[LH 0815]

AUGUST 2015

Sub. Code: 2603

B.Sc RESPIRATORY THERAPY FIRST YEAR **PAPER III – BIOCHEMISTRY AND PHARMACOLOGY**

O.P. Code: 802603

Time : Three Hours Maximum : 100		Maximum : 100 Marks	
		Answer All questions.	
I.	Ela	aborate on:	$(3 \ge 10 = 30)$
	1.	Write about the sources, functions and disorders of Vita	min A.
	2.	What is aerosol therapy? Name the diseases for which Name the drugs five through aerosol route?	aerosol therapy is given?
	3.	Classify anti hypertensive drugs. Describe the pharma with an example.	cokinetics of each group
II	. W 1	rite Notes on:	(8 x 5 =40)
	1.	Dietary fibres.	
	2.	Structure of tRNA.	

- 3. Isoenzymes and their clinical importance.
- 4. Phenylketonuria.
- 5. Inhaler divices.
- 6. Local anaesthetics.
- 7. Pyrazinamide.
- 8. Bambuterol.

III. Short Answers on:

- 1. Name any three physiological buffers,
- 2. What are ketone bodies? Give examples.
- 3. Rapoport Luebering shunt.
- 4. What is Vitamin B12? What is its significance?
- 5. Polyunsaturated fatty acids.
- 6. Name three medications used in bronchoscopy.
- 7. Isoniazid.
- 8. Spiranolactone.
- 9. N-acetylcysteine.
- 10. Mention three adverse effects of throphylline.

 $(10 \times 3 = 30)$

[LI 0216]

FEBRUARY 2016

Sub. Code: 2603

B.Sc. RESPIRATORY THERAPY FIRST YEAR PAPER III – BIOCHEMISTRY AND PHARMACOLOGY

Q.P. Code: 802603

Answer All questions.

Maximum : 100 Marks

I. Elaborate on:

Time : Three Hours

- 1. Describe the process of Glycolysis. Explain how many ATP molecules are formed in anaerobic and aerobic Glycolysis?
- 2. Name the drugs used in asthma with their made of action and side effects.
- 3. Name the diuretics with a note on their mode of action and side effects.

II. Write Notes on:

- 1. Function of Vitamin D.
- 2. Plasma protein.
- 3. Rifampicin.
- 4. Lignocaine.
- 5. Phenylketonuria.
- 6. Metabolic acidosis.
- 7. Mucolytics.
- 8. Second generation antihistamines.

III. Short Answers on:

- 1. Essential Fatty acids.
- 2. Liposomes.
- 3. Cori's cycle.
- 4. Name any three side effects of anti TB treatment.
- 5. Monteleukast.
- 6. Name three calcium channel blockers anti hypertensives.
- 7. Pharmacokinetics of ethambutol.
- 8. Name three functions of sodium in humans.
- 9. Von gierke's disease.
- 10. Midazolam.

 $(10 \times 3 = 30)$

 $(8 \times 5 = 40)$

 $(3 \times 10 = 30)$

[LJ 0816]

AUGUST 2016

Sub. Code: 2603

B.Sc. RESPIRATORY THERAPY FIRST YEAR PAPER III – BIOCHEMISTRY AND PHARMACOLOGY

Q.P. Code: 802603

Answer all questions

Maximum: 100 Marks

 $(3 \times 10 = 30)$

 $(8 \times 5 = 40)$

 $(10 \times 3 = 30)$

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1.	Elaborate	on:

Time: Three Hours

- 1. Why is it important to maintain plasma glucose within a range? Explain the hormonal regulation of blood glucose.
- 2. Name the hormones produced by adrenal gland. Explain the actions of adrenocortical hormone in body. Add a note on their therapeutic applications.
- 3. Write a note on insulin and its therapeutic effects. Explain the differences between type 1 and type 2 Diabetes Mellitus.

