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SARDAR PATEL UNIVERSITY
M. Sc. Pharmaceutical Chemistry (Semester-II) Examination
Monday, 10/04/2017; Time-10:00 AM to 01:00 PM
SUBJECT CODE: PS02CPCH01
SUBJECT TITLE: Basic Pharmaceutics and Pharmacology

Maximum Marks: 70

Note: (1) All questions are compulsory.

(2) Figure to right indicates total marks of question.

Q-1 Choose the correct option for the following:

1 × 8

1. Compressed solid dosage form containing medicaments are known as:
 - a. Implants
 - b. Suppositories
 - c. Tablet
 - d. Capsule
2. Compound added to a tablet formulation to facilitate its breaking is known as:
 - a. Lubricant
 - b. Glidants
 - c. Adhesives
 - d. Disintegrants
3. The average molecular weight of gelatin, varies between:
 - a. 20,000 and 2,00,000
 - b. 2,000 and 20,000
 - c. 200 and 2,000
 - d. None
4. Smallest size of capsule is:
 - a. 5
 - b. 00
 - c. 000
 - d. 1
5. The top or bottom part of the tablet separates from the main body completely or partially is known as:
 - a. Capping
 - b. Sticking
 - c. Mottling
 - d. Lamination
6. Drugs which are characterized by predictable and controllable in-vivo destruction i.e. metabolism to non-toxic products after they achieve therapeutic effects is known as:
 - a. Hard drugs
 - b. Soft drugs
 - c. Moderate drug
 - d. None
7. Name assigned by manufacturer to the drug is known as:
 - a. Chemical Name
 - b. Non-Proprietary Name
 - c. Proprietary Name
 - d. None
8. Injection between the epidermis and the dermis:
 - a. Hypodermic
 - b. Intradermal
 - c. Extra-dermal
 - d. Can't say

Q-2 Answer the following (Any Seven).

2 × 7

1. What is creaming and what the problem is associated with it?
2. Give the advantages of niosomes and liposomes.
3. What is the need of cleaning and polishing of capsules?
4. What are the compendial requirement for capsules?
5. Define granulation.

- 6. Describe fluid bed coating.
 - 7. What is orphan drug?
 - 8. What is inverse agonist?
 - 9. Describe renal excretion.
- Q-3 A. Define synthetic emulsifying agents & give the preparation of emulsion. 6
- B. Write a note on packaging of the semi-solid preparation and its evolution. 6
- OR**
- B. Describe the various inactive ingredients in topical drops. 6
- Q-4 A. Describe co-acervation phase separation. 6
- B. Give the evolution test for capsule. 6
- OR**
- B. Write a note on the various preparations of filled Hard gelatin capsules. 6
- Q-5 A. Write a note on coating. 6
- B. Elaborate various parenteral dosages form. 6
- OR**
- B. What is formulation? Write the advantages of tablet dosages form. 6
- Q-6 A. Write a note on phase II reactions of metabolism. 6
- B. Discuss the various routes of drug administration. 6
- OR**
- B. Describe mode of action of drugs. 6

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() **Sardar Patel University**

M.Sc. Pharmaceutical Chemistry, Second Semester

Theory examination, April 2017

Saturday, 15th April, 2017; Time: 10:00 a.m. to 1:00 p.m.

Subject: PS02CPCH03 Separation Techniques

Total Marks: 70

- Notes: - 1) Figures to the right indicate marks.
2) Draw neat and labeled diagram, wherever necessary.

Q-1 Multiple choice questions (All are compulsory).

[08]

- (1) _____ is the most common solvent applied for extraction of medicinal plants.
a) hexane b) alcohol c) benzene d) chloroform
- (2) Repeated extractions are done to increase extraction value using _____.
a) more solvent b) less solvent c) adding solvent d) separating solvent
- (3) Thin Layer Chromatography is resolving compounds based on _____ principle.
a) adsorption b) electrical mobility c) partition d) conductivity
- (4) Ion exchange chromatography is based on _____ principle.
a) electrostatic extraction b) electrical mobility c) adsorption d) partition
- (5) Volatile material is separated in Gas Chromatography based on _____.
a) partition coefficient b) conductivity c) molecular weight d) molarity
- (6) HPLC diode array detector (DAD) coupled with UV detection is _____.
a) allowed lower concentrations to be detected b) allowed a single wavelength of detection
c) speed up the detection at a single wavelength d) cover a range of wavelengths
- (7) Protein separated by _____ during two-dimensional gel electrophoresis.
a) charge b) pH and size c) size d) All of them
- (8) The 'tracking dye' used in SDS-PAGE is
a) anionic b) cationic c) non-ionic d) amphipathic

Q-2 Answer the following questions in short. (Any Seven)

[14]

- (1) Explain electrodeposition.
- (2) Explain advantage of MERK pre-coated plate of HPTLC.
- (3) What is two dimensional paper chromatography?
- (4) Draw the component arrangement of HPLC.
- (5) Explain van Deemeter equation.
- (6) Explain the type and applications of three gases in GC.
- (7) Explain mobile phase delivery systems of HPLC.
- (8) Explain the principle of RO system to reduce TDS of water.
- (9) What is Supercritical Fluid Extraction?

