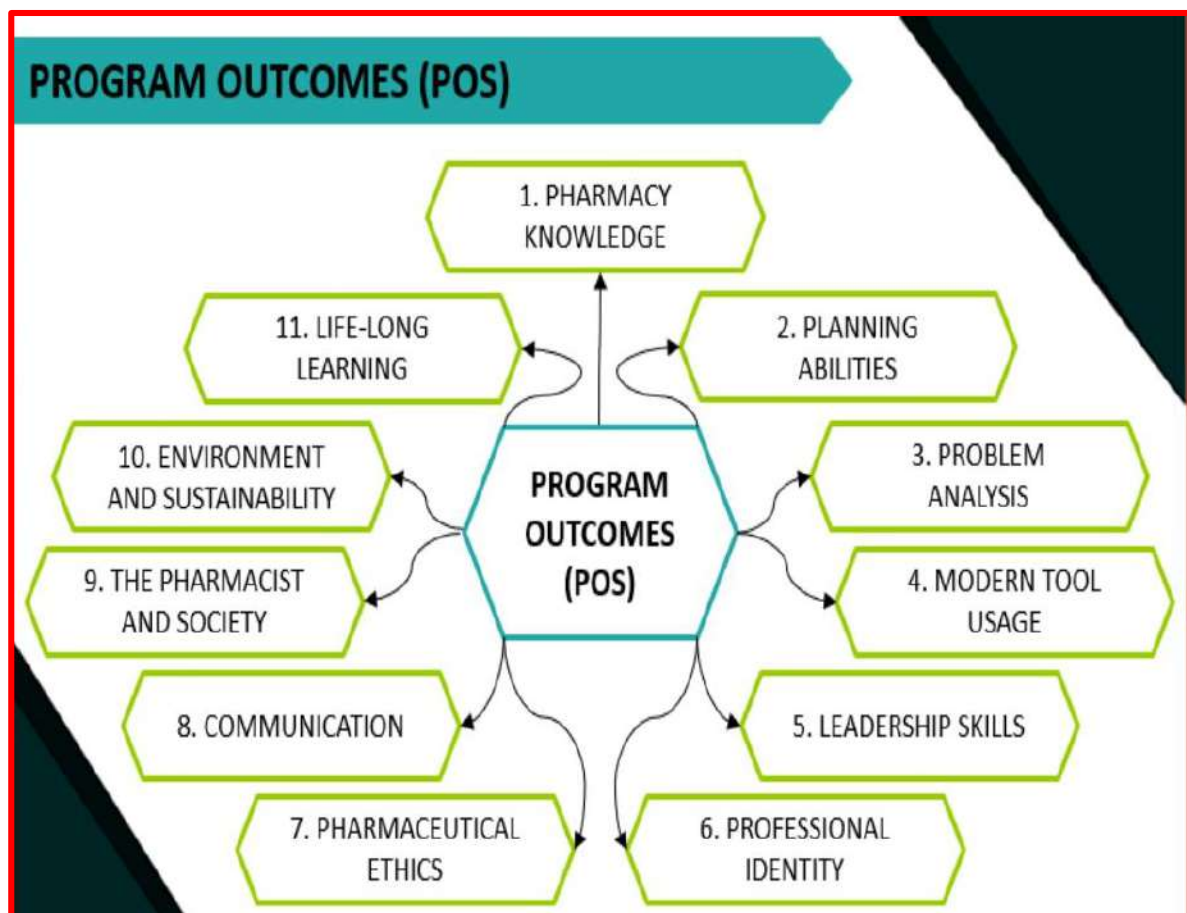
## **VISION OF THE INSTITUTE**

Committed to promote high quality education, training and research in pharmacy to meet the needs of tomorrow's healthy society.

## **MISSION OF THE INSTITUTE**

- To create an arena of the highest quality professional pharmacy education at all levels, to produce competent pharmacists with innovative skills
- To establish Continuing Professional Development (CPD) program in the institution for practicing professionals to undertake the national task of education and research.
- To strengthen the industry – institution interaction to explore, substantiate and integrate native medicinal knowledge with modern pharmaceutical technology.
- To create a model pharmacy in the institution to strengthen the relation between public and pharmacy.
- To provide excellent work environment and to promote technical Superiority.
- To collaborate with national and international organizations for Outstanding educational /services/ research programs.

## PROGRAM OUTCOMES (POS)



## PRINCIPAL'S DESK



**DR. DHIREN P. SHAH**

PRINCIPAL,

C.K. Pithawalla Institute of Pharmaceutical Science and Research, Surat

I feel happy to know that the College Magazine Committee is bringing out the students magazine '**GUNADHYA**' which is in fact long awaited. As you know, the holistic development of the College students goes beyond classroom teaching or any structured/formal education system. Thus, any such attempt made to offer multi-pronged opportunities to its students and further helping them to grow and realize their true potential is always welcome. Our in house students Magazine '**GUNADHYAY**' provides a platform to students for their creativity, self-expression, learning experiences and even an identity they will be proud of through accepting the challenge of writing. Such an opportunity assumes importance in today's age of competition, in which the young generation seems to be caught up by the much attractive and addictive social media and networking. However, this cannot be a substitute for the human mind engrossed in thinking, exploring and constantly introspecting for the self, surroundings and the country. This magazine allows its readers to probe into and appreciate new voices, at times radical expressions and opinions of the budding poet, writers and essayists. All contributors and students deserve congratulations. I hope other students will also feel inspired and motivated to build up their writing and presenting skills. I look forward to all students reaching new heights in their respective fields and making our College a proud institution. I congratulate the entire Editorial team, for bringing together this edition of the magazine.

Best Wishes.

## EDITOR



**MR. DIPAYAN TARAFDER**

ASSIST. PROF., DEPT. OF PHARMACOLOGY,  
C.K. Pithawalla Institute of Pharmaceutical Science and Research, Surat

I am extremely delighted to welcome you to **“GUNADHYA” CKPIPSR- E-Newsletter, Volume-12, 2020-2021**. I feel great privilege to bringing out the E-newsletter. The e-newsletter includes academic excellence, students achievements, scientific articles, extra-curricular activities and events organized by the institute.

I would like to express our sincere gratitude to respected Principal Sir, **Dr. Dhiren Shah** for his support, motivation and guidance to co-ordinate this e-newsletter. I would like to thank our colleagues, students and staffs for their co-operation, support and encouragement for making the e-newsletter.

I also would like to thank all individuals who directly or indirectly support during making of the E-newsletter and We wish to continue culture of publishing E-newsletters in coming days with same passion. Suggestions and criticisms are always welcomed for the betterment of E-newsletter.



## STUDENT EDITORS

It gives us immense joy and satisfaction to finally re-introduce our very own college “E-BULLETIN”. Just like the gods and the asuras churned the ocean of milk to extract the nectar, we have tried to churn out creativity from this mess of science. A lot of effort has been made for this issue, we hope you enjoy thorough the magazine. The best thing about this issue is that it represents the creativity of students to a fair degree-something that we think we all need to reconnect with. Amidst the busy schedule of a semester, with exams and all those assignments and problem sheets that make you want to bang your head on the wall, we tend to lose track of all the other simpler things that we are capable of, things that we could have been proud of, that can bring one’s satisfaction. So this time we have made an attempt to bring out the talent concealed within our student community. This issue includes articles, poems, anecdotes, art-works, a host of other things and also a parody. We hope you enjoy while turning pages as much as we have enjoyed making it.



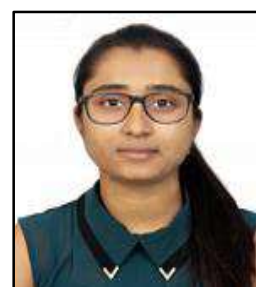
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**MANN AVIYA**  
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**NEHA PATEL**  
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## 1.1 GUEST LECTURE

**Date:** 18th February, 2021

**Topic:** “Opportunities in abroad for career in pharmacy”

**Resource Person:** Mr. Shreyas Joshi, Branch Head at AECC Global, Surat

**No. of Participants:** 70

### Summary of Session

Purpose of session was to help students to build their successful career. AECC Global is a leading education consultancy founded in 2008 with global footprint in 12 countries and 33 cities. Their motive is to provide expert international education guidance and counseling to passionate students. They have a dedicated team of richly experienced and certified professionals to help students in choosing the best courses available in international universities across worldwide. Sir guided students for the best course and career outcomes and gave information related international Education-counseling, Application process, Visa Documentation guidance, and scholarship Guidance.