II. Write notes on:

- 1. List the dietary sources of vitamin A. Explain its functions.
- 2. List the plasma lipoproteins and indicate their function.
- 3. What is creatinine? Explain its clinical significance.
- 4. Explain the process of digestion and absorption of dietary lipids.
- 5. Name different classes of antibiotics. Give an example for each.
- 6. Write a note on aerosol therapy.
- 7. Write a note on local anesthetics.
- 8. List the different bronchodilator drugs used in clinical practice and indicate their mechanism of action.

III. Short answers on:

- 1. What are dietary fibers? What are their beneficial effects?
- 2. Explain the mechanism of action of heparin.
- 3. What are mucolytics? Give examples.
- 4. Write a note on functions and deficiency of vitamin K.
- 5. What are cytochrome P450s? What is their significance?
- 6. What is anion gap? How is it calculated?
- 7. What is rifampicin? What is its mechanism of action?
- 8. Write a note on dietary sources and functions of vitamin B1.
- 9. What are antihypertensives? Give two examples.
- 10. Explain thermic effect of food (specific dynamic action).

FEBRUARY 2017

B.Sc. RESPIRATORY THERAPY FIRST YEAR PAPER III – BIOCHEMISTRY AND PHARMACOLOGY

Q.P. Code: 802603

Maximum: 100 Marks

Answer all questions			
I.	Elaborate on:	$(3 \times 10 = 30)$	
	1. Explain the synthesis of vitamin D in body. List its functions. Add a note on vitamin D deficiency disorders.		
	2 Explain the different routes of drug administration with their advanta	ana	

- 2. Explain the different routes of drug administration with their advantages and disadvantages.
- 3. Explain the factors affecting enzyme activity.

II. Write notes on:

Time: Three Hours

- 1. Write a note on sources and functions of vitamin C.
- 2. Classify the different generation of antihistamines with an example each. List their clinical applications.
- 3. Explain the role of glycogen in body.
- 4. What are the actions of insulin? Name four types of insulin in clinical practice with examples.
- 5. Explain the functions of calcium.
- 6. Write a note on antitubercular drugs.
- 7. Write a note on local anesthetics.
- 8. List the different bronchodilator drugs used in clinical practice and indicate their mechanism of action.

III. Short answers on:

- 1. What are dietary fibers? What are their beneficial effects?
- 2. What are antitussives? Give examples.
- 3. Explain basal metabolic rate.
- 4. What is Succinyl choline? What are its applications?
- 5. Name the ketone bodies. List two conditions associated with ketoacidosis.
- 6. What are isoenzymes? Give an example.
- 7. What is aspirin? What is its mechanism of action?
- 8. Name the plasma proteins and list their functions.
- 9. What are proton pump inhibitors? Give two examples.
- 10. What are essential amino acids? Name any 4.

 $(8 \times 5 = 40)$

$(10 \times 3 = 30)$

AUGUST 2017

Maximum: 100 Marks

B.Sc. RESPIRATORY THERAPY FIRST YEAR PAPER III – BIOCHEMISTRY AND PHARMACOLOGY

Q.P. Code: 802603

Time: Three Hours

I. Elaborate on:

Answer all questions

 $(3 \times 10 = 30)$

- 1. (a) Classify Anti-asthma drugs with examples.
 - (b) Write a short note on mechanism of action, different formulations, therapeutic uses and adverse drug reactions of Salbutamol.
- 2. Define and classify Vitamins. Write in detail about the structure, synthesis, functions, sources recommended daily allowances and deficiency diseases of Vitamin C.
- 3. Classify lipids with suitable examples. Add a note on physiological importance of lipids.

II. Write notes on:

- 1. Amoxycillin.
- 2. d-Tubocurarine.
- 3. H_1 receptor blockers.
- 4. Phenobarbitone.
- 5. Clonidine.
- 6. Structure and functions of Immunoglobulins.
- 7. Mucopolysaccharides.
- 8. Functions of Calcium and Phosphrous.