Q-3 (A) Principles, classification and mechanism of solvent extraction.

[06]

(B) Explain factors favoring and quantitative treatment of solvent extraction.

[06]

OR

(B) Give an overview of analytical separation.

[06]

- Q-4 (A) Enlist different types of paper chromatography and explain any two in detail. [06]
(B) Give applications of HPTLC and explain the difference from HPLC. [06]
- OR
- (B) Give details for Ion Exchange Chromatography. [06]
- Q-5 (A) Explain Gas Solid Chromatography. [06]
(B) Explain liquid phase and column selection of GC. [06]
- OR
- (B) Sample introduction, separation columns and detectors of HPLC. [06]
- Q-6 (A) Explain basic principle and arrangement of agarose gel electrophoresis. [06]
(B) Explain Capillary Electrophoresis. [06]
- OR
- (B) Explain method and application of column chromatography. [06]

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SARDAR PATEL UNIVERSITY

M.Sc. Pharmaceutical Chemistry, Second Semester Examination

Tuesday, 18th April

2017

10.00 a.m. to 1.00 p.m.

Organic Chemistry: PS02EPCH01

Total Marks : 70

Note : (i) All questions are to be attempted. (ii) Figures to the right indicate marks.

Q.1 Choose the correct option for the following : [8]

- (i) Cycloketons can be synthesized by reaction.
(a) Claisen condensation (b) Dieckmann (c) Hoffmann (d) Lossen
- (ii) Upon homolysis..... is formed as an intermediate.
(a) cation (b) anion (c) free radical (d) nitrene
- (iii) Isomers are those molecules that have the molecular formula and structure.
(a) same, same (b) different, different (c) same, different (d) different, same
- (iv) Performic acid is used as
(a) reducing agent (b) oxidizing agent (c) both 'a' & 'b' (d) None
- (v) Retro synthesis is also known as
(a) disconnection (b) asymmetric (c) selective (d) all
- (vi) Which is correct for oxidation reaction
(a) loss of electron (b) gain of electron (c) addition of oxygen (d) both 'a' & 'b'
- (vii) Chiral carbon is attached with different group.
(a) four (b) three (c) two (d) one.
- (viii) Enantiomers are mirror images.
(a) nonsuperimposable (b) superimposable (c) none (d) both 'a' & 'b'

Q.2 Answer the following (Attempt any seven): [14]

- (i) Define: Carbene and carbocation.
- (ii) Give significance of disconnection approach for synthesis.
- (iii) Define stereoisomer with an example ?
- (iv) What are conformations? Draw Newman projection formulas of ethane.
- (v) Write Hofmann rearrangement reaction.
- (vi) Define reaction intermediate. Give the name of intermediate formed in Curtius and Lossen rearrangement.
- (vii) Write limitation of 'D' and 'L' notation.
- (viii) What do you mean by functional group inter conversion ?
- (ix) Enlist main properties of Grignard reagent.

Q.3

[A] Identify the reaction intermediate for following reaction and suggest appropriate reaction mechanism involved in it. [6]
 (a) Wolf reaction. (b) Schmidt reaction.

[B] Write appropriate reaction mechanism for the following : [6]
 (a) Stork enamine reaction (b) Diels-Alder reaction.

OR

[B] Write benzoin condensation reaction and its application. [6]

Q.4

[A] Do as directed: [6]

- (i) Write the main criteria of chiral centre.
 (ii) Discuss racemic mixture and resolution of racemic modification with suitable illustration.

[B] What is meant by projection formulae ? With suitable examples draw the newman's and fischer's projection for organic molecules. [6]

OR

[B] Write a note on: Prochirality and optical isomerism. [6]

Q.5

[A] Define reducing agent. Write main function of LiAlH_4 and NaBH_4 . [6]

[B] Write the mechanism and utility of Gilman's reagent and potassium permanganate. [6]

OR

[B] Explain in detail about lindlar catalyst and its application in organic synthesis. [6]

Q.6

[A] Identify the synthon and write synthesis of ibuprofen and ciprofloxacin using disconnection approach. [6]

[B] Define synthon. Write basic rules in retrosynthesis. [6]

OR

[B] Give retrosynthesis of cimetidine and diclofenac. [6]

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