## 2.1 WEBINAR

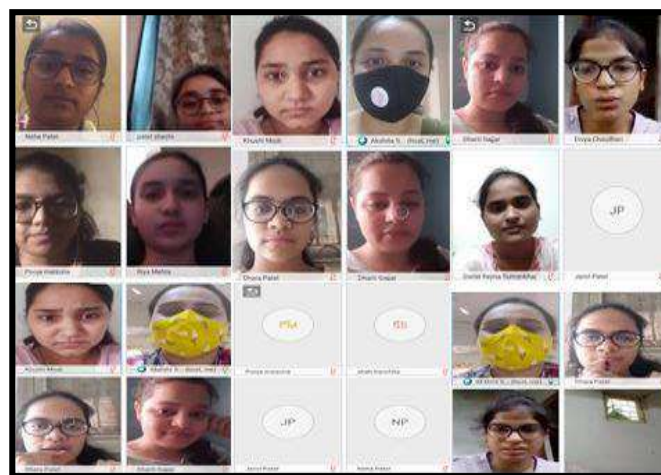
**Date:** 3<sup>rd</sup> November, 2020

**Topic:** “Awareness Related Sessions on Fitness and Active Life Style of Society”

**No. of Participants:** 30

### Summary of Session

In this session, various fitness and active life style related topics were included like physical and mental wellbeing exercise, yoga, healthy and hygienic food) Our students and faculties had registered and participated for this session. The purpose of the session was to encourage people to include physical activity and sports in their everyday lives. Our staff and students participated enthusiastically. This session was very beneficial for our society for fit and healthy life.





## 2.2 WEBINAR

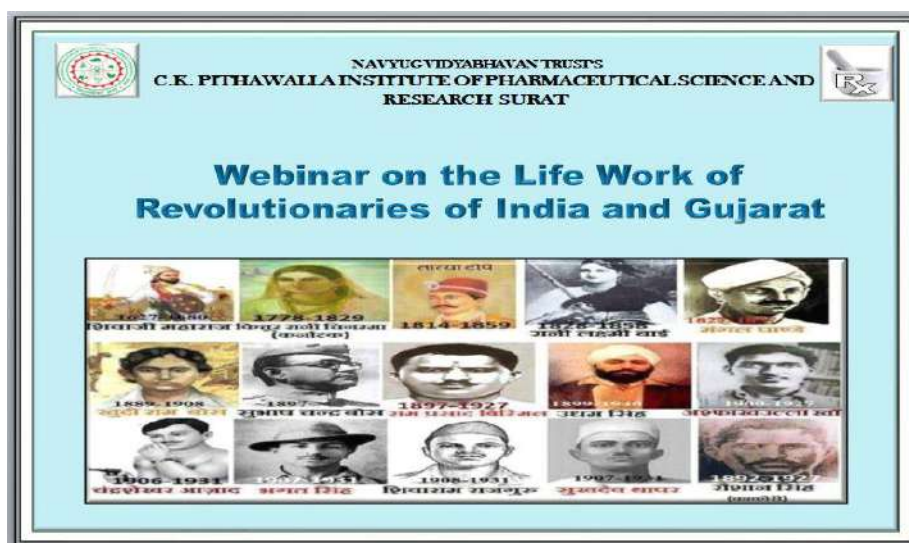
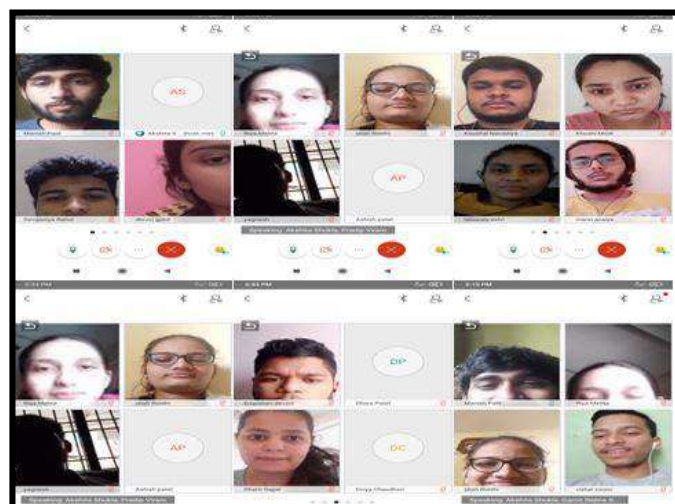
**Date:** 12<sup>th</sup> November, 2020

**Topic:** “The Life Work of Revolutionaries of India and Gujarat”

**No. of Participants:** 40

### Summary of Session

The Revolutionary movement for Indian Independence is a part of the comprising the actions of the underground revolutionary factions. Groups that believe in armed revolution against British rule fall into this category. The webinar gave an insight into the heroic revolutionaries of India and their struggle to leave India. The students were inspired about patriotism in the seminar. Our students and faculties were participated enthusiastically.





## 2.3 WEBINAR

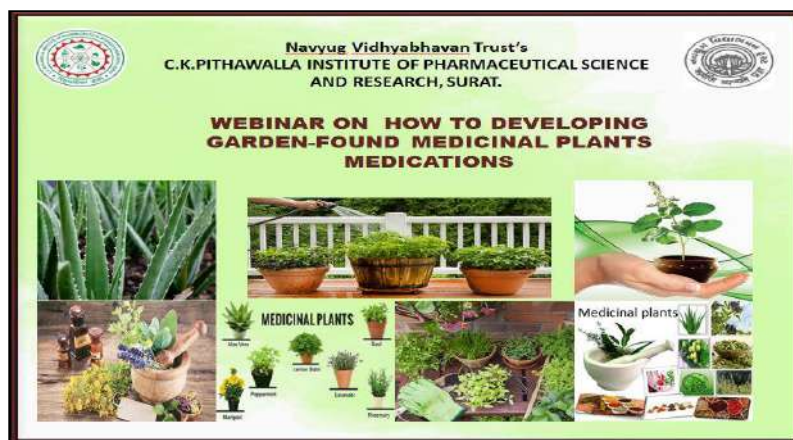
**Date:** 20<sup>th</sup> December 2020

**Topic:** “How to developing garden-found medicinal plants medications”

**No. of Participants:** 25

### Summary of Session

In this session, information regarding medicinal plant, importance of medicinal plant and how to developing garden-found medicinal plants related topics were included. Our students participated for this session. The purpose of the session was to encourage people to include physical activity and sports in their everyday lives. Our staff and students participated enthusiastically. This session was very beneficial for our society for fit and healthy life.



## 2.4 WEBINAR

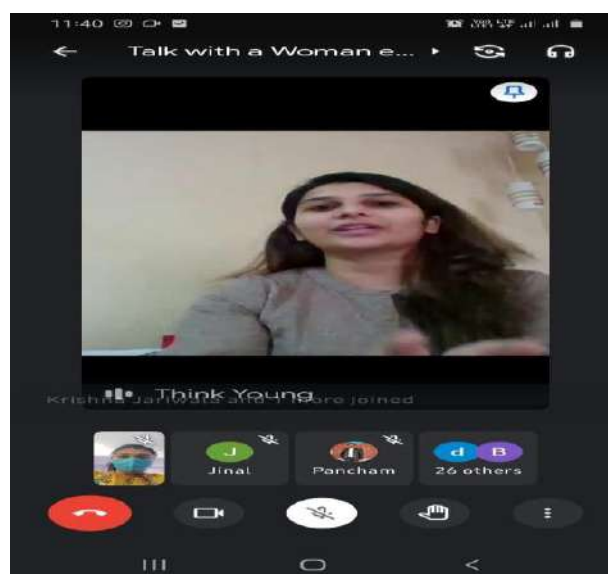
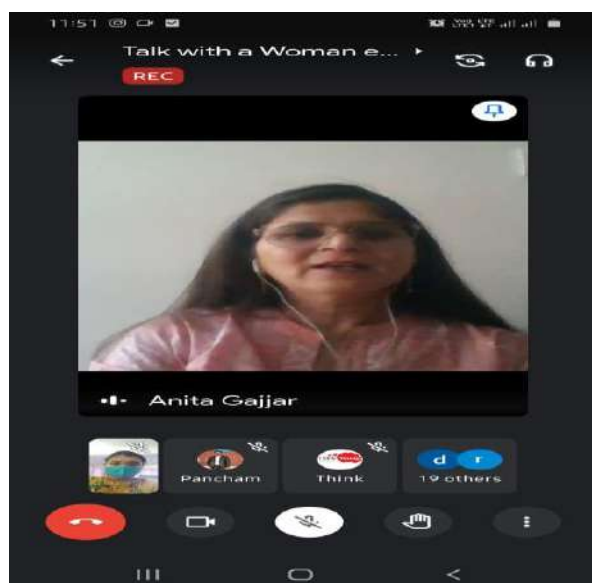
**Date:** 8<sup>th</sup> March, 2021

**Topic:** “Bharat Ki Naari: Swasthya Aur Sampannta Ki Kyari” (International Woman’s Day, 2021)

**No. of Participants:** 30

### Summary of Session

International Women's Day is a global day celebrating the social, economic, cultural and political achievements of women. The day also marks a call to action for accelerating gender parity. Teaching faculties and students attended webinar of "Successful SHE- an Open Interview" with Mrs. Aartee Patil - Managing Director - Helsa Icon India Pvt. Ltd. Also Kriya Doshi Founder @ think young , Anita Gajjar Founder @ luxortrends , Dipti Palav Co-founder @ Lokal eye Federation of Indian Chambers of Commerce & Industry (FICCI) and FICCI Ladies Organization (FLO) in association with FIT INDIA Mission, Govt. of India are organizing a conference titled “FIT WOMEN, FIT FAMILIES, FIT INDIA” to promote importance of women in keeping our country fit and progressive.



