NARAYANA PHARMACY COLLEGE

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File No.SCHE-JNTA/1471/2023-JNTUA-EHE73

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU-515002, A.P (INDIA)

ACADEMIC CALENDAR

for

Academic Year 2023-24

PHARM.D

IV YEAR

(For 2020 admitted batch)

Description	From To	No. of weeks/days
IV Year		
Commencement of Class work	25.09.2023	-
Instruction Period for the Year	25.09.2023 to 04.05.2024	(32 weeks)
Summer vacation	05.05.2024 to 31.05.2024	(4 weeks)
Instruction Period for the Year (continued)	01.06.2024 to 06.07.2024	(05 weeks)
Examinations:		
I Mid-term Examinations	11.12.2023 to 16.12.2023	(01 week)
II Mid-term Examinations	04.03.2024 to 09.03.2024	(01 week)
III Mid-term Examinations	01.07.2024 to 06.07.2024	(01 week)
End laboratory Examinations:	08.07.2024 to 13.07.2024	(01 week)
End Theory Examinations:	15.07.2024 to 27.07.2024	(02 weeks)
Commencement of Class Work for Pharm.D V Year	28.07.2024 (Monday)	
Declaration of results for IV Year	16.08.2024	

Note:

- The midterm examinations are to be completed as per the schedule given above.
- For slippage of working days due to any unavoidable reasons, compensation can be made by conducting class work on second Saturdays, Sundays and other holidays, except on National Holidays and Important Festivals.

Digitally Signed by Eddula Keshava Reddy
Date: 03-10-2023 14:36:42
Reason: Approved

Date: 03.10.2023

DIRECTOR OF EVALUATION

Academic calendar which show schedule for class work, internal and external exams

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28.06.2024

CIRCULAR

Pharm D IV Year

III MID EXAMINATIONS - TIME TABLES – June 2024

Date/Day	02.30 PM to 04.30 PM
	Subject
01.07.2024 (Monday)	Pharmacotherapeutics-III 17T00401
02.07.2024 (Tuesday)	Hospital Pharmacy 17T00402
03.07.2024 (Wednesday)	Clinical Pharmacy 17T00403
04.07.2024 (Thrusday)	Biostatistics & Research Methadology 17T00404
05.07.2024 (Friday)	Biopharmaceutics & Pharmacokinetics 17T00405
06.07.2024 (Saturday)	Clinical Toxicology 17T00406

Note: Faculty members are requested to send **(npc.exams@gmail.com)** the question papers by evening of **29.06.2024.**

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Circular of Internal Exam

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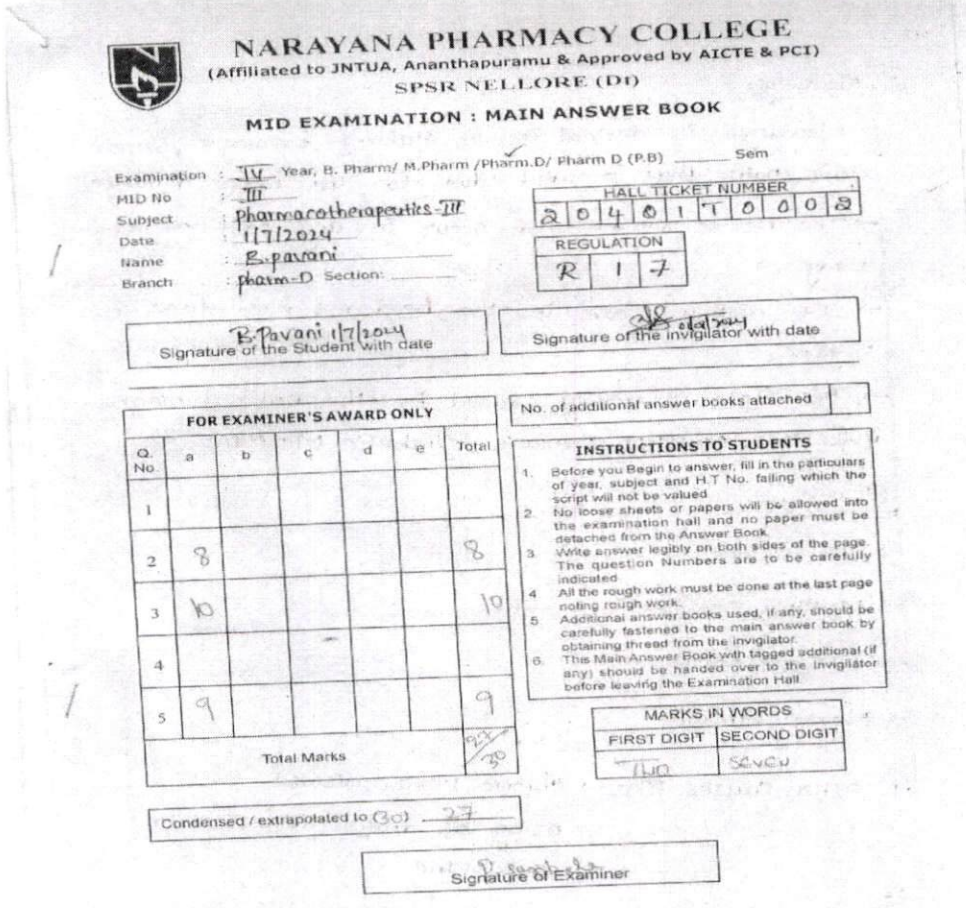
	NARAYANA PHARMACY COLLEGE, Chintharedypalem, Nellore (4Q)									
Course	Pharm D	Year	IV	Sem	-	Section	--	III	Mid Term Exam	
SUBJECT	Pharmacotherapeutics-III			Code	17T00401		DATE:		01-07-2024	
TIME	120 Min		DESCRIPTIVE TYPE				MAX.MARKS:		30	

Answer any THREE Questions **3x10=30**

1. Write a brief note on Evidence based medicines (CO2)
2. Write a pharmacotherapy of Schizophrenia.(CO1)
3. Define Neuralgia & highlight about pharmacotherapy (CO4).
4. Write a brief note on sleep disorders & highlight about pharmacotherapy (CO4).
5. Write a note on Anxiety disorders and Mention about its treatment.(CO1)

Question Paper of Internal Exam with CO mapping



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SPSR NELLORE (DT)

MID EXAMINATION : MAIN ANSWER BOOK

Examination : IV Year, B. Pharm/ M.Pharm /Pharm.D/ Pharm D (P.B) ____ Sem
MID No : III
Subject : Pharmacotherapeutics-III
Date : 1/7/2024
Name : B.pavani
Branch : pharm-D Section: ____

HALL TICKET NUMBER: 2 0 4 0 1 T 0 0 0 8

REGULATION: R 1 7

B.Pavani 1/7/2024
Signature of the Student with date

Signature of the invigilator with date

FOR EXAMINER'S AWARD ONLY

Q. No.	a	b	c	d	e	Total
1						
2	8					8
3	10					10
4						
5	9					9
Total Marks						27/30

Condensed / extrapolated to (30) 27

Signature of Examiner

No. of additional answer books attached

INSTRUCTIONS TO STUDENTS

1. Before you Begin to answer, fill in the particulars of year, subject and H.T No. failing which the script will not be valued
2. No loose sheets or papers will be allowed into the examination hall and no paper must be detached from the Answer Book.
3. Write answer legibly on both sides of the page. The question Numbers are to be carefully indicated
4. All the rough work must be done at the last page noting rough work.
5. Additional answer books used, if any, should be carefully fastened to the main answer book by obtaining thread from the invigilator.
6. This Main Answer Book with tagged additional (if any) should be handed over to the invigilator before leaving the Examination Hall

MARKS IN WORDS

FIRST DIGIT	SECOND DIGIT
TWO	SEVEN

First Page of Answer Booklet

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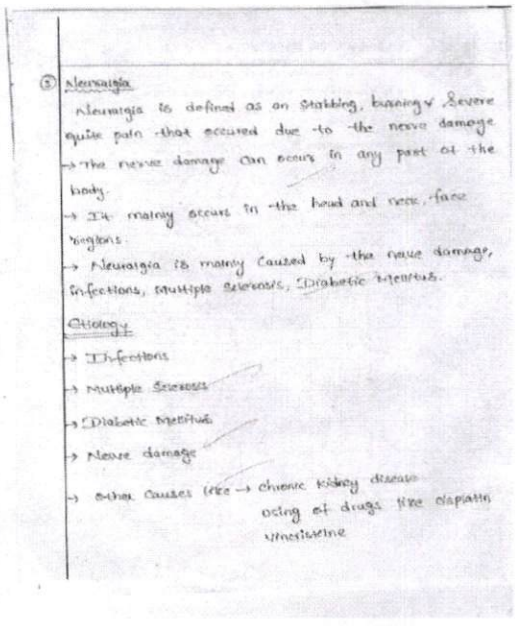


⑤ Neuralgia

Neuralgia is defined as an stabbing, burning & Severe quite pain that occured due to the nerve damage

→ The nerve damage can occurs in any part of the body.

→ It mainly occurs in the head and neck, face regions.

→ Neuralgia is mainly caused by the nerve damage, Infections, Multiple Sclerosis, Diabetic neuritis.

Etiology

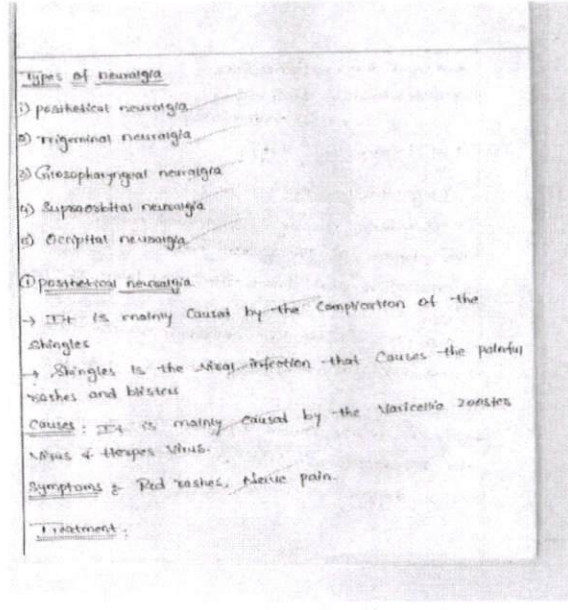
→ Infections

→ Multiple Sclerosis

→ Diabetic Neuritis

→ Nerve damage

→ other causes like → chronic kidney disease
acting of drugs like cisplatin
vincristine



Types of neuralgia

i) postherpetical neuralgia
ii) trigeminal neuralgia
iii) Glossopharyngeal neuralgia
iv) Supraorbital neuralgia
v) Occipital neuralgia

① postherpetical neuralgia

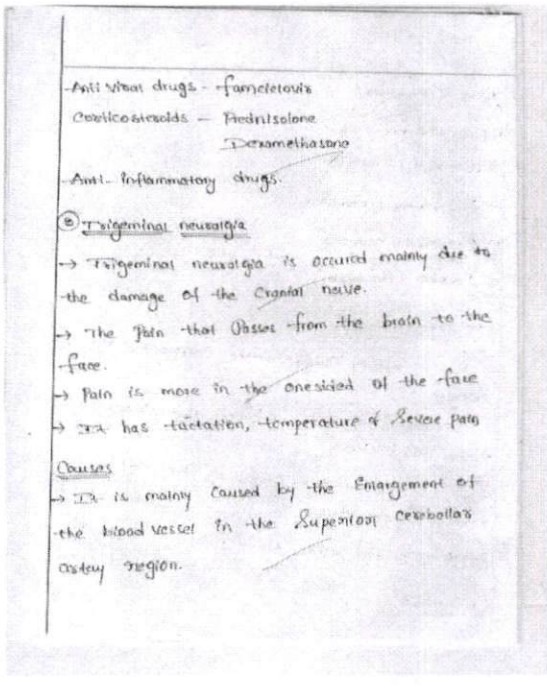
→ It is mainly caused by the complication of the shingles

→ Shingles is the viral infection that causes the painful rashes and blisters

Causes: It is mainly caused by the Varicella zoosters virus & Herpes virus.