III. Short answers on:

- 1. Any 3 examples of (a) ACE blockers (b) Sedatives.
- 2. Any 3 therapeutic Uses and adverse drug reactions of corticosteroids.
- 3. First-Pass metabolism.
- 4. Advantages and disadvantages of aerosol preparation with examples.
- 5. Expectorants.
- 6. Name 3 sulfur containing amino acid.
- 7. Name any 3 pyrimidine bases.
- 8. Deficiency of Vitamin D and its signs and symptoms.
- 9. Explain nitrogen balance.
- 10. What are allosteric enzymes? Give examples.

 $(10 \times 3 = 30)$

FEBRUARY 2018

B.Sc. RESPIRATORY THERAPY

FIRST YEAR

PAPER III - BIOCHEMISTRY AND PHARMACOLOGY

Q.P. Code: 802603

Time: Three Hours Maximum: 100 M		Maximum: 100 Marks
	Answer all questions	
I.	Elaborate on:	$(3 \times 10 = 30)$
	1. (a) Classify Anti-hypertensive drugs with examples.	
	(b) Write a short note on mechanism of action, therapeut drug reactions of metoprolol.	tic uses, adverse
	2. Write in detail about the structure, source, functions and manifestation of vitamin A.	deficiency
	3. Explain Glycolysis and its regulation in detail.	
II.	. Write notes on:	$(8 \times 5 = 40)$

- 1. Salbutamol.
- 2. Furosemide.
- 3. Diazepam.
- 4. Succinyl choline.
- 5. Morphine.
- 6. Mechanism of action of enzyme.
- 7. Plasma proteins.
- 8. Replication of DNA.

III. Short answers on:

- 1. Advantages and disadvantages of intravenous route of drug administration.
- 2. Mucolytics.
- 3. Any 3 therapeutic uses and adverse reactions of corticosteroids.
- 4. Explain agonist with example.
- 5. Omalizumab.
- 6. Name any 2 disaccharides.
- 7. Uses of Vitamin K.
- 8. Name any 2 the purine and pyrimidine bases present mRNA.
- 9. Write a note on the isometric forms of glucose and Fructose.
- 10. Metabolic acidosis.

 $(10 \times 3 = 30)$

B.Sc. RESPIRATORY THERAPY FIRST YEAR PAPER III – BIOCHEMISTRY AND PHARMACOLOGY

Q.P. Code: 802603

Time: Three Hours

I. Elaborate on:

Answer all questions

 $(3 \times 10 = 30)$

Maximum: 100 Marks

- 1. Classify Anti-asthma drugs with examples. Write a short note on mechanism of action, different formulations, therapeutic uses and adverse drug reactions of beclomethasone.
- 2. Write an essay on Aerosol therapy with suitable examples wherever applicable.
- 3. What are Vitamins? How they are classified? Add a note on Vitamin C under the following headings functions, sources, recommended daily allowances and deficiency disorders.

II. Write notes on:

- 1. Penicillin G.
- 2. Dietary fibres.
- 3. Fexofenadine.
- 4. Nedocromil.
- 5. Local anaesthetics.
- 6. Write a note on enzymes as catalysts.
- 7. Describe the structure and functions of Insulin.
- 8. Regulation of Acid base balance by Kidney.

III. Short answers on:

- 1. Advantages and disadvantages of oral route of drug administration.
- 2. Montelekast.
- 3. Any 3 therapeutic Uses and adverse drug reactions of Diazepam.
- 4. Classify Antibiotics with examples.
- 5. Rifampicin.
- 6. Name the Good and Bad cholesterol types.
- 7. Clinical significance of creatinine.
- 8. Name the Anti-oxidant vitamins.
- 9. Gluconeogenesis.
- 10. Define BMR.

 $(10 \times 3 = 30)$

B.Sc. RESPIRATORY THERAPY FIRST YEAR PAPER III – BIOCHEMISTRY AND PHARMACOLOGY

Q.P. Code: 802603

Time: Three Hours

I. Elaborate on:

Answer all questions

 $(3 \times 10 = 30)$

 $(8 \times 5 = 40)$

 $(10 \times 3 = 30)$

Maximum: 100 Marks

- 1. Explain in detail about Gluconeogenesis. Add a note on various substrates for gluconeogenesis.
- 2. Classify drugs used in management of Bronchial Asthma with examples. Add a note on mechanism of action and adverse effects of inhalational steroids and its therapeutic rationale for use in Bronchial Asthma.
- 3. Explain in detail about types, sources, biochemical functions and deficiency manifestations of Vitamin A.