### **3.0 NSS ACTIVITY**

#### **3.1 VILLAGE VISIT**

**Date:** 30<sup>th</sup> January 2020

**Activity:** Village Visit

**No. of Participants:** 30

#### **Summary of Session**

Our institute organized a camp in the adopted village, Gaviyar on 30<sup>th</sup> January, 2020 in association with NGOs to create among people regarding cleanliness, water conservation as well as Forest conservation through display of banner in order to make the Gaviyar an Eco village. All Students were enthusiastically participated in the program and contributed in the community welfare.





### 3.2 WORLD CANCER DAY

**Date:** 4<sup>th</sup> February, 2020

**Activity:** Seminar in order to create awareness among students about the disease and its prevention

**No. of Participants:** 70

#### Summary of Session

World Cancer Day is an international day marked on 4<sup>th</sup> February to raise awareness about cancer, its belief and misbelief. On this account our institute observed “World Cancer Day” on 4<sup>th</sup> February, 2020 by organizing seminar in order to create awareness among students about the disease and its prevention. The primary goal of World Cancer Day is to significantly reduce global morbidity and mortality caused by cancer to make disease free and healthy society. All students enthusiastically enriched with the program.



### 3.3 SWACHH BHARAT MISSION

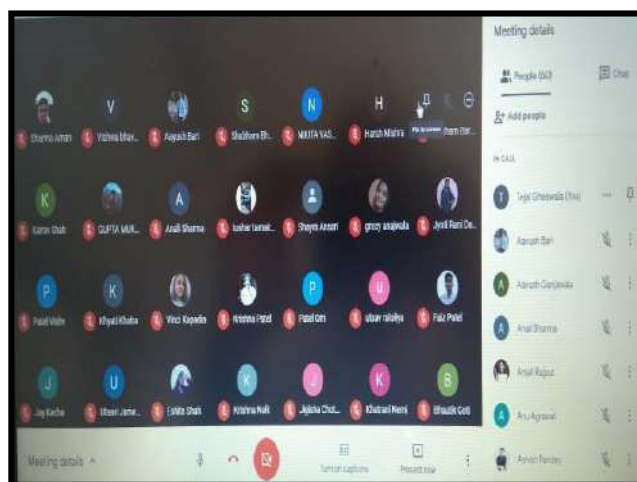
**Date:** 25<sup>th</sup> October 2020

**Activity:** Awareness of cleaning

**No. of Participants:** 40

#### Summary of Session

Our honorable Prime Minister Shri Narendrabhai Modi announced Swachh Bharat mission. He had urged college students and faculties to join this mission to contribute towards healthy nation. Aim of this session was to make people aware of healthy sanitation practices by bringing behavioral changes in people, to link people with the programmers of sanitation and public health in order to generate public awareness. Students and faculties of CKPIPSR were enthusiastically engaged in cleaning of garden and campus.





### 3.4 CELEBRATION OF FIT INDIA WEEK

**Date:** 30<sup>th</sup> December 2020 - 3<sup>rd</sup> January 2021

**No. of Participants:** 25

#### Summary of Session

In this session, various fitness and active life style related topics were included. (Like: physical and mental wellbeing exercise, yoga, healthy and hygienic food) Our students and faculties had registered and participated for this session. The purpose of the session was to encourage people to include physical activity and sports in their everyday lives. Our staff and students participated enthusiastically. This session was very beneficial for our society for fit and healthy life.



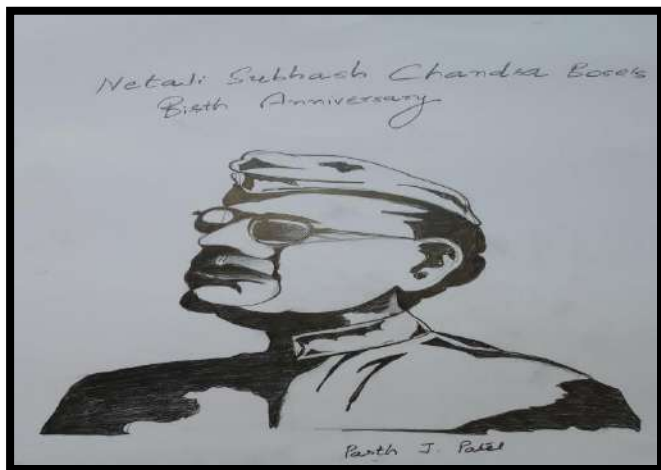
### 3.5 NETAJI SUBHASH CHANDRA BOSE'S BIRTH ANNIVERSARY

**Date:** 23<sup>rd</sup> January 2021

**No. of Participants:** 35

#### Summary of Session

A Drawing competition was organized for students on topics: Designing virtual Drawing depicting Netaji's Work. All the students enthusiastically participated in that program and good number of response was received for participation in events. Students performed very well with their creative mind. The Principal of host institute congratulated all the winners and participants for their enthusiastic participation in that event.



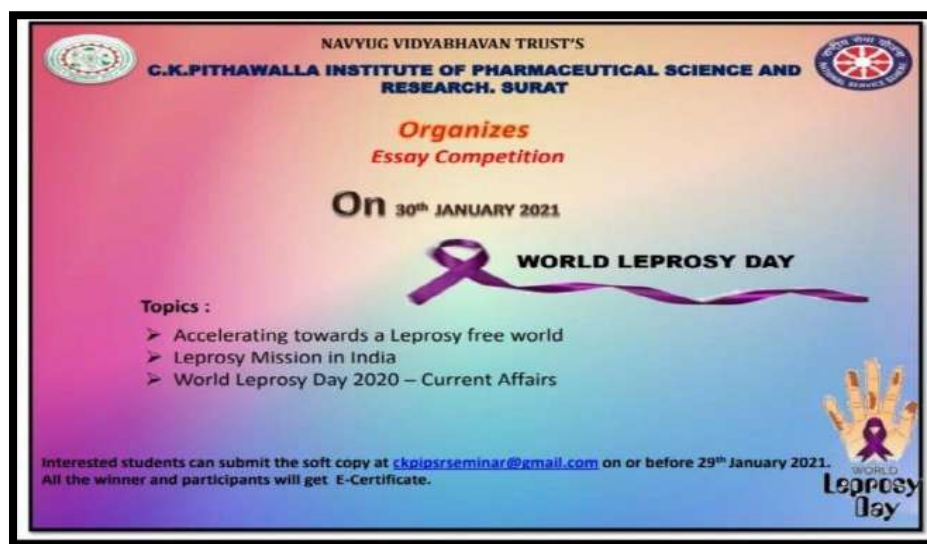
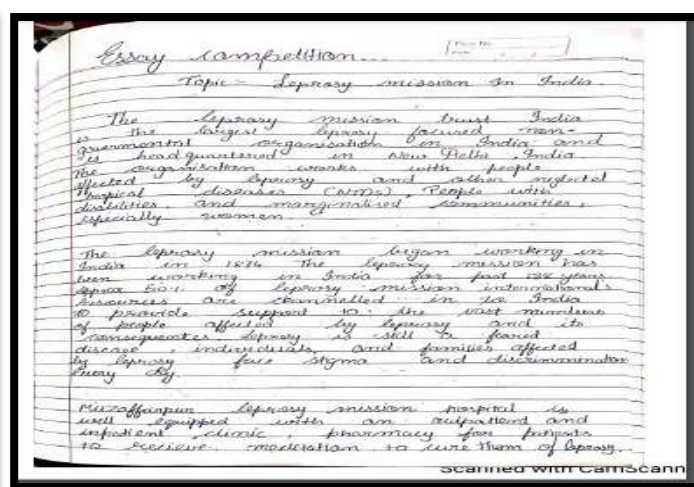
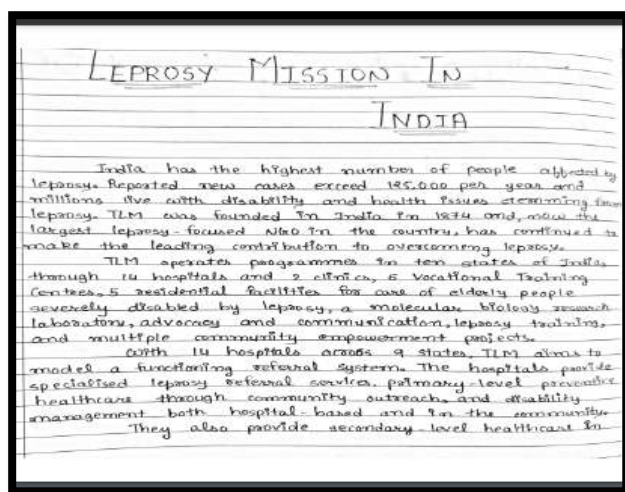
### 3.6 WORLD LEPROSY ERADICATION DAY

**Date:** 30<sup>th</sup> January 2021

**No. of Participants:** 37

#### Summary of Session

On account of World Leprosy Day, an essay competition was organized for students on topics 'Accelerating towards a Leprosy free world', 'Leprosy Mission in India' and 'World Leprosy Day 2020 – Current Affairs'. The focus of this competition was to raise awareness of such disease and to encourage its prevention, detection, treatment and role of young students, especially as pharmacist to contribute disease free and healthy society. All the students enthusiastically participated in this competition to make it successful.





