

ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ  
(1961 ਦੇ ਪੰਜਾਬ ਐਕਟ ਨੰਬਰ 35 ਤਹਿਤ ਸਥਾਪਤ।  
(ਕਾਲਜ ਸੈਕਸ਼ਨ)

ਨ. 1316 ..... ਕਾਲਜ ਸ-3

ਮਿਤੀ 22 ਜੁਲਾਈ 2007

ਪੰਜਾਬ,

ਗੁਰੂ ਨਾਨਕ ਮਿਤੀ 22 ਜੁਲਾਈ 2007

ਵਿਸਾ:- ਗੁਰੂ ਨਾਨਕ ਮਿਤੀ 22 ਜੁਲਾਈ 2007

ਸ਼੍ਰੀਮਾਨ ਜੀ,

ਅਪ ਜੀ ਦੇ ਦੱਡਰ ਦੇ ਪੱਤਰ ਨੰ. ੫੬੨੨ ਮਿਤੀ ੬-੩-੨੦੦੭ ਦੇ ਹਵਾਲੇ ਵਿਚ ਸੂਚਿਤ  
ਕੀਤਾ ਜਾਂਦਾ ਹੈ ਕਿ ਵਾਈਸ-ਚਾਂਸਲਰ ਸਾਹਿਬ ਨੇ ਅਪ ਜੀ ਦੇ ਕਾਲਜ ਵਿਖੇ ਸੈਸ਼ਨ 2009-10 ਦੋਂ ਕੈਰੰਜਰ  
ਉਦੀਐਟਿਡ ਸਕੀਮ ਅਧੀਨ ..... ਕਾਲਜ ਮਿਤੀ 22 ਜੁਲਾਈ 2007 ..... ਦਾ ਵਿਸ਼ਾ  
ਸੁਰੂ ਕਰਨ ਦੀ ਪ੍ਰਵਾਨਗੀ ਅਕਾਦਮਿਕ ਕੌਂਸਲ ਦੀ ਪ੍ਰਵਾਨਗੀ ਦੀ ਆਸ ਵਿਚ ਦਿੱਤੀ ਜਾਂਦੀ ਹੈ। ਇਥੇ ਦਿੱਤ  
ਕਿਸੇ ਸਹੂਲਤ ਨਾਲ ਨਾ ਹੈ ਕਿ ਕਾਲਜ ਯੂਨੀਵਰਸਿਟੀ ਦੀਆਂ ਸਰਤਾਂ ਦੀ ਪਾਲਣਾ ਕਰਨ ਦਾ ਪਾਛਾ ਦੇਵੇਂ

ਵਿਸ਼ਵਾਸਪਾਤਰ,

ਸਹਾਇਕ ਰੰਗਸਟਰਾਰ ਕਾਲਜ

Harmeet Singh  
Principal  
SMHS Govt. College  
Sahibzada Ajit Singh Nagar

TRANSLATED      VERSION

PUNJABI UNIVERSITY, PATIALA

(Established under Punjab Act No. 35 of 1961)

(College Section)

No. 1316/college/s-3

Date: 22/4/09

Principal

Government College

Mohali

Subject: Permission to start Add –on course in Pharmaceutical Chemistry

Respected Sir,

In response of this letter no. 9822, date: 6/3/09, it is said that the Vice-Chancellor has given the permission to start “Add-on course in Pharmaceutical Chemistry” under the career oriented scheme in our college from session 2009-10. The permission is given under the anticipatory approval of the Academic Council. Further, it is important to mention that college is bound to abide by the conditions and norms of university and UGC.

Yours faithfully,

Assistant Registrar

(colleges)

To,

The Principal  
S.M.H.S. Government College  
S.A.S. Nagar Mohali

Respected Ma'am,

We plan to start Add-on Course in Pharmaceutical Chemistry, UGC Sponsored course for B.Sc. (medical) and B.Sc. (non-medical) students. The duration of the course is one year which includes theory and practical classes. Kindly grant us permission to start this course from 1<sup>st</sup> September 2019.

Thanking you

Yours sincerely

*Harmeet Singh*  
Principal  
SMHS Govt. College  
Sahibzada Ajit Singh Nagar

SMHS Govt. College Mohali

Chemistry Department

**NOTICE FOR STUDENTS**

This is for the information of the students that the college is going to start Add-on course in Pharmaceutical Chemistry , UGC sponsored course for session 2019-20. B.Sc. (medical) and B.Sc. (non-medical) students are eligible. The course will be of one year. Students can apply from 15<sup>th</sup> August to 31<sup>st</sup> August 2019. Classes will commence from 1<sup>st</sup> september 2019 in Chemistry Lab.

**COURSE OFFERED**

- 1) Certificate course for B.Sc. 1<sup>st</sup> year
- 2) Diploma course for B.Sc. 2<sup>nd</sup> year
- 3) Advanced Diploma for B.Sc. 3<sup>rd</sup> year

**ASSESSMENT CRITERIA**

Maximum Marks- 100

Theory paper- 40

Theory Internal Assessment- 20

Practical Paper – 30

Practical Internal Assessment- 10

Certificates for this course will be awarded by Punjabi University, Patiala.

Principal  
Harjeet Singh  
S.M.H.S Government College, Mohali  
Principal  
S.M.H.S Govt. College, Mohali  
Santozada Ajj Singh Nagar  
Santozada Ajj Singh Nagar