II. Write notes on:

- 1. Define coenzymes. Mention its examples and properties.
- 2. Sources, Biochemical functions and deficiency manifestations of Calcium.
- 3. Mention the types of acid base disorders. Add a note on respiratory alkalosis and acidosis.
- 4. Mention the functions of growth hormone and thyroxine.
- 5. Mechanism of action, uses and adverse effects of cetrizine.
- 6. Types, mechanism of action, uses and adverse effects of Opiod antitussives.
- 7. Inhalational drug delivery system for aerosols.
- 8. Mechanism of action, uses and adverse effects of Lignocaine.

III. Short answers on:

- 1. What is a polysaccharide? Classify it and give examples.
- 2. What is an essential amino acid and give examples?
- 3. What is an active site? Mention its significance.
- 4. Name the hormones secreted by adrenal cortex and adrenal medulla.
- 5. Add a note on Lozenges.
- 6. Explain competitive antagonist with examples.
- 7. Routes of administration bypassing first pass metabolism.
- 8. Mechanism of action, uses and adverse effects of Acetazolamide.
- 9. What is the function of vitamin K and vitamin E?
- 10. What is surfactant and mention its significance?

B.Sc. RESPIRATORY THERAPY FIRST YEAR PAPER III – BIOCHEMISTRY AND PHARMACOLOGY

Q.P. Code: 802603

Answer all questions

Maximum: 100 Marks

 $(3 \times 10 = 30)$

 $(8 \times 5 = 40)$

I. Elaborate on:

Time: Three Hours

- 1. Classify diuretics with examples. Write a note on mechanism of action, uses and adverse effect of furosemide.
- 2. Explain in detail about the classification of enzymes with examples. Add a brief note on coenzymes with examples.
- 3. Explain in details about the active form, sources, biochemical functions and deficiency manifestations of iron.

II. Write notes on:

- 1. BPG shunt pathway and its significance.
- 2. Factors affecting enzyme activity.
- 3. Mention the types of buffers in human body. Add a note on bicarbonate buffer.
- 4. What is hypenatremia, hyponatremia, hypokalemia and mention one disorders for each which causes it?
- 5. Classify drugs used as preanaesthetic medication with examples.
- 6. Describe the dose related toxicity of theophylline.
- 7. Mechanism of action, uses and adverse effects of N-Acetyl cysteine.
- 8. Explain briefly about various routes of drug administration.

III. Short answers on:

 $(10 \times 3 = 30)$

- 1. What is an aromatic amino acid? Mention the three examples.
- 2. What is a mucoploysaccharide? Give an example.
- 3. Classify the hormones secreted by pituitary gland.
- 4. Mention the normal values of blood pH, urea and creatinine.
- 5. What is metabolic acidosis? Mention the diseases causing it.
- 6. What is potassium sparing diuretics? Give examples.
- 7. Name three antifungal agents.
- 8. Name the anti hypertensives avoided in asthmatics.
- 9. What is loading dose and maintenance dose?
- 10. Injectable drugs used in tuberculosis.

MARCH 2021 [AHS 0321] Sub. Code: 2603 (AUGUST 2020 EXAM SESSION) **B.Sc. RESPIRATORY THERAPY** FIRST YEAR (Regulation 2014-2015) **PAPER III – BIOCHEMISTRY AND PHARMACOLOGY O.P.** Code : 802603

Time: Three hours Answer ALL Questions Maximum: 100 Marks

I. Elaborate on:

- 1. Name the buffer systems of human body. Explain in detail about Respiratory regulation of pH.
- 2. Classify Non Steroidal anti-inflammatory drugs with examples. Write a note on mechanism of action, uses and adverse effects of Diclofenac.
- 3. Classify lipids. Define phospholipid, lipoprotein, Glycolipid with examples. Add a note on Surfactant.