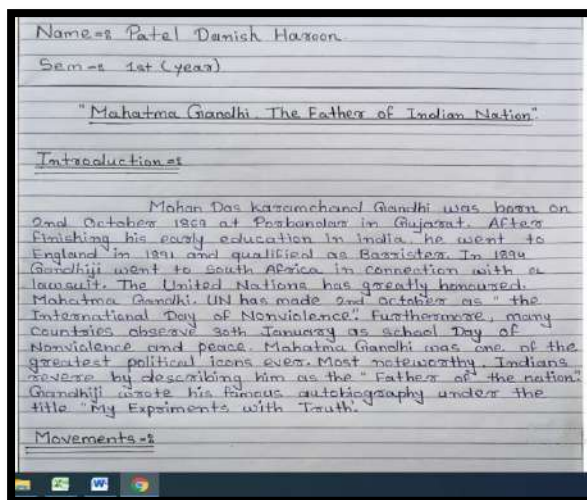
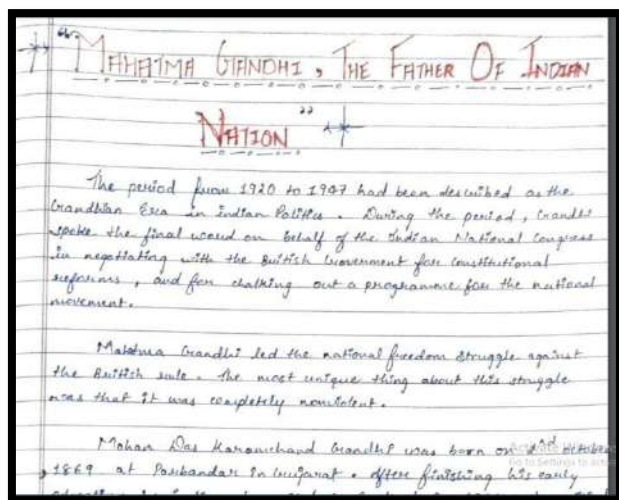
### 3.7 MAHATAMA GANDHI SMRUTI DIWAS

**Date:** 30<sup>th</sup> January, 2021

**No. of Participants:** 30

#### Summary of Session

CKPIPSR Celebrated Martyr's day (Shaheed Diwas) to pay homage to Mahatma Gandhi and all the freedom fighters who fought for the freedom, welfare and progress of our country. An essay competition was organized for students on topic "Mahatma Gandhi-the father of Indian nation". All the students enthusiastically participated in this competition.



## 3.8 400<sup>TH</sup> PRAKASH PARV CELEBRATION OF SHRI GURU TEGH BAHADUR

**Date:** 10<sup>th</sup> March, 2021

**No. of Participants:** 10

### Summary of Session

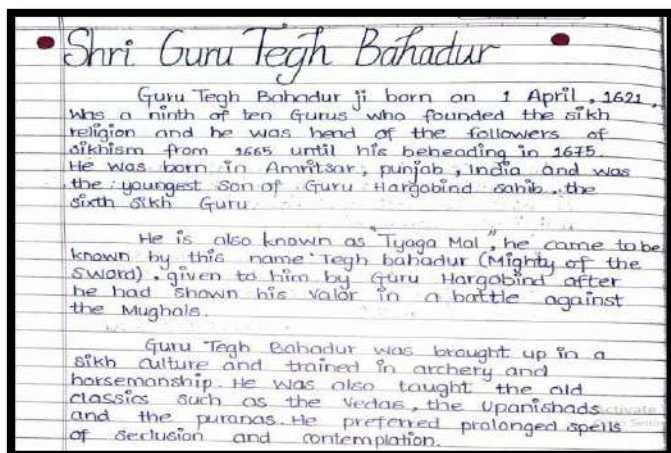
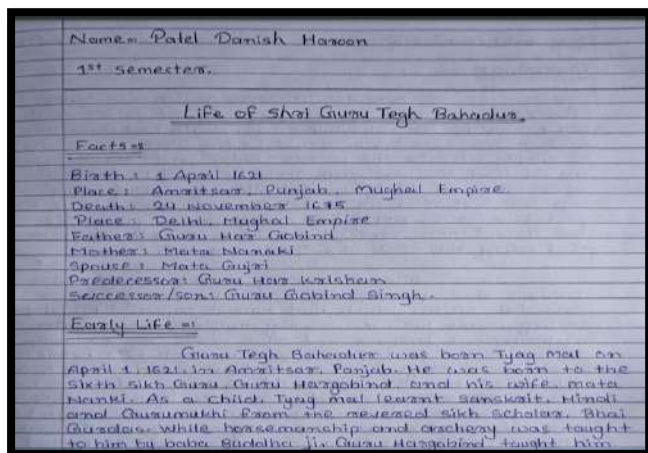
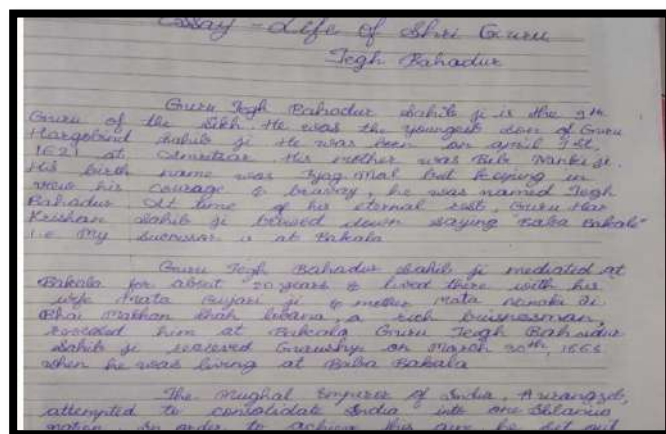
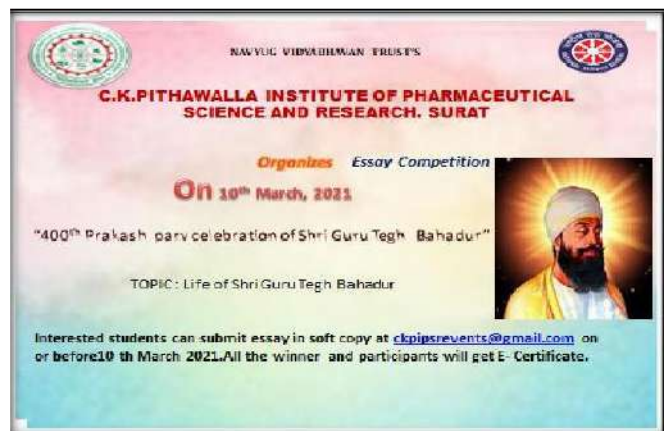
Our institute organized online mode an essay competition on event of “400<sup>th</sup> Prakash Parv celebration of Shri Guru Tegh Bahadur ji” on 10<sup>th</sup> March 2021, on topic Life of Shri Guru Tegh Bahadur.

### WINNERS OF ESSAY COMPETITION

1<sup>st</sup> - Anali Sharma and Danish Patel

2<sup>nd</sup> - Nikita Waswani

3<sup>rd</sup> - Jyotirani Dakua





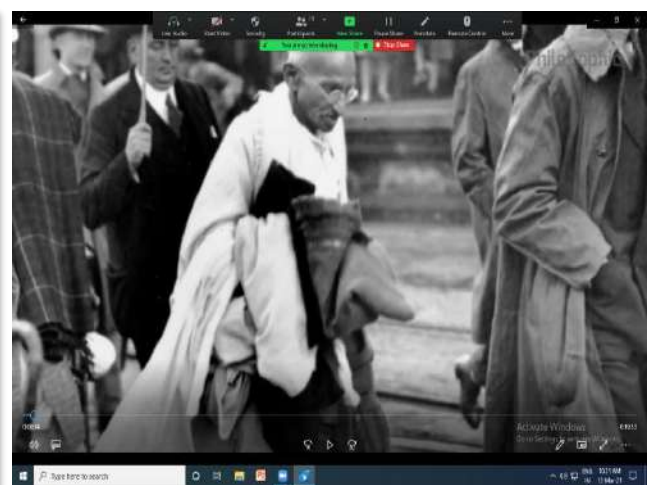
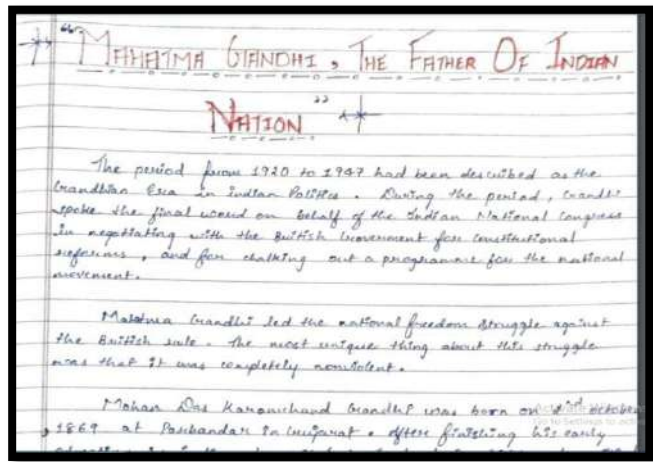
### 3.9 AZADI KA AMRUT MAHOTSAV

**Date:** 12<sup>th</sup> March, 2021

**No. of Participants:** 25

#### Summary of Session

To pay homage to Mahatma Gandhi and all the freedom fighters who fought for the freedom, welfare and progress of our country and anniversary of the launch of Dandi March, CKPIPSR organized an essay competition for students on topic “Mahatma Gandhi, the father of Indian nation” and organized online zoom seminar related to Dandi March or Freedom struggle Movie. All the students enthusiastically participated in this essay competition and Freedom struggle Movie to make it a successful event.