# LESSON PLAN FOR ADD-ON COURSE IN PHARMACEUTICAL CHEMISTRY

Session- 2018-2019,20,21,22,23

**For B.Sc. 1<sup>st</sup> year (Medical and Non-medical) (sem 1 and 2)**

Subject: Add on Certificate course in Pharmaceutical Chemistry

Start of course: 2<sup>nd</sup> week of September 2022

End of course: 1<sup>st</sup> week of May 2023

MONTH	TOPICS COVERED
6 <sup>TH</sup> sep-10 <sup>th</sup> sep	<b>1. Acids &amp; Bases:</b> acid base theory, specification of acidity and basicity
12 <sup>th</sup> - 17 <sup>th</sup> sep	Official inorganic acids (Boric Acid, Hydrochloric Acid, Nitric Acid, Phosphoric Acid). Non-official inorganic acid (Sulphuric Acid),
19 <sup>th</sup> -24 <sup>th</sup> sep	Official inorganic bases (Strong Ammonia Solution, Calcium Hydroxide, Potassium Hydroxide, Sodium Carbonate, Sodium Carbonate, Soda lime).
26 <sup>th</sup> -30 <sup>th</sup> sep	<b>2. Buffers:</b> Theory and Mechanism
1 <sup>st</sup> oct-8 <sup>th</sup> oct	Pharmaceutical Buffer selection, Pharmaceutical buffer systems.
10 <sup>th</sup> -15 <sup>th</sup> oct	<b>3. Essential and Trace Ions:</b> Iron
17 <sup>th</sup> -22 <sup>nd</sup> Oct	Copper, Zinc, Chromium
24 <sup>th</sup> -31 <sup>st</sup> oct	<b>4. Gastrointestinal Agents:</b> Acidifying agents
1 <sup>st</sup> nov- 5 <sup>th</sup> nov	antacids (antacid products: Sodium Bicarbonate, Aluminium containing antacids.
7 <sup>th</sup> -12 <sup>th</sup> nov	Aluminium Hydroxide, Tribasic Calcium Phosphate, Magnesium containing Antacids
14 <sup>th</sup> -19 <sup>th</sup> nov	Magnesium Carbonate, Magnesium Hydroxide. <b>Practical- 1.</b> The student should be introduced to the main analytical through demonstrations. They should have a clear understanding of a typical analytical balance, the requirement of good balance, weights, care and use of balance methods of weighing and error on weighing. The student should also be acquainted with general apparatus required in various analytical procedures.
21 <sup>st</sup> -26 <sup>th</sup> nov	<b>5. Topical Agents:</b> Astringents: Official compounds of Aluminium and Zinc.
28 <sup>th</sup> -30 <sup>th</sup> nov	<b>6. Dental products Anticaries agents:</b> Fluorides, Phosphates
1 <sup>st</sup> dec-3 <sup>rd</sup> dec	<b>7. Nuclear Chemistry:</b> Nuclear composition <b>Practical- 2.</b> Standardization of analytical weights and calibrations of volumetric apparatus.
5 <sup>th</sup> -10 <sup>th</sup> dec	Force and stability, isotopes, radioactive emission, measurement of radioactivity, model of decay, half-life period, artificial radioactivity, application in pharmacy
12 <sup>th</sup> -17 <sup>th</sup> dec	<b>8. Coordination Compounds and Complexation:</b> Theoretical consideration
19 <sup>th</sup> -24 <sup>th</sup> dec	<b>8. Coordination Compounds and Complexation:</b> Theoretical consideration
26 <sup>th</sup> -31 <sup>st</sup> dec	<b>Practical- 3. Acid Base Titrations:</b> Preparation and standardization of acids and bases.
2 <sup>nd</sup> jan-7 <sup>th</sup> jan	<b>8. Coordination Compounds and Complexation:</b> Theoretical consideration

*Hafizel Singh*  
 Principal  
 SMHS Govt. College  
 Lubzada Ajit Singh Nagar

	<b>Practical- 4. Oxidation–Reduction Titrations:</b> Preparation and standardization of some redox titrants e.g potassium permanganate, potassium dichromate, iodine, sodium thiosulphate
9 <sup>th</sup> -14 <sup>th</sup> jan	official products (Calcium Disodium EDTA). <b>Practical- 5. Use of Gravimetric Analysis</b> shall be covered like estimation Nickel and Copper
16 <sup>th</sup> -21 <sup>st</sup> jan	<b>9. Acid Base Titrations:</b> Acid base concept, Role of the solvent, Relative strengths of acids and bases
23 <sup>rd</sup> -31 <sup>st</sup> jan	Law of action, Common ion effect, ionic product of water, pH, Hydrolysis of salts, Henderson-Hasselbach equation.
1 <sup>st</sup> feb-4 <sup>th</sup> feb	Buffer and buffer capacity. Acid Base indicators, <b>Practical- 6.</b> The student should be introduced to the various laboratory techniques through demonstration involving single step synthesis of some selected organic compounds of medicinal importance.
6 <sup>th</sup> -11 <sup>th</sup> feb	Theory of Indicators, Choice of indicators. <b>Practical- 7.</b> Identification of Organic compounds having functional group: Acidic, Phenolic, Aldehyde, Ketone.
13 <sup>th</sup> -18 <sup>th</sup> feb	Neutralization curves (Strong acid strong base, strong acid weak base, weak acid strong base and weak acid weak base).
20 <sup>th</sup> -28 <sup>th</sup> feb	<b>10. Oxidation –Reduction titrations:</b> Concept of oxidation and reaction.
1 <sup>st</sup> mar-4 <sup>th</sup> mar	Redox reactions, equivalent weight of oxidizing and reducing agents, electrochemical cells
6 <sup>th</sup> -11 <sup>th</sup> mar	Reduction potential, standard reduction potential, Nernst equation
13 <sup>th</sup> -18 <sup>th</sup> mar	Cell representations, measurement of electrode potential <b>Practical- 8.</b> Introduction to the use of stereo models. 9. Limit test for Chloride, Sulphate, Lead, Iron
20 <sup>th</sup> -25 <sup>th</sup> mar	measurement of electrode potential and its application in determining the equilibrium constant of a reaction.
27 <sup>th</sup> -31 <sup>st</sup> mar	<b>11. Theoretical basis of qualitative detection of inorganic cations and anions.</b> <b>Practical- 10.</b> Quantitative Inorganic analysis.
1 <sup>st</sup> apr-8 <sup>th</sup> apr	<b>12. Stereochemistry:</b> Introduction, Stereoisomerism, Enantiomerism,
10 <sup>th</sup> -15 <sup>th</sup> apr	Diastereoisomerism, optical activity, chiral centre, Racemic modification
17 <sup>th</sup> -22 <sup>nd</sup> apr	Meso-structure, Configuration, Reaction involving stereoisomers, Stereospecific reactions.
24 <sup>th</sup> -29 <sup>th</sup> apr	<b>13. Add Structure nomenclature Preparation &amp; Reaction of:</b> Alkane, Alkene,
1 <sup>st</sup> may- 6 <sup>th</sup> may	Alkynes and their cyclic analogs, Alkyl Halides Benzene

## **SYLLABUS**

### **CERTIFICATE COURSE IN PHARMACEUTICAL CHEMISTRY**

**For 2018-19, 2019-20 and 2020-21, 2021-22, 2022-23 session**

3 Hrs./Week  
Max. Time: 3 Hrs.  
Max. Marks: 40  
Internal Assessment: 20  
Total Marks: 60

#### **INSTRUCTIONS FOR THE PAPER SETTERS**

The question paper will consist of three sections A, B and C. Section A and B each will have four questions from the respective sections of the syllabus. Each question shall carry 4 marks. Section C will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all.

#### **INSTRUCTIONS FOR THE CANDIDATES**

Candidates are required to attempt three questions each from section A and B. Section C is compulsory

#### **SECTION A**

1. Acids & Bases: acid base theory, specification of acidity and basicity, Official inorganic acids (Boric Acid, Hydrochloric Acid, Nitric Acid, Phosphoric Acid). Non-official inorganic acid (Sulphuric Acid), Official inorganic bases (Strong Ammonia Solution, Calcium Hydroxide, Potassium Hydroxide, Sodium Carbonate, Soda lime).
2. Buffers: Theory and Mechanism, Pharmaceutical Buffer selection, Pharmaceutical buffer systems.
3. Essential and Trace Ions: Iron, Copper, Zinc, Chromium.
4. Gastrointestinal Agents: Acidifying agents, antacids (antacid products : Sodium Bicarbonate, Aluminium containing antacids. Aluminium Hydroxide, Tribasic Calcium Phosphate. Magnesium containing Antacids, Magnesium Carbonate, Magnesium Hydroxide).
5. Topical Agents:  
Astringents: Official compounds of Aluminium and Zinc.
6. Dental products  
Anticaries agents: Fluorides, Phosphates.
7. Nuclear Chemistry: Nuclear composition, Force and stability, isotopes, radioactive emission

*Harijeet Gujral  
Punjab Engineering College  
Sohibzada Att Singh Noida*

- measurement of radioactivity, model of decay, half life period, artificial radioactivity, application in pharmacy.
8. Coordination Compounds and Complexation: Theoretical consideration and official products (Calcium Disodium EDTA).