II. Write notes on:

- 1. Explain isoenzymes with two examples.
- 2. Name the types of glycogen storage disorders. Add a note on Von Gierke disease.
- 3. What is ABG analysis? What sample is used for analysis? Mention the normal values of the parameters assessed under ABG analysis.
- 4. Name the types of acid base disorders and add a note on metabolic acidosis and alkalosis.
- 5. Mechanism of action, uses and adverse effects of Oseltamivir.
- 6. Hypersensitivity reactions.
- 7. First line anti- tubercular drugs.
- 8. Mechanism of action, uses and adverse effects of succinylcholine.

III. Short answers on:

- 1. Mention three significance of HMP shunt pathway.
- 2. Name the ketone bodies. What test is done in urine to identify ketone bodies?
- 3. Name the hormones secreted by pancrease and mention its function.
- 4. What is anion gap? How to calculate it?
- 5. What is Bohr's effect?
- 6. Mechanism of action, uses and adverse effects of Propranolol.
- 7. Adverse effects of corticosteroids.
- 8. What is efficiency and potency?
- 9. Classify and name three sedatives.
- 10. Name three antifungal agents.

$(10 \times 3 = 30)$

 $(8 \times 5 = 40)$

 $(3 \times 10 = 30)$

[AHS 0422] APRIL 2022 Sub. Code: 2603 (FEBRUARY 2021 & AUGUST 2021 EXAM SESSIONS) B.Sc. RESPIRATORY THERAPY FIRST YEAR (Regulations 2014-2015) PAPER III – BIOCHEMISTRY & PHARMACOLOGY Q.P NO. 802603

Time: Three Hours	Answer All questions	Maximum : 100 Marks
I. Elaborate on:		$(3 \times 10 = 30)$

- 1. Define pH. Explain in detail about renal regulation of pH.
- 2. Write in detail about sources, functions, regulation and deficiency manifestations of calcium.
- 3. Explain in detail about factors modifying drug action.

II. Write Notes on:

- 1. Inhaler devices.
- 2. Mechanism of action of local anaesthetics.
- 3. Factors that affect enzyme activity.
- 4. Local routes of drug administration.
- 5. Leukotriene antagonists.
- 6. Functions of magnesium.
- 7. Respiratory alkalosis.
- 8. Laboratory investigations for diagnosis of Diabetes Mellitus.

III. Short Answers on:

 $(10 \times 3 = 30)$

- 1. Nerve block.
- 2. Therapeutic window phenomenon.
- 3. List any three H1 blocker drugs with high anticholinergic action.
- 4. List any three antihypertensive drugs found safe during pregnancy.
- 5. Wald's visual cycle.
- 6. Von Gierke's disease.
- 7. Polyunsaturated fatty acids.
- 8. Dietary fibers.
- 9. Name the ketone bodies. List two conditions associated with ketoacidosis.
- 10. Cori's cycle.

[AHS 1122]

NOVEMBER 2022

Sub. Code: 2603

B.Sc. RESPIRATORY THERAPY FIRST YEAR (Regulation 2014-2015) PAPER III – BIOCHEMISTRY & PHARMACOLOGY *Q.P NO. 802603*

Time: Three Hours Answer All questions Maximum : 100 Marks

I. Elaborate on:

- 1. Classification of proteins based on structure and functions.
- 2. Write in detail about sources, functions, RDA, deficiency manifestations of Vitamin B12.
- 3. Classify local Anaesthetics. Write in detail about the mechanism of action, uses and adverse effect of Lignocaine.

II. Write Notes on:

- 1. Classify bronchodilators. Add a note on mechanism of their action.
- 2. Aerosol therapy.
- 3. Mucolytics.
- 4. First line antitubercular drugs.
- 5. Structure and mechanism of action of Insulin in regulation of blood glucose.
- 6. Digestion and absorption of lipids.
- 7. Functions of phosphorus.
- 8. Respiratory regulation of pH.

