

This question paper contains 4 printed pages.

IP-32-2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (Fourth Semester) EXAMINATION

JULY/AUGUST, 2023

PHARMACEUTICAL ORGANIC CHEMISTRY-III

BP-401T

(Tuesday, 11-07-2023)

Time : 2.00 p.m. to 5.00 p.m.

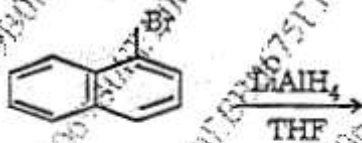
Time—3 Hours

Maximum Marks—75

- N.B. :- (i) All questions are compulsory,  
(ii) Draw correct structure wherever necessary.  
(iii) Answer to the point only.

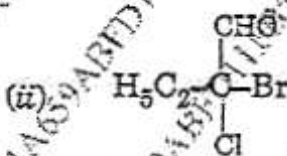
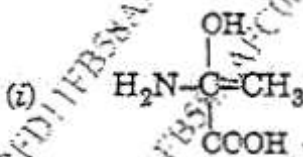
1. Answer the following questions : 10×2=20

- (a) Distinguish configuration and conformation with suitable example.  
(b) Draw canonical structure of thiazole.  
(c) Complete the following reactions :



- (d) Draw chair and boat forms of cyclohexane.  
(e) Why is isomer is less stable than trans isomer ?  
(f) What is the difference between *d*, *l* and *D*, *L* notation used in isomerism ?

- (g) Give the synthesis of thiophene from succinic acid.
- (h) Draw orbital picture of Oxazole.
- (i) Why pyrrole, thiophene and furan are aromatic in nature?
- (j) Assign R and S configuration to the following



Solve any two :

2 × 10 = 20

- (a) Write short notes on :
- (i) E and Z method of configuration determination of geometric isomers.
- (ii) Enlist various elements of symmetry and explain any one of the above.
- (b) What are heterocyclic compounds? How are they classified? Give one method for the synthesis of the following :

(i) Pyrazole

(ii) Acridine

(iii) Oxazole.

(c) Write a detailed notes on :

(i) Birch reduction

(ii) Fisher indole synthesis for the formation of indole.

3. Solve any seven of the following.

7×5=35

(a) What is conformational isomer? Draw the various conformation structure of *n*-butane and represent them on a potential energy diagram.

Give one method for the preparation of

(i) Pyrrole

(ii) Pyridine

(iii) Isoquinoline

(iv) Thiophene

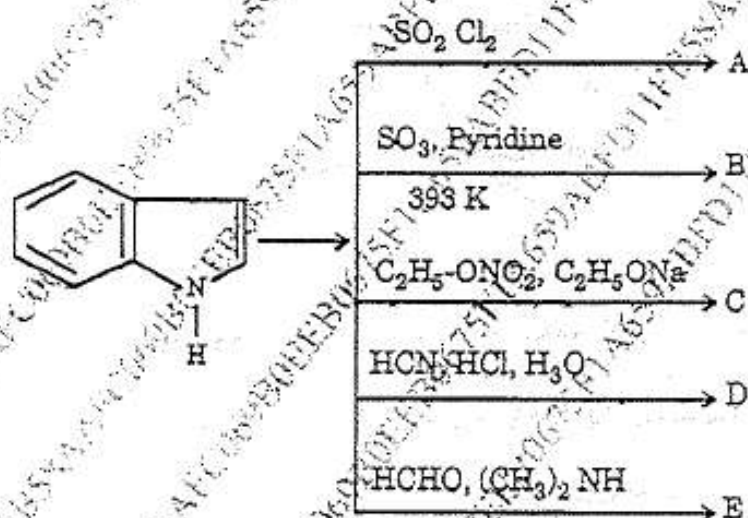
(v) Pyrimidine

State and explain the necessary and sufficient conditions for a compound to show geometric isomers. Give any two methods by which geometric isomers can be distinguished.

(d) Describe Skrup's synthesis of quinoline with suitable mechanism of it.

(e) Explain Clemmensen reaction.

