



Shellino Education Society's

## **ARUNAMAI COLLEGE OF PHARMACY**

📍 Gat No 285, Vidgaon Road, Mamurabad, Jalgaon, (MS) 425002

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**Nanasaheb R. G. Patil**  
(President)

**Dr. T. A. Deshmukh**  
(Principal)

## **Criteria 2- Teaching- Learning and Evaluation**

### **2.3. Teaching- Learning Process**

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences using ICT tools

**Academic Year 2022-23**



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### Problem Solving Learning:

#### Academic Year 2022-23

Sr. No	Title
01	Tutorial
02	Under Graduate Projects
03	One Day Workshop on Technical Approach in processing of Ayurvedic Formulations.


**INDEX**

Tutorial No.	Subject	Topic	Date	Marks Pg.No.
1.	[BP 701T]	Assignment No.1	9-8-22	9.0
2.	Instrumental	Assignment No.2	22-8-22	9.5
3.	Methods of	Assignment No.3	30-8-22	9.3
4.	Analysis	Assignment No.4	8-9-22	9.1
5.		Assignment No.5	19-9-22	9.5
6.		Assignment No.6	29-9-22	9.6
7.		Assignment No.7	6-10-22	9.0
8.		Assignment No.8	13-10-22	9.0
9.		Assignment No.9	20-10-22	9.0
10.		Assignment No.10	3-11-22	9.4

Average =

$$\frac{92.4}{10} = \underline{\underline{9.24}}$$



  
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*Handwritten signature in red ink*

Q.1 What is near and far UV region. Explain in detail the origin and theory of UV Spectra. Discuss the types of transitions.

→  
• Spectroscopy :-

- Spectroscopy is a branch of science that involves investigating the interaction of electromagnetic field with matter.
- Electromagnetic radiation consists of discrete packages of energy which are called photons.

• Near UV region :-

- The region between  $2000 \text{ \AA} - 4000 \text{ \AA}$  is known as near ultraviolet region.

• far UV region :-

- The region below  $2000 \text{ \AA}$  is called as far or vacuum ultraviolet region.

• Origin and Theory of UV Spectra :-

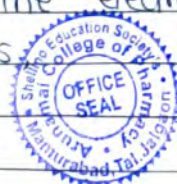
- Ultraviolet absorption spectra arise from transition of electron or electrons within a molecule from a lower to a higher energy level and the ultraviolet emission spectra arise from the reverse type of transition. When a molecule absorbs ultraviolet radiation, the electron in that molecule undergoes transition from a lower to a higher energy level or molecular orbital, the energy difference is given by


$$E = h\nu \text{ erg} \quad \text{-----} \text{①}$$

- The actual amount of energy required depends on the difference in energy between the ground state  $E^0$  and excited state  $E'$  of the electrons.

Then, equation ① becomes

$$E' - E^0 = h\nu$$



  
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- The total energy of a molecule is equal to the sum of electronic, vibrational and rotational energy.

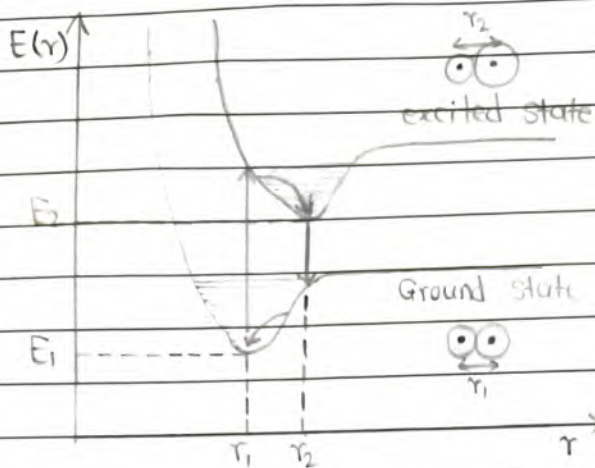


Diagram:- Energy level & transition of electrons.