III. Short Answers on:

- 1. Define isoenzyme with example.
- 2. Clinical significance of Creatinine.
- 3. Uses of N-Acetyl Cysteine.
- 4. Hyperkalemia.
- 5. Henderson Hasselbach equation.
- 6. Maintenance dose.
- 7. Competitive inhibition with example.
- 8. Advantages of newer neuromuscular blockers over older ones.
- 9. Mention four Sedatives.
- 10. Any three adverse effects of ACE inhibitors.

 $(8 \times 5 = 40)$

 $(10 \times 3 = 30)$

 $(3 \times 10 = 30)$

[AHS 0423]

APRIL 2023

Sub. Code: 2603

 $(3 \times 10 = 30)$

 $(8 \times 5 = 40)$

B.Sc. RESPIRATORY THERAPY FIRST YEAR (Regulation 2014-2015 & 2018-2019 onwards) PAPER III – BIOCHEMISTRY & PHARMACOLOGY Q.P. Code: 802603

Time: Three HoursAnswer All questionsMaximum : 100 M
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I. Elaborate on:

- 1. Describe in detail TCA cycle with its energetics.
- 2. Write in detail about sources, functions, RDA, deficiency manifestations of Vitamin D.
- 3. Classify Neuromuscular Blocking Agents. Explain in detail the mechanism of action, uses and adverse effect of Succinyl Choline.

II. Write Notes on:

- 1. Define Pharmacokinetics. Add a note on First order and Zero order kinetics.
- 2. Classify Antihistamines. List their clinical applications.
- 3. Inhalational steroids.
- 4. Insulin and its analogue.
- 5. Structure of tRNA.
- 6. Enumerate Plasma proteins and their functions.
- 7. Respiratory acidosis.
- 8. Regulation of blood glucose.

III. Short Answers on:

$(10 \times 3 = 30)$

- 1. Uses of sodium cromoglycate.
- 2. Any three factors governing choice of route of drug administration.
- 3. Loading dose.
- 4. Terbutaline.
- 5. Surface anaesthesia.
- 6. Any three uses of pyridoxine.
- 7. Hypokalemia.
- 8. Omalizumab.
- 9. Name the hormones secreted by adrenal gland.
- 10. Name three homopolysaccharides.

[AHS 1123]

NOVEMBER 2023

Sub. Code: 2603

B.Sc. RESPIRATORY THERAPY FIRST YEAR (Regulations 2014-2015 & 2018-2019 onwards) PAPER III – BIOCHEMISTRY & PHARMACOLOGY

Q.P. Code: 802603

Time: Three hours

Maximum : 100 Marks

Answer ALL Questions

I. Elaborate on:

- 1. Write about the sources, functions and deficiency disorders of Vitamin A.
- 2. Classify the drugs used in Bronchial Asthma. Write the mechanism of action, uses and adverse effects of Beta 2 agonists.
- 3. Classify Lipids with suitable examples. Add a note on physiological importance of lipids.

II. Write notes on:

- 1. BPG shunt pathway and its significance.
- 2. Mention the types of Acid base disorders. Add a note on Metabolic alkalosis and Acidosis.
- 3. Mechanism of action of Local Anaesthetics.
- 4. Management of Multi Drug Resistant TB (MDRTB).
- 5. Mechanism of action, uses and adverse effects of Oseltamivir.
- 6. Inhaler devices.
- 7. ACE inhibitors.
- 8. Write a note on enzymes as catalysts.

III. Short answers on:

- 1. What is an essential amino acid and give examples.
- 2. Liposomes.
- 3. Mucolytics.
- 4. Uses of Succinyl choline.
- 5. Any three therapeutic uses and adverse drug reactions of corticosteroids.
- 6. Explain nitrogen balance.
- 7. What is anion gap? How is it calculated?
- 8. Name three antifungal drugs and write its adverse effects.
- 9. Dietary fibres.
- 10. Midazolam.

$(10 \times 3 = 30)$

 $(3 \times 10 = 30)$