



ANJUMAN-I-ISLAM'S

AKTC KALSEKAR TECHNICAL CAMPUS

INNOVATIVE TEACHING · EXUBERANT LEARNING

School of Architecture

School of Engineering & Technology

School of Pharmacy

Knowledge Resource & Relay Centre (KRRC)

AIKTC/KRRC/SoP/ACKN/QUES/2013-14/ 23

Date: 13/06/2014

School: SoP-CBSGS

Branch: SoP

SEM: II

To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,

Received with thanks the following Semester/^(Reg.)Periodic question papers from your exam cell:

Sr. No.	Subject Name	Subject Code	Format		No. of Copies
			SC	HC	
1	Pharm. Chem. – I			✓	02
2	Biochemistry – I			✓	02
3	Pharmaceutics – I			✓	02
4	Physical Pharmacy – II			⊗	02
5	APP – II			✓	02

Note: SC – Softcopy, HC - Hardcopy

Shahen

(Shaheen Ansari)
Librarian, AIKTC

(3 Hours)

[Total Marks : 70

- N.B. (1) All the questions are **compulsory**.
(2) Draw diagrams wherever **necessary**.

1. (a) Answer the following :- 8
- (i) Give one difference between Chemical Antidote and Mechanical Antidote.
 - (ii) What is the use of alpha radiations?
 - (iii) Write on the role of sodium metabisulphite.
 - (iv) What is acidity and what could be its outcome?
 - (v) What is pharmaceutical use of hydrochloric acid ?
 - (vi) What is the role of zinc oxide in topical preparations ?
 - (vii) What do you mean by activity of radiopharmaceutical?
 - (viii) What is the role of fluoride in the dental products?
- (b) Justify the following :- 4
- (i) Calcium phosphate cannot be used as supplement for phosphate.
 - (ii) Sodium carbonate cannot be used as antacid.
- (c) (i) What is the role of nitrous oxide? 3
(ii) Give the composition of ringer infusion.
(iii) What are physiological roles of copper?
2. (a) What are buffers? Explain buffer action with suitable example. 4
(b) What are expectorants? How do they act? 3
(c) (i) What are topical agents? What are different mechanism of action, give examples. 4
(ii) Write a note on heavy metal poisoning.
3. (a) Explain role of iron-protein complexes in distribution of iron in the body. 2
(b) Discuss various types of dentifrices with example. 4
(c) (i) What are applications of radio pharmaceuticals? 3
(ii) Write a note on Fe^{59} with respect to radiation(s) emitted, its half-life, its uses and various compounds used as radiopharmaceutical. 2
4. (a) What are Cathartics ? Explain Saline cathartics in detail. 4
(b) Write notes on (any two) :- 4
- (i) Diluents
 - (ii) Lubricants Suspending agents
 - (iii) Write a note on radiation dosimetry.
5. (a) Discuss the importance of copper and zinc as essential and trace ions. 4
(b) Write in brief on various application of chelating agents. 3
(c) What are different conditions related to pH imbalance in humans? How does body respond to it? 4
6. (a) Answer the following (any two) :- 6
- (i) Write a note on physiological role of potassium and phosphate.
 - (ii) Write a note on measures to rectify systemic alkalosis.
 - (iii) What are essential and trace ions? Give examples.
- (b) (i) Give mechanism of action of hydrogen peroxide, iodine tincture and mercuric chloride ointment. 3
(ii) Write a note on respiratory stimulants. 2



(3 Hours)

[Total Marks : 70

N.B. : (1) All questions are compulsory.

- | | | |
|--------|--|---|
| 1. (a) | Draw the structure of Galactose by fisher projection formula. | 1 |
| (b) | Draw the structure of maltose by Haworth projection formula. | 1 |
| (c) | Draw the structure of any one sulfur containing amino acid with three letter code. | 1 |
| (d) | Define Mutarotation. | 1 |
| (e) | Draw the structure of any one Aromatic amino acid. | 1 |
| (f) | Draw the structure of oleic acid. | 1 |
| (g) | Define anabolism. | 1 |
| (h) | Mention the biological role of vit. B1. | 1 |
| (i) | Deficiency of vit. A leads to_____. | 1 |
| (j) | Enlist the factors affecting enzyme activity. | 2 |
| (k) | Explain effect of enzyme inhibitors on enzyme kinetics with example. | 2 |
| (l) | Explain mechanism of action of Acetylcholinesterase inhibitors. | 1 |
| (m) | Name the active form of vit. D. | 1 |
| 2. (a) | Write note on primary structure of proteins. | 3 |
| (b) | Discuss the role of ATP as energy carrier. | 3 |
| (c) | State the role of liver in digestion and absorption of proteins. | 2 |
| (d) | Explain the concept of initial velocity in enzyme kinetics. | 3 |
| 3. (a) | Define and classify carbohydrates with examples. | 3 |
| (b) | Write a short note on vit. E or vit. K. | 3 |
| (c) | Write the structure of folic acid and name its co-enzyme. | 2 |
| (d) | Explain phospholipase based cascade system. | 2 |
| (e) | Enumerate salient feature of digestion and absorption of proteins. | 1 |
| 4. (a) | Write a note on Alfa-helical structure of proteins. | 3 |
| (b) | Write a note on sphingolipids. | 3 |
| (c) | Explain concept of free and standard free energy. | 2 |
| (d) | Discuss biological role of vit. B6 or vit. B2. | 3 |