Symptoms: Red rashes, Nerve pain.

Treatment:



-Anti viral drugs - famciclovir
Corticosteroids — Prednisolone
Dexamethasone
-Anti- Inflammatory drugs.

② Trigeminal neuralgia

→ Trigeminal neuralgia is occured mainly due to the damage of the Cranial nerve.

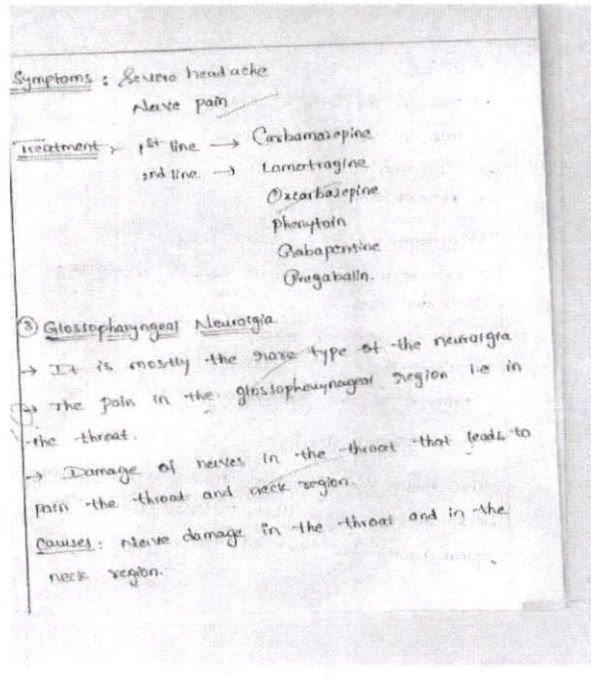
→ The pain that passes from the brain to the face.

→ Pain is more in the onesided of the face

→ It has tactation, temperature of Severe pain

Causes

→ It is mainly caused by the Enlargement of the blood vessel in the Superiour cerebellar artery region.



Symptoms : Severe headache
Nerve pain

Treatment : 1st line → Carbamazepine
2nd line → Lamotragine
Oxcarbazepine
Phenytoin
Gabapentine
Pregabalin.

③ Glossopharyngeal Neuralgia

→ It is mostly the same type of the neuralgia

→ The pain in the glossopharyngeal region i.e in the throat.

→ Damage of nerves in the throat that leads to pain the throat and neck region.

Causes: Nerve damage in the throat and in the neck region.

Inner Pages of Answer Booklet Pages 2-5

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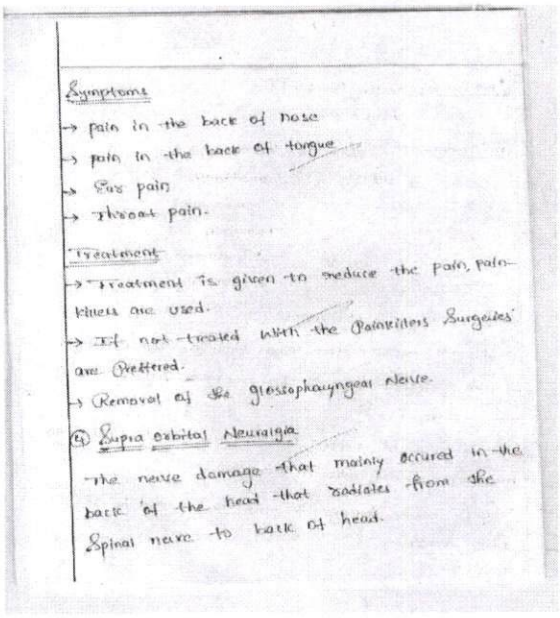
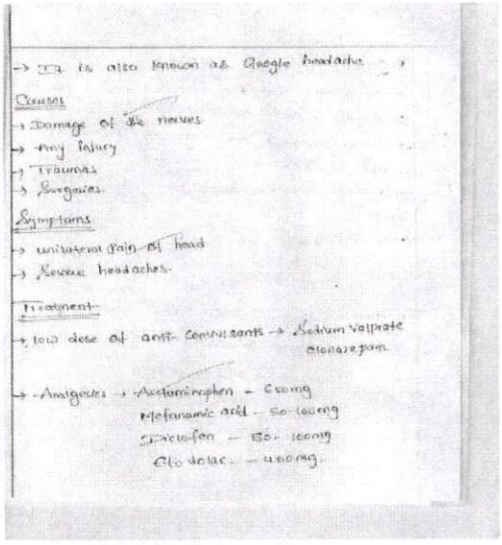


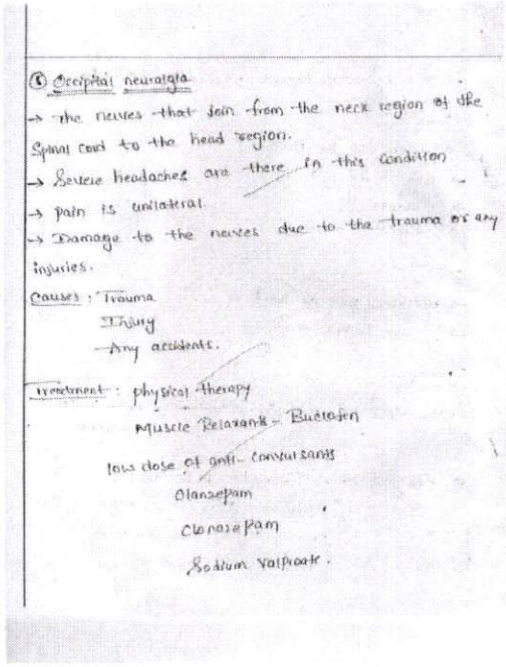
Symptoms
→ pain in the back of nose
→ pain in the back of tongue
→ Ear pain
→ throat pain.

Treatment
→ Treatment is given to reduce the pain, pain-killers are used.
→ If not treated with the Painkillers Surgeries are preferred.
→ Removal of the glossopharyngeal nerve.

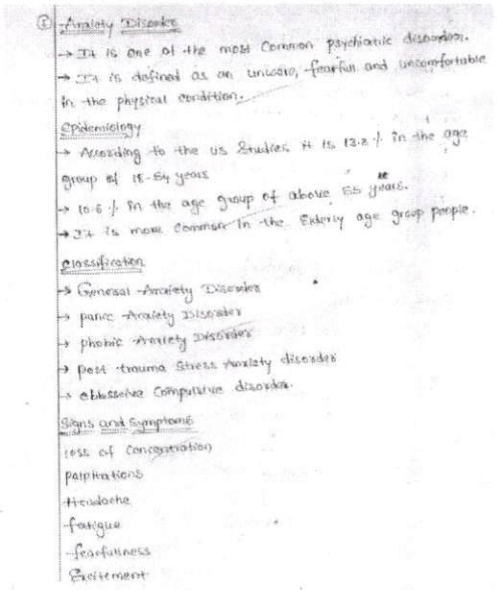
④ Supra orbital Neuralgia
→ the nerve damage that mainly occured in the back of the head that radiates from the Spinal nerve to back of head.



→ It is also known as Google headache
Causes
→ Damage of the nerves
→ any injury
→ Traumas
→ Surgeries
Symptoms
→ unilateral pain of head
→ Severe headaches.
Treatment
→ low dose of anti-convulsants → Sodium valproate
Clonazepam
→ Analgesics → Acetaminophen - 650mg
Mefenamic acid - 50-100mg
Diclofen - 150-100mg
Cloridac - 100mg.



⑤ Occipital neuralgia
→ the nerves that join from the neck region of the Spinal cord to the head region.
→ Severe headaches are there in this condition
→ pain is unilateral.
→ Damage to the nerves due to the trauma or any injuries.
Causes: Trauma
Injury
Any accidents.
Treatment: physical therapy
Muscle Relaxants - Baclofen
low dose of anti-convulsants
Olanzepam
Clonazepam
Sodium valproate.



⑥ Anxiety Disorder
→ It is one of the most common psychiatric disorders.
→ It is defined as an unease, fearful and uncomfortable in the physical condition.
Epidemiology
→ According to the US Studies it is 13.2% in the age group of 18-54 years
→ 10.6% in the age group of above 55 years.
→ It is more common in the Elderly age group people.
Classification
→ General Anxiety Disorder
→ panic Anxiety Disorder
→ phobic Anxiety Disorder
→ post trauma Stress Anxiety disorder
→ obsessive Compulsive disorder.
Signs and Symptoms
loss of concentration
palpitations
Headache
fatigue
fearfulness
Excitement

Inner Pages of Answer Booklet Pages 6-9

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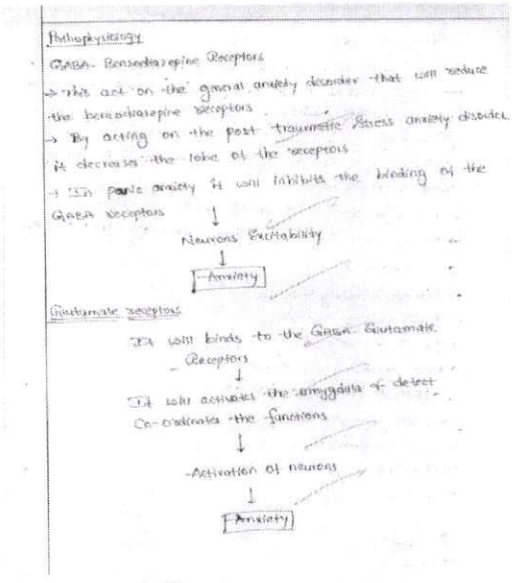