- Three distinct types of electrons are involved in organic molecules. These are as follows:

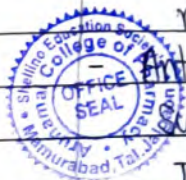
- $\sigma$ -Electrons - These electrons are involved in saturated bonds. These bonds are as  $\sigma$ -bonds. As the amount of energy required to excite electrons in  $\sigma$ -bonds is much more than that produced by the UV light, compounds containing  $\sigma$ -bonds do not absorb UV radiation.

- $\pi$ -Electrons - These electrons are involved in the unsaturated hydrocarbons. Typical compounds with  $\pi$ -bonds are trienes and aromatic compounds.

- $n$ -Electrons - These are the electrons which are not involved in bonding between atoms in molecules. Examples are organic compounds containing nitrogen, oxygen or halogens.

- Bonding orbital: Molecular orbital is formed by addition of atomic orbital called Bonding orbital. It requires low energy & High electron density. Electron spend most of time within nuclei of 2 atoms.

- Anti-bonding orbital: Molecular orbital is formed by subtraction of atomic orbital called anti-bonding orbital. It requires High energy & low electron density.



• Types of electron transitions :-

Energy absorbed in the UV region by complex organic molecules causes transition of valence electrons in the molecules.

$$n \rightarrow \pi^* < \pi \rightarrow \pi^* < n \rightarrow \sigma^* < \sigma \rightarrow \sigma^*$$

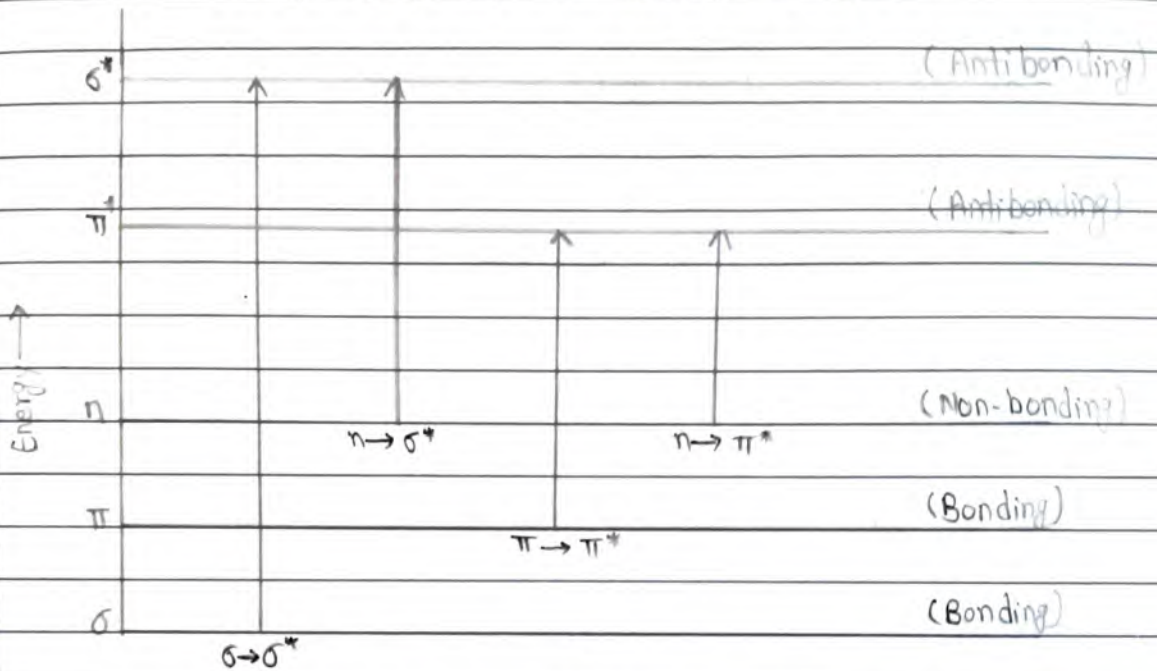


Diagram :- Promotion of an electron via different electron transitions.

1)  $n \rightarrow \pi^*$  transition :-

- These types of transition are shown by unsaturated molecules which contain atoms such as oxygen, nitrogen and sulphur.
- In aldehydes and ketones (having no  $C=C$  and  $C=C$  bonds) the band due to the  $n \rightarrow \pi^*$  transition generally occurs in the range  $2700 - 3000 \text{ \AA}$  ( $270 - 300 \text{ nm}$ ).
- On the other hand, carbonyl compounds having double bonds separated by two or more single bonds exhibit the band due to the  $n \rightarrow \pi^*$  transition in the range  $3000 - 3500 \text{ \AA}$  ( $300 - 350 \text{ nm}$ ).