[TURN OVER

5. (a) Write a short note on pantothenic acid. 3
(b) Write a note on Lineweaver Burk and Edie Hofsee plots of enzyme kinetics. 3
(c) Justify the role of Oxidation as a source of energy in biological system. 2
(d) Write a note starch. 3
6. (a) Differentiate between fats and oils. 2
(b) Explain endogenous regulation of enzyme activity. 2
(c) Explain the role of HMG-CoA reductase enzyme and name the inhibitor drug for the same. 2
(d) Explain role of vit. D. 2
(e) Write a short note on Ascorbic acid. 3
-

QP Code : BR-10158

2013-14

(3 Hours)

[Total Marks :70

- N.B. : (1) All questions compulsory.
(2) Draw neat labelled diagrams wherever necessary.

1. (a) Calculate the pH of the following solutions. [pkw of water =14] 2
(i) 0.001 M HCl (ii) 0.01 N NaOH.
(b) Discuss factors affecting solubility of gases in liquids. 3
(c) Define:— 3
(i) Molecularity of a reaction
(ii) Half life of a reaction
(iii) Order of a reaction
(d) Derive an equation for spreading co-efficient. 3
(e) Write a note on concentration cells. 2
(f) Give the classification of colloids with examples. 2
2. (a) What is tonicity of solutions? Classify different methods of adjusting tonicity and explain any one method in details. 4
OR
Define a buffer solution. Explain with examples buffers used in pharmaceutical and biological systems.
(b) Discuss effect of temperature on partial miscibility of liquids with examples. 4
(c) Derive an equation for specific reaction rate constant for a first order reaction. 3
3. (a) Explain partition coefficient and give its applications. 4
(b) Describe the different methods to determine order of a reaction. 4
OR
Describe the influence of temperature on the rate of a reaction.
(c) What is an adsorption isotherm? Derive the equation for Langmuir Adsorption isotherm. 3
4. (a) Explain the terms acidic and basic buffers and derive Henderson- Hasselbach equation for basic buffer solution. 4
(b) Explain the different types of electrodes. 3
(c) Write a note on kinetic properties of colloids. 4
OR
Write a note on optical properties of colloids.
5. (a) Discuss the collision theory in detail. 3
(b) Write a note on 'wetting angle' and 'contact angle'. 4
(c) Write a note on 'Gold number' and 'Schultz Hardy rule'. 4
OR
Explain in detail, the protective action of colloids.



TURN OVER

QP Code : **BR-10158**

2

6. (a) In the saponification of methylacetate at 25°C , the concentration of NaOH remaining after 75 minutes was 0.00552 M. The initial concentration of ester and the base was 0.01 molar. Calculate the second order constant. 3
- (b) Define surface tension and derive an expression for surface tension in terms of pressure difference across curved surface. 4
- (c) State Nernst equation and explain Ion-sensitive electrodes. 4
-

Con. 9645-14.

(3 Hours)

[Total Marks : 70

- N. B. : (1) All questions are compulsory
 (2) Figures to the right indicate full marks
 (3) Draw neat labelled diagram wherever necessary.

1. (a) Answer the following :- 12
 (i) Explain
 (a) Total lung capacity (b) Inspiratory reserve volume
 (ii) Enlist the hormones of anterior and posterior lobe of pituitary gland.
 (iii) Explain in brief etiology of Addison's disease.
 (iv) Draw well labelled diagram of neuron.
 (v) Explain pathophysiology of cerebral hypoxia.
 (vi) Explain function of iris and ciliary muscle
- (b) Fill in the blanks :- 3
 (i) Mineralocorticoids are secreted by _____ layer of adrenal gland.
 (ii) Stimulation of _____ division of ANS produces fight and flight response.
 (iii) Rhodopsin is formed by two parts namely _____ and _____
2. (a) Answer **any two** of the following :- 8
 (i) Give difference between benign and malignant tumors.
 (ii) Explain cellular adaptation.
 (iii) Explain pathogenesis of cell injury.
- (b) Answer **any one** of the following :- 3
 (i) Discuss the biological effects of nuclear radiation.
 (ii) What do you mean by radioactivity? Explain biological effect of X-rays.
3. (a) Answer **any two** of the following :- 8
 (i) Draw well labelled diagram of spinal reflex arc.
 (ii) Write a note on signal transmission at synapse.
 (iii) Write a note on hypothalamus.
- (b) Write short note on **any one** of the following :-
 (i) Epilepsy.
 (ii) Schizophrenia