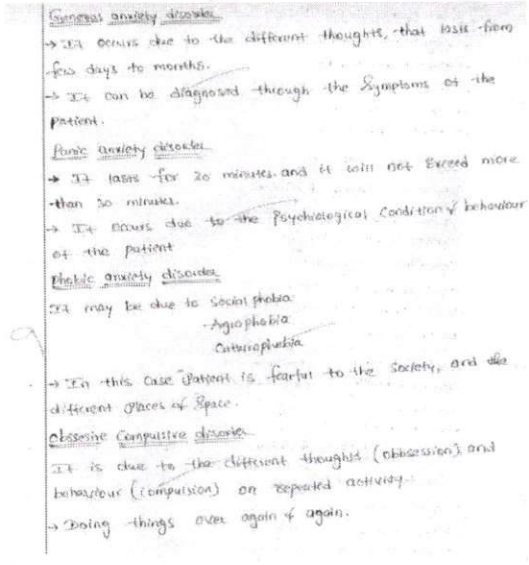

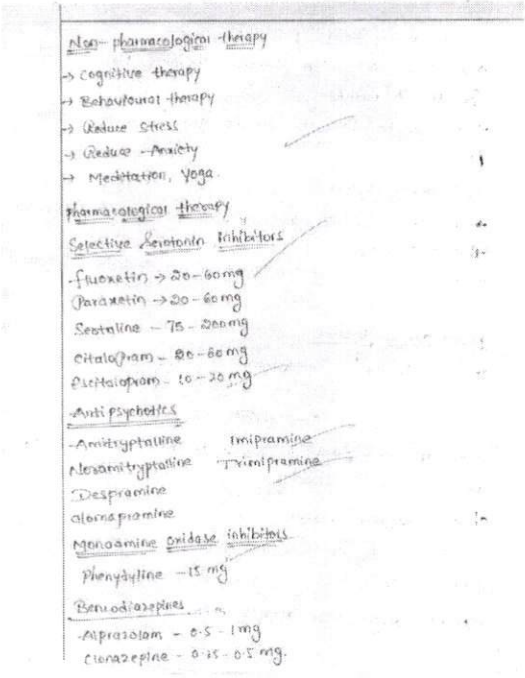

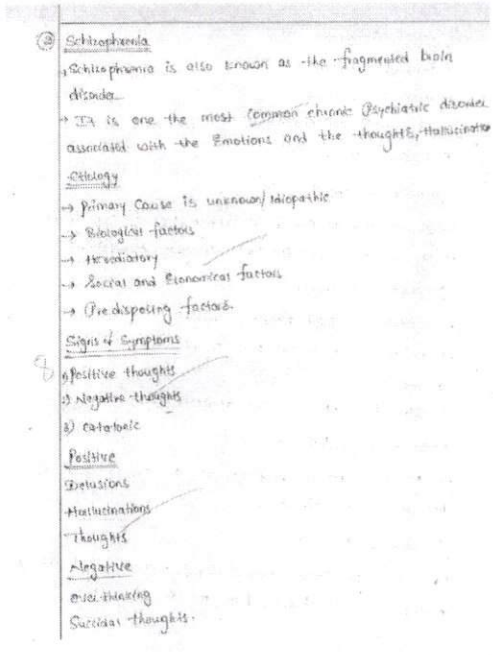

Inner Pages of Answer Booklet Pages 10-13

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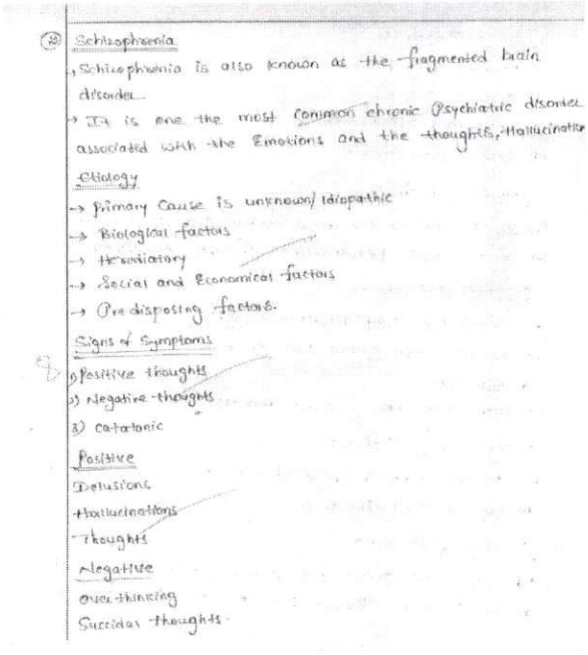


(10) Schizophrenia

1. Schizophrenia is also known as the fragmented brain disorder.
→ It is one the most common chronic Psychiatric disorder associated with the Emotions and the thoughts, Hallucinations

Etiology

→ Primary Cause is unknown/ Idiopathic
→ Biological factors
→ Hereditary
→ Social and Economical factors
→ Predisposing factors.

Signs of Symptoms

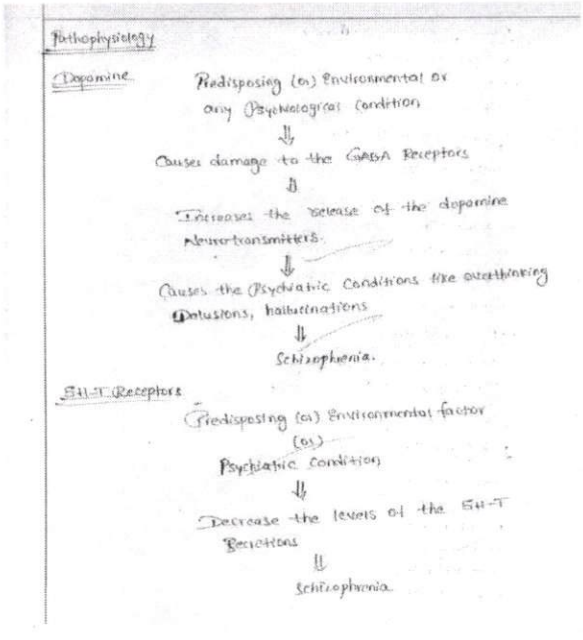
1) Positive thoughts
2) Negative thoughts
3) Catatonic

Positive

Delusions
Hallucinations
Thoughts

Negative

Over thinking
Suicidal thoughts



Pathophysiology

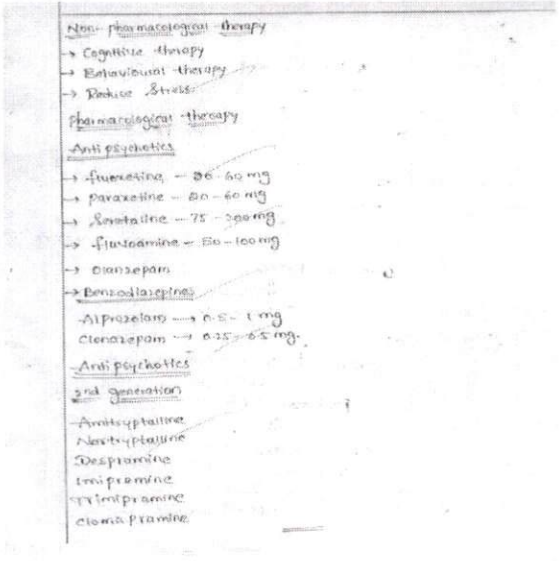
Dopamine

Predisposing (or) Environmental or any Psychological condition
⇓
Causes damage to the GABA Receptors
⇓
Increases the release of the dopamine Neurotransmitters.
⇓
Causes the Psychiatric conditions like overthinking Delusions, hallucinations
⇓
Schizophrenia.

5H-T Receptors

Predisposing (or) Environmental factor (or) Psychiatric condition
⇓
Decrease the levels of the 5H-T Receptions
⇓
Schizophrenia.

Inner Pages of Answer Booklet Pages 14-15



Non- Pharmacological therapy

→ Cognitive therapy
→ Behavioural therapy
→ Reduce Stress

Pharmacological therapy

Anti psychotics

→ fluoxetine – 20-60 mg
→ paroxetine – 20-60 mg
→ Sertraline – 75-200 mg
→ fluvoxamine – 50-100 mg
→ Diazepam
→ Benzodiazepines
Alprazolam → 0.5-1 mg
Clonazepam → 0.25-0.5 mg.

Anti psychotics

2nd Generation

Amitryptaline
Nortryptaline
Desipramine
Imipramine
Trimipramine
Clomipramine

Last Page of Answer Booklet Page-16

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01.04.2024

CIRCULAR

B. PHARMACY IV YEAR II SEM II MID EXAMINATIONS
TIME TABLES – APRIL 2024

Date/Time	10.00 AM to 11.00 AM	03.00 PM to 04.00 PM
08.04.2024 (Monday)	Biostatistics and Research Methadology (BP 801 T)	Scocial and Preventive Pharmacy (BP 802 T)
10.04.2024 (Wednesday)	Pharmacovigilance (BP 805 ET)	Cosmetic Science (BP 809 ET)

Note:

- Faculty members are requested to send the question papers to **npc.exams@gmail.com** by evening of **04.04.2024.**

S. Sujatha
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Circular of Internal Exams

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	NARAYANA PHARMACY COLLEGE:: (4Q) Chintharedypalem, Nellore						
Course	B. Pharmacy	Year/Sem	IV/II	Section	A/B	Mid exam	II
Subject (Code):	Cosmetic Science (BP 809 ET)					Exam date: 10.04.2024	
Time: 60 Min	Descriptive Type					Total Marks: 30	

I. Objective type Questions: (Answer all the questions)	**5X2=10M**
1. Write the uses of clove. (CO 4) 2. Write the principle of Sebumeter. (CO 5) 3. What is your understanding about the term TEWL? (CO 5) 4. Write a note on comedogenic. (CO 5) 5. Write four reasons for Dandruff. (CO 5)	
II. Long Answer Questions: (Answer 1 out of 2)	**1X10=10M**
1. Describe the role of Henna and Amla in Hair care preparations. (CO4) 2. Write the BIS specification for shampoos and tooth paste. (CO5)	
III. Short Answer Questions: (Answer 2 out of 3)	**2X5=10M**
1. Differentiate soaps and syndet bars. (CO3) 2. Write the principle of corneometer. (CO5) 3. Explain treatment of Hair loss. (CO3)	

Question Paper of Internal Exam with CO mapping

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SPSR, NELLORE (Dt).
MID EXAMINATION, MAIN ANSWER BOOK

Examination : IV Year, B.Pharm / M.Pharm / Pharm.D / (P.B.) II Sem.
MID No/ : II
Subject : Cosmetic Science
Date : 10-04-2024
Name : U. Maruthi Krishna Yadav
Branch : B.Pharmacy Section B

HALL TICKET NUMBER: 2 0 4 9 1 R 0 0 B 1
REGULATION: R 1 9

U. Maruthi Krishna Yadav 10/4/24
Signature of the Student with date

Signature of the Invigilator with date

FOR EXAMINATION AWARD ONLY

Q. NO	a	b	c	d	e	f	Total
1	2	2	2	2	2		10
2							08
3	5	5					10
4							
5							
Total Marks							28/30

Condensed / extrapolated to ( ) 14/15

MARKS IN WORDS

FIRST DIGIT	SECOND DIGIT
ONE	FOUR

INSTRUCTIONS TO STUDENTS

1. Before you Begin to answers, fill in the particulars year, subject and H.T. No, failing which the script will not be valued.
2. No loose sheets or papers will be allowed into the examination hall and no paper must be detached from the Answer Book.
3. Write answ legibly on both sides of the page. The question Numbers are to be carefully indicated.
4. All the rough work must be done ate the last page noting rough work.
5. Additional answer books used, if any, should be carefully fastened to the main answer book by obtaining thread from the invigilator.
6. This Main Answer Book with tagged additional (if any) should be handed over to the invigilator before leaving the Examination Hall.