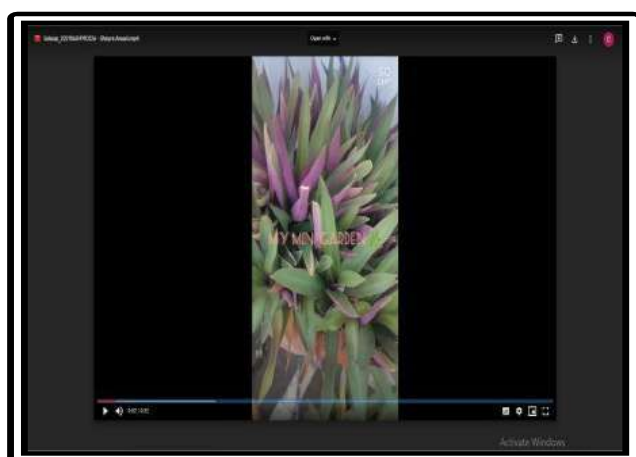
### 3.10 WORLD ENVIRONMENT DAY CELEBRATION

**Date:** 5th June, 2021

**No. of Participants:** 35

#### Summary of Session

WORLD ENVIRONMENT DAY was celebrated on 5<sup>th</sup> June, 2021 with great zest and enthusiasm at CKPIPSR, Surat campus as a part of our duty for the green India and better environment for the future. A video competition was arranged for students. The competition included activities like to make small video of environment around you, How to protect our environment, Role of environment in our life, Importance of environment, and How to encourage people for better environment.



### 3.11 INTERNATIONAL YOGA DAY CELEBRATION

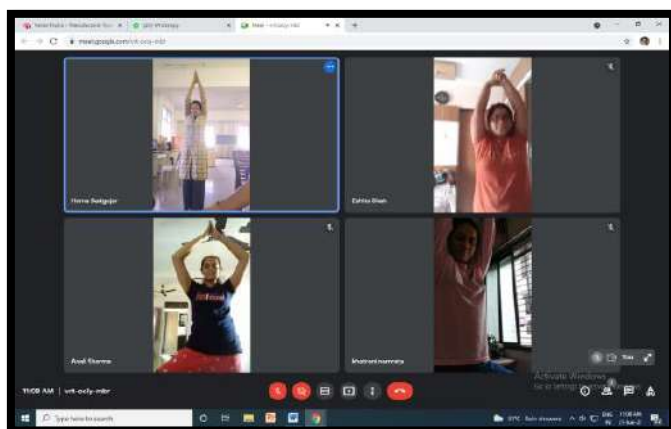
**Date:** 21<sup>st</sup> June, 2021

**No. of Participants:** 70

#### Summary of Session

The International Yoga Day on 21<sup>st</sup> June 2021 was celebrated, to create awareness on the physical and mental well – being among faculty and students. The COVID-19 protocol was followed during the practice session. The yoga practice session was attended by staff and students. During this session, the activities were as follows: **Asanas, Suryanamaskar, Pranayama, and Meditation**

Our staff & students enthusiastically participated in the event and wear benefited by several yoga poses with ‘OM KAR’ in background.





### 3.12 FIT INDIA FREEDOM RUN 2.0 COMPETITION

**Date:** 17<sup>th</sup> August, 2021

**No. of Participants:** 20

#### Summary of Session

FIT India Mission has conceptualized **FIT INDIA FREEDOM RUN 2.0** to commemorate the 75<sup>th</sup> Independence Day - "Azadi Ka Amrit Mahotsav". Nationwide campaign will be on the concept of "Physical/Virtual Run" in continuum from 13<sup>th</sup> August to 2<sup>nd</sup> October 2021 to encourage fitness and help us all to get freedom from obesity, laziness, stress, anxiety, diseases etc. The concept behind this run is that "It can be run anywhere, anytime!"

In this view, many students from CKPIPSR participated individually in Fit India Freedom Run 2.0 competition, by uploading their video of run or selfie on Fit India freedom run 2.0 portal and got their certificates of participation.



### 3.13 GANDHI JAYANTI 2021 POSTER PRESENTATION

**Date:** 1<sup>st</sup> October, 2021

**No. of Participants:** 07

#### Summary of Session

Gandhi Jayanti was celebrated on 1<sup>st</sup>, October 2021 in C. K. Pithawalla Institute of Pharmaceutical Science and Research. This day is celebrated every year to put forth the ideas of non-violence and unity promoted by Gandhi Ji. This year CKPIPSR organized poster presentation competition in which number of responses were received from students. Principal of the host institute congratulated all the winners and participants for their enthusiastic participation in that event.





## 4. Smart Card Distribution Camp @ CKPIPSR

**Date:** 1<sup>st</sup> August, 2021

**No. of Participants:** 600

### Summary of Session

The GSPC has started a new initiative of distributing Smart Cards to the registered pharmacists at various allotted centers across Gujarat. A Smart Card for Pharmacist is not only a mark of registration but also an identity that brings a sense of responsibility for serving the society. More than 600 smart cards were distributed and 200 new pharmacy license registrations were noted at CKPIPSR in association with Gujarat state Pharmacy Council (GSPC). Furthermore, on-spot registrations for smart-card preparation facility were provided at our institution while engaging teaching and non-teaching staff-members of CKPIPSR to make an event successful.



## 5.1 REFRESHER COURSE

**Date:** 30<sup>th</sup> and 31<sup>st</sup> January 2021

**No of participants:** 250 registered pharmacists

### Summary of Session

C. K. Pithawalla Institute of Pharmaceutical Science & Research had organized two days Refresher Course on **30<sup>th</sup> and 31<sup>st</sup> January 2021** for Registered Pharmacists, to help pharmacists to acquire knowledge of recent trends, updated knowledge on patient counselling for Covid vaccination in India.

Inaugural program **Chief Guest, Dr. Montu Patel sir** (President-Gujarat state Pharmacy Council and member of Pharmacy Council of India, Delhi and a director at Aveon Pharmaceutical Distributor, Ahmedabad) had described efforts taken by GSPC to improvise digitalization in Renewal, re- entry, good standing certificates and other works and also recognition of pharmacist and their important rule in Govt. Officials. Day 1 and day 2 guest speakers gave information on patient counseling for Covid vaccination in India, Drug- Drug interactions, Emergency management of poisoning, pharmacovigilance Scope, Importance and Regulation in India etc.



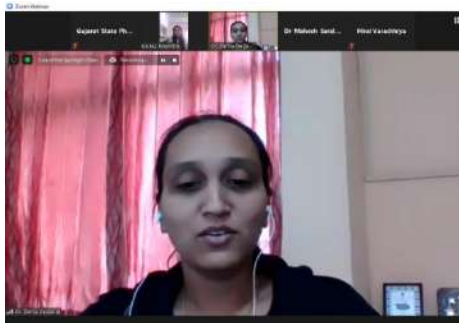
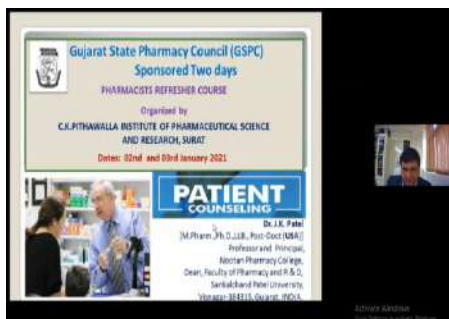
## 5.2 REFRESHER COURSE

**Date:** 2<sup>nd</sup> and 3<sup>rd</sup> January 2021

**No of participants:** 200 registered pharmacists

### Summary of Session

C.K. Pithawalla Institute of Pharmaceutical Science & Research has organized a two days Refresher Course on **2<sup>nd</sup> and 3<sup>rd</sup> January 2021** for REGISTERED PHARMACIST, to help pharmacist to acquire knowledge of recent trends, updated knowledge on new and banned drugs, drug interactions and side effects. Known personalities from various organizations and institutions delivered talk on topics like Patient Counseling, Environmental control in pharmaceutical Industry, Rationale use of OTC medicines, Immunization- Significance, Schedules, and Products available, switching prescription brands: Bioavailability and Bioequivalence considerations. **Valedictory guest Mr. Jashubhai Hirabhai Chaudhari sir (Registrar at GSPC)** gave information about smoothing registration process and incorporation of refresher course by online mode for the first time probably in the country by Gujarat State Pharmacy Council.





