

FEDERAL UNIVERSITY OF TECHNOLOGY, OVERRI
SCHOOL OF HEALTH TECHNOLOGY
DEPARTMENT OF BIOMEDICAL TECHNOLOGY
2013/2014 HARMATTAN SEMESTER EXAMINATION

COURSE: Biopharmaceutical Technology

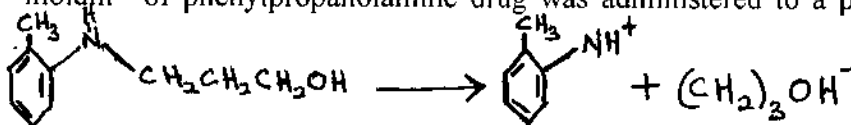
COURSE CODE: BMT 555

Instruction: Question 1 in each section is compulsory and any other one question in each section making two (2) questions in each section .

Time: 2: 30hours

Section A

1. $3.98 \times 10^{-10} \text{ mol dm}^{-3}$ of phenylpropanolamine drug was administered to a patient and ionized as shown below:



- (a) State two major processes phenylpropanolamine undergoes
- (b) Estimate (i) relative acid strength (ii) percentage ionization (iii) partition coefficient of phenylpropanolamine if its solubility in octanol is 2.65×10^{-10} . (v) Its basicity distribution coefficient.
- (c) List any four functional groups that can be found in drugs with their structure, give one example for each and their medicinal uses.
- (d) Define the following (i) Conformational isomerism (ii) Bioisosterism.

(Total: 20marks)

- 2(a) Briefly discuss drug discovery process plant source.
- (b) Outline three major effects of drugs.
- (c) Briefly discuss the drug development.
- (d) Give five factors that influence solubility of drugs in the human system.

(Total: 15marks)

- 3(a) Give two (2) examples of amphoteric drugs; state all functional group present in each and their medicinal uses.
- (b) Briefly discuss three modes of drug – target interactions/ mechanisms of drug action.
- (c) Briefly distinguish between two classes of bioisosterism with relative example.
- (d) Distinguish between (i) enantiomers and diastereomers with relative example.
(ii) Cis- isomers and trans- isomers with relative example.

(Total: 15marks)

Section B

1. Define the following: (a) Biopharmaceutical (b) Antibiotic (c) Bioassay (d) Hypersensitivity (e) In – vivo testing
(f) Pharmacognosy (g) Xenobiotic (h) Toxin (i) Immunopharmacology (j) pharmacogenomics.

(Total: 20marks)

- 2(a) With examples, mention two (2) main sources of xenobiotics
- (b) With examples, classify biopharmaceuticals.
- (c) Outline (i) four (4) merits and (ii) demerits of biopharmaceuticals.

(Total: 15marks)

- 3 Write short note on each of the following:

- (a) Spectrophotometer
- (b) Rotary extractor
- (c) Toxicodynamics
- (d) Toxicokinetics
- (e) Drug safety

(Total: 15marks)