4. (a) Answer **any two** of the following :- 8
(i) Draw well labelled diagram showing parts of internal nose.
(ii) Explain pathophysiology of emphysema.
(iii) Explain pathophysiology of bronchitis
- (b) Answer **any one** of the following :- 3
(i) Discuss in detail transport of oxygen by haemoglobin.
(ii) Explain in detail internal respiration.
5. (a) Answer **any two** of the following :- 8
(i) Discuss physiological role of glucocorticoids
(ii) Enlist hormones of posterior lobe of pituitary, explain their action and functions.
(iii) Explain structure of islet of pancreas, add a note on their endocrine secretions and their functions.
- (b) Write short note on **any one** of the following :- 3
(i) Grave's disease
(ii) Diabetes Mellitus.
6. (a) Answer **any one** of the following :- 4
(i) Explain physiology of olfaction.
(ii) Explain physiology of hearing
- (b) Answer **any one** of the following :- 4
(i) Give difference between somatic & autonomic nervous system.
(ii) Describe the effect of stimulation of adrenergic and cholinergic system on heart and eye.
- (c) Answer **any one** of the following :- 3
(i) Draw well labelled diagram of retinal layer of eye & explain visual cycle.
(ii) Discuss in detail structure of skin.
-

- N. B. : (1) All questions are compulsory.
(2) Figures to the right indicate full marks.

1. (a) Define drug and dosage form. What is the scope of pharmaceutics in pharmacy ? 2
 - (b) Define elimination and metabolism. 2
 - (c) 1000g of Glycerine of Boric Acid contains 310g of boric acid. How much quantity of boric acid is required to prepare 25g of formulation ? 1
 - (d) Define the terms rheology and viscosity. 1
 - (e) How are solutions prepared by chemical reaction ? Explain the same with the example of Magnesium citrate oral solution. 4
- OR**
- (e) Explain any one method of preparation of syrups and discuss the components of medicated syrups.
 - (f) Write a note on oral rehydration powder. 2
 - (g) Classify inclusion complexes giving examples. 2
 - (h) Define Hixson-Crowell Law. 1
2. (a) Compare oral and parenteral routes of administration. 3
 - (b) Give an account of any one alternate system of medicine. 2
 - (c) Give the significance of dissociation constant as preformulation parameter in preparation of monophasic liquid dosage form. 2
 - (d) Discuss advantages, limitations and examples of plastic as packaging material. 3
 - (e) Explain any one method of analysis of complexes. 1
3. (a) Explain the concept of GMP. 2
 - (b) Give an account of pseudoplastic **OR** dilatent flow. 2
 - (c) Describe the working of propeller mixers. 2
 - (d) Define stokes diameter and explain sedimentation method for determination of particle size. 4

OR

- (d) Write a note on derived properties of powders.
- (e) State Fick's first law of diffusion. 1



[TURN OVER

4. (a) Define any 3 : Liniments, Elixirs, Dusting powders, Suppositories. 3
(b) Emulsifying ointment contains emulsifying wax 300 parts, soft paraffin 500 parts and liquid paraffin 200 parts. 2
Calculate the quantities required to prepare 250g of formulation.
(c) Discuss any one formulation additive used in formulation of monophasic liquid dosage form. 2
(d) Explain the principle of size separation by sieving. 2
(e) State and explain Noyes-Whitney equation. 2
5. (a) Give a brief account of development of Pharmacy profession in India. 2
(b) Explain any one method used to measure flow properties of Newtonian liquids. 2
(c) Discuss different methods of filling of monophasic liquid dosage forms. 3
(d) Give an account of any one particle size reduction mill which works on the principle of combined impact and attrition. 4

OR

- (d) Explain the principle of operation of cutter mill and hammer mill.
6. (a) What is Pharmacopoeia ? Give an account of IP. 3
(b) Define the terms biopharmaceutics and bioavailability. 2
(c) Explain different packaging material used for packaging of monophasic liquids. 4

OR

- (c) Explain various quality control tests performed on monophasic liquids.
(d) What are quality control parameters for powders ? 2