- (f) Draw the structure and give their IUPAC name of the following :
- Pyrimidine
  - Imidazole
  - Purine
  - Azepine
  - Indole
- (g) Give mechanism and orientation of electrophillic substitution of furan.
- (h) What is racemic mixture ? Give various methods involved in resolution of racemic mixture (Explain any two with suitable examples).
- (i) Identify the compound A, B, C, D and E of the following :



This question paper contains 2 printed pages]

**IP—36—2023**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**B. Pharma (Fourth Semester) EXAMINATION**

**JULY/AUGUST, 2023**

**MEDICINAL CHEMISTRY-I**

**Paper BP 402T**

**(Thursday, 13-07-2023)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—75*

*N.B. :— (i) All questions are compulsory.*

*(ii) Write figures and suitable examples wherever necessary.*

1. Answer all of the following :

10×2=20

- (a) Define bioisosterism.
- (b) Draw structure and IUPAC name of salbutamol.
- (c) Why are barbiturates acidic in nature ?
- (d) Classify general anaesthetics.
- (e) What are anticonvulsants ?
- (f) Distinguish between sedative and hypnotics.
- (g) Define optical activity.
- (h) Enlist any two  $\beta$ -adrenergic blockers.
- (i) What is biotransformation ?
- (j) Give biosynthetic pathway of Ach.

P.T.O.

2. Solve any *two* of the following :

10×2=20

- (a) Write chemical classification of antipsychotics with atleast one structure from each class.
- (b) Explain in detail SAR of barbiturates.
- (c) Write synthesis of propranolol and phenytoin.

3. Solve any *seven* of the following :

7×5=35

- (a) Explain biosynthesis and metabolism of dopamine.
- (b) Explain phase-II reactions of drug metabolism with suitable example.
- (c) Explain the role of hydrogen bonding and partition co-efficient in relation to biological action.
- (d) Write the synthesis of diazepam.
- (e) Explain the SAR of morphine analogues.
- (f) Write the structure and IUPAC name of :
  - (i) Neostigmin
  - (ii) Aspirin
  - (iii) Chlordiazepoxide.
- (g) Write structure, IUPAC name, MOA and uses of ketamine hydrochloride.
- (h) Write a note on indirect acting sympathomimetic agents. Give structure and uses of any one.
- (i) Explain the SAR of  $\beta$ -blockers.

This question paper contains 2 printed pages]

**IP—40—2023**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**B. Pharm (Second Year) (Fourth Semester) EXAMINATION**

**JULY/AUGUST, 2023**

**PHYSICAL PHARMACEUTICS-II**

**Paper BP-403T**

**(Saturday, 15-7-2023)**

**Time : 2.00 p.m. to 5.00 p.m.**

**Time—3 Hours**

**Maximum Marks—75**

**N.B. :— (i) All questions are compulsory.**

**(ii) Draw well labelled diagram wherever necessary.**

**(iii) Figures to the right indicate full marks.**

**1. Answer all the questions :**

**10×2=20**

**(a) Define and classify colloids.**

**(b) Give examples for plastic and pseudoplastic system of flow.**

**(c) What is sedimentation volume ?**

**(d) Define rate of reaction and order of reaction.**

**(e) What is bulk density and true density ?**

**(f) Enlist environmental factors affecting degradation of drug.**

**(g) List four methods to improve flow properties of granules.**

**(h) Differentiate between creaming and cracking.**

**(i) Define viscosity along with its units of expressions.**

**(j) What is gold number ?**

**P.T.O.**

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( 2 )

IP—40—2023

2. Solve any *two* of the following :

2×10=20

- (a) Explain in detail methods of preparation and purification of colloids.
- (b) Define Thixotropy. Explain different methods for its determination and give its application in pharmacy.
- (c) Explain chemical degradation of pharmaceutical compounds due to its hydrolysis. Explain its preventive measures.

3. Solve any *five* of the following :

7×5=35

- (a) What are derived properties of powders? Explain any *two*.
- (b) Give detail classification of suspension with examples.
- (c) Explain in detail principle and working of Ostwald's viscometer.
- (d) List the methods to determine particle size. Explain any *one* method.
- (e) Explain optical properties of colloids.
- (f) Give the identification tests of emulsion.
- (g) Define angle of repose. Explain methods to determine it.
- (h) Differentiate between flocculated and deflocculated suspension.
- (i) Explain effect of temperature on rate of reaction.