2)  $\sigma \rightarrow \sigma^*$  transition :-

- These transitions can occur in such compounds in which all the electrons are involved in single bonds and



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there are no lone pairs of electrons.

- Examples involving such transitions are saturated hydrocarbons.
- As the energy required for  $\sigma \rightarrow \sigma^*$  transition is very large, the absorption band occurs in the far ultraviolet region (126-135 nm).
- for instance,  $\lambda_{max}$  of ethane at 121.9 nm and ethane at 135 nm correspond to this transition.
- As Commercial Spectrophotometers do not generally operate at wavelength less than 180-200 nm,  $\sigma \rightarrow \sigma^*$  transition cannot normally be observed.

### 3) $n \rightarrow \sigma^*$ transition :-

- Saturated Compound with lone pair (non-bonding) electrons undergo  $n \rightarrow \sigma^*$  transitions in addition to  $\sigma \rightarrow \sigma^*$  transition.
- The energy required for an  $n \rightarrow \sigma^*$  transition is generally less than that required for a  $\sigma \rightarrow \sigma^*$  transition and corresponding absorption band appear at longer wavelengths in the near ultraviolet (180-200 nm) region.
- When absorption measurements are made in the ultraviolet region, compounds such as aliphatic alcohols and alkyl halides are commonly used as solvents because they start to absorb at 260 nm.

### 4) $\pi \rightarrow \pi^*$ transition :-

- A  $\pi \rightarrow \pi^*$  transition corresponds to the promotion of an electron from bonding  $\pi$  orbital to an antibonding  $\pi^*$  orbital.
- This transition can in principle occur in any molecule having a  $\pi$  electron system.
- In certain substituted olefins, cis and trans isomers are possible.
- The trans isomer absorbs at the longer wavelength with the greater intensity than the cis isomer. This increase in wavelength of the conjugated system increases.



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# Arunamai College of Pharmacy Mamurabad

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## List of Students Undertaking Project Work in 2022-23

Sr. No.	Name of Students	Title of Project	Name of Guide
1.	ADAKMOL KAJAL KIRAN	Insulin Pump	Dr. Khushabu R. Patil
2.	AGNIHOTRI YASH PRASHANT		
3.	ATTARDE LIKITA SATISH		
4.	BAGWAN AAISHA SIDDIQUA MD. YUNUS		
5.	BARI ROHIT RAJENDRA		
6.	BHARUDE HEMANT GOPAL	Niosomes : A Potential Tool For The Targeted Drug Delivery System	Prof. Tushar D. Fegade
7.	BHIRUD HITESH PRAMOD		
8.	BHOSALE SHUBHAM CHANDRAKANT		
9.	BORSEKALPEHAABA		
10.	BORSEMAYURVITTHAL	Journey Of Herbal Cosmeic	Dr. Nilesh B. Chaudhari
11.	BORSE PRANJAL SUNIL		
12.	CHAUDHARI AASHISH KISHOR		
13.	CHAUDHARI KOMAL SUNIL		
14.	CHINCHOLE MAYUR SUNIL		
15.	CHOPADE YUKTA S	Nasal Drug Delivery System	Prof. Samir N. Patil
16.	DHANDORENEHA AJAY		
17.	GAVHANE DHIRAJ MANOHAR		
18.	GHUMARE VAIBHAV MADHAV		
19.	INDORE KIRAN GUNWANT		
20.	JADHAV JITENDRA SUPADU	Review On Basal Cell Carcinoma	Prof. Mayur A. Chaudhari
21.	KASAI SULEMAN GULMAN NABI		
22.	KHADAKE GAURI DILIP		
23.	KHAN ABRAR AYAS KHAN		
24.	LOHAR ABUZAR ZAKIR		
25.	MAHAJAN MAYUR B	Indole 3 Carbinol A Novel Approach To Cancer Treatment	Prof. Gunjan S. Patil
26.	MOHAMMADSALIK M. S.		
27.	MOHAMMAD ZUBER MOHD NISAR		
28.	MUNAZZAFATEMASAYYED N A		
29.	NADRE AISHWARYA RAJIV		
30.	NARKHEDE DURGESH S	Formulation And Evaluation Of Herbal Lipstick	Prof. Pavan R. Badgujar
31.	PACHPANDE GYANESHWARI SHASHIKANT		
32.	PANDE AKANSHA SANJAY		
33.	PANDE MOHIT DHANRAJ		
34.	PATEL ZUBER KARIM		
35.	PATIL ASHWINI DATTATRAY	Formulation And Evaluation Effervescent Tablet	Prof. Girish S. Vispute
36.	PATILCHETANBALU		
37.	PATILKALYANIVALMIKRAO		
38.	PATIL MAMTA BHIKUMCHAND		
39.	PATIL NAMRATA KIRAN		