A. Ahlyadh
Signature of the Examiner

First Page of Answer Booklet

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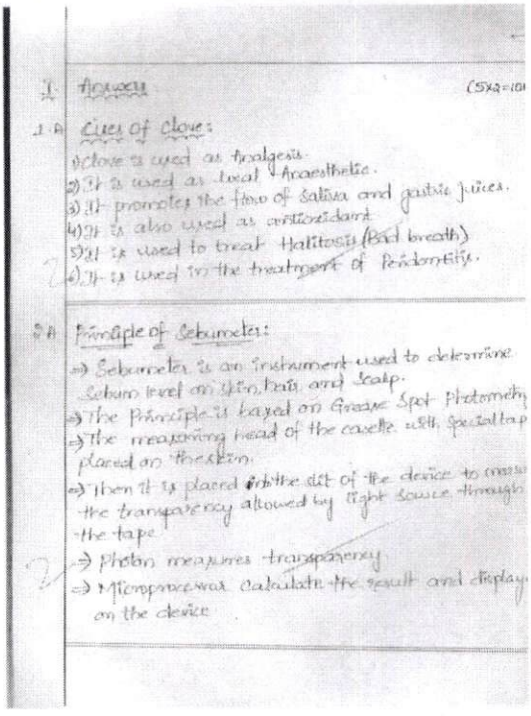


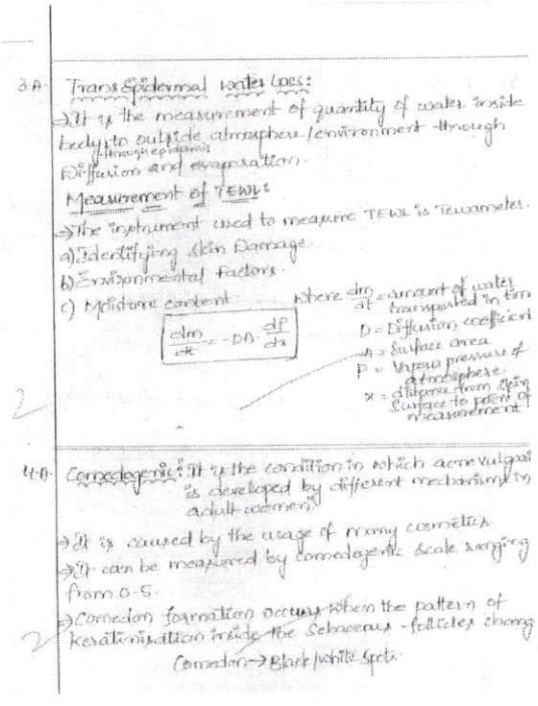
I. Answers (5x2=10)

1.A Uses of clove:

1) Clove is used as analgesic.
2) It is used as local Anaesthetic.
3) It promotes the flow of saliva and gastric juices.
4) It is also used as antioxidant.
5) It is used to treat Halitosis (Bad breath)
6) It is used in the treatment of Periodontitis.

2.A Principle of Sebumeter:

⇒ Sebumeter is an instrument used to determine Sebum level on skin, hair and scalp.
⇒ The Principle is based on Grease Spot Photometry
⇒ The measuring head of the casette with special tape placed on the skin.
⇒ Then it is placed in the slit of the device to measure the transparency allowed by light source through the tape.
⇒ Photon measures transparency
⇒ Microprocessor calculate the result and display on the device.



3.A Trans Epidermal water Loss:

⇒ It is the measurement of quantity of water inside body to outside atmosphere/environment through (through epidermis) Diffusion and evaporation.

Measurement of TEWL:

⇒ The instrument used to measure TEWL is Tewameter.

a) Identifying skin Damage.
b) Environmental factors.
c) Moisture content.

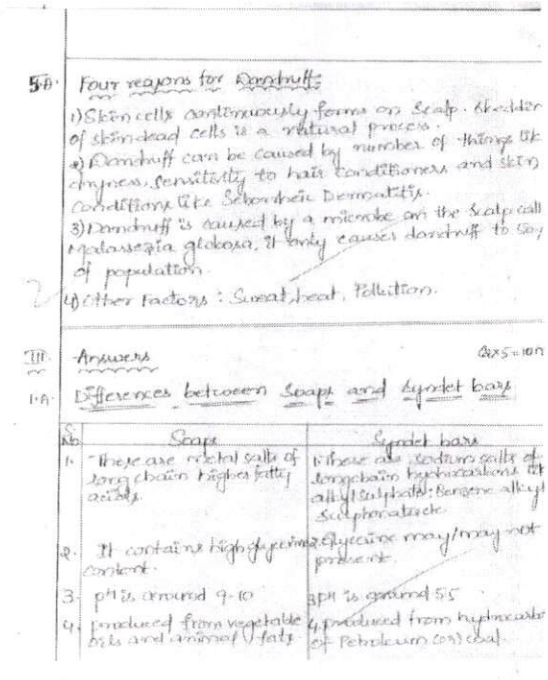
$$\frac{dm}{dt} = -DA\frac{df}{dx}$$

where dm = amount of water transported in time
dt
D = Diffusion coefficient
A = Surface area
P = Vapour pressure of atmosphere.
x = distance from dry surface to point of measurement

4.A Comedogenesis: It is the condition to which acne vulgaris is developed by different mechanisms in adult women.

⇒ It is caused by the usage of many cosmetics.
⇒ It can be measured by comedogenic scale ranging from 0-5.
⇒ Comedon formation occurs when the pattern of keratinisation inside the Sebaceous follicles change.

Comedon → Black/white spots.



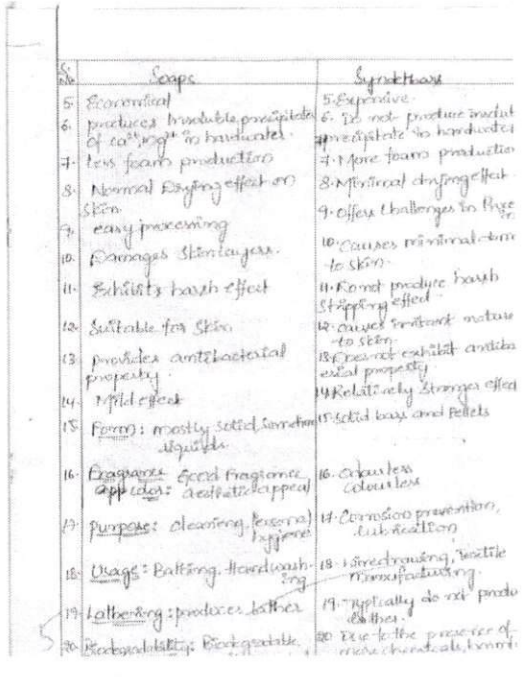
5.A Four reasons for Dandruff:

1) Skin cells continuously forms on Scalp. Shedding of skin dead cells is a natural process.
2) Dandruff can be caused by number of things like dryness, Sensitivity to hair conditioners and skin conditions like Seborrheic Dermatitis.
3) Dandruff is caused by a microbe on the Scalp called Malassezia globosa, it only causes dandruff to 50% of population.
4) Other factors: Sweat, heat, Pollution.

III. Answers (8x5=40)

1.A Differences between Soaps and Syndet bars

No.	Soaps	Syndet bars
1.	These are alkali salts of long chain higher fatty acids.	These are sodium salts of long chain hydrocarbons like alkyl Sulphates, Benzene alkyl Sulphonates etc.
2.	It contains high glycerine content.	Glycerine may/may not present.
3.	pH is around 9-10	pH is around 5-5
4.	Produced from vegetable oils and animal fats.	Produced from hydrocarbons of Petroleum or coal.



No.	Soaps	Syndet bars
5.	Economical	5. Expensive.
6.	Produces insoluble precipitates of Ca^{2+} & Mg^{2+} in hard water.	6. Do not produce insoluble precipitate in hard water.
7.	Less foam production	7. More foam production
8.	Normal drying effect on skin.	8. Minimal drying effect
9.	easy processing	9. Offers challenges to Physical
10.	Damages skin layers.	10. Causes minimal harm to skin.
11.	Exhibits harsh effect	11. Do not produce harsh stripping effect.
12.	Suitable for skin	12. Causes irritant nature to skin.
13.	Provides antibacterial property.	13. Do not exhibit antibacterial property.
14.	Mild effect	14. Relatively Stronger effect
15.	Form: mostly solid, sometimes liquids.	15. Solid bars and Pellets
16.	Fragrance applied: Good fragrance, aesthetic appeal	16. Colourless Colourless
17.	Purpose: cleansing, personal hygiene	17. Corrosion prevention, Lubrication
18.	Usage: Bathing, Handwashing	18. Fiber drawing, Textile Manufacturing.
19.	Lathering: produces lather	19. Typically do not produce lather.
20.	Biodegradability: Biodegradable.	20. Due to the presence of many chemicals, many

Inner Pages of Answer Booklets Pages 2-5

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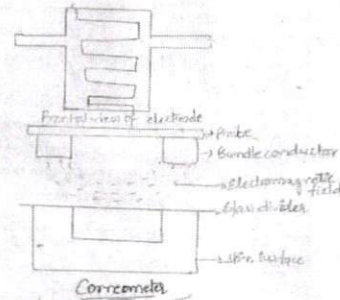
8A. Corneometer:

(1) The presence of adequate amount of water is the essential prerequisite for the normal maintenance of structure and function of Stratum corneum.
(2) It has been known since years that the electrical properties of skin related to the moisture content of stratum corneum.
(3) The measurement of total electrical Resistance to an alternative current of frequency determines the skin hydration level.
(4) The total impedance (Z) contains 2 components (5) Resistance (R) and Capacitance (C).
(6) CM825 corneometer CM8 is the most widely used instrument worldwide to determine the hydration Rate of Skin surface.
(7) Its determination is generally based on electrical measurement of skin.
(8) (i) It is the important valuable Parameter to determine the hydration rate in Dermatocosmetic Applications.

Principle:

(1) The principle of corneometer is based on the capacitance measurement of dielectric medium.
(2) The measurement of change in dielectric constant due to skin hydration level by changing the dielectric constant.

(3) The corneometer can detect even slight changes in the Hydration level.
(4) The corneometer may give arbitrary values from 0-120



Corneometer

Applications:

1) Corneometer is used in the measurement for all biomedical and cosmetic applications.
2) It is the ideal instrument for Formulation, testing the Safety and efficacy of cosmetic products.
3) It is used in Dermatological basis research in humans and animals.
4) It measures the accuracy of corneometer and can be checked easily at any time.

II Answers (5X10=10M)

2A BIS:

⇒ BIS stands for 'Bureau of Indian Standards'.
⇒ The quality and safety of drugs by central Drug Standard control Organization (CDSCO) regulates over the quality, safety and efficacy of drugs, cosmetics, medical devices.
⇒ According to drugs and cosmetics Act 1940, rules 1945 Cosmetic is any article intended to be rubbed/sprayed/sprinkled/applied onto the any part of the body thereof for cleansing, beautifying altering the appearance and promoting the attractiveness.
⇒ BIS provides declaration by labelling.
⇒ BIS sets Standards for the cosmetic products under Schedule 'S'.
⇒ BIS is the National Standard Board of India working under Ministry of consumer and affairs, Food and Public Distribution, Government of India.
⇒ BIS sets Standards for :
- Colouringagents
- Creams
- Shampoos
- Toothpaste

A1

BIS Specification for Shampoos:

⇒ IS 7884:2004 specifies the requirements for Surfactant based shampoos.