## SECTION B

9. Acid Base Titrations: Acid base concept. Role of the solvent, Relative strengths of acids and bases, Law of action. Common ion effect, ionic product of water, pH, Hydrolysis of salts. Henderson-Hasselbach equation, Buffer and buffer capacity. Acid Base indicators. Theory of Indicators, Choice of indicators. Neutralization curves (Strong acid strong base, strong acid weak base, weak acid strong base and weak acid weak base).
10. Oxidation –Reduction titrations: Concept of oxidation and reduction. Redox reactions. equivalent weight of oxidizing and reducing agents. electrochemical cells. Reduction potential, Standard reduction potential. Nernst equation. Cell representations. measurement of electrode potential and its application in determining the equilibrium constant of a reaction.
11. Theoretical basis of qualitative detection of inorganic cations and anions.
12. Stereochemistry: Introduction, Stereoisomerism, Enantiomerism, Diastereoisomerism, optical activity, chiral centre, Racemic modification, Meso-structure, Configuration. Reaction involving stereoisomers, Stereospecific reactions.
13. Add Structure nomenclature Preparation & Reaction of : Alkane, Alkene, Alkynes and their cyclic analogs, Alkyl Halides Benzene.

## LABORATORY

3Hrs./Week

Max. Time: 3 Hrs.

Max. Marks: 40

1. The student should be introduced to the main analytical through demonstrations. They should have a clear understanding of a typical analytical balance, the requirement of good balance, weights, care and use of balance methods of weighing and error on weighing. The student should also be acquainted with general apparatus required in various analytical procedures.
2. Standardization of analytical weights and calibrations of volumetric apparatus.
3. Acid Base Titrations: Preparation and standardization of acids and bases.
4. Oxidation –Reduction Titrations: preparation and standardization of some redox titrants e.g potassium permanganate, potassium dichromate, iodine, sodium thiosulphate.

*Hari Singh  
Panjab Govt. College  
Sahibzada Ajit Singh Nagar*

5. Use of Gravimetric Analysis shall be covered like estimation Nickel and Copper.
6. The student should be introduced to the various laboratory techniques through demonstration involving single step synthesis of some selected organic compounds of medicinal importance.
7. Identification of Organic compounds having functional group: Acidic, Phenolic, Aldehyde, Ketone.
8. Introduction to the use of stereo models.
9. Limit test for Chloride, Sulphate, Lead, Iron.
10. Quantitative Inorganic analysis.

#### BOOKS RECOMMENDED

1. J.H.Block, E.Roche, T.O. Soine & C.O. Wilson, "Inorganic Medicinal and Pharmaceutical Chemistry". Lea & Febiger, Philadelphia, P.A.
2. L.M. Artherden, Benteley & Drivers, "Textbook of Pharmaceutical Chemistry", 8<sup>th</sup> edition.. Oxford University Press, Delhi.
3. Pharmacopoeia of India, Govt. of India, Ministry of Health.
4. A.H. Beckett and Stenlake. " Practical Pharmaceutical Chemistry", part 1, 3<sup>rd</sup> edition.
5. J.Bassett, R.C.Denny, G.H. Jeffery, J. Mendham, Vogels Textbook of Quantitative Inorganic Analysis including elemental instrumental/ Analysis, the ELBS and Longman. London (Latest edition).
6. F. G. Mann and B.C. Sunders , "Practical organic chemistry", The English Language Book Society and Longman Group London (Latest edition).
7. A.I. Vogel, "A textbook of practical Organic Chemistry", The English Language Book Society and Longman Group London (Latest edition).
8. E.I. Elien, " Stereochemistry of Carbon Compounds". Mc GrawHill Book Company, inc., New York (Latest Edition).

Harijeet Arjpal  
Principal  
SMHS Govt. College  
Sahibzada Ajit Singh Nagar

GOVERNMENT COLLEGE, SAHIBZADA AJIT SINGH NAGAR, MOHALI

LIST OF STUDENTS WHO PAID FEES FOR EXAMINATION OF AND ON CERTIFICATE COURSE (2019-2020)

No.	Reg. No.	Roll. No.	Name	Father's Name	Mother's Name	Category	Sex	Medium	Course	Fees
1	612-19-243	5511	Akhil Sharma	Inder Mohan Sharma	Anjana Sharma	General	M	English	Certificate Course	600/-
2	612-19-263	5512	Atul Gupta	Mukesh Kumar	Ranjita Devi	General	M	English	Certificate Course	600/-
3	612-19-233	5513	Chahat	Leh Raja	Surjeet Kaur	General	F	English	Certificate Course	600/-
4	612-19-1059	5514	Deepak	Shambhu Kushwaha	Shobha Devi	General	F	English	Certificate Course	600/-
5	612-19-	5515	Geetanjali	Bardi Bhatt	Meena Bhatt	General	M	English	Certificate Course	600/-
6	612-19-226	5516	Gurpreet Singh	Ravinder Singh	Manjit Kaur	SC	M	English	Certificate Course	600/-
7	612-19-250	5517	Gurwinder Singh	Ananjeet Singh	Kuldeep Kaur	SC	M	English	Certificate Course	600/-
8	612-19-251	5518	Hariot Singh	Ranbir Singh	Tajinder Kaur	BC	M	English	Certificate Course	600/-
9	612-19-245	5519	Jagjeet Singh	Bhupinder Singh	Sunjeet Kaur	BC	M	English	Certificate Course	600/-
10	612-19-	5520	Jagjit Singh	Balbir Singh	Charanjit Kaur	BC	M	English	Certificate Course	600/-
11	612-19-227	5521	Jaspreet Kaur	Jagtar Singh	Harinder Kaur	General	F	English	Certificate Course	600/-
12	612-19-236	5522	Jaspreet Kaur	Balbir Singh	Charanjit Kaur	General	F	English	Certificate Course	600/-
13	612-19-237	5523	Jaspreet Kaur	Jasvir Singh	Kulwindher Kaur	SC	F	English	Certificate Course	600/-
14	612-19-258	5524	Kajal Sharma	Kulwindher Singh	kiran Bala	General	F	English	Certificate Course	600/-
15	612-19-271	5525	Karanveer	Charanjeet Singh	Baljinder Kaur	M	English	Certificate Course	600/-	
16	612-19-228	5526	Kiran	Harpreet Singh	Charanjit Kaur	General	F	English	Certificate Course	600/-
17	612-19-252	5527	Nirmal Kaur	Ajaiib Singh	Gurmeet Kaur	SC	F	English	Certificate Course	600/-
18	612-19-239	5528	Paramjeet Kaur	Bhag Singh	Kashmir Kaur	General	F	English	Certificate Course	600/-
19	612-19-229	5529	Preeti	Surinder Singh	Sarla Devi	SC	F	English	Certificate Course	600/-
20	612-19-230	5530	Pushpa Rani	Kuldeep Singh	Anita Devi	SC	M	English	Certificate Course	600/-
21	612-19-277	5531	Rahulveer	Tariq Chand	Lata kumari	SC	M	English	Certificate Course	600/-
22	612-19-	5532	Sachin Sharma	Gurdhyam Sharma	Balbir Sharma	General	F	English	Certificate Course	600/-
23	612-19-1056	5533	Sanjana Kumari	Prem kumar	Raj Kumari	BC	F	English	Certificate Course	600/-
24	612-19-260	5534	Shahina Parveen	Sultan Mohammad	Keki Devi	BC	F	English	Certificate Course	600/-
25	612-19-241	5536	Simran Kumar	Chander dev	Indrawati Devi	BC	F	English	Certificate Course	600/-
26	612-19-248	5537	Simranjeet Singh	Gurmail Singh	Asha Rani	OBC	M	English	Certificate Course	600/-
27	612-19-231	5538	Sukhdeep Kaur	Bhinder Singh	Kuljeet Kaur	SC	F	English	Certificate Course	600/-
28	612-19-1061	5510	Vivek Singh	Lachhman Singh	Jaswinder Kaur	M	English	Certificate Course	600/-	
29	612-19-242	5539	Sunaina Rani	Mamraj	Sukhwinder Kaur	BC	F	English	Certificate Course	600/-
30	612-19-1060	5535	Shubham Kumar	Sanjay Bhardwaj	Kiran Devi	M	English	Certificate Course	600/-	