## 6. STUDENTS CREATIVITY

### 6.1 SKETCHES



**HARDIK MADHU (VI SEM)**  
Enrollment no: 182160290017



**RIYA MAHETA (III SEM)**  
Enrollment no: 192160290032



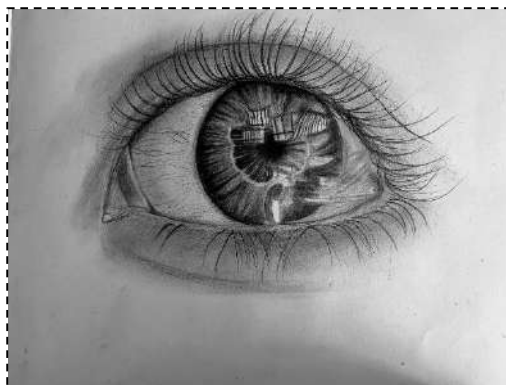
**HARDIK MADHU (VI SEM)**  
Enrollment no: 182160290017



**HARDIK MADHU (VI SEM)**  
Enrollment no: 182160290017



**VISHAWA PATEL (VI SEM)**  
Enrollment no: 182160290043



**VISHAWA PATEL (VI SEM)**  
Enrollment no: 182160290043



**VISHAWA PATEL (VI SEM)**  
Enrollment no: 182160290043



## 6.2 POEMS & QUOTES

Tu chalte jana,  
Ye teri raah hai, tu bas yunhi chalte jana,  
Ye raste mai modd zarur hai,  
Pr tu yunhi chalte jana  
Mana chattan si hogi muskile teri ,  
Pr tu honsla rakhna,  
Tu tod dega chattane sari..  
Tu bas yunhi chal te jana  
Ye raah mei ayenge sekdo,  
Ye raah mai avenge sekdo,  
Tu ek raste nikal ke bas chalte jana  
Ye sehar toh yunhi badal te rahenge  
Ye log toh yunhi sikhate rahenge..  
Tu badalon sa yunhi behte jaana..  
Kuch ko apna bhi bana lena,  
Kuch apna bhi hoke jaana,  
Tu thamni nahi yaha pe..  
Ye zindagi ka safar hai..  
Tu bas yunhi chalte jana..

@hardikmadhu

**HARDIK MADHU (VI SEM)**

Enrollment no: 182160290017

### Kitab

Zindagi ki kitab me panne  
he kahi

panne me kahani likhi hai  
mene nayi  
YaDgar panno ki yaro wali  
kahani bhi yahi  
Aur pyar ka panna mod  
rakha tha kahi  
Kuchh achche to kuchh  
bure pal bhi sahi  
Kuchh pane ki chah he kahi  
Aur har panne ko palatne ki  
he majboori yahi

Ae zindagi teri kitab ke  
panne mehfuz rahe sabhi

-RISHI BHARATIA

**RISHI BHARATIA (VI SEM)**

Enrollment no: 182160290003

## 7. GPAT QUALIFIERS



**MS. RIDDHI VIRAL JADIYA**

GPAT AIR 757  
NTA SCORE 98.33



**MS. KAVSAR FARUKBHAI MALEK**

GPAT AIR 1545  
NTA SCORE 96.60

## 8. SCIENTIFIC ARTICLE

### CHRONOTHERAPEUTICS

**Prepared By:** Patel Foram Shantubhai, Patel Vishwa Hasmukhbhai, Patel Sahina Mehboob, Pathan Shahbazkhan Ataullakhan

**Guided By:** Mr. Yahya A. Moolla

#### **Introduction**

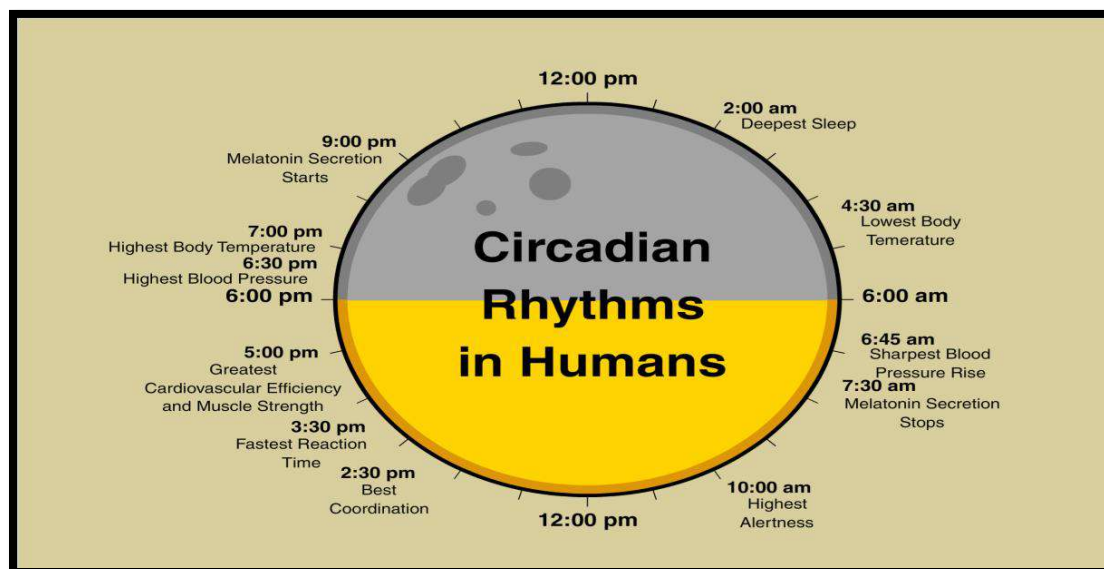
Chronotherapeutics is defined as the study of delivering the medicament in a proper concentration at a right time to cure the disproportionality occurring in biological rhythms due to particular diseases. In other words, it is defined as the displacing a drug to site of action at a timely manner. Benefit of chronotherapy is that it increases the effect of drug and on the other hand decreases unwanted effects caused by the drug.

Cure from the disease depends upon the therapy which in turn depends upon the drug. A therapy is successful when amount of drug with suitable concentration reaches the targeted site at proper time and eliminates from the body in a proper timely manner. Change in the time management of drug directly affects the drug safety and efficacy. If we administered a drug in a time where it gives a maximum therapeutic effect and negligible or no side effect, then the drug is said to be an ideal drug. It depends upon the circadian rhythm i.e. biological cycle which undergoes metabolic changes. Advancement in Chronotherapeutics includes different formulations which deliver drug to site of action at a timely manner with the aim to obtain maximum therapeutic effect.

#### **Need of Chronotherapeutics**

- It requires to treat diseases like hypertension, angina pectoris, myocardial infarction, bronchial asthma, ulcer, and rheumatoid arthritis in a better way, as they show crests and troughs in their symptoms in a 24 h cycle.
- It protects those drugs which are degraded in acidic medium by the study of biological cycle.

- Targeted drug delivery system where drug release is confined to particular part of GIT e.g: colon targeted drug delivery system in which drug release is restricted in stomach and small intestine and drug is released in colon.
- Drugs that undergo hepatic metabolism are formulated as pulsatile dosage form.
- Tolerance of drugs is decreased by using chronotherapeutic dosage form.



### Advantages of Chronotherapy

- Chronotherapy is drug-free.
- Chronotherapy is more effective when a person sleeps for several hours.
- While Chronotherapy patients often fall asleep this improves their condition and confidence.
- Chronotherapy is different from other treatments because it got the beginning, middle, and an end. So one can predict easily the point at which it will work.
- It gives you a new schedule like getting up and sleeping early which will be quite unusual for some days but it will give you a period to adjust psychologically.
- Improved stability.
- No risk of dose dumping.

### Disadvantages of Chronotherapy

- It develops a non 24 hours sleep wake syndrome after the treatment as the person.
- Sleeps or over 24 hours during the treatment.



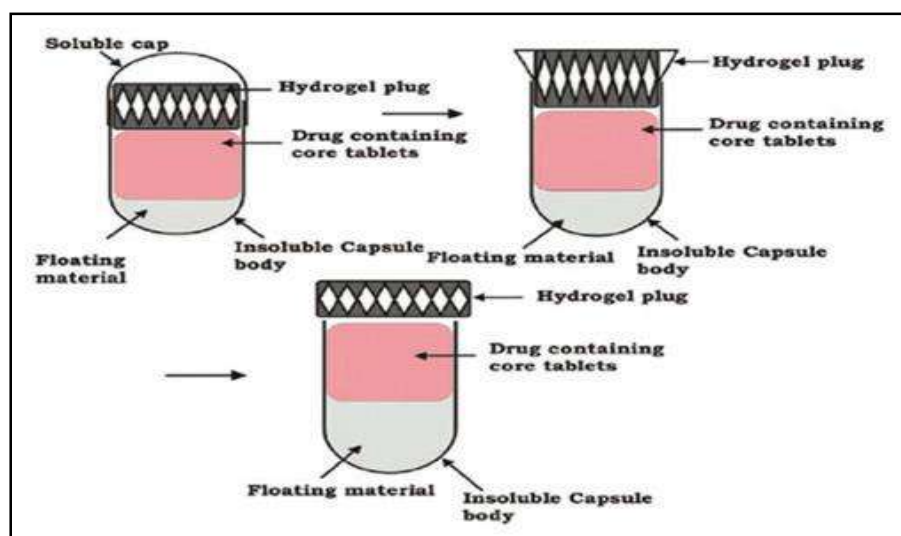
- Person become less productive during chronotherapy and staying awake till the other schedule will be bit uncomfortable.
- Medical supervision is mandatory for this therapy.
- Large number of process variables.
- Trained /skilled person is needed for manufacturing.