IP—40—2023

2



This question paper contains 2 printed pages]

**IP—44—2023**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**B. Pharm (Fourth Semester) EXAMINATION**

**JULY/AUGUST, 2023**

**PHARMACOLOGY-I**

**BP-404T**

**(Thursday, 18-7-2023)**

**Time : 2:00 p.m. to 5.00 p.m.**

**Time—3 Hours**

**Maximum Marks—75**

**N.B. :— (i) All questions are compulsory.**

**(ii) Illustrate your answer with a neat sketch wherever necessary.**

**(iii) Figures to the right side indicate full marks.**

**1. Answer the following questions :**

**20**

**(a) Write the sources of drug with example.**

**(b) Define the terms agonist and antagonist.**

**(c) Write the advantages and disadvantages of oral route of drug administration.**

**(d) What is drug interaction ?**

**(e) What is myasthenia gravis and mention any two drugs used for the treatment of MG.**

**(f) Write mechanism of action of barbiturates.**

**(g) Write therapeutic uses of morphine.**

**(h) Classify skeletal muscle relaxants with suitable examples.**

**P.T.O.**

- (i) Enlist the drug used in the treatment of Alzheimer's disease.
- (j) Write the mechanism of action of disulfiram.
2. Answer the following (Any *two*) : 20
- (a) Define and classify sympathomimetic agents and write pharmacological account of adrenaline.
- (b) Define and classify anti-epileptic agents and write pharmacological accounts of phenytoin.
- (c) What is drug absorption ? Write the mechanism of drug absorption.
3. Answer the following (any *seven*) : 35
- (a) Write pharmacological actions of morphine.
- (b) Write pharmacological account of acetylcholine.
- (c) Write the factors affecting drug excretion.
- (d) Write the various stages of general anaesthetics.
- (e) Classify Antipsychotic agents and write pharmacology of Chlorpromazine.
- (f) Define drug metabolism and write the phases of drug metabolism.
- (g) Write a short note on transmembrane JAK-STAT signalling pathway.
- (h) Write the various stages of new drug development process.
- (i) Classify anti-epileptic agents and write mechanism of action of carbamazepine.

This question paper contains 2 printed pages]

**IP-45-2023**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**B. Pharm (Fourth Semester) EXAMINATION**

**JULY/AUGUST, 2023**

**PHARMACOGNOSY AND PHYTOCHEMISTRY-I**

**(Wednesday, 19-7-2023) (BP 405T) Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—75*

- N.B. :-*
- (i) All questions are compulsory.
  - (ii) Figures to the right indicate full marks.
  - (iii) Write to the point only.

1. Answer all of the following :

10×2=20

- (a) Write a note on sources of crude drugs.
- (b) Differentiate between organised and unorganised crude drug.
- (c) Write a note on conservation of medicinal plants.
- (d) Define Mutation and Hybridization.
- (e) Define stomatal number and stomatal index.
- (f) Define crude drug evaluation. Enlist its methods.
- (g) Define PTC. Give nutritional requirements for the typical plant tissue culture media.
- (h) Write a short note on Edible Vaccines.
- (i) Define Glycosides and Flavonoids.
- (j) Give use of Papain and Bromelin.

P.T.O.

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( 2 )

IP—45—2023

2. Solve any *two* of the following :

2×10=20

- (a) Write about the Sidha and Chinese System of Medicine.
- (b) Give the biological source and uses of Acacia, Agar, Castor oil, Chaulmogra Oil and Casein.
- (c) Give the history of pharmacognosy and historical development of PTC.

3. Solve any *seven* of the following :

7×5=35

- (a) Define crude drug adulteration. Write the methods of adulteration (any *five*).
- (b) What are plant hormones ? Give their applications.
- (c) Write a note on applications of PTC in pharmacognosy.
- (d) Write a note on natural allergens and teratogens.
- (e) Write a note on marine sources of novel medicinal agents.
- (f) Give biological source, chemical constituents and uses of Jute and Hemp.
- (g) Define and classify volatile oil and alkaloids.
- (h) Write the role of pharmacognosy in Ayurveda.
- (i) Write a note on cultivation and collection of crude drug.

IP—45—2023

2