Total Students

① Certificate course - 30

② Diploma course - 11

③ Advance of Diploma - 16

Held at  
Principal,  
SNMPSCSV, Govt. College,  
Sahibzada Ajit Singh Nagar,

ਸੈਟਰ ਨੰਬਰ .....

ਪਰੀਖਿਆਕ ਦੁਆਰਾ ਦੇ ਗਿਆ ਹੈ।  
ਵੱਖਣ ਤੋਂ ਸੰਭਾਲਣ ਲਈ ਪ੍ਰਾਤ ਮਾਤਰ।

ਪ੍ਰਤਿ-ਪਰਚੀ

ਪਰੀਖਿਆਕ ਦੁਆਰਾ ਦੇ ਗਿਆ ਹੈ।  
ਵਿਗਾ .....  
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ਅਮਿਕਤਮਾਲਿ .....  
ਪਸ ਲੱਕਿ .....  
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## ਸੈਟਰ ਨੰਬਰ

ਪਰੀਖਿਆਕ ਦੂਆਰਾ ਛੇ ਮਹੀਨਿਆ ਲਈ  
ਰੱਖਣ ਤੇ ਸੰਭਾਲਣ ਲਈ ਪ੍ਰਤਿ ਪਰਚੀ

ਪੁਤਿ-ਪਰਚੀ

ਪਰੀਖਿਆ..... /20) :-

दिल्ली विद्यालय

ਪਰਚਾ *Parachay*

Digitized by srujanika@gmail.com

.....  
.....

पास 10 डेल

Hajeeet Singhji Principal Govt. College Sialchi Nagar

Principal  
S. S. Govt. College  
Purulia, Jharkhand  
परुडिला दे खुरे जसउआर

ਸੈਟਰ ਨੰਬਰ .....

ਪਰੀਖਿਅਕ ਦੁਆਰਾ ਛੇ ਮਹੀਨਿਆਂ ਲਈ  
ਰੱਖਣ ਤੇ ਸੰਭਾਲਣ ਲਈ ਪ੍ਰਤਿ ਪਰਚੀ.

ਪ੍ਰਤਿ-ਪਰਚੀ

ਪਰੀਖਿਆ /20/.....

ਵਿਸਾ .....  
*(Signature)*

ਪਰਚਾ .....  
*(Signature)*

ਅਧਿਕਤਮ ਅੰਕ .....

ਪਾਸ ਅੰਕ .....

ਰੋਲ ਨੰਬਰ	ਅੰਕ
5511	15
5512	18
5513	17
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5515	18
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5519	17
5520	16
5521	18
5522	19
5523	15
5524	18
5525	Absent
5526	17
5527	18
5528	17
5529	18
5530	19

ਪਾਸ 19 ਦੇਲੂ .....

*Hajjeet Ajit Singh*  
ਪਰੀਖਿਅਕ ਦੇ ਪ੍ਰਤੇ ਹਮਤਾਬਰ

P.P.U.P.(O)-9093125000/10-14  
S-10, Sector 10, Ajit Singh Nagar  
G.T.O.Zada Ajit Singh Nagar

## ਸੈਟਰ ਨੰਬਰ

ਪਹੀਕਿਆਕ ਦੂਆਰਾ ਛੇ ਮਹੀਨਿਆ ਲਈ  
ਚੱਪਣ ਤੇ ਸੰਭਾਲਣ ਲਈ ਪ੍ਰਤਿ ਪਰਚੀ.

ਪ੍ਰਤਿ-ਪਰਚੀ

ਪਰੀਖਿਆ ..... /201.....

दिल्ली Certificate

ਪਰਚਾ *Parachay*

ਅਪਿਕੜਮ ਅਕਿ

ਪਾਸ ਅੰਕ ..... 67 .....

ਹੋਲਨੈੰਬਰ	ਅੰਕ
5531	17
5532	17
5533	16
5534	18
5535	17
5536	19
5537	18
5538	19
5539	18
5540	18

ਪਾਸ ... | ੦ ... ਫੇਲ ... -

ਸ਼ਨਾਪਤੀ ਨੰਬਰ .....