  
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40.	PATIL PANKAJ CHOTU		
41.	PATIL RAJNANDINI P	Herbs Used For Management Of PCOS	Prof. Mrs.Neha A. Porwar
42.	PATIL ROHIT SANJAY		
43.	PATIL SHIVANI JAYPRAKASH		
44.	PATIL SHUBHAM SUNIL		
45.	PATIL SHWETA BHAIYASAHEB		
46.	PATIL SHWETA SANDIP	Role Of Vitamin C in Covid -19	Prof. Mrs. Rajeshwari S. Sonawane
47.	PATIL TANUSHRI KAILAS		
48.	PATIL VAISHNAVI SHANKAR		
49.	PAWAR MAYUR RAJENDRA		
50.	PAWAR SANDIP ANNA		
51.	PHUKE SAURABH ARUN	The Science Of Hyaluronic Acid Used In Skin Rejuvenation An Overview	Prof. Mrs. Swapnal E. Narkhede
52.	PRASAD SATISH KUMAR		
53.	RANE MAYURI KISHOR		
54.	ROKADESHASHANKSANJAY		
55.	SAINEE AASHISH BANSIDHAR		
56.	SALUNKHE DHIRAJ G	Quality Control Of Traditional Herbs And Herbal Product	Prof. Mrs. Priyanka R. Dhangar
57.	SALUNKHE HUMANSHU PRAKASH		
58.	SAPKALE BHAKTI VASANT		
59.	SAPKALEPREMANSANJAY		
60.	SHAH JUNED NIJAM		
61.	SHINDE SHANTANU HIRALAL	Robotics In Pharmaceutical Industries	Prof. Mrs. Snehal M. Valvi
62.	SIRAJUDDIN MINNAJUDDIN FAROOQUI		
63.	SONARSAURABHGAJANAN		
64.	SONAWANE UNNATI SUDAM		
65.	SONAWANE UTKARSHA T		
66.	THAKARE DIVYA KALYAN	Misuse Of Prescription And OTC Drug	Dr. Khushabu R. Patil
67.	WAGH MOKSHADA NARENDRA		

**Project Coordinator**  
Prof. S. N. Patil



**Principal**  
Dr. T. A. Deshmukh

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### Activity Report 2022-2023

**Title of Event :** One Day Workshop on Technical Approach in processing of Ayurvedic Formulations.

**Date :** 15/04/2023

**Venue :** Khandesh Ayurvedic Pharmacy, B-1 MIDC Jalgaon, 425003

**Time :** 9.00 am to 12.00 pm

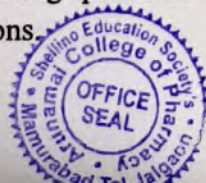
**In Charge of activity :** Mr. S.N. Patil, Mr. T. D. Fegade

**Resource Persons :** Mrs. Aparna Patil Mr. Aparna Patil, Manager Khandesh Ayurvedic Pharmacy, Jalgaon

**Objective of Activity :** The one-day workshop aims to familiarize students with the technical approach in processing Ayurvedic formulations within an Ayurvedic pharmaceutical company. Students will gain insights into the traditional methods and modern techniques used in the production of Ayurvedic medicines, ensuring a deeper understanding of the pharmaceutical processes involved. Through this workshop, attendees will be equipped with essential knowledge and practical skills to enhance the quality, efficiency, and standardization of Ayurvedic formulations in the industry.