Analytical Methods for Shampoos:

1) Determination of percent solid content:
→ By evaporating liquid content through placing shampoo in Petriplate.
2) Determination of pH
→ pH is determined by pH meter.
3) Determination of viscosity
→ By using Brookfield Viscometer.
4) Foamability and Foam stability
→ By continuous shaking shampoo with distilled water
5) Dirt dispersion
6) Cleansing action
7) Surface tension measurement
8) Skin Irritation Test
→ By using group of Rabbits
9) Eye Irritation Test
→ Shampoo (1%) is placed in eyes of albino rats.

Analytical Methods for Toothpaste:

→ IS 4359:2001 describes the standards for regulating

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requirements and the method of sampling for Toothpaste.

Analytical Methods for Toothpaste:

1) Determination of hard and sharp edged Particle
2) Determination of heavy metals.
3) Determination of p^H.
4) Determination of spreadability.
5) Moisture content.
6) Determination of foaming power.
7) Determination of fineness.

8

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Dr. K. Harinadha Baba M.Pharm.,Ph.D.,
Principal

31.08.2023

CIRCULAR

PHARM D III Year External Laboratory – Time Table

Date/Time	Morning	Afternoon
	Morning 09.00 AM to 01.00 PM	Afternoon 01.30 PM to 05.30 PM
04.09.2023 Monday	Pharmacology -II 17T00307	Pharmaceutical Analysis 17T00308
05.09.2023 Tuesday	Pharmacotherapeutics - II 17T00309	Medicinal Chemistry 17T00310
06.09.2023 Wednesday	Pharmaceutical Formulations 17T00311	----------

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Circular of External Lab Exam for Pharm D

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

ANANTAPURAMU – 515002

PHARM. D III YEAR REGULAR LAB EXAMINATIONS SEP -2023

LAB NAME: PHARMACOLOGY – II TIME: 9:00 AM 1:00PM

DATE: 04-09-2023 Max. Marks: 70

HALL TICKET NO.: 20481T0001 - 52, 18481T0022

I. IDENTIFICATION (Co.1) 10 Marks

Pole climbing & Rotarod apparatus

Actophotometer & (OR) Electroconvulsiometer.

II. SYNOPSIS (Co.3) 10 Marks

1.(a) Explain the factors controlling gene Expression in Eukaryotes.

(b) What are oncogenes & Tumor suppressor genes & give examples

2. (a) write about cell signalling pathway for ion channels. (OR)

(b) Write a note on biosensor.

III. Experiment No. 1 (Major) (Co.3) 30 Marks

I. To carryout bioassay of histamine by using isolated guinea pig ileum preparation by interpolation method.

II To carryout bioassay of (OR) Acetylcholine by using isolated rectus abdominus muscle prepn of frog by interpolation method.

IV. Experiment No. 2 (Minor) (Co.2) 10 Marks

I. Cardiotonic activity of drugs using isolated frog heart & mamalian heart preparation.

II. Antidepressant activity (OR) of drug using pole climbing apparatus & Pentobarbitone induced sleeping time methods.

V. VIVA 10 Marks

P. Sree Mahalakshmi
Signature of Examiner – 1

Signature of Examiner – 2

Question Paper of External Lab Exam with CO Mapping

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ANANTAPUR 515 002. (A.P.)
PRACTICAL EXAMINATIONS

Class & Branch : III pharm D

H.T.No. 2 0 4 9 1 T 0 0 2 1

Name of the laboratory :pharmacology - II.

I. Identification : 10 Marks.

(1) Actophotometer.

(2) Electroconvulsometer

II. Synopsis : 10 Marks

(1) Explain the factors controlling gene expression in Eukaryotes

(2) What are Oncogenes & tumor suppressor genes : Give Examples ?

III. Major Experiment : 30 Marks

1. Record the dose response curve of acetylcholine using
1. To carryout Bioassay of Histamine by using isolated guinea pig ileum preparation by interpolation method.

IV. Minor Experiment : 10 Marks.

1. Cardiotonic activity of drugs using isolated frog heart and mammalian heart preparation.

V. Viva voice : 10 Marks.

Jd -> 10
Sy -> 10
Ma -> 29
Mi -> 9
Vi -> 9

67/70

First page of Answer Booklet

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III. Major Experiment :

Bioassay of histamine by using isolated Guinea Pig ileum preparation by interpolation method.

Aim: To find out the strength or concentration of given sample of Histamine by interpolation bioassay method using isolated guinea pig ileum preparation.

principle :

Interpolation method of Bioassay is less time consuming & yet reliable as compared to matching type of Bioassay. One of the main advantage of the assay is that the sensitivity of tissue is 1st determined by prior plotting of a concentration response curve with the unknown agonist as in the case with histamine. If the linearity of curve is good, one can do very accurate estimate of the test substance.

Requirements :

* Animal : Guinea pig (400-600 gm) Overnight fastened],
* physiological salt solution : Tyrod solution.
* Drug: Histamine [stock solution 1mg/ml], Histamine standard solution [1 or 10 µg/ml].
* Chemical : Fixing solution.
* Instrument : Sherrington rotating drum, student organ bath, Aeration, Insulin or tuberculin syringe to inject drug in small portions, various dissecting instruments, simple / frontal writing lever, stand, pipette, stop watch etc.,
* Miscellaneous : Kymograph paper, plasticin clips and threads.

Experimental specifications :

1. Isolated ileum, Isolated Guinea pig ileum preparation.
2. Drug : Histamine [stock solution 1mg/ml], Histamine std solution.
- physiological stock solution : Tyrod solution.
- Applied tension : 0.5gm.
- Bath Capacity : 40 ml
- Bath temperature : 32-35°c.

Procedure :

(1) Guinea pig is sacrificed by a blow on the head and Cervical bleeding

(2) Cut, Open the abdomen & Hold the caecum to trace the ileo-caecal junction. Cut & remove a few cm long of the ileal portion and immediately place it in a watch glass containing tyrode solution.

(3) Trim the mesentry and with gentle care clean the contents of the ileum by pushing the tyrode solution into the lumen of the ileum. Utmost care should be taken to avoid any damage to gut muscle. Cut the ileum into small segments of 2-3cm long.

(4) Take a piece of ileum of 2-3 cms long and tie the thread to the top and bottom ends without closing the lumen and mount the tissue in the organ bath maintained at 32-35°c and bubble with O2 & air.

(5) A tension of 0.5g is applied and the tissue is allowed to equilibrate for 30mins before adding drugs to the organ bath.

(6) Record the concentrations due to histamine using either simple side way or frontal writing lever. 90 sec contact time and a total 5 minutes time cycle may be used for proper recording the responses.

(7) Record the concentration response curve due to histamine using std histamine soln.

(8) Record responses due to 0.1, 0.2 or 0.4 ml of test substance see that these response could fall on the linear portion of the conc response curve for standard solution.

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On label & end the tracings. plot the concentration response curve using standard histamine solution.

Now measure the heights of conc (response) due to different doses (A & B) of test solution. Read the corresponding concentration from standard curve.

Dose of histamine (ml)	Dose of histamine (µg/ml)	Dose of histamine (µg/ml)	log dose	Dose response in mm	% Response
0.1	1	1000	3.0	13	48.15
0.2	2	2000	3.3	16	59.25
0.4	4	4000	3.6	19	70.37
0.8	8	8000	3.9	23	85.18
1.6	16	16000	4.2	27	100
3.2	32	32000	4.5	27	100
0.1 } unknown				19	33.33
0.2 } related dose				15	55.55

Calculation :

By extrapolating the percentage response of selected dose i.e., 55.55%. It was found that the log dose = 3.21

∴ concentration of unknown selected dose = Antilog (3.21).

= 1621.81 mg or 2ml

= 1.62181 µg / 0.2 ml.

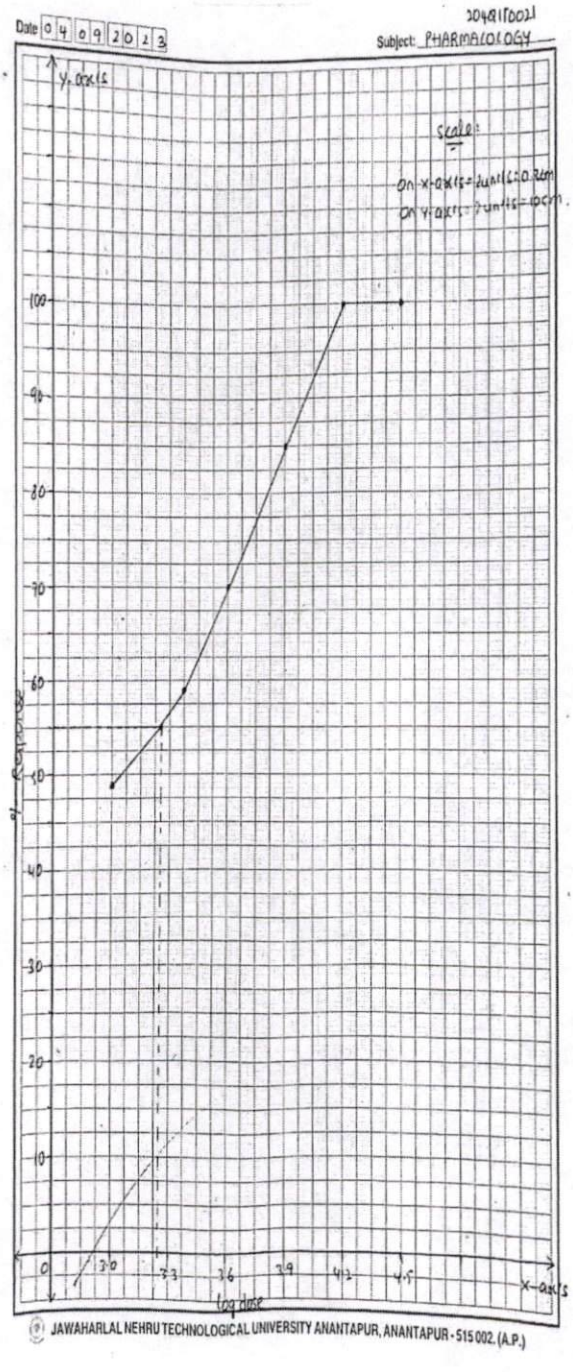
→ 0.2 ml of unknown sample of histamine contain 1.62181 µg of Histamine.

→ 1 ml of unknown histamine solution can contain 'x' µg of Histamine

$$x = \frac{1 \times 1.62181}{0.2}$$

= 8.1092 µg.

≈ 8.109 µg.



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PRACTICAL EXAMINATIONS

Class & Branch : II pharm D

Name of the laboratory : pharmacology - II

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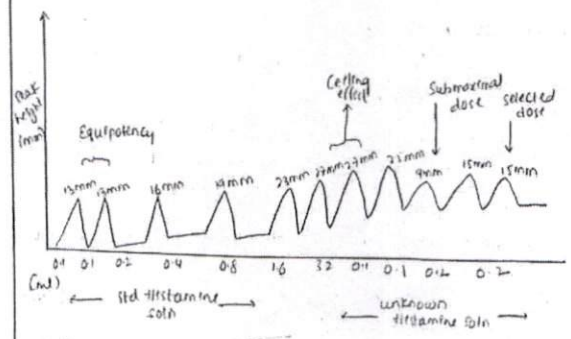

Report :

c) Concentration of unknown sample of histamine solution was found to be 8.109 ug/ml.