ਪਰੀਖਿਆਕ ਦੂਆਰਾ ਛੇ ਮਹੀਨਿਆਂ ਲਈ  
ਰੱਖਣ ਤੇ ਸੰਭਾਲਣ ਲਈ ਪ੍ਰਤਿ ਪਰਚੀ

ਪ੍ਰਤਿ-ਪਰਚੀ

ਪਰੀਖਿਆ ਵਿਖੇ ਦੁਆਰਾ ..... /200

ਵਿਆ ..... /200

ਪਰਚਾ ..... /200

ਅਧਿਕਤਮ ਅੰਕ ..... 30

ਪਸ ਅੰਕ ..... 11

ਰੋਲ ਨੰਬਰ	ਅੰਕ
5511	24
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5525	24
5526	20
5527	24
5528	24
5529	26
5530	28

ਪਸ 19 : ਫੇਲ੍ਹ ..... —

Harmeet Singh

Principal  
SMTIS GOVT. COLLEGE  
SAHIBZADE MIST SINGH NAGAR  
PUNJAB 143002-07

## ਪਾਨਪਤੀ ਨੰਘਰ

ਪਰੀਪਿਆਕ ਦੁਆਰਾ ਛੇ ਮਹੀਨਿਆਂ ਲਈ  
ਰੱਪਣ ਤੇ ਸੰਭਾਲਣ ਲਈ ਪ੍ਰਤਿ ਪਰਚੀ

ਪੁਤਿ-ਪਰਚੀ

ਪਰੀਖਿਆ ਨੰਬਰ, ਮੁਲਾਈ..... /200

विष्णा *Thas... (mentioning)*

ਪਰਚਾ (Certified by the undersigned  
(Signature))

અપિકરમ અવ 30

ਪਾਸ ਅੰਕ ..... ( )

ਪਾਸ 10..... ਫੇਲ੍ਹ .....

Häfele - offen

Sahibzada Ajit Singh Nagar  
Gurdwara Govt. College

ਪ੍ਰੰਤ ਦੇ ਪਹੇ ਹਮਾਰਾਪਹ

ਪ੍ਰਾਨਪਤੀ ਨੰਬਰ .....

ਪ੍ਰਮਾਣਪਤੀ ਦੁਆਰਾ ਕੇ ਮਹੀਨਿਆਂ ਲਈ  
ਰੱਖਣ ਤੇ ਸੰਭਾਲਣ ਲਈ ਪ੍ਰਤਿ ਪਰਜੀ

ਪ੍ਰਤਿ-ਪਰਜੀ

ਪ੍ਰਮਾਣਪਤੀ ...../200

ਵਿਸ਼ਾ ...../.....

ਪਰਜਾ (Certificate) (ਅਨੁਸਾਰ)  
(..... ਨੰ. ਅਧਿਕਾਰਤ)

ਅਧਿਕਾਰਤ ਅੰਕ ..... 10

ਪਾਸ ਅੰਕ ..... C4

ਰੋਲ ਨੰਬਰ	ਅੰਕ
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5514	6
5515	8
5516	7
5517	6
5518	7
5519	8
5520	5
5521	6
5522	5
5523	8
5524	7
5525	Absent
5526	7
5527	6
5528	7
5529	8
5530	7

ਪਾਸ ..... 19. ਫੇਲ ..... —

Hajeeet Ajitpal

Principal  
SMHS Govt. College  
Sahibzada Ajit Singh N.I.T.  
Sahibzada Ajit Singh N.I.T.

ਪ੍ਰਮਾਣਪਤੀ ਦੇ ਪੂਰੇ ਹਸਤਾਖਰ

2019-2020

GOVERNMENT COLLEGE , SAHIBZADA AJIT SINGH NAGAR , MOHALI								
LIST OF STUDENTS WHO PAID FEES FOR EXAMINATION OF ADD-ON CERTIFICATE COURSE (2019-2020)								
S.No.	Reg. No.	Roll. No.	Name	Father's Name	Mother's Name	Category	Sex	Medium
1	612-19-243	5511	Akhil Sharma	Inder Mohan Sharma	Anjana Sharma	General	M	English
2	612-19-263	5512	Atul Gupta	Mukesh Kumar	Ranjna Devi	General	M	English
3	612-19-233	5513	Chahat	Lekh Raj	Surjit Kaur	General	F	English
4	612-19-1059	5514	Deepak	Shambhu Kushwaha	Shobha Devi	General	F	English
5	612-19-	5515	Geetanjali	Badrí Bhatt	Meena Bhatt	General	M	English
6	612-19-226	5516	Gurpreet Singh	Ravinder Singh	Manjot Kaur	SC	M	English
7	612-19-250	5517	Gurwinder Singh	Amarjeet Singh	Kuldeep Kaur	SC	M	English
8	612-19-251	5518	Harjot Singh	Ranjit Singh	Tajinder Kaur	BC	M	English
9	612-19-245	5519	Jagjeet Singh	Bhupinder Singh	Surjeet Kaur	BC	M	English
10	612-19-	5520	Jagjit Singh	Balbir Singh	Charanjit Kaur	BC	M	English
11	612-19-227	5521	Jaspreet Kaur	Jagtar Singh	Harinder Kaur	General	F	English
12	612-19-236	5522	Jaspreet Kaur	Balbir Singh	Charanjit Kaur	General	F	English
13	612-19-237	5523	Jaspreet Kaur	Jasvir Singh	Kulwinder Kaur	SC	F	English
14	612-19-258	5524	Kajal Sharma	Kulwinder Singh	Kiran Bala	General	F	English
15	612-19-271	5525	Karanveer AB	Charanjeet Singh	Baljinder Kaur	General	M	English
16	612-19-228	5526	Kiran	Harpreet Singh	Charanjit Kaur	General	F	English
17	612-19-252	5527	Nirmal Kaur	Ajaib Singh	Gurmeet Kaur	SC	F	English
18	612-19-239	5528	Paramjeet Kaur	Bhag Singh	kashmir Kaur	General	F	English
19	612-19-229	5529	Preeti	Surinder Singh	Sarla Devi	SC	F	English
20	612-19-230	5530	Pushpa Rani	Kuldip Singh	Anita Devi	SC	F	English
21	612-19-277	5531	Rahulveer	Tarlok Chand	Lata Kumari	SC	M	English
22	612-19-	5532	Sachin Sharma	Gurdhyam Sharma	Balbir Sharma	General	M	English
23	612-19-1056	5533	Sanjana Kumari	Prem Kumar	Raj Kumari	General	F	English
24	612-19-260	5534	Shahina Parveen	Sultan Mohammad	Kaki Devi	BC	F	English
25	612-19-241	5536	Simran Kumarl	Chander dev	Indrawati Devi	BC	F	English
26	612-19-248	5537	Simranjeet Singh	Gurmair Singh	Asha Rani	OBC	M	English
27	612-19-231	5538	Sukhdeep Kaur	Bhinder Singh	Kuljeet Kaur	SC	F	English
28	612-19-1061	5510	Vivek Singh	Lachhman Singh	Jaswinder Kaur	BC	M	English
29	612-19-242	5539	Sunaina Rani	Mamraj	Sukhwinder Kaur	BC	F	English
30	612-19-1060	5535	Shubham Kumar	Sanjay Bhardwaj	Kiran Devi	BC	M	English

Total Students

- ① Certificate course - 30
- ② Diploma Course - 11
- ③ Advanced Diploma - 16

Harsjeet Grewal  
Principal,  
SMHPSSCV, Govt. College,  
Sahibzada Ajit Singh Nagar.