### **Chronotherapeutic Devices**

- A. Capsular Systems
- B. Rupturable Coating Systems
- C. Osmosis Based Capsular System (Port System)
- D. Soluble Barrier Coating System
- E. Multiparticulate Systems

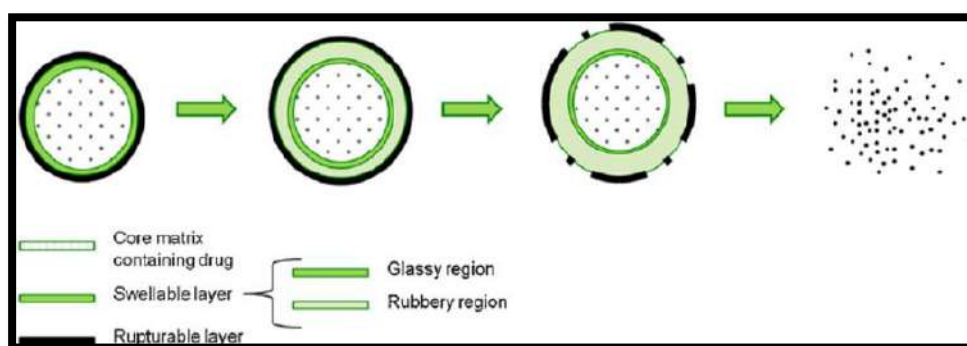
#### **A. Capsular Systems**

It consists of drug formulation inside a plug which is erodible after a predetermined lag phase along with an outer coating of a water insoluble capsule. A swellable hydrogel plug closes the open end of the capsule body. As the capsule comes in contact with fluids the plug swells after the predetermined lag phase and comes out of the capsule leading to the pulsatile release of the drug. The plug is mainly formed by permeable and soluble polymers such as HPMC, agar, pectin and polymetaacrylates. The best example of developed capsular system would be pulsincap system.



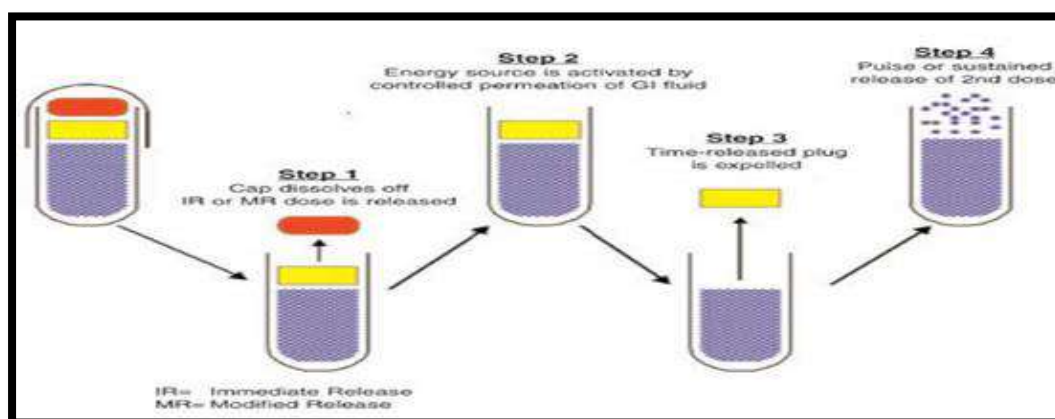
#### **B. Rupturable Coating Systems**

In such kind of systems coating ruptures or disintegrates to release a particular drug. Coating ruptures due to swelling/ osmotic pressure/disintegration/effervescent recipient. The effervescent mixture is generally composed of citric acid and borax which is inserted into the core further coated with ethyl cellulose. Pressure generated due to the formation of the carbon dioxide gas leads to the rupturing of the coating.<sup>2</sup> Increased coating thickness and increased hardness of the core tablet leads to the increase in the lag time. Certain agents such as sodium starch glycolate and low substituted hydroxyl propyl cellulose are used as the swelling agents and they swell upon contact with the GI fluids leading to the complete film rupture and resultant drug release.



### C. Osmosis Based Capsular System (Port System)

It consists of a semi permeable membrane coating a gelatin capsule. Osmotically active agents present in the capsule inside an insoluble plug within the capsule. As this capsule comes in contact with the oral and GI fluids the water diffuses across the semi permeable membrane resulting in increased pressure that results in resultant release of the drug a particular predetermined lag time. E.g.: Ritalin (methyl phenidate): Attention Deficit Hyperactive Disorder.



#### **D. Soluble Barrier Coating System**

Here a barrier membrane coats the reservoir of the drug and barrier dissolves after a specific lag time leading to the chronotropic release of the drug. Mainly in the chronotropic system core consists of a coating by HPMC a hydrophilic swellable polymer or cellulose acetate phthalate which results in desired lag phase of the drug release.

#### **E. Multiparticulate Systems**

They are generally in the form of beads and pellets and they mainly act as reservoirs. All the granules are packed in a capsule after coated the drug over sugar beads. The main advantage of such kind of systems is that it prevents the dose dumping. There are few kinds of multiparticulate system mainly categorized on the basis of pulsatile release by osmotic rupture or rupture of membrane due to other reasons.

#### **Chronotherapy used in the treatment of different disease**

1. Hypertension
2. Bronchial asthma
3. Peptic ulcer
4. Myocardial infarction
5. Arthritis
6. Cerebrovascular accidents
7. Hypercholesterolemia

**Hypertension:** It is the physiological condition described as morning surge. In hypertension the systolic bloods pressure rises up to 3mmHg/hour for 4-6 hours after getting up which is called as post-awakening and the diastolic blood pressure also rises up to 2mmHg/hours. Blood pressure and heart rate will be high at the time of waking in the morning and it will begin to decrease in the afternoon and reaches minimum at mid night.

**Myocardial Infarction:** Platelet aggregation and the vascular tone is high in the morning when the release of the catechol amine and cortisol is high. The main regions for the outburst of the myocardial infarction in the morning with 34% events taking place from 6 am till noon. Cyclooxygenase inhibitor-



2 will relieve the pain effectively when taken in the morning.

**Peptic Ulcer Disease:** Histamine antagonist given at night shows the better result unlike when given at the regular intervals around the clock. But more pain and more acid secretion thus formation of gastric and duodenal ulcers more subjective at night time than day time.

**Hyper Cholesterolemia:** Cholesterol intake and its biosynthesis is more in the evening hour. Therefore after the discovery of circadian rhythms the first HMG co-A inhibitor was re-evaluated and evening doses were recommended in spite of the morning doses.

**Bronchial Asthma:** Asthma disease has more circadian variation than the other diseases. Various Chronotherapeutics studies have been undertaken and they show the intake of time released theophyllin at 3 P.M achieves therapeutic dose at night and toxic levels during the day are avoided.

Table 5: Case Study

| Sr.<br>No | Drug                | Polymer+Excipients                                   | Results   |
|-----------|---------------------|--|---|
| 1         | Carvidelol Sulphate | Eudragit L 100 and Ethyl Cellulose                   | The optimized formulation shows 267 min lag time and 76.2% cumulative drug release after 8hrs |
| 2         | Ramipril            | HPMCK 100M, Ethyl cellulose, cross caramalose sodium | The optimized batch shows lag time for 5hrs and exhibit 83.96% of drug release for 7 hrs      |
| 3         | Nebivolol           | HPC, Ethyl Cellulose                                 | The optimized batch shows lag time for 5.25 hrs before burst release could occur.             |

## 9. INSTITUTE TOPPERS

### SUMMER 2021

| Rank                        | Student Name              | Enrollment no. | SPI          |
|-----------------------------|---------------------------|----------------|--------------|
| <b>B. Pharm II semester</b> |                           |                |              |
| <b>1.</b>                   | RAJPUT ANJALI R.          | 202160290010   | <b>10.00</b> |
|                             | BARDOLIWALA PRATHAM SUNIL | 202160290021   | <b>10.00</b> |
| <b>2.</b>                   | SONAM GUPTA               | 202160290044   | <b>9.96</b>  |
| <b>3.</b>                   | KHATRANI ANMRATA M.       | 202160290020   | <b>9.78</b>  |
| <b>B. Pharm IV semester</b> |                           |                |              |
| <b>1.</b>                   | HANSLOD TEHZIB M.         | 192160290017   | <b>9.38</b>  |
| <b>2.</b>                   | MEHTA RIYA K.             | 192160290032   | <b>9.23</b>  |
|                             | PATEL NEHA KAPIL          | 192160290048   | <b>9.23</b>  |
|                             | GAMIT REJINABEN S.        | 192160290012   | <b>9.23</b>  |
|                             | PATEL FENI A.             | 192160290043   | <b>9.23</b>  |
|                             | PATEL DHARA J.            | 192160290041   | <b>9.23</b>  |
| <b>3.</b>                   | SWAIN VISHAL H.           | 192160290072   | <b>9.00</b>  |
| <b>B. Pharm VI semester</b> |                           |                |              |
| <b>1.</b>                   | PATEL FORAM S.            | 182160290033   | <b>10.00</b> |
| <b>2.</b>                   | SINGH MAMTA KUNWAR K.     | 182160290057   | <b>9.56</b>  |
|                             | PATEL MILIBEN S.          | 182160290036   | <b>9.86</b>  |

|                               |                   |              |             |
|-------------------------------|-------------------|--------------|-------------|
|                               | MADHU HARDIK P.   | 182160290017 | <b>9.86</b> |
|                               | JAISWAL VIBHA M.  | 182160290014 | <b>9.86</b> |
| <b>3.</b>                     | PATEL MINUBEN S.  | 182160290037 | <b>9.64</b> |
| <b>B. Pharm VIII semester</b> |                   |              |             |
| <b>1.</b>                     | MODI MILAN H.     | 172160290033 | <b>9.82</b> |
| <b>2.</b>                     | SHROFF HARSHAL N. | 172160290057 | <b>9.82</b> |
| <b>3.</b>                     | PATIL RUSHIKESH   | 172160290049 | <b>9.55</b> |