2

IV. Minor Experiment :

Cardiotonic activity of drugs using isolated frog heart and mammalian heart preparation.

Aim: To study the effect of various drugs on isolated preparation using frogs heart.

Apparatus :

Chymograph, Frog board, Dissection set, perfusion apparatus, Erlenmeyer bottle, rubber tubing & a venous cannula transtand, clamps, universal lever, thread, ring, tuberculin Syringe, pithing needle, Frog's ringer solution.

Experimental animal : Frog.

Drugs to be studied.

Drug	concentration	Dose.
Adrenaline	1:100000	0.1-2ml.
Acetylcholine	1:10,000	0.1-2 ml
Calciumchloride	1:100	0.1-2 ml
Potassium chloride	1:100	0.1-2 ml
Atropine	1:100	0.1-2 ml.

Experimental setup :

(1) A medium sized frog is stunned, pithed & clamped on frog is board on its back.

(2) Abdominal & thoracic walls are cut by a middle incision. Bones of the pectoral girdle are cut open & the heart is exposed (Care taken not injuring it.

(3) Thoracic activity is widened by stretching all the forelimbs on the sides.

(4) The heart is now gently freed from pericardium & a few drops of frog ringer soln is passed over it.

(5) One branch of thoracic arteriosus is tied firmly with the help of a thread while the other is cut open for perfusion fluid to come out.

(6) Heart is then filled with the visualized Sinus venosus. Once it is identified a ligature is passed beneath sinus venosus & a venous cannula is inserted into it.

(7) The venous cannula is connected to perfusion bottle containing frogs ringer soln & rubber tube.

(8) The circulation of fluid of frogs ringer soln inside the heart is from sinus venosus to right auricle → ventricle → arch of aorta → out of the cut end of aorta.

(9) The rate of perfusion is kept 30-40 drops/min. The perfusion pressure is adjusted by altering the height of reservoir above the level of heart.

(10) Needle pin/hook is passed through the apex of ventricle & the pin is attached to universal lever to write on smoked drum.

Parameters to be studied :

(1) Heart rate : This is counted by counting the no of times lever comes down per minute.

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(v) Rhythm of Heart : Note whether regular or irregular.
(vi) Force of contraction
(vii) Tone.

Recordings :

(i) First the drum is started at the minimum speed.
(ii) A small tracing is recorded. Drugs to be studied are injected in a dose of 0.1ml i the help of tuberculin syringe. in the rubber tube near the venous cannula.
(iii) In this way, effect of adrenaline, acetyl choline, Calcium chloride & potassium chloride & adrenaline is recorded
(iv) Keep atleast 5 mins gap b/w administration of each dose of drug.
(v) After recording effect of all drugs, effect of Ach & KCl are recorded on atropinized heart.

Precautions :

1. Syringe should be washed before injecting each drug
2. Drugs should be injected near to Cannula.
3. Over perfusion must be avoided.
4. control tracing must be recorded before & after effect of each drug is recorded.
5. Heart must be kept wet by continuously pouring ringer solution.
6. No air bubbles should be present in tube.
7. Heart should not be injured.

S.No.	Drugs	Effects on			Inference
		Heart rate	Force of contraction	Rhythm	
1.	Adrenaline	↑	↓	Regular	It is a symphomemetic drug. It acts via β_1 & β_2 receptors to stimulate heart
2.	Acetylcholine	↓	↓	Heart rate may stop in diastole (at higher dose)	It is a parasympatho metic drug. It acts by muscarinic receptors are Causes cardiac depression.
3.	Calcium Chloride (1:100)	No effect	Systolic force of contraction	The heart may stop in Systole	It is directly acting cardiac stimulant on ↑ the dose & conc it causes ca rigor (or) systolic arrest.
4.	potassium chloride (1:100)	↓	↓	Heart may stop in diastole if dose is ↑	It is directly acting cardiac depressant on ↑ dose & conc diastolic arrest may occurs. It ↓ the resting membrane potential.
5.	Atropine	may ↑	No change	Regular	It is an anti muscarinic drug acts by blocking M_2 receptors on heart.
6.	Atropine + Ach	No effect	No effect	Regular	Atropine blocks the action of acetyl choline.
7.	Acetyl Atropine + Pot. chloride	↓	↓	Heart may stop in diastole	effect of pot. chloride not blocked by atropine as it is directly acting cardiac depressant.

Report :

Cardiotonic activity of various drug on frogs heart was found to be. Adrenaline increases heart rate & force of contraction. Ach decreases heart rate & force of contraction.
→ Cal. chloride has no effect on heart rate it ↑s the systolic force of contraction.
→ potassium chloride decreases HR & force of contraction.
→ Atropine ↑ses HR & no change in force of contraction.
→ Atropine along with ach has no effect on cardiotonic activity.
→ Atropine i.e. decreases HR & force of contraction.

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PRACTICAL EXAMINATIONS

Class & Branch : III Pharm D H.T.No. 2 0 4 A 1 T 0 0 2 1

Name of the laboratory : pharmacology II

1. Identification :

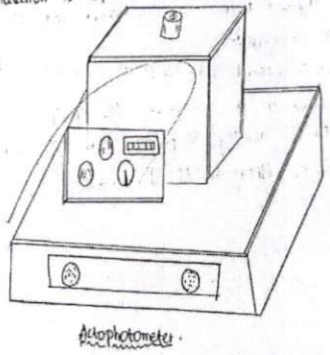
(1) Actophotometer :

It consists of six built in photo sensor and 4 digit digital counter to indicate the locomotor activity of the drug. It measures then spontaneous and induced activity with the digital totalize.

→ It also incorporates electric shock of up to 100 volts for activating rats.

→ The stimulation is upto 0 volts to 100 volts in the meter.

Principle:



Actophotometer.

Most of the CNS acting drugs influence the locomotor activities in man & animals. The CNS depressant drugs such as barbiturates & alcohol reduce the motor activity while the stimulants such as caffeine & amphetamines increases the activity. In other words, the locomotor activity can be an index of wakefulness of mental activity.

(2) Electro convulsometer :

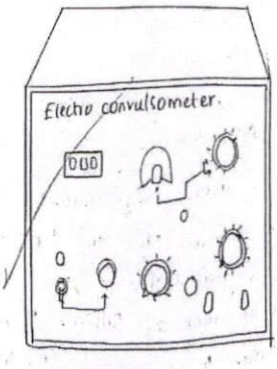
Electric seizures are induced by electroconvulsometer, in which animals are subjected to non-lethal electric shock by means of electrodes applied to ear pinna or cornea. where as chemically induced convulsions are induced by using the drugs or chemicals such as picrotoxin and phenylenetetrazole.

Principle :

The electro convulsometer is the instrument used for applying maximal electro shock (MES) through the corneal electrodes activity with the instrument.

→ It is used to study the anticonvulsant activity of phenation against maximal electro shock induced the convulsions in rats.

The anticonvulsant activity of phenobarbitone, which has been used in the treatment of epilepsy, is ascribed to its ability to produce an increased concentration of GABA in the brain.



Electroconvulsometer.

Inner Pages of Answer Booklet Pages 10-11

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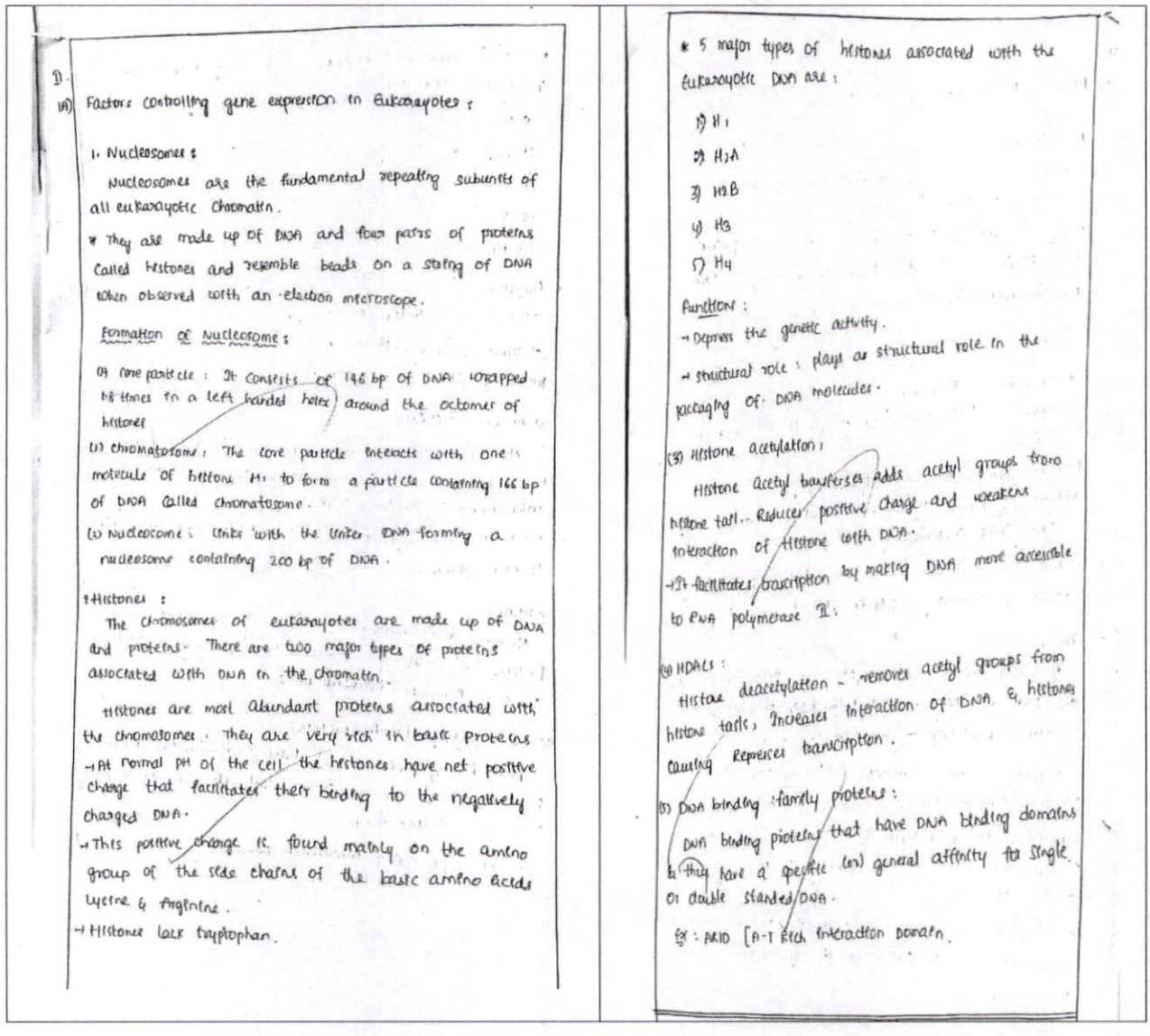

1.