Akhil Sharma  
Atul Gupta  
Chahat.  
Deepak  
Geetanjali  
Gurpreet Singh  
Gurwinder  
Harjot Singh  
Jagjeet  
Jagjit  
Jaspreet  
Jaswinder  
Jasprit Kaur  
Kajal  
Kiran  
Nirmal  
Paramjeet  
Preeti  
Pushpa  
Rahulveer  
Sachin  
Sanjana  
Shahina  
Simron  
Simranjeet  
Sukhdeep  
Vivek Singh  
Sunaina  
Sanjay Bhardwaj

Government College, S. A. S. Nagar, Mohali

Final Theory Examination

UGC Add on course in Pharmaceutical Chemistry

Course: Certificate Course in Pharmaceutical Chemistry

Subject: Pharmaceutical Chemistry

Session: 2019-2020

Max. Time: 2:00 hrs

Max. Marks: 40

### SECTION A

This section carries 5 short answer type questions of 4 marks each and all are compulsory.

Q. 1) Define half-life in detail.

Q. 2) Explain the terms:  
a) Buffer solutions  
b) Buffer Capacity

Q. 3) Explain radio-active decay? Mention units of radioactivity.

Q. 4) Define the following :  
a) Arrhenius Concept  
b) Bronsted-Lowry Concept

Q. 5) What are Chelating Agents? Give examples.

### SECTION B

This section carries 2 long answer type questions of 5 marks each. Attempt any one of them.

Q. 6) Define anticaries agents? Explain the following compounds with method of preparation, properties and their uses:  
a) Stannous Fluoride                  b) Sodium Fluoride

OR

Q. 7) Explain the following:  
a) Lewis Concept  
b) Conjugate Acid-Base pairs  
c) Strong Ammonia solution  
d) Nitric Acid

*Harijeet Singh*  
Principal  
SMHS Govt. College  
Sahibzada Ajit Singh Nagar

### **SECTION C**

This section carries 2 long answer type questions of 5 marks each. Attempt any one of them.

Q. 8) ) Explain the following terms:

- a) Law of mass action
- b) common-ion effect
- c) Acid- Base indicators
- d) pH

OR

Q. 9) What are topical agents? Explain the followings:

- a) Aluminium chloride
- b) Zinc Sulphate
- c) Alum

### **SECTION D**

This section carries 2 long answer type questions of 5 marks each. Attempt any one of them.

Q.10) Explain the following:

- a) Difference between Diastereomers and Enantiomers
- b) Optical Activity
- c) Stereoisomerism

What are gastrointestinal agent? Explain the following:

- a) Tribasic Calcium Phosphate
- b) Magnesium Carbonate heavy

OR

Q. 11) Explain the following terms:

- a) Nernst Equation
- b) Redox Reactions
- c) Standard Electrode Potential

### **SECTION E**

This section carries 2 long answer type questions of 5 marks each. Attempt any one of them.

Q.12) What are gastrointestinal agent? Explain the following:

- a) Tribasic Calcium Phosphate
- b) Magnesium Carbonate heavy

*Hargopal  
B.S Govt. College  
Sahibzada Ajit Singh Nagar*

OR

Q. 13) Explain the following terms with example:

a) Essential elements

b) Any three reactions of Alkanes and Alkynes

Hajjeet Singh

Principal  
Sahibzada Ajit Singh Nagar  
Guru Nanak Dev University  
Sohna Road, Gurgaon  
Haryana - 122001

# ਹਾਜ਼ਰੀ ਫਲਿਸਟਰ Certificate Course in Pharma ਕਾਲਜ

G-6-1

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1	Sukhpreet Singh	A	P	P										
2	Ankur	A	P	P										
3	Sultan Parveen	P	P	P										
4	Karanveer Singh	P	A	P										
5	Harjat Singh	P	A	P										
6	Kajal Sharma	A	P	A										
7	Atul Gupta	A	P	A										
8	Sachin Sharma	P	A	P										
9	Gurpreet Singh	A	A	P										
10	Akhil Sharma	P	A	P										
11	Amandeep	A	A	A										
12	Simranjeet Singh	P	A	A										
13	Trajeet Singh	P	A	P										
14														

*Present*  
*Not Present*  
*Leave*  
*Medical*  
*Others*  
*Other*  
*Not Applicable*

*Principal*  
*S. S. S. Govt. College*  
*Sohibzada Ajit Singh*  
*Principal*  
*S. S. S. Govt. College*  
*Sohibzada Ajit Singh*

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Principal  
S.S.Govt. College  
Gurdaspur Ajit Singh

May 2017

ਸਟੋਰੀ ਫਾ. ਸਿ. ਵਿ. ਨੰ: 52

WT

ਜਾਜ਼ਰੀ ਰਜਿਸਟਰ - Certificate Course in Pharma - G.C. Mohale

No.	Name	May			June			July			Aug			Sept		
		21	25	31	4	8	12	16	20	24	1	5	9	13	17	21
1	Sukhpreet Singh	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P
2	Ankur	A	P	P	P	P	P	P	P	P	A	A	A	A	A	A
3	Sultan Parveen	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	Karanveer Singh	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	Harjat Singh	P	A	P	S	S	P	A	A	P	A	P	P	P	P	P
6	Kajal Sharma	A	P	A	S	S	A	P	P	P	A	P	P	P	P	P
7	Stul Gupta	A	P	A	S	S	P	A	A	P	P	P	P	P	P	P
8	Sachin Sharma	P	A	P	A	A	A	P	P	P	A	P	P	P	P	P
9	Gurjeet Singh	A	A	P	P	P	P	P	P	P	A	A	A	A	A	A
10	Akhil Sharma	P	A	P	P	P	P	A	A	P	A	P	P	P	P	P
11	Amandeep	A	R	A	V	V	A	A	A	P	P	P	P	P	P	P
12	Simranjeet Singh	P	A	A	V	V	A	P	P	A	A	A	A	A	A	A
13	Jayjeet Singh	P	E	P	P	P	P	A	P	P	P	P	P	P	P	P
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Principals  
Sahibzada Ajit Singh Nagar

Sahibzada Ajit Singh College  
Sahibzada Ajit Singh Nagar

Lata

Feb 2020

[CERTIFICATE COURSE]

विद्यालय नं. ५२ BSC 1st year (Add-on course in  
Pharmaceutical chemistry)

February, 2020 (Theory)