**No. of Participant:** 50

**Description of Activity:** The one day workshop on Technical Approach in processing of Ayurvedic Formulations was jointly organized by Arunamai College of Pharmacy, Mamurabad and Khandesh Ayurvedic Pharmacy, Jalgaon at premises of Khandesh Ayurvedic Pharmacy, Jalgaon on 15/04/2023. In this workshop, approximately 50 students participated along with staff. The success of this program is attributed to the collaborative efforts of dedicated staff members, among whom are Mr. Samir N. Patil, Mr. T. D. Fegade, and enthusiastic students. Their combined commitment and hard work ensured the workshop's effectiveness in imparting practical knowledge on Technical Approach in processing of Ayurvedic Formulations.



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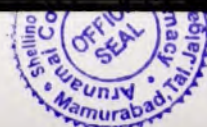
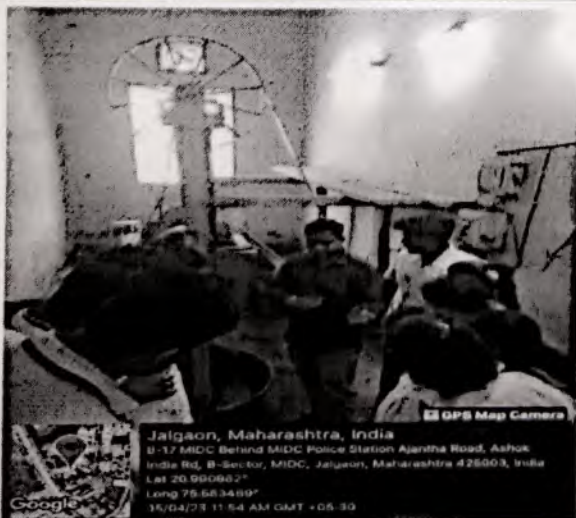
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**Outcome of Activity:** The workshop on the Technical Approach in processing Ayurvedic Formulations provides students with an opportunity to learn practically through interactions, working methods, and employment practices. Students gain insights into traditional and modern techniques for processing Ayurvedic formulations, including herbal extraction methods, manufacturing processes, quality control, equipment usage, and adherence to Ayurvedic principles.



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# KHANDESH AYURVEDIC PHARMACY

MANUFACTURERS OF : AYURVEDIC MEDICINE & GOVT. APPROVED SUPPLIERS

OFFICE & FACTORY : Plot No. B-1, M.I.D.C., Near M.I.D.C. Police Station, Ajintha Road, Jalgaon PH : 0257-2271711

Date: 15/04/2023

**To Whom It May Concern,**

This is to certify that the students from SES's Arunamai College of Pharmacy, Mamurabad, Jalgaon, attended a one-day workshop on " **Technical Approach in Processing of Ayurvedic Formulations**" jointly organized by Khandesh Ayurvedic Pharmacy, B-1, MIDC Jalgaon and SES's Arunamai College of Pharmacy, Mamurabad, Jalgaon. The workshop was held on **15<sup>th</sup> April 2023** at the premises of Khandesh Ayurvedic Pharmacy, B-1, MIDC Jalgaon.

The workshop covered various aspects of manufacturing processes of Ayurvedic pharmaceuticals like rotary compression machine for Vati, Capsule filling and sealing, manufacturing and filling of Asava and Arishtha etc., quality control, and the integration of traditional knowledge with modern practices.