## WINTER 2020

| Rank                  | Student Name              | Enrollment no. | SPI   |
|-----------------------|---------------------------|----------------|-------|
| B. Pharm I semester   |                           |                |       |
| 1.                    | JAIN DHAWAL               | 202160290016   | 10.00 |
|                       | BARDOLIWALA PRATHAM SUNIL | 202160290021   |       |
|                       | SHAH ZEAL                 | 202160290052   |       |
| 2.                    | SONAM GUPTA               | 202160290044   | 9.93  |
| 3.                    | BHATTAD SHUBHAM S.        | 202160290011   | 9.90  |
|                       | BARI AAYUSH S.            | 202160290064   |       |
| B. Pharm III semester |                           |                |       |
| 1.                    | HANSLOD TEHZIB MUSA       | 182160290017   | 9.07  |
| 2.                    | MEHTA RIYA KALPESH        | 192160290032   | 8.71  |
|                       | SINGH SAUMYA              | 192160290071   |       |
|                       | LATHIYA JAY               | 192160290027   |       |
| 3.                    | PATEL SHACHI              | 192160290051   | 8.64  |
|                       | PATEL DHARA               | 192160290041   |       |
| B. Pharm V semester   |                           |                |       |
| 1.                    | PATIL BHUMIKA             | 182160290045   | 9.00  |
|                       | SINGH MAMTA               | 182160290057   |       |



|                              |               |              |      |
|------------------------------|---------------|--------------|------|
| 2.                           | PATEL MILIBEN | 182160290036 | 8.87 |
|                              | PATEL FORAM   | 182160290033 | 8.87 |
| 3.                           | MADHU HARDIK  | 182160290017 | 8.80 |
| <b>B. Pharm VII semester</b> |               |              |      |
| 1.                           | PATEL SAHINA  | 172160290047 | 8.64 |
| 2.                           | JADIYA RIDDHI | 172160290018 | 8.57 |
| 3.                           | SOSA HEMAXI   | 172160290059 | 8.50 |

### SUMMER 2020

| Rank                        | Student Name           | Enrollment no. | SPI  |
|-----------------------------|------------------------|----------------|------|
| <b>B. Pharm II semester</b> |                        |                |      |
| 1.                          | HANSLOD TEHZIB MUSA    | 182160290017   | 9.84 |
|                             | MEHTA RIYA KALPESH     | 192160290032   |      |
|                             | SWAIN VISHAL HEMANT    | 192160290072   |      |
|                             | NEHA PATEL             | 192160290048   |      |
| 2.                          | GHOUGHARI ANKUSH A     | 192160290013   | 9.72 |
|                             | NAVADIYA KAUSHAL B     | 192160290035   |      |
|                             | GAMIT REJINABEN S      | 192160290012   |      |
|                             | SINGH SAUMYA R         | 192160290071   |      |
|                             | GAJJAR DHARTI G        | 192160290011   |      |
|                             | PATEL FENIL S          | 192160290044   |      |
| 3.                          | PATHAN HAMID H. A. K.  | 192160290053   | 9.60 |
| <b>B. Pharm IV semester</b> |                        |                |      |
| 1.                          | PATIL BHUMIKA BHARAT   | 182160290045   | 8.98 |
| 2.                          | MADHU HARDIK PRAVIN    | 182160290017   | 8.92 |
| 3.                          | JAISWAL VIBHA MUNNALAL | 182160290014   | 8.89 |

| <b>B. Pharm VI semester</b>   |                         |              |              |
|-------------------------------|-------------------------|--------------|--------------|
| <b>1.</b>                     | JADIYA RIDDHI VIRAL     | 172160290018 | <b>9.41</b>  |
| <b>2.</b>                     | PATEL SAHINA MEHBOOB    | 172160290047 | <b>9.11</b>  |
| <b>3.</b>                     | NISHAD VANDANA RAMRATAN | 172160290035 | <b>8.96</b>  |
| <b>B. Pharm VIII semester</b> |                         |              |              |
| <b>1.</b>                     | VARIYA YASH K.          | 162160290060 | <b>10.00</b> |
| <b>2.</b>                     | SHAH RUSHALI NILESHBHAI | 162160290045 | <b>8.59</b>  |
| <b>3.</b>                     | SHARMA ANCHALBEN V.     | 162160290047 | <b>8.31</b>  |

### **WINTER 2019**

| <b>Rank</b>                  | <b>Student Name</b>    | <b>Enrollment no.</b> | <b>SPI</b>  |
|------------------------------|------------------------|-----------------------|-------------|
| <b>B. Pharm I semester</b>   |                        |                       |             |
| <b>1.</b>                    | HANSLOD TEHZIB MUSA    | 182160290017          | <b>8.86</b> |
|                              | MEHTA RIYA KALPESH     | 192160290032          |             |
|                              | SWAIN VISHAL HEMANT    | 192160290072          |             |
| <b>2.</b>                    | NEHA PATEL             | 192160290048          | <b>8.76</b> |
| <b>3.</b>                    | KHAN ABDULKARIM M.     | 192160290022          | <b>8.40</b> |
| <b>B. Pharm III semester</b> |                        |                       |             |
| <b>1.</b>                    | SINGH MAMTA KUNWAR     | 182160290057          | <b>8.93</b> |
| <b>2.</b>                    | PATIL BHUMIKA BHARAT   | 182160290045          | <b>8.86</b> |
|                              | JAISWAL VIBHA MUNNALAL | 182160290014          |             |
| <b>3.</b>                    | MADHU HARDIK PRAVIN    | 182160290017          | <b>8.71</b> |
| <b>B. Pharm V semester</b>   |                        |                       |             |
| <b>1.</b>                    | JADIYA RIDDHI VIRAL    | 172160290018          | <b>8.91</b> |
| <b>2.</b>                    | PATEL SAHINA MEHBOOB   | 172160290047          | <b>8.31</b> |

|                       |                          |              |      |
|-----------------------|--------------------------|--------------|------|
| 3.                    | NISHAD VANDANA RAMRATAN  | 172160290035 | 8.00 |
|                       | PATEL NEVIL JITENDRABHAI | 172160290046 |      |
| B. Pharm VII semester |                          |              |      |
| 1.                    | SHARMA ANCHALBEN V.      | 162160290047 | 8.91 |
| 2.                    | SHAH RUSHALI NILESHBHAI  | 162160290045 | 8.73 |
| 3.                    | SINGH SONAL RAISAHAB     | 162160290049 | 8.55 |

## 10. PLACEMENT



**C. K. PITHAWALLA INSTITUTE OF PHARMACEUTICAL SCIENCE  
AND RESEARCH, SURAT.**



**Congratulate**

*All students for the placement 2021*



**KACHARIYA ASHISH MAESHBHAI**  
ASSISTANT EXECUTIVE—MARKETING  
VENTORP PHARMACEUTICALS  
(2.52 LAKH)



**SARVAIYA AMITKUMAR BHUPATBHAI**  
ASSISTANT EXECUTIVE—MARKETING  
STADIA BIOTECH (XIEON LIFE SCIENCES)  
(2.52 LAKH)



**SOSA HIMAXI GOVIND**  
ASSISTANT EXECUTIVE—INDUSTRY  
ZOTA HEALTH CARE LTD  
(1.72 LAKH)



**PARMAR VISHAL KIRTIKUMAR**  
ASSISTANT EXECUTIVE—SUPPLY CHAIN  
MANAGEMENT  
ZOTA HEALTH CARE LTD (DAVAINDIA)  
(1.72 LAKH)



**MALEK KAVSAR FARUKBHAI**  
ASSISTANT EXECUTIVE—INDUSTRY  
ZOTA HEALTH CARE LTD  
(1.50 LAKH)



**VAISHNAV HARSHIL VIPINKUMAR**  
QUALITY ASSURANCE- INDUSTRY  
RONALD PHARMACEUTICALS PVT LTD.  
(1.80 LAKH)



**SUREJA NIRMAL RAJESHBHAI**  
PRODUCTION OFFICER- INDUSTRY  
SWISS PARENTERAL PVT LTD  
(2.20 LAKH)



**JADAV JEMISHKUMAR BHARTBHAI**  
JR. OFFICER QA/QC—INDUSTRY  
JENBURKT PHARMACEUTICAL LTD.  
(1.80 LAKH)



# THE END

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