	10/2/2020	11/2/2020	12/2/2020	13/2/2020	14/2/2020	15/2/2020	16/2/2020	17/2/2020	18/2/2020	19/2/2020	20/2/2020	21/2/2020	22/2/2020	23/2/2020	24/2/2020	25/2/2020	26/2/2020	27/2/2020	28/2/2020	29/2/2020
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6c5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6c6	g	P	P	P	P	P	P	P	P	P	P	P	.	P	P	P	P	P	P	P
6c7	P	P	P	P	P	P	P	P	P	g	P	P	P	P	P	P	P	P	P	P
6c8	.	P	P	P	P	P	P	P	P	P	.	P	P	.	P	P	.	P	P	.
6c9	P	P	P	.	P	P	P	P	P	P	P	.	P	P	.	P	.	P	.	P
6c10	P	P	P	P	.	P	P	P	P	P	P	.	P	.	P	.	P	.	P	P
6c12	.	P	o	P	P	P	P	P	P	P	P	.	.	.	P	P	.	P	P	.
6c13	P	.	P	.	P	P	P	P	P	P	P	.	P	P	P	P	P	P	P	P
6c14	P	P	P	P	P	P	P	P	P	P	P	.	P	.	P	.	P	.	P	.
6c16	.	P	.	P	.	P	P	P	P	P	P	.	P	.	P	.	P	.	P	.
6c17	P	P	P	P	g	.	P	P	P	P	P	P	.	P	.	P	.	P	.	P
6c19	P	P	P	.	P	P	P	P	P	P	P	P	P	P	P	.	P	.	P	.
6c20	P	P	P	P	P	P	.	P	P	P	P	P	P	P	P	.	P	P	P	P
6c23	P	P	P	.	P	P	P	P	P	P	P	P	.	P	.	P	.	P	.	P
6c24	P	P	P	.	P	P	P	P	P	P	P	.	P	.	P	.	P	.	P	.
6c30	.	P	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6c60	P	.	P	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8c3	g	.	P	P	P	P	.	P	.	P	.	.	.	.	.	P	.	P	.	P
8c7	.	P	.	P	.	P	.	P	.	P	.	.	P	.	P	.	P	.	P	.
8c8	P	.	P	P	P	.	P	.	P	.	P	.	P	.	P	.	P	.	P	.
8c9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8c15	P	P	.	P	P	P	.	P	.	P	.	.	P	.	P	.	P	.	P	.
8c19	P	.	P	P	P	.	P	.	P	.	P	.	P	.	P	.	P	.	P	.
8c27	P	.	P	P	.	P	P	P	P	P	P	P	P	P	P	.	P	.	P	.
8c28	P	.	P	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Hafizet Prasad

Principal  
Sahibzada Ajit Singh  
Govt. College

March 2020

स्टॉरिडो इन नं. 52

Bsc 1st year

Heripal course  
[Add-on course in  
Pharmaceutical  
Chemistry]

ग्रन्ती रजिस्टर

March, 2020.

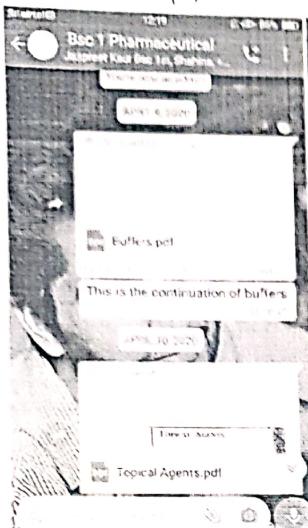
काला

(Theory)

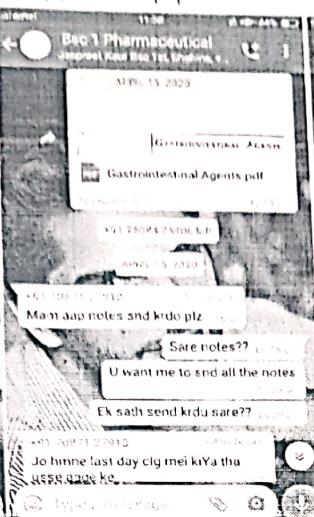
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603	P	P	A	P	P	P	P	A	A	P	A	A	P				
605	P	P	P	P	P	P	P	P	A	P	P	P	P	P			
606	A	P	A	P	P	A	A	A	A	P	P	P	P	P	P	P	P
607	P	P	P	A	P	A	P	A	P	P	P	A	P				
608	P	P	A	P	A	P	P	P	P	A	P	P	P	P	P	P	P
609	P	P	P	A	P	P	P	P	P	A	P	A	P	P	P	P	P
610	P	P	A	P	A	P	A	P	P	P	P	P	A	P			
612	P	P	P	P	P	P	P	P	A	P	P	P	A	P			
613	A	P	A	P	P	A	P	P	A	P	A	P	A	P			
614	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P
616	P	P	A	P	A	P	A	P	P	A	P	P	P	P	P	P	P
617	A	P	A	P	P	P	P	P	P	P	P	A	A	A			
619	P	P	P	A	A	P	A	P	P	P	P	P	P	P	P	P	P
620	P	P	A	P	P	P	A	P	A	P	A	P	P	P	P	P	P
623	A	P	P	A	P	A	P	A	P	P	P	P	P	P	P	P	P
624	P	P	A	P	A	A	P	A	P	P	P	P	P	P	P	P	P
630	P	P	A	A	A	A	P	P	A	A	A	P	P	P	P	P	P
660	P	A	A	A	A	P	P	P	A	P	P	P	P	P	P	P	P
803	P	P	P	P	A	A	A	A	P	A	P	A	P	A			
807	A	P	P	P	A	A	A	A	A	P	P	P	A				
808	P	P	P	P	A	A	P	A	P	P	A	A	A				
809	P	P	P	P	A	P	A	P	A	P	A	P	P	P	Principal SMTS Govt. College Sahabzada Ajit Singh		
815	P	A	P	A	A	P	P	P	A	A	P	A	P				
819	P	A	P	P	A	A	A	A	A	P	P	P	P				
827	A	A	P	A	P	A	P	A	P	A	A	A	A	P			
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April 2020