*Aarti*  
MANAGER  
Khandesh Ayurvedic Pharmacy  
JALGAON

Attendance report on

One Day Workshop on Technical Approach in processing of Ayurvedic Formulations

Date:-15/04/2023

Sr.No	Name of Students	Signature
1.	ADAKMOL KAJAL KIRAN	K.k Adakmal
2	AGNIHOTRI YASH PRASHANT	Yash A
3	ATTARDE LIKITA SATISH	LgAttarde
4	BARI ROHIT RAJENDRA	B.R. Rajendra
5	BHARUDE HEMANT GOPAL	Hemant
6	BHIRUD HITESH PRAMOD	Hitesh Bhirude
7	BHOSALE SHUBHAM CHANDRAKANT	Shubham
8	BORSE KALPEH AABA	Borse
9	BORSE MAYUR VITTHAL	Mayur
10	BORSE PRANJAL SUNIL	Pranjal
11	CHAUDHARI AASHISH KISHOR	Akash
12	CHAUDHARI KOMAL SUNIL	Komal
13	CHINCHOLE MAYUR SUNIL	Mayur
14	CHOPADE YUKTA SUDHARKAR	Yukta
15	DHANDORE NEHA AJAY	Neha
16	GAVHANE DHIRAJ MANOHAR	Dhiraj
17	GHUMARE VAIBHAV MADHAV	Vaibhav
18	INDORE KIRAN GUNWANT	Kiran
19	JADHAV JITENDRA SUPADU	Jitendra
20	KASAI SULEMAN GULMAN NABI	Suleman
21	KHADAKE GAURI DILIP	Gauri



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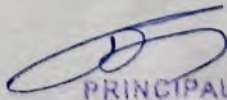
24	NARKHEDE DURGESH SURENDRA	<del>Runde</del>
25	PACHPANDE GYANESHWARI SHASHIKANT	<u>S.G. Pachpande</u>
26	PANDE AKANSHA SANJAY	<del>A. Rande</del>
27	PANDE MOHIT DHANRAJ	<u>D.M. Pande</u>
28	PATEL ZUBER KARIM	<del>Runde</del>
29	PATIL ASHWINI DATTATRAY	<del>A.D. Patil</del>
30	PATIL CHETAN BALU	<del>A. Rande</del>
31	PATIL KALYANI VALMIKRAO	<u>K.V. Patil</u>
32	PATIL MAMTA BHIKUMCHAND	<u>M.B. Patil</u>
33	PATIL NAMRATA KIRAN	<u>N.K. Patil</u>
34	PATIL PANKAJ CHOTU	<del>C. Patil</del>
35	PATIL RAJNANDINI PURUSHOTAM	<del>Runde</del>
36	PATIL ROHIT SANJAY	<del>Runde</del>
37	PATIL SHIVANI JAYPRAKASH	<u>S. Patil</u>
38	PATIL SHUBHAM SUNIL	<u>S. Patil</u>
39	PATIL SHWETA BHAIIYASAHEB	<del>S. Patil</del>
40	PATIL SHWETA SANDIP	<del>S. Patil</del>
41	PATIL TANUSHRI KAILAS	<del>S. Patil</del>
42	PATIL VAISHNAVI SHANKAR	<u>V. Patil</u>
43	PAWAR MAYUR RAJENDRA	<u>Pawar. M.R</u>
44	PAWAR SANDIP ANNA	<del>S. Patil</del>
45	PHUKE SAURABH ARUN	<u>S. Patil</u>
46	PRASAD SATISH KUMAR	<del>P. Patil</del>
47	RANE MAYURI KISHOR	<u>M. Ram</u>
48	ROKADE SHASHANK SANJAY	<del>Runde</del>



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47	RANE MAYURI KISHOR	Aram
48	ROKADE SHASHANK SANJAY	<del>Ar</del>
49	SAINEE AASHISH BANSIDHAR	A.B. sen
50	SALUNKHE DHIRAJ GUNVANTRAV	Sellek
51	SALUNKHE HUMANSHU PRAKASH	H.Ramdy
52	SAPKALE BHAKTI VASANT	Bhes
53	SAPKALE PREMAN SANJAY	S.p. Sapkal
54	SHAH JUNED NIJAM	Shah
55	SHINDE SHANTANU HIRALAL	Sell
56	SIRAJUDDIN MINNAJUDDIN FAROOQUI	M. Pirajuddin
57	SONAR SAURABH GAJANAN	S.S. Gajanan
58	SONAWANE UNNATI SUDAM	Sus
59	SONAWANE UTKARSHA TUKARAM	U.t.s.
60	THAKARE DIVYA KALYAN	D.k. Thakar
61	WAGH MOKSHADA NARENDRA	Wagh



  
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