(A) Factors controlling gene expression in Eukaryotes :

1. Nucleosomes :

Nucleosomes are the fundamental repeating subunits of all eukaryotic chromatin.

* They are made up of DNA and four pairs of proteins called histones and resemble beads on a string of DNA when observed with an electron microscope.

Formation of Nucleosome :

(1) Core particle : It consists of 146 bp of DNA wrapped 1¾ times in a left handed helix around the octomer of histones

(2) Chromatosome : The core particle interacts with one molecule of histone H1 to form a particle containing 166 bp of DNA called chromatosome.

(3) Nucleosome : Links with the linker DNA forming a nucleosome containing 200 bp of DNA.

2. Histones :

The chromosomes of eukaryotes are made up of DNA and proteins. There are two major types of proteins associated with DNA in the chromatin.

Histones are most abundant proteins associated with the chromosomes. They are very rich in basic proteins.

→ At normal pH of the cell the histones have net positive charge that facilitates their binding to the negatively charged DNA.

→ This positive charge is found mainly on the amino group of the side chains of the basic amino acids Lysine & Arginine.

→ Histones lack tryptophan.

* 5 major types of histones associated with the Eukaryotic DNA are :

1) H1
2) H2A
3) H2B
4) H3
5) H4

Function :

→ Depress the genetic activity.

→ structural role : plays a structural role in the packaging of DNA molecules.

(3) Histone acetylation :

Histone acetyl transferases adds acetyl groups from histone tail. Reduces positive charge and weakens interaction of Histone with DNA.

→ It facilitates transcription by making DNA more accessible to RNA polymerase II.

(4) HDACs :

Histone deacetylation - removes acetyl groups from histone tails, Increases interaction of DNA & histones causing Represses transcription.

(5) DNA binding family proteins :

DNA binding proteins that have DNA binding domains & they have a specific (or) general affinity for Single or double stranded DNA.

Ex : ARID [A-T Rich interaction domain.

Inner Pages of Answer Booklet Pages 12-13

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Class & Branch : III pharm D
Name of the laboratory : pharmacology-II .
H.T.No. 2 0 4 Q 1 T 0 0 2 1

2A) Oncogenes :

→ In normal cells, proto oncogenes code for the proteins that send a signal to the nucleus to stimulate the cell division.

→ These signaling proteins or molecules act in a series of steps called signal transduction cascade

→ Oncogenes are altered versions of the proto-oncogens that code for these signaling molecules.

→ The oncogenes activate the signaling cascade continuously resulting in an increased production of factors that stimulate growth.

Oncogens and signal Transduction :

→ RAS is an oncogene that normally functions as an "on-off" switch in the signal cascade.

→ mutations in RAS cause the signaling pathway to remain "on" leading to uncontrolled cell growth.

→ About thirty percent of tumors - including lung, colon, thyroid and pancreatic carcinomas have mutation in the RAS.

Conversion of proto oncogene to Oncogene :

(1) mutations of proto oncogene, by rearrangement of genes in the chromosome that moves the proto oncogene to a new location or DNA point mutation.

(2) By an increase in the no. of copies of the normal proto oncogene

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(3) Sometimes, a virus inserts the DNA in or near the proto oncogene causing it to become an oncogene.

(4) The results of any of these events is an altered form of gene, which contribute to cancer.

Tumor suppressor gene:

→ A tumor suppressor gene acts, in a normal cell, to restrain the rate of cell division. The tumor suppressor gene cause cells to become cancerous when they are mutated to become inactive.

Gene	location. Function	FUNCTION
Rb	Nucleus	cell division & cell cycle.
P53	Nucleus	DNA repair.
APC	Cytoskeleton	cell-cell recognition.
Nm 23	Mitochondria	Apoptosis.

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28.03.2024

CIRCULAR

This is to inform all students of **I/I sem B. Pharmacy** and faculty members, that **"the external Practical Examinations"** are scheduled from 01.04.2024.

Schedule of Practical end examinations for I-I

Date	Name of the Lab	Batch & Time	Batch& Time
01.04.2024	Human Anatomy & Physiology	A 09.00 AM to 1.00 PM	B 01.30 PM To 05.30 PM
	Pharmaceutical Analysis-I	B 09.00 AM to 1.00 PM	A 01.30 PM To 05.30 PM
	Pharmaceutics-I	C 09.00 AM to 1.00 PM	D 01.30 PM To 05.30 PM
	Pharmaceutical Inorganic Chemistry	D 09.00 AM to 1.00 PM	C 01.30 PM To 05.30 PM
02.04.2024	Human Anatomy & Physiology	C 09.00 AM to 1.00 PM	D 01.30 PM To 05.30 PM
	Pharmaceutical Analysis-I	D 09.00 AM to 1.00 PM	C 01.30 PM To 05.30 PM
	Pharmaceutics-I	A 09.00 AM to 1.00 PM	B 01.30 PM To 05.30 PM
	Pharmaceutical Inorganic Chemistry	B 09.00 AM to 1.00 PM	A 01.30 PM To 05.30 PM
03.04.2024	Communication skills	A & B 10.00 AM to 12.00 PM	C & D 02.00 PM to 04.00 PM

Batch A: 234Q1R0001- 26
Batch B: 234Q1R0027- 51
Batch C: 234Q1R0052- 76
Batch D: 234Q1R0077- A1

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Circular of External Practical Exam for B. Pharm

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CENTER: NARAYANA PHARMACY COLLEGE – NELLORE.

I YEAR B. PHARMACY 1 SEM REGULAR – APRIL 2024.

LAB NAME: Pharmaceutical Analysis TIME: 1·00PM to 5·PM

DATE: 01-04-24 Max. Marks: 70 M

H.T. No.: 234@1R0001 to 234@1R0026

I. SYNOPSIS 10 Marks

1) With a neat labelled diagram, Explain the Construction & wrking of Saturated Calomel Electrode. (Co·1)
2) Write a note on Fajans Method. (Co·3)

II. Experiment (Procedure : 20 Marks; Experimental work & Results: 30 Marks)

1) Prepare & Standardise Sodium Thio Sulphate, Sodium Hydroxide, Sulphuric acid, Potassium Permanganate. (Co·3)
2) Perform the Assay & Calculate the Percentage Purity of Hydrogen Peroxide, Calcium Gluconate, Ferrous Sulphate, Ammonium Chloride, Copper Sulphate. (Co·3)

III. VIVA VOCE 10 Marks

T. Vinod Kumar
Signature of Examiner – 1

Sai Soanya.A
Signature of Examiner – 2

S. Sujith
Chief Superintendent

Chief Superintendent
Narayana Pharmacy College
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Question Paper of External Practical Exam with CO mapping

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PRACTICAL EXAMINATIONS

Class & Branch : 1st year, B pharm, 1st sem H.T.No. 2 3 4 Q 1 R 0 0 1 3

Name of the laboratory : pharmaceutical analyses - I

I Synopsis - 10 marks. 8 + 17 + 24 + 8 = 57/70 Asa

1) With a neat labelled diagram explain the working and construction of saturated calomel electrode.

2) Write a note on fajans Method.

II Experiment

Perform the assay and calculate the percentage purity of ammonium chloride.

III Viva, voice - 10 marks

First page of Answer Booklet

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Aim :-

To determine the percentage purity of ammonium chloride.

Requirements :-

Apparatus :-

Burette, conical flask, Burette stand, measuring cylinder, Pipette, beaker.

Chemicals :-

Sodium hydroxide, oxalic acid, ammonium chloride, formaldehyde, phenopthalin and distilled water.

Procedure :-

1) Preparation of 0.1N sodium hydroxide :-

Weigh accurately 4 grams of sodium hydroxide and transfer it into 100ml volumetric flask and add 150ml of distilled water dissolve the sodium hydroxide and transfer into a standard flask. and make upto volume 100ml of distilled water and then standise the solution.

2) standisation of 0.1N sodium hydroxide:- Pipette out 10ml of 0.1N oxalic acid into a conical flask and add 2 to 3 drops of Phenopthalene indicator and titrate the contents of flask with 0.1N sodium hydroxide with until pink colour is obtained.

Assay :-

Weigh accurately 0.1g of ammonium chloride and dissolve it in a mixture at 20ml at water and 5ml of formaldehyde solution. Titrate the contents of the flask with sodium hydroxide using Phenopthalein as indicator

The equivalent factor in each ml of 0.1N sodium hydroxide is equal to 0.005349 gm of ammonium chloride.

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Chemical reaction :-

$4NH_4Cl + 6HCHO \longrightarrow (CH_2)_6N_4 + 4HCl + 6H_2O$

Ammonium chloride — formaldehyde — hexamine — water

$HCl + NaOH \longrightarrow NaCl + H_2O$

hydrochloric acid — sodium hydroxide — sodium chloride — water

Standardisation :-

Oxallic acid Vs sodium hydroxide

S.No	contents in flask	Burette reading: Initial	Burette reading: final	consumed volume	Indicator	End point
1.	oxallic acid +	0	[illegible]		Phenop-thaline	Pink colour
2.	phenopthaline +	0	[illegible]	[illegible]		
3.	0.1N sodium hydroxide	0	[illegible]			

The normality of the sodium hydroxide is calculated as following :-

$N_1V_1 = N_2V_2$

$N_2 = \frac{N_1V_1}{V_2}$

$= \frac{0.1 \times [illegible]}{10} \cong 0.09N$

Assay :-

Ammonium chloride Vs sodiumhydroxide

S.No	contents in flask	Burette reading: Initial	Burette reading: final	consumed volume	Indicator	End point
1	Ammonium chloride	0	18	18	Phenorth-aline	colourless to Pink
2	+	0	18			
3.	formal dehydrate	0	18			

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The Percentage Purity = $\frac{\text{Volume of titrate} \times \text{Equivalent factor} \times \text{Actual Normality}}{\text{weight of sample} \times \text{calculated Normality}}$

$= \frac{18 \times 0.005319 \times 0.1}{0.09 \times 0.1} \times 100$

$= \frac{0.0096}{0.009}$

$= 106.6\%$ w/v

Note :-

1) Preparation of 0.1N oxalic acid :-

weight 6.3g of oxalic acid into a 1000ml of conical flask dissolve it with water and make upto the final volume.

Report :-

* the Normality of sodium hydroxide is found to be 0.09N
* the Percantage Purity of the ammonium chloride is found to be 106.6 % w/v

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PRACTICAL EXAMINATIONS

Class & Branch : B.pharm 1st year 1st sem H.T.No. 234014R0013

Name of the laboratory : Pharmaceutical analysis-2

8/10

1) Saturated calomel electrode :-

* It consists of the inner jacket and outer sleeve.
* The inner jacket has a wire contact with mercury and plugged with a mixture of calomel (Hg_2Cl_2) & KCl
* The outer sleeve surrounds the inner jacket and its tip is filled with KCl crystals & Porous plug of asbestos.
* The space between them is filled with either KCl (sat) or 1N depends upon
  1) Concentration
  2) Temperature.

Calomel electrode

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	at 30c	at 25c
Sat calomel	250	246
IN calomel	286	285
0.1N calomel	338	338

* calomel electrode is a much more common reference electrode
* It much easier to work with no gases.

$Hg|Hg_2Cl_2$(salt), KCl ||.

* KCl is used to maintain constant ionic strength.

8) fajans method :-

* This are organic compounds that tend to be absorbed into the surface of the solid particle in a precipitation titration.

Eg :- fluorescein, Tartarazine

* The indicator, is a dye, exists in solution of the Presipitate

Principle :-

* It is a polycylic compound that ionizes in solution to yield yellow-green fluoresceinate ions
* the titration of Cl^- with Ag^+ using fluoresin as the adsorption indicator.
* $Ag^+ + Cl^- \longrightarrow AgCl$

Titrant analyte white ppt

* During the titration, colloids are formed.
* Before the equivalent factor, the surface of the precipitant particle will be negatively charged of Cl^- ion adsel on the surface of the particle.
* The surface of the colloidal particles are largely neutral
* the negatively charged fluorescein can penetrate the

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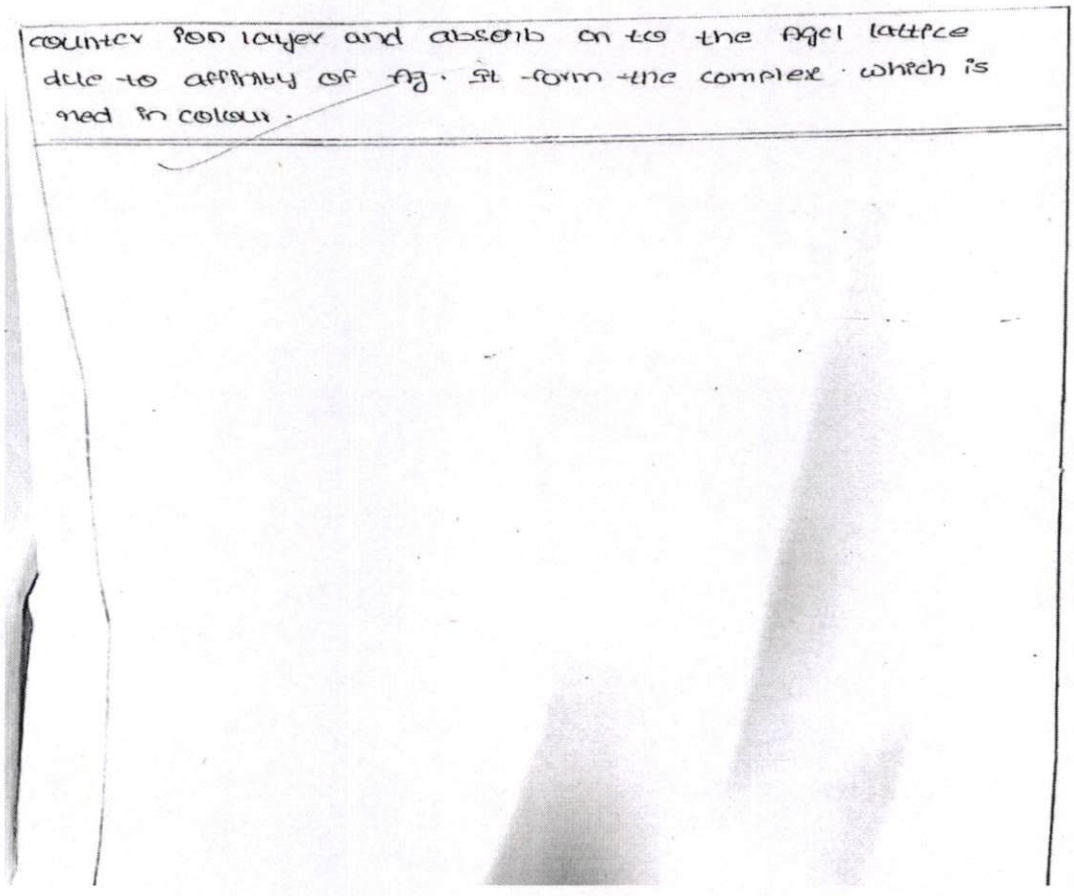
counter ion layer and absorb on to the AgCl lattice due to affinity of Ag^+ ion form the complex which is red in colour.



Last Pages of Answer Booklet Page 7

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Examination Branch

B.Pharm IV Year II Semester (R19) Regular & Supple April 2024 Examinations

Time: 02:00 PM to 05:00 PM

Date / Day	B PHARMACY
15.04.2024 Monday	Biostatistics and Research Methodology BP801T
18.04.2024 Thursday	Social and Preventive Pharmacy BP802T
20.04.2024 Saturday	Pharma Marketing Management BP803ET
	Pharmaceutical Regulatory Science BP804ET
	Quality Control and Standardization of Herbals BP806ET
	Computer Aided Drug Design BP807ET
	Cell and Molecular Biology BP808ET
	Pharmacological Screening Methods BP810ET
	Advanced Instrumentation Techniques BP811ET
	Dietary Supplements and Nutraceuticals BP812ET
22.04.2024 Monday	Cosmetic Science BP809ET
24.04.2024 Wednesday	Pharmacovigilance BP805ET

Note: (i) Any omissions or clashes in this time table may please be informed to the undersigned immediately.
(ii) If any discrepancies are found, the same may be informed to the undersigned immediately

Date : 22-03-2024

Controller of Examinations

External Exam time table for B. Pharm

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Code: 15R00801

R15

B.Pharm IV Year II Semester (R15) Supplementary Examinations April 2024

BIOSTATISTICS & DESIGN OF EXPERIMENTS

(B.Pharmacy)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)
- (a) What is the skewness of a normal distribution?
- (b) What is the purpose of measures of central tendency?
- (c) Differentiate between Type I and Type II errors.
- (d) Why is a confidence interval important in hypothesis testing?
- (e) When is the odds ratio preferable over relative risk?
- (f) What is the main characteristic of non-parametric tests?
- (g) What is the purpose of Design of Experiments (DOE)?
- (h) Explain the difference between experimental and observational studies.
- (i) How does multiple regression differ from simple linear regression?
- (j) What is the role of residual analysis in regression?

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2 (a) Describe the concept of probability and its significance in statistics.
(b) Discuss the limitations of statistical analysis.

OR

3 (a) Explain the Central Limit Theorem and its importance in normal distribution.
(b) Compare and contrast normal and non-normal distributions.

4 (a) Explain the concept of statistical power and its role in hypothesis testing.
(b) Describe the difference between one-tailed and two-tailed tests.

OR

5 (a) Elaborate on the factors that can affect the outcome of a test of significance.
(b) Discuss the steps involved in conducting a two-sample t-test.

6 (a) Discuss the different types of ANOVA and their applications.
(b) Explain the role of the F-test in the analysis of variance.

OR

7 (a) Elaborate on the steps involved in conducting a chi-square test for independence.
(b) Compare and contrast Pearson and Spearman correlation coefficients.

8 (a) Elaborate on the advantages of factorial experiments over one-factor-at-a-time experiments.
(b) Explain the basic principles of experimental design.

OR

9 (a) Discuss the advantages and limitations of fractional factorial designs.
(b) Compare and contrast screening designs with full factorial designs.

10 (a) Compare and contrast the interpretability of main effects and interactions in higher-order designs.
(b) Explain the concept of nesting in higher-order designs and its implications.

OR

11 (a) Describe situations where logistic regression might be more appropriate than linear regression.
(b) Explain the concept of co-linearity and its impact on regression results.

*****

External Exam Question paper for B. Pharm

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Examination Branch

Pharm.D IV Year (R17) Regular & Supple July 2024 Examinations

Time: 10:00 AM to 01:00 PM

Date / Day	Pharm.D
15.07.2024 Monday	PHARMACOTHERAPEUTICS - III 17T00401
18.07.2024 Thursday	HOSPITAL PHARMACY 17T00402
20.07.2024 Saturday	CLINICAL PHARMACY 17T00403
22.07.2024 Monday	BIOSTATISTICS & RESEARCH METHODOLOGY 17T00404
24.07.2024 Wednesday	BIOPHARMACEUTICS & PHARMACOKINETICS 17T00405
26.07.2024 Friday	CLINICAL TOXICOLOGY 17T00406

Note: (i) Any omissions or clashes in this time table may please be informed to the undersigned immediately.
(ii) If any discrepancies are found, the same may be informed to the undersigned immediately

Date : 27-06-2024

Controller of Examinations

External Exam time table for Pharm D

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Approved by PCI & AICTE, New Delhi) (Affiliated to JNTUA Ananthapuramu)
Recognized u/s 2(f) & 12(B) of the UGC Act, 1956, New Delhi,
ISO 9001:2015 Certified Institution
Chinthareddypalem, Nellore-524003, A.P .India.
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Email: principal.npc@narayanagroup.com Visit us:www.narayanapharmacycollege.com

Code: 17T00401

Pharm.D IV Year Regular & Supplementary Examinations July 2024

PHARMACOTHERAPEUTICS - III

(Pharm.D)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	Write about Zollinger Elison's syndrome.	2M
	(b)	Write the signs and symptoms, diagnosis and treatment of Jaundice.	2M
	(c)	Mention any 4 drugs which induce agranulocytosis.	2M
	(d)	Classifications of Anaemia.	2M
	(e)	Explain the Management of Status epilepticus.	2M
	(f)	Write about motor complications of Levodopa and Rationality of using Levodopa and Carbidopa combination.	2M
	(g)	Why atypical antipsychotics are preferred than typical antipsychotics?	2M
	(h)	Role of dopamine in affective disorders.	2M
	(i)	Differentiate tension and cluster headaches.	2M
	(j)	Write a note on use of Triptans in migraine.	2M

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

2	(a)	Write about Pathophysiology and risk factors of inflammatory bowel disease.	5M
	(b)	Discuss the pathogenesis and treatment of Alcoholic liver disease.	5M
		OR	
3	(a)	Discuss the aetiology and pathophysiology of pancreatitis.	5M
	(b)	Write about Pharmacological and life style management of Gastro esophageal reflux disease.	5M
4	(a)	Write a detail note on Heparin induced thrombocytopenia.	5M
	(b)	Discuss etiology, pathogenesis, clinical presentation and management of sickle cell anemia.	5M
		OR	
5	(a)	Discuss the etiology, pathogenesis, clinical presentation and management of Thalassemia.	5M
	(b)	Enumerate on drug induced Hemolytic anaemia.	5M
6	(a)	Classify antipsychotic agents with examples.	3M
	(b)	Describe the etiology, clinical manifestation, pathophysiology and pharmacotherapy of Stroke.	7M
		OR	
7		Write a note on etiology, pathophysiolog, clinical manifestation and management of Parkinsonism.	10M
8	(a)	Explain etiopathogenesis, diagnosis and management of Depression.	5M
	(b)	Mention the types of anxiety disorders and explain the clinical presentation, diagnosis and treatment for generalized anxiety disorder (GAD).	5M
		OR	
9	(a)	Explain in detail about the etiopathogenesis, sign and symptoms, Diagnosis and management of schizophrenia.	5M
	(b)	Write a note on alchol withdrawal syndrome.	5M
10	(a)	Discuss in detail about pain pathway and its management	5M
	(b)	What are the barriers to effective pain management in cancer patients?	5M
		OR	
11		Discuss the pathophysiology and pharmacotherapy of migraine headache and acute migraine therapies.	10M

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External Exam Question paper for Pharm D

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