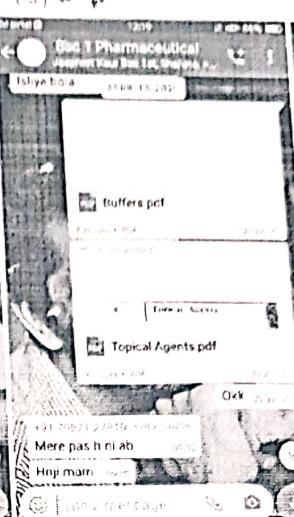
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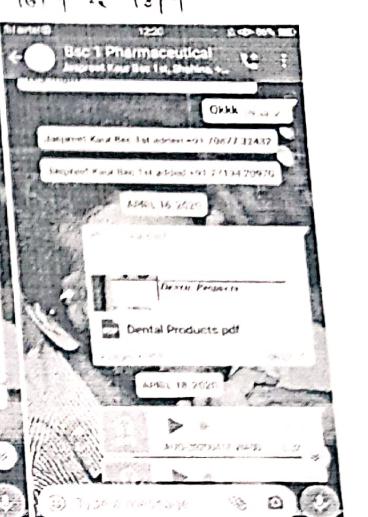
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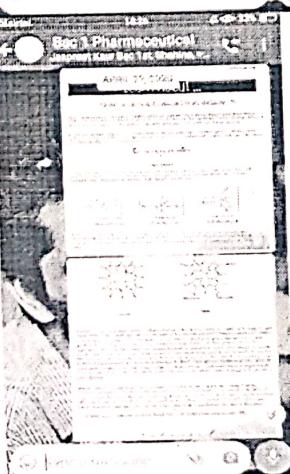
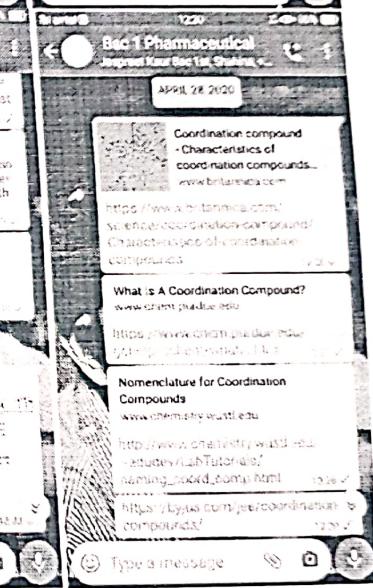
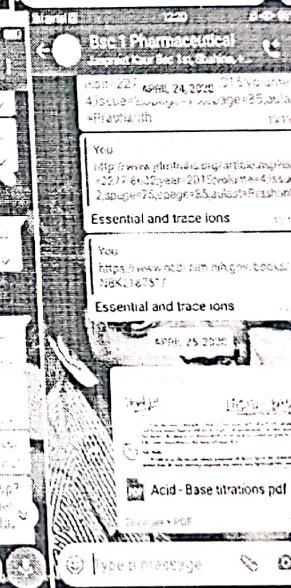
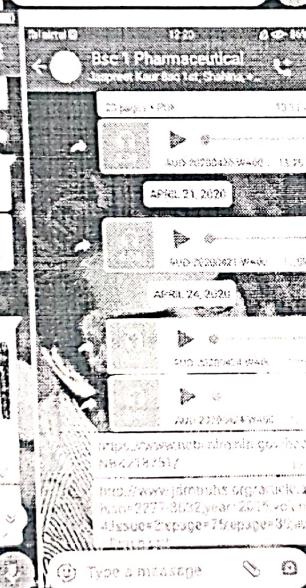
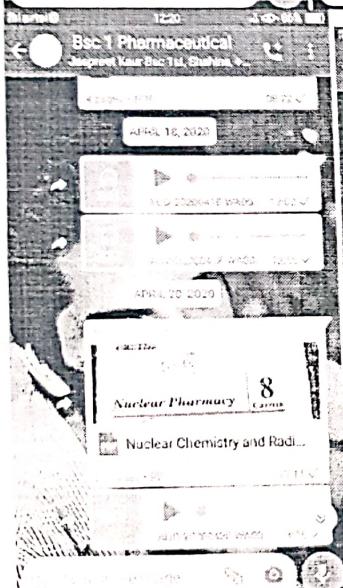
15/4 - 16/4



16/4 & 18/4



9/4



29/4

21/4 & 24/4

25/4

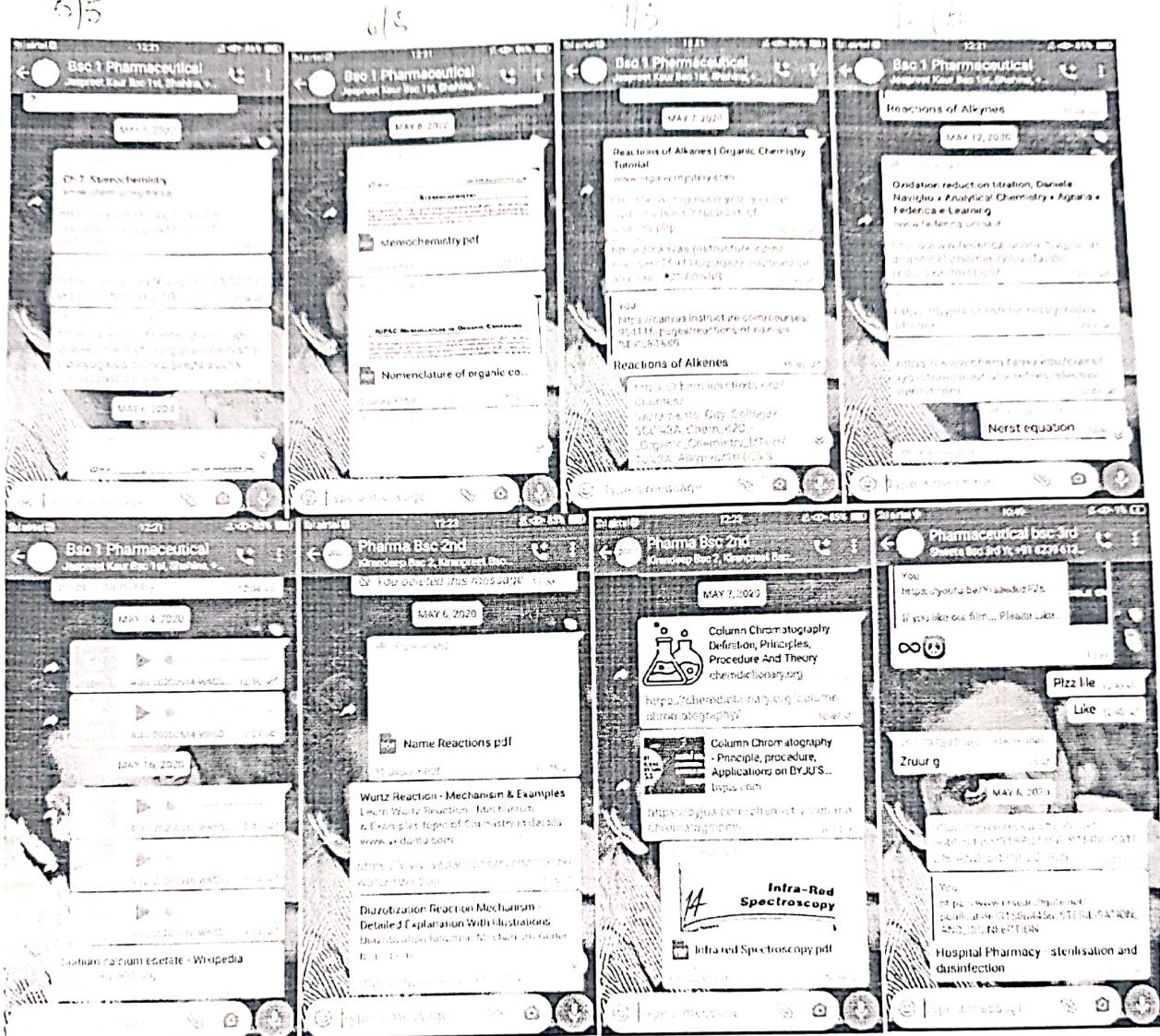
28/4

Fermentation  
Haigjeet Singh

Principal  
SHHS Govt. College  
Sonibzada Ajit Singh, J&K

21/4 & 24/4  
(English)

May 2020



1/5

2/5

3/5

4/5

2020-21  
(Enchanted)

~~Enchanted~~  
Hafizet Arjyal  
Principal  
SMHS Govt. College  
Sahibzada Ajit